

# SUSTAINABLE VALUE REPORT 2016



**BMW  
GROUP**

THE NEXT  
100 YEARS 



Rolls-Royce  
Motor Cars Limited



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## Sustainable management

**For us, sustainability is about shaping the future of the BMW Group. In 2016, the company celebrated its 100th centenary. This important milestone provided a unique opportunity for us to look to the future and to present our ideas for the mobility of tomorrow – with our four Vision Vehicles.**

We view sustainability – not just in our vehicles, but throughout the entire value chain – as a basic requirement for tomorrow's individual mobility and ensuring its social acceptability.

We believe the only way to achieve success in the long term is through sustainable action.

We remain committed to the principles of the United Nations Global Compact and have systematically implemented its Ten Principles at all locations worldwide since 2001. Our sustainability strategy also supports the Sustainable Development Goals adopted by the United Nations in autumn 2015.

Sustainability has not just become a success factor for business. It is increasingly a question of individual lifestyle. A sustainable lifestyle is viewed as a personal enrichment and represents a conscious decision for many people worldwide. Today, emissions and the raw materials and other resources used in production are a consideration in many customer purchases.



**Harald Krüger**

Chairman of BMW AG's Board of Management  
at a workshop for young talent.

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The BMW Group has therefore set itself ten long-term sustainability goals encompassing the entire value chain.

Our vehicles with Efficient Dynamics technology, plug-in hybrid drivetrain or electric engine – combined with innovative mobility services – lay the foundation for our business success. Our production focuses on the efficient use of resources, which helps the environment and lowers costs. Our wide variety of different community, social and cultural projects around the world also make an important contribution to securing the company's long-term reputation.

As we work to reduce the CO<sub>2</sub> emissions of our vehicle fleet, electromobility will play a significant role.

Our Strategy NUMBER ONE > NEXT underlines our strong commitment to electrified drivetrains. We will be increasing the share of electrified models across all brands and model series. To date, we have already sold more than 100,000 electric vehicles and plug-in hybrids. We now aim to achieve this same figure in 2017 alone. In this way, we are helping to reduce greenhouse-gas emissions and improve air quality.

One of our tasks is to rethink urban mobility. For this reason, our experts reached out to stakeholders in different cities around the globe last year to discuss specific challenges and possible solutions. Input from our stakeholders is constantly fed into our strategy process.

We are responding to the individual mobility requirements of people in cities with innovative solutions, like our DriveNow and ReachNow car-sharing services. These offerings will be expanded as part of Strategy NUMBER ONE > NEXT.

For the BMW Group, this is “year one” after the centenary. We aim to succeed with our business model for premium mobility and premium services in the future. Sustainability is therefore an integral part of our thinking and actions.

This approach is in line with our values of trust, openness, appreciation, responsibility and transparency. It is anchored in our Strategy NUMBER ONE > NEXT and reflected in our efficient value creation and emotional products – in the interests of our customers, all our associates and our partners in society and business around the world.

*Yours*  
*H. Krüger*

**Harald Krüger**

Chairman of the Board of Management of BMWAG

# AN OVERVIEW OF THE BMW GROUP

Profit before tax  
in 2016 in € million

**9,665**

↗ 2016

**9,224**  
2015

Research and development  
expenditure in 2016 in € million

**5,164**

↘ 2016

**5,169**  
2015

BMW Group employees in 2016  
number

**124,729**

↗ 2016

**122,244**  
2015

→ GRI G4-9

Our business model

Vision 2020

"The BMW Group is the  
most successful and  
sustainable premium  
provider of individual  
mobility."

Automobiles  
and motorcycles

Brands: BMW, Mini, Rolls Royce  
31 production and assembly  
facilities in 14 countries  
Around 6,000 dealerships in  
over 150 countries



Mobility  
services



Financial  
services

in over 150 countries

Sales volume  
automobiles in 2016 in thousand units

**2,367.6**

↗ 2016

**2,247.5**  
2015

CO<sub>2</sub> emissions of BMW Group  
automobiles in 2016 in g/km\*

**124**

↘ 2016

**127**  
2015

\*Fleet consumption of newly registered vehicles in Europe (EU-28)

Investment in further education  
and training in 2016 in € million

**352**

→ 2016

**352**  
2015

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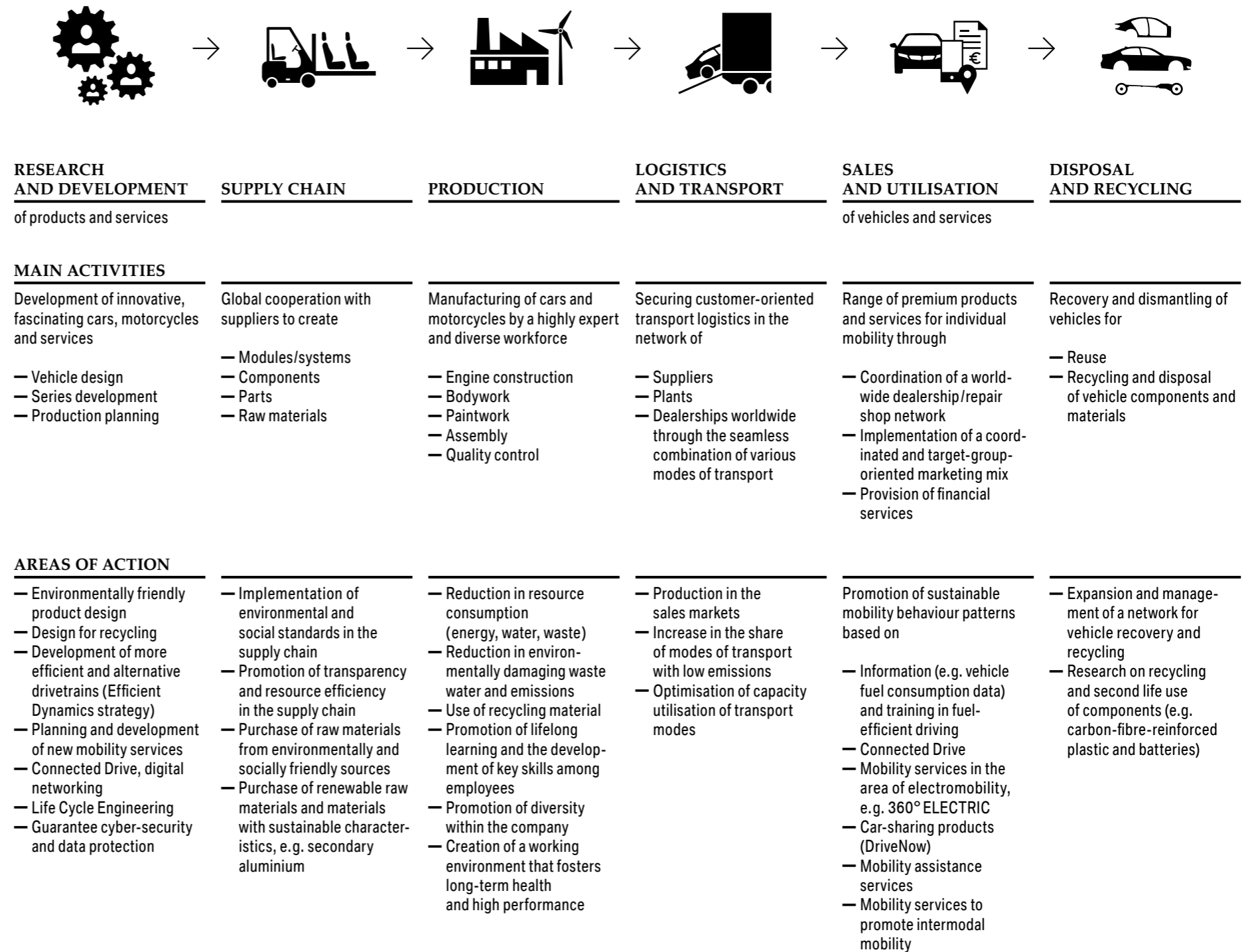
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## VALUE CHAIN





# KEY SUSTAINABILITY INDICATORS

## Five-year overview of key sustainability indicators

	2012	2013	2014	2015	2016	Change to previous year in %
<b>BUSINESS ACTIVITIES</b>						
Revenues (in € million)	76,848	76,059	80,401	92,175	94,163	2.2
Profit before tax (in € million)	7,803	7,893	8,707	9,224	9,665	4.8
Sales volume automobiles (in thousand units)	1,845.2	1,963.8	2,118.0	2,247.5	2,367.6	5.3
<b>PRODUCTS AND SERVICES</b>						
CO <sub>2</sub> emissions of BMW Group Automobiles (EU-28) (in g/km)	138	133	130	127	124	-2.4
Sales of electric and electrified vehicles (number) <sup>1</sup>	—	311	18,000	32,000	62,000	93.8
DriveNow and ReachNow users (number) <sup>2</sup>	75,000	214,000	395,000	579,000	853,000	47.3
<b>PRODUCTION AND VALUE CREATION</b>						
Energy consumption per vehicle produced (in MWh/vehicle)	2.41	2.36	2.25	2.19	2.21	0.9
Water consumption per vehicle produced (in m <sup>3</sup> /vehicle)	2.22	2.18	2.18	2.24	2.25	0.4
Process waste water per vehicle produced (in m <sup>3</sup> /vehicle)	0.51	0.47	0.47	0.45	0.42	-6.7
CO <sub>2</sub> emissions per vehicle produced (in t/vehicle)	0.72	0.68	0.66	0.57	0.54	-5.3
Waste for disposal per vehicle produced (in kg/vehicle)	6.47	5.73	4.93	4.00	3.51	-12.3
Volatile organic compounds (VOC) per vehicle produced (in kg/vehicle)	1.78	1.59	1.29	1.22	1.14	-6.6
Share of renewable energy purchased from third parties (in %) <sup>3</sup>	36	48	51	58	63	8.6
Share of production-relevant purchasing volume in the CDP Supply Chain Programme (in %)	—	—	45	53	69	30.2
<b>EMPLOYEES AND SOCIETY</b>						
BMW Group employees at end of year (number)	105,876	110,351	116,324	122,244	124,729	2.0
Attrition rate at BMW AG (as a percentage of workforce)	3.87	3.47	1.41	2.08	2.70	29.8
Share of women in the entire workforce of the BMW Group (in %)	16.8	17.4	17.8	18.1	18.70	3.3
Share of women in management positions at BMW Group (in %)	12.7	13.8	14.2	14.5	15.30	5.5
Average days of further training per BMW Group employee (days per employee)	3.7	3.5	3.9	4.1	3.80	-7.3
Accident frequency at BMW Group (per one million hours worked)	5.8	4.8	5.1	4.4	4.00	-9.1
Expenditure on donations by the BMW Group (in € thousand)	9,638	8,485	10,199	17,066	70,356	312.3
Expenditure on corporate citizenship (in € thousand)	31,979	28,944	34,524	39,109	87,837	124.6

<sup>1</sup> Plug-in hybrid and battery-driven electric vehicles. From 2014 onwards rounded up/down to the nearest thousand.

<sup>2</sup> Rounded up/down to the nearest thousand.

<sup>3</sup> Calculated based on volumes of green energy purchased as well as the conservative calculation of country-specific energy shares from renewables purchased from third parties. (Modification in calculation method for Germany and Austria since 2012 and for the UK since 2016 due to use of transparency data in supplier invoices.) Figures from 2015 onwards not directly comparable to figures for 2012–2014. Figures from 2015 onwards include all BMW Group production locations as well as corporate functions, development and administration in Munich/DE.

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STRATEGY

## OUR VISION

The BMW Group is the world's most successful and sustainable premium provider of individual mobility.

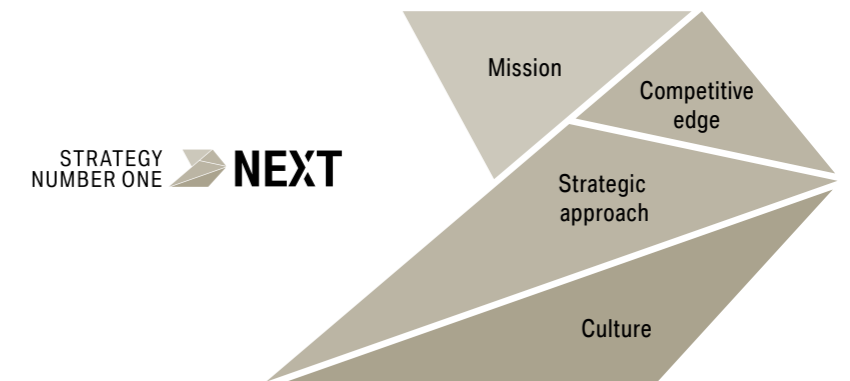
In order to make sure we are fit for the future, we continuously integrate sustainability into our business model and consolidate this integration. We see global sustainability challenges as an opportunity to develop innovative products and services. In this way, sustainability makes a long-term contribution to the business success of the BMW Group. Our innovations are not only developed to enhance the benefits of our customers – we also want them to have a positive impact on society and the environment.

Taking social and environmental responsibility for all we do is an integral part of how we perceive ourselves as a company. We are convinced that the lasting economic success of any enterprise in today's world is based increasingly on acting responsibly and ensuring social acceptance. We want to achieve a clear competitive advantage in the long term with efficient and resource-friendly production processes and state-of-the-art solutions for sustainable individual mobility for our customers. For this reason, sustainability is a key component of our corporate Strategy NUMBER ONE > NEXT.

We unveiled the new corporate Strategy NUMBER ONE > NEXT in 2016 in order to set the course for a successful future. The consistent integration of sustainability in our strategy is made visible by the activities along the value chain described in this report – ranging from the sustainability challenges in the procurement process to the design of our products through to the establishment of new business areas, with sustainability integrated into the relevant business model.

## Strategy NUMBER ONE &gt; NEXT

→ F1.01



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Sustainability is a key component of the strategic approach to Strategy NUMBER ONE > NEXT and makes an important contribution towards our competitive edge. The sustainability strategy is consistent with the corporate strategy and pursues the thorough integration of sustainability. The development of our sustainability strategy is based on the identification of key issues. The results of this materiality analysis are shown in the materiality matrix →. On this basis, we regularly review our strategic aim as well as our sustainability targets and measures.

This report expands on the sustainability strategy. The report is structured along the long-term sustainability goals of the BMW Group. The weighting of topics is based on the materiality analysis.

→ see  
figure 1.02

→ see  
infobox on  
page 15

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### Identifying key issues

In order to identify in good time which topics may bring opportunities and risks to our business today or in the future, and to focus our activities accordingly, we use an “environmental radar” to scan external trends on an ongoing basis. In doing so, we observe both the public discourse and the political agenda, for example the World Climate Conference → and the Sustainable Development Goals →. In addition, we regularly carry out a materiality analysis in order to identify relevant issues. To do this, we analyse the importance of current sustainability topics, both from the perspective of different stakeholder groups as well as that of the company. The changes picked up by the environmental radar form the basis for identifying topics and validating the results of the materiality process.

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**Materiality analysis**

In 2015, a survey was carried out among internal experts, and telephone interviews were held with 13 representative stakeholders as part of the review process to get an update on how the topics are seen from an external perspective. Customers, suppliers, investors, authorities, NGOs and scientists from different regions of the world were among the interviewees. In addition, the topics were reviewed by internal BMW Group experts who are in regular contact with the main stakeholders. The list of topics for evaluation was updated based on the BMW Group's list of topics from 2013, the stakeholder dialogues, the → **GRI G4 Guidelines**, the → **UN Global Compact**, the main topics of the → **Sustainability Accounting Standards Board (SASB)** and the → **UN Sustainable Development Goals (SDG)**.

The analysis was accompanied by an internal document analysis of the sustainability context. To get an update from an internal perspective, we carried out a materiality workshop and prioritised relevant sustainability topics from the perspective of the BMW Group. The relevant corporate areas (including strategy departments of the divisions) as well as corresponding executives subsequently validated the materiality matrix. → GRI G4-18

The review process resulted in the revised materiality matrix. Topics that both stakeholders and the BMW Group considered highly material were rated in the matrix as highly relevant. Furthermore, topics considered to be among the three most important by one of the stakeholder groups surveyed were also included. These additionally included topics are marked in the materiality matrix with an asterisk. All in all, the analysis identified 19 topics as highly material →. → GRI G4-19, GRI G4-26, GRI G4-27 These topics were also valid in 2016. Selected topics from this list were discussed in dialogue with our stakeholders →.

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figure 1.02

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chapter 5.4



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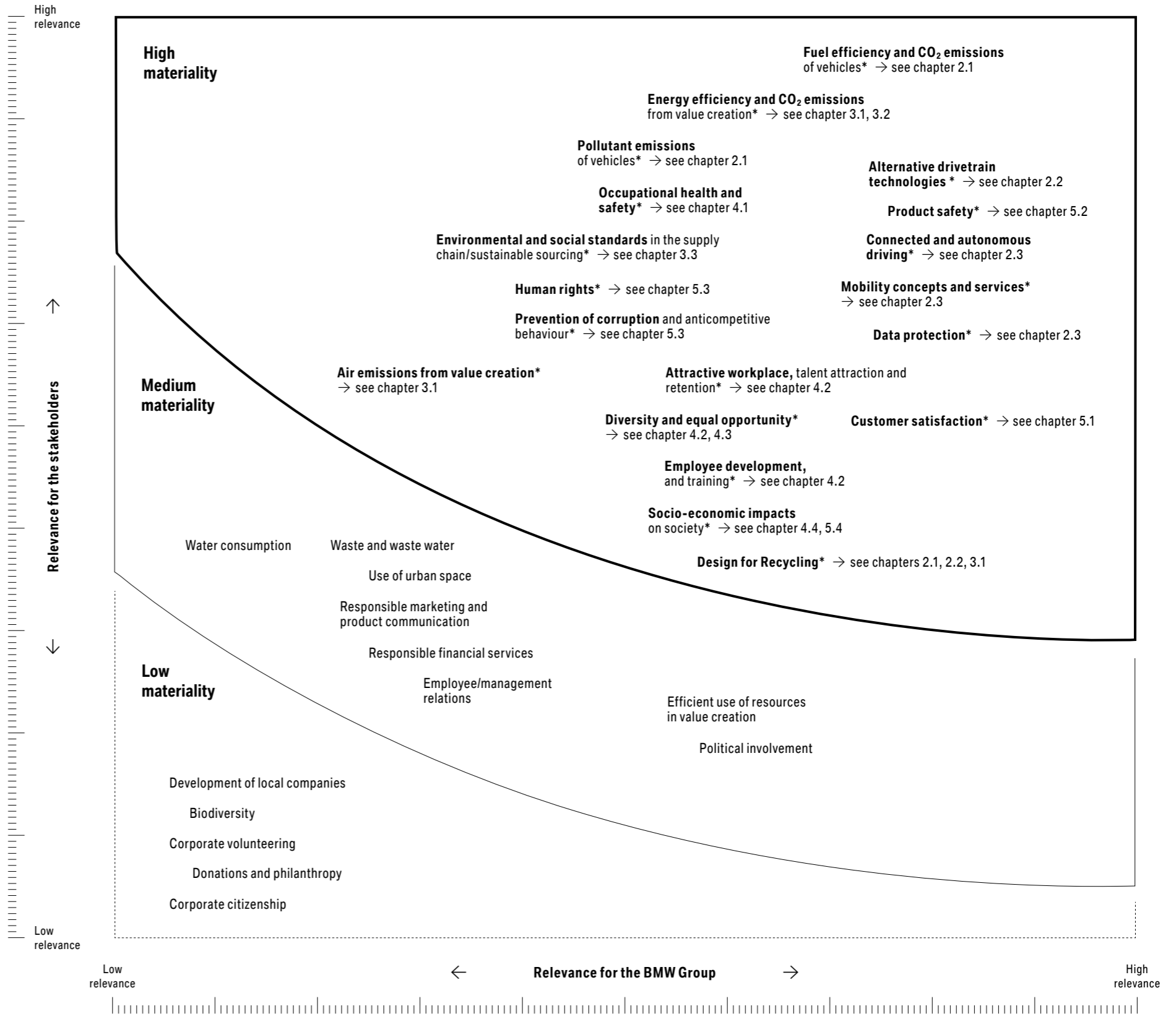
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Materiality matrix

→ F 1.02



\* These areas were rated highly material, as they were among the three topics the respondent stakeholder groups considered most important. Further information: → **Identified material aspects and boundaries**

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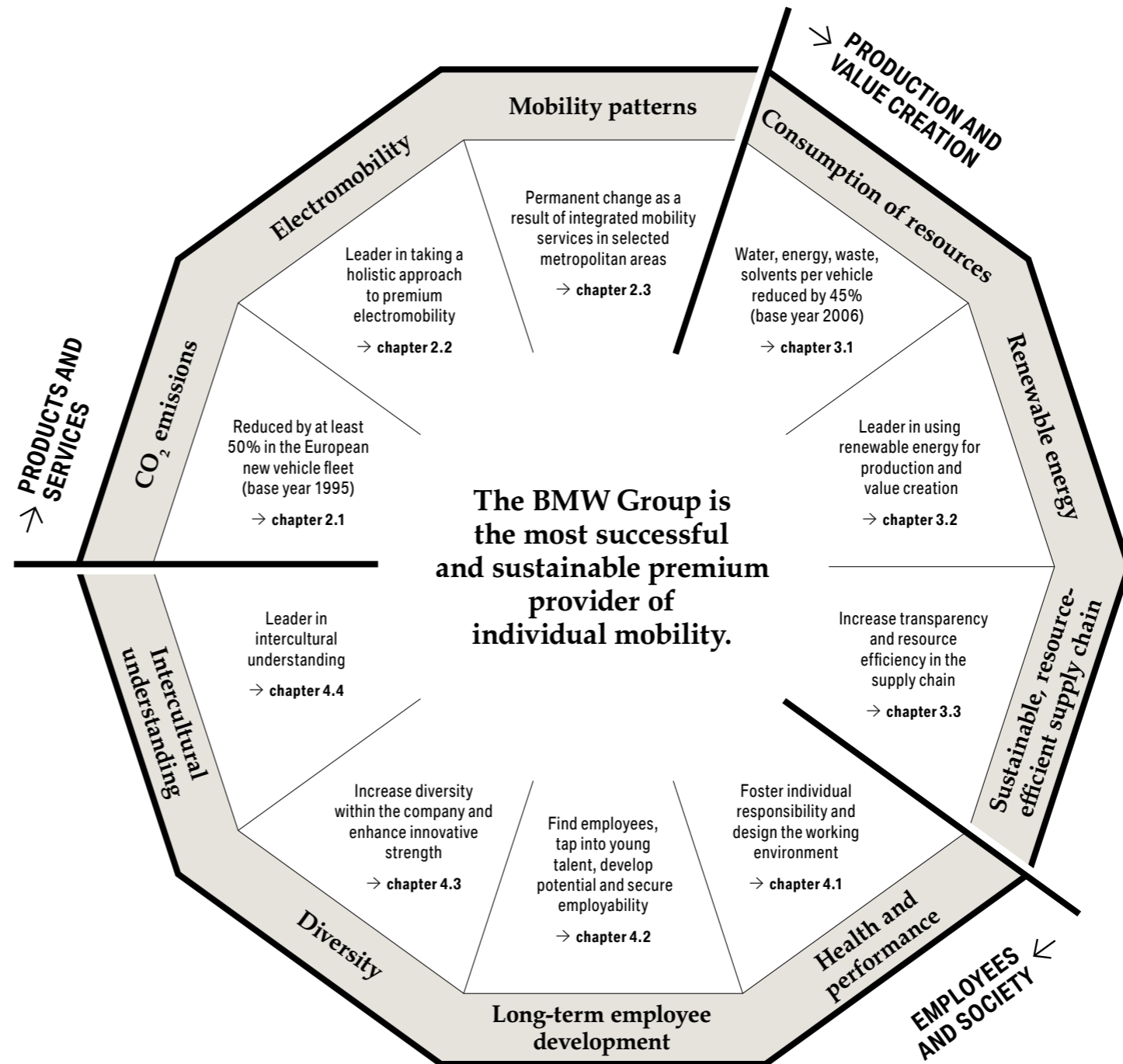
**Pursuing long-term sustainability goals**

The BMW Group has set itself ten strategic sustainability goals running through to 2020. The goals focus on three areas:

- Products and services
- Production and value creation
- Employees and society

**BMW Group sustainability goals**

→ F 1.03



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Our vision of **being the most successful and sustainable premium provider of individual mobility** sets out the framework for our goals and measures: the BMW Group integrates sustainability along the entire value chain and into all basic processes – thus creating added value for the company, the environment and society. → GRI G4-14

Aside from our ten long-term goals, we continuously address the existing sustainability issues and challenges that are topics of much discussion among the general public. Some examples of this would be our positions on the global

→ see  
chapter 2.1  
→ see  
chapter 2.2

regulation of CO<sub>2</sub> and contaminants → and on positive framework conditions for electromobility →. We also consider the results of our materiality analysis in the continued development of the sustainability goals. The 2015 materiality analysis confirmed that we are covering the relevant topics with our long-term sustainability goals. We will consider new topics in the matrix such as “autonomous driving” more closely in future. The challenge is to master the ability to keep long-term goals in focus, while new topics increasingly gain more relevance.

### Sustainability goals of the BMW Group contribute to Sustainable Development Goals (SDGs)

In autumn 2015, the General Assembly of the United Nations adopted the → **Sustainable Development Goals (SDGs)**. The SDGs are at the core of the 2030 Agenda, a global action plan with the aim of shaping economic progress in an ecologically compatible manner and in accordance with social equity. The BMW Group welcomes the SDGs and is committed to supporting the goals formulated within them as part of its sustainability strategy, with a focus on its value chain.

We are convinced that companies, governments and other organisations can make a positive contribution towards the attainment of the SDGs.

On the basis of our materiality matrix in 2016, we have analysed which SDGs are a priority for the BMW Group. The following Sustainable Development Goals currently have the highest level of priority in our strategic orientation: SDG 13 – Climate Action, SDG 11 – Sustainable Cities and Communities and SDG 12 – Responsible Consumption and Production.

With our involvement in the areas of CO<sub>2</sub> emissions → **chapter 2.1**, electromobility → **chapter 2.2**, mobility trends → **chapter 2.3**, resource consumption → **chapter 3.1**, renewable energy → **chapter 3.2** and sustainable, resource-efficient supply chain → **chapter 3.3**, these SDGs are the focus of our action.

Below are some selected examples:

- SDG 13 – Climate Action: we continuously reduce the CO<sub>2</sub> emissions of our vehicle fleet. Electromobility is an essential component of our CO<sub>2</sub> strategy. We continuously increase the proportion of electrified drive systems in our model range and therefore not only make a contribution towards the reduction of greenhouse gas emissions, but also towards improved air quality in urban areas.
- SDG 11 – Sustainable Cities and Communities: with our integrated mobility services, we want to change mobility trends in selected metropolitan areas in a sustainable way. We provide innovative solutions to improve urban mobility. These include our car-sharing services DriveNow and ReachNow, which increasingly include electric vehicles, as well as the electric scooter especially designed for commuter traffic in cities. Furthermore, we specifically promote the development of other innovations in the context of urban mobility, for example as part of the new accelerator URBAN-X which supports young companies with solutions for large cities.
- SDG 12 – Responsible Consumption and Production: we continuously reduce CO<sub>2</sub> emissions and resource usage per vehicle produced. In supplying our locations worldwide, we are increasingly focusing on renewable energy, among other things, and are also trying to increase resource efficiency with our supplier network.



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## BMW Group and the Climate Conference in Marrakech

The 22nd UN Climate Change Conference took place in Marrakech in November 2016. At the last climate summit in Paris, 195 countries committed to operating without a negative effect on the climate in the second half of this century.

Following this success, the task in Marrakech was to bring the agreements to life. To this end, a schedule for the implementation of the Paris Agreement was worked out in the course of the conference. Developed and developing countries formed a partnership to foster more climate protection.

The BMW Group actively participated in numerous discussions and side events during COP22 (COP, Conference of the Parties). High-level company representatives discussed challenges and possible solutions for urban mobility in the Sustainable Innovation Forum 2016. The BMW Group has been contributing to world climate conferences with its expertise since 1992. It will also advocate the development of sustainable mobility across the globe in the future.



The BMW Group discussed urban mobility with high-level corporate executives at the Sustainable Innovation Forum 2016.

## Integrating sustainability

We integrate sustainability into our corporate strategy, business model and value chain at all levels to ensure success in the long term, extending from the design of vehicles and services across the supply chain, production and responsibility for our employees, the use of products and services by our customers, through to recycling of vehicles. Moreover, sustainability is deeply embedded in our company culture. One of our values is taking responsibility – for ourselves, for others, for the company and for society. In light of this, a group of employees founded the BMW Group Connected Culture Club, a voluntary initiative to shape the company culture of the BMW Group in a sustainable way, through their own efforts.

### Examples of integrating sustainability into the company

The following sections and chapters will provide some examples that describe in more detail how sustainability contributes towards the business success of the BMW Group.

→ GRI G4-2

#### — Achieving a competitive edge through our Efficient Dynamics strategy

Strategic corporate planning leads to long-term success. The competitive edge achieved based on the Efficient Dynamics development strategy, which was launched in the year 2000, is one of the reasons why in 2016 the BMW Group had its sixth consecutive record year →.

→ see  
chapter 2

#### — Increase revenues through innovative products and mobility services

Investments in innovative mobility concepts made a considerable contribution towards the company's business success in 2016. One indicator that this is the case is that 25,528 BMW i3 and 3,752 BMW i8 vehicles were sold in the year under report. A total of 100,000 electric vehicles (hybrid electric and plug-in vehicles) were sold between 2013 and 2016. At the end of 2016, just over 853,000 customers (2015: 579,000) were registered with our car-sharing services

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DriveNow (worldwide) and ReachNow (in the USA) – an increase of around 47%. With these products and solutions, the BMW Group also puts our fleet customers in a better position to reach their CO<sub>2</sub> targets →.

→ see chapter 2

### — Reducing costs through resource efficiency

Efficient use of resources reduces risks that can be generated by availability bottlenecks and fluctuations in price. In addition, it makes a direct contribution towards the result by reducing costs, while at the same time being good for the environment. Between 2006 and 2016, we were able to significantly reduce energy and water consumption, waste and VOC emissions per vehicle produced in the BMW Group's worldwide production network. Although additional costs totaling €2.8 million were generated due to a slight increase in energy and water consumption during the reporting period, we have achieved cost savings of €155.3 million since 2006 →.

→ see chapter 3

### — Remaining competitive through sustainable HR policies

In 2016, the BMW Group was able to further consolidate its position as one of the most attractive employers worldwide. Our leading role in the area of sustainability ensures that our employees are satisfied and boosts their identification with the company and its products. The resulting low attrition rate enables us to keep HR recruitment costs low. In addition, it is our experience that a satisfied workforce leads to higher levels of productivity →.

→ see chapter 4

## Involving employees and fostering innovation

The BMW Group encourages employees to realise their own ideas and develop internal innovations. As part of the Innovationswerk accelerator programme, they get the chance to generate new products, services and business models. Employees can introduce their ideas via a crowd-sourcing platform and have cross-functional discussions. The programme promotes teambuilding in order to create internal start-ups.

Promising teams are supported in the Innovationswerk accelerator programme for twelve weeks, each with a trainer, mentors as well as internal and external experts on start-up strategies. The accelerator offers employees the chance to make their own ideas a reality. Furthermore, future executives will be trained to take agile approaches in order to work more innovatively. In 2016, the Innovationswerk accelerator streamlined seven teams and their ideas and contributed towards the development of an "agile innovation culture" in the BMW Group.

## 2016 from a sustainability perspective, in 120 seconds

Video with Ursula Mathar, Head of Sustainability and Environmental Protection at the BMW Group.



→ [www.bmwgroup.com/svr-video-en](http://www.bmwgroup.com/svr-video-en)

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## Recognition of sustainability performance

Our sustainability performance has received positive ratings from renowned rating agencies. In 2016, the BMW Group again ranked high in several sustainability indices and received a number of awards →.

→ see  
figure 1.04

## Sustainability ratings 2016

→ F 1.04

## RATINGS



## EVALUATION AND RESULTS

In 2016, the BMW Group took first place in the automotive industry on the → **Dow Jones Sustainability Indexes (DJSI)** for the third time in a row and is now the only automotive company that has been continuously listed on the index since the very beginning.

In the → **CDP**, the BMW Group achieved a top mark A for climate protection measures. This makes the BMW Group one of only two companies worldwide that have been awarded an A in the CDP for the seventh time in a row.

In 2016, the BMW Group was again listed on → **FTSE4Good**, an index of the British index family on sustainability and corporate governance provided by FTSE in London.



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# PRODUCTS AND SERVICES

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## ACHIM STEINER

Director,  
Oxford Martin School

**What challenges does an automotive company with a global reach have to face in today's world?**

Globalisation has been the defining trend for the global economy in recent decades. Now, it seems the political conditions underlying economic activity are harder to predict, which demands huge flexibility on the part of companies operating at a global level. And it has become all the more important for them to stay on track with regard to one of the most important challenges, regardless of the passage of time: climate change. If global warming is to be kept to less than 2 °C higher than pre-industrial levels, as has now been set down in law, transportation will have to be decarbonised in future. Plainly and simply, this means that automotive companies must realign their business models. Zero-emission vehicles will be the only way to remain competitive in future, together with mobility services in particular. The yardstick will be the ability to offer climate-neutral kilometres as a service. The privately owned car as a product will become less important, at least in cities.

**In your view, why must carmakers focus on "sustainable mobility" for the long term?**

Sustainable mobility can mean only one thing: respecting the non-negotiable limits that are imposed on our mobility and traffic behaviours by the earth's ability to cope. Most industrialised countries exceed these limits, partly because combustion engines that rely on fossil fuels are themselves not sustainable. Vehicles will use

different operating systems in future, making use of green electricity either directly or indirectly. It's possible that different technological options will prove beneficial in different segments of the transport market, but as things stand, those who choose not to go along with the trend toward zero emissions will find themselves, their shareholders and their employees in serious difficulties. The competition never sleeps.

**How do you feel the BMW Group is placed to deal with these challenges?**

The future itself will be less challenging than the process of getting there. Just like other carmakers, BMW must rely on using today's profits to develop tomorrow's mobility services and products. While the strategy may be clear, it requires time, and there is always the risk of losing ground. The competition – in China or California, say – gets its funding for investment in R&D not from ongoing business but from the financial market; in some respects, that gives them a structural advantage, since limitations on how fast we can act make it harder for us to produce the innovations we need to compete for the markets of the future.

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# RELEVANCE FOR BMW GROUP

**For us, sustainable mobility begins with the development of efficient vehicles with low emissions as well as innovative services. In doing this, we comply both with stricter legislation worldwide and our customers' increasing awareness of environmental issues. With innovative efficiency technologies, electric and hybrid drivetrains as well as smart services, we are shaping the mobility of the future. Our networked and autonomous driving technologies contribute towards ensuring sustainable and safe mobility for our customers and other road users. These innovations lay the foundation for our long-term business success and ensure job creation and security at the BMW Group, with our suppliers as well as our development and sales partners.**

# KEY FACTS AND FIGURES

CO<sub>2</sub> emissions of BMW Group  
automobiles (EU-28) in g/km

**124**

↘ 2016

**127**

2015

Electric and electrified  
vehicles number

**62,000**

↗ 2016

**32,000**

2015

Users of DriveNow and  
ReachNow number

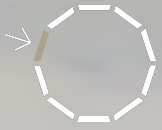
**853,000**

↗ 2016

**579,000**

2015





## → CO<sub>2</sub> EMISSIONS

**By 2020, the BMW Group will have reduced CO<sub>2</sub> emissions in the European new vehicle fleet (EU-28) by at least 50% compared to the base year 1995.**



The BMW Group achieved average fleet emissions of 144 g CO<sub>2</sub>/km worldwide in 2016.



## 2.1 EMISSIONS OF CO<sub>2</sub> AND POLLUTANTS

Climate change and the burdens placed on air quality, especially in cities, are some of the key challenges we face as a carmaker. Our range of efficiency technologies represents the first and currently most effective contribution towards reducing emissions of CO<sub>2</sub> and pollutants. We pursue our reduction targets from the product development stage onwards. → GRI G4-EC2



The BMW 5 Series Sedan.

The BMW Group is addressing the challenge of reducing CO<sub>2</sub> and pollutant emissions in order to protect the climate and air quality. Our portfolio's move towards lower-emission, more fuel-efficient vehicles is in line with the wishes of many of our customers. Our customers in turn base their purchasing decisions, among other things, on financial and non-financial government incentives – for example motor vehicle taxes as well as control and facilitation of traffic volume.

Environmental and societal challenges are also reflected in changing mobility patterns. Car-sharing and/or ride-sharing models, for example, as well as the use of inter-modal transport, are becoming increasingly popular worldwide, especially in large cities.

The demand for this kind of mobility pushes us to develop the innovative efficiency technologies described later in this chapter, alternative drivetrains → and new services around connectivity and automation →. In order to master the technical challenges that come with this process, we are expanding our capacities and pooling them within development centres. → GRI G4-EC2

→ see  
chapter 2.2

→ see  
chapter 2.3

### Taking account of reduction targets in product development

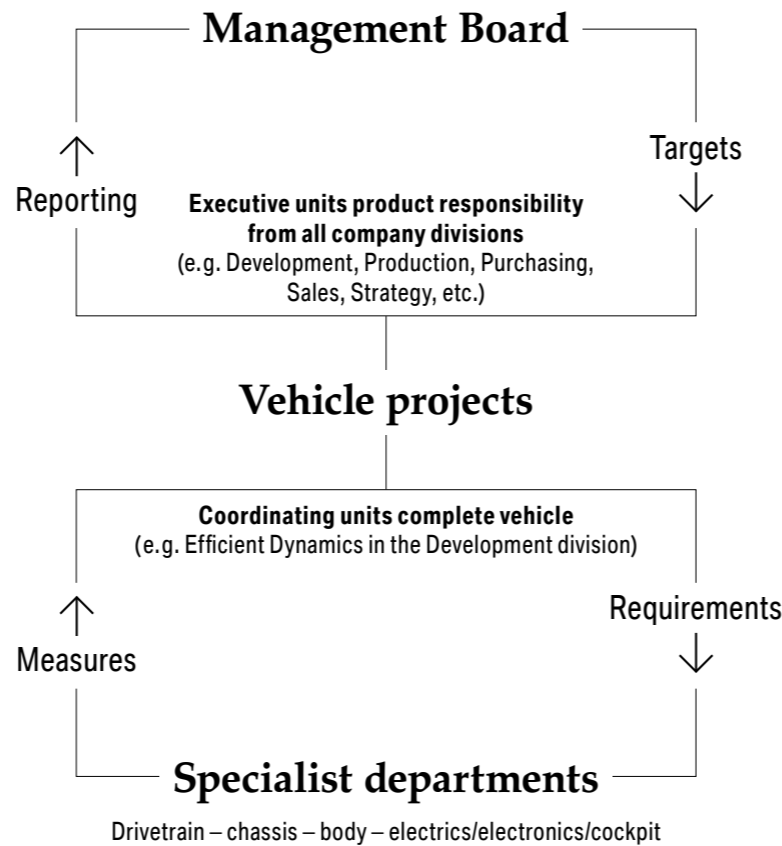
The above-mentioned aspects of product responsibility are an integral part of the target systems and organisational processes of our vehicle development units →. This process entails the BMW Group defining specific emission reduction targets for each product line and each new vehicle project.

→ see  
figure 2.01

A department within the Strategy unit is responsible for monitoring and further refining these targets. The Complete Vehicle Architecture unit coordinates the development and implementation of fuel-saving technologies in the individual vehicle projects. This ensures that the market-specific fleet requirements are taken into consideration in the very early stages of vehicle development and are subject, for example, to Efficient Dynamics measures during the development process.

**Product responsibility in BMW Group vehicle projects**

→ F 2.01



**Sustainability throughout the entire life cycle**

The life cycle of our products includes the development of vehicles and services, the supply chain, production and responsibility towards our employees, customers as users of our products and services, and vehicle recycling. →. The environmental and societal impact a vehicle has during its life cycle is primarily determined during the development phase. Some decisive influencing factors are the choice of material, production technologies, supplier selection, drivetrain types as well as recyclability of the vehicle's components. Challenging sustainability goals are therefore just as much part of the development process of the vehicle as, for example, cost or weight criteria.

→ see figure 2.02

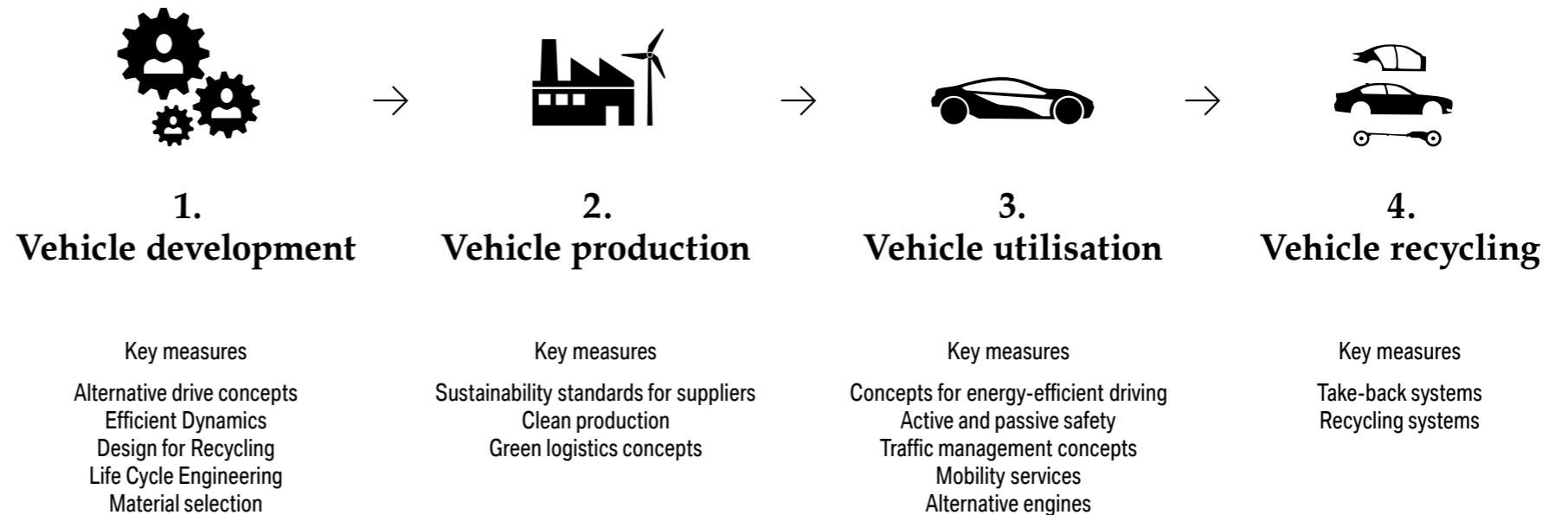
Life Cycle Engineering helps us integrate environmental aspects into the design and development of our products. And we carry out holistic assessments to facilitate this process, aiming to achieve a substantial improvement from one vehicle generation to the next. We manage the implementation of the goals and evaluation of progress by applying the Life Cycle Assessment in accordance with ISO 14040/44. In line with our principle of Design for Recycling, we create our vehicles in such a way that their components can largely be reused or recycled efficiently throughout the life cycle. One example would be the 25% improvement in the environmental footprint of the current BMW 7 Series model compared to its predecessor. This approach has been implemented most consistently in our BMW i products →.

→ see chapter 2.2

→ GRI G4-EN27, GRI G4-14

Sustainability throughout the entire life cycle

→ F2.02



Saving fuel and reducing emissions through efficient dynamics technologies

In March 2007, we started to integrate our Efficient Dynamics technologies, and today they are features of almost all of our vehicles. These include efficient engines and gear-boxes, optimised aerodynamics (air flap control, air curtain/breather, Aero wheel rims), intelligent energy management, light-weight design and tyres with reduced rolling resistance. Additional efficiency potential has also steadily been tapped through the early implementation of energy recovery in low-voltage vehicle electricity systems, Active Coasting, and uncoupling of the engine from the gearbox when not in use. In 2007, the BMW Group was one of the first carmakers to roll out the Auto Start Stop function on a broad basis. We also introduced at an early stage the Active Coasting function, in which the vehicle is delayed according to the resistance level, made possible by the Pro-active Driving Assistant in 2012 and later augmented with Speed Limit Assist. Starting with the new BMW 5 Series, the BMW Group is offering an improved smart Auto Start

Stop function that uses environmental sensors to avoid inefficient and uncomfortably brief stops. In the next few years, 12V systems in smaller vehicles and 48V systems in medium and larger vehicles will increase the recovery and coasting potential through a more efficient electrical system to achieve a CO<sub>2</sub> reduction of 5–7%.

Additional contributions are made by our Connectivity Services. They identify the fastest and most efficient routes, simplifying the search for a parking place, for example – an activity that currently still accounts for about 30% of city traffic.

To complement our resource efficiency solutions, we have expanded our product portfolio to include electric vehicles. In addition to the i3 that has been available since 2013 and the i8 model, introduced soon after in 2014, iPerformance models have been available since 2015 with plug-in hybrid drivetrains for the 2 Series, 3 Series, 7 Series and the X5.

→ GRI G4-EN27





The new BMW X5 xDrive 40e. Charging status: fully charged.

### Comprehensive reduction in pollutant emissions

As well as reducing the carbon emissions of our cars, we are constantly working to bring down other emissions. The Euro 6 standards call for a further reduction in nitrogen oxide levels for diesel vehicles (NO<sub>x</sub> emissions). We apply tailored solutions to reduce emissions in accordance with the specific requirements of the vehicles, engines and respective markets. Depending on the vehicle concept, we use the maintenance-free NO<sub>x</sub> catalytic converter or Selective Catalytic Reduction (SCR) using urea (also known as AdBlue) or a combination of both systems.

In addition to the potential savings generated by Efficient Dynamics Technologies, the specific fuel consumption and the resulting CO<sub>2</sub> and pollutant emissions depend on how the individual driver uses the vehicle (driving style, capacity utilisation, fuel quality).

## Carbon and pollutant emissions of our vehicles

The BMW Group reduced CO<sub>2</sub> emissions of its newly sold vehicles in Europe by around 41% between 1995 and 2016. Our European vehicle fleet (EU-28) had an average fuel consumption of 4.6 l of diesel/100 km or 5.6 l of petrol per 100 km and average CO<sub>2</sub> emissions of 124 g/km (internal calculation). Our goal is to reduce CO<sub>2</sub> emissions by at least 50% between 1995 and 2020. These calculations are based on the specifications and assumptions of the New European Driving Cycle, before the introduction of which the calculations were based on the ACEA self-commitment (European Automobile Manufacturers' Association).

→ GRI G4-EN7, GRI G4-EN17, GRI G4-EN27

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## Strategy

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Products  
and services→ 2.1 Emissions of CO<sub>2</sub>  
and pollutants

## 2.2 Electromobility

## 2.3 Mobility patterns

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Production  
and value creation

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## Appendix

Development of CO<sub>2</sub> emissions of BMW Group  
new-vehicle fleet in the European Union

→ T2.01

year	g CO <sub>2</sub> /km
1995	210
1996	212
1997	215
1998	212
1999	207
2000	203
2001	203
2002	195
2003	195
2004	199
2005	189
2006	186
2007	168
2008	156
2009	150
2010	148
2011	145
2012	138
2013	133
2014	130
2015	127
<b>2016</b>	<b>124</b>

→ see  
further key  
indicators:  
Products and  
services

In 2016, 28 of the vehicles we sold had maximum CO<sub>2</sub> emissions of 100 g/km. This means that we have similar fuel consumption and CO<sub>2</sub> emissions to a number of other large carmakers in Europe. The average fleet CO<sub>2</sub> emissions per kilometre worldwide decreased in 2016 by 2% to 144 g CO<sub>2</sub>/km (2015: 147 g CO<sub>2</sub>/km). Average CO<sub>2</sub> emissions in the USA were 173 g CO<sub>2</sub>/km (internal BMW calculation →) and 164 g CO<sub>2</sub>/km in China. The regional differences in fleet use are a result of differing consumer behaviour, which is in turn due to a variety of factors. These include differing tax situations for different types of vehicle engines, as well as local consumer preferences for diesel vehicles or specific types of vehicles such as SUVs (Sport Utility Vehicles). → GRI G4-EN19

The drop in fuel prices and the accompanying changes in customer demand will present some new challenges with regard to achieving the 2020 fleet targets.

Another factor influencing purchasing decisions is motor vehicle taxes, which differ greatly from country to country. Changes in taxation, for example for diesel fuels or diesel vehicles (since 2016 in France for example) can lead in the long term to fewer diesel vehicles in the fleet mix. This will in turn negatively impact average CO<sub>2</sub> emissions.

**Pollutant emissions of our vehicles**

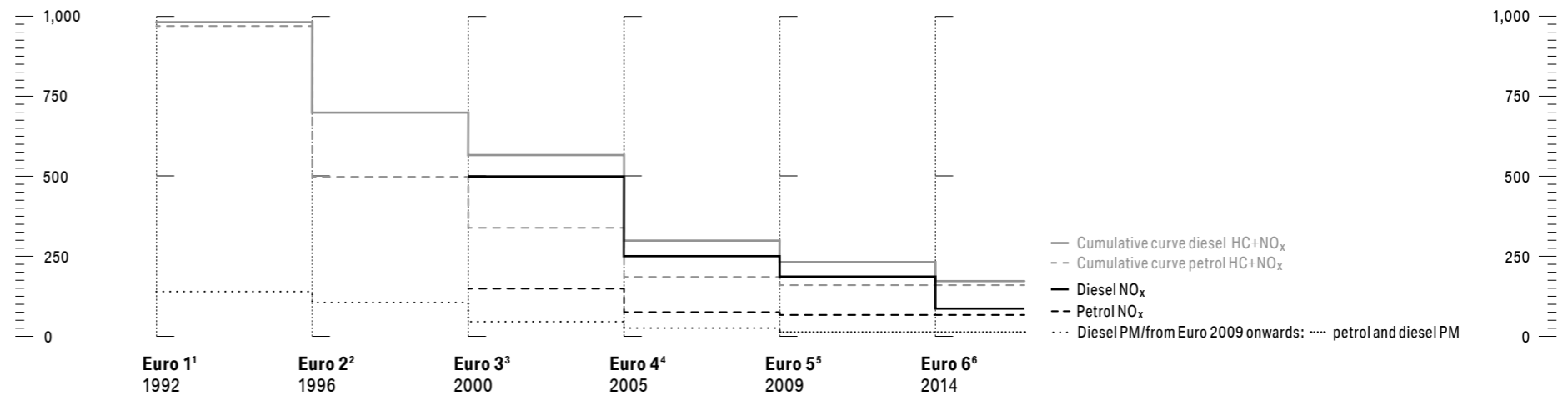
To receive type approval and vehicle registration, vehicles must comply with the latest pollutant regulations. The legal requirements (limits for individual pollutant elements) are different according to region, e.g. EU, China and USA and must generally be fulfilled regardless of vehicle model. At the beginning of the 1990s, the first cycle-based emissions laws were passed in the EU. Since then, the limits for nitrogen oxide (NO<sub>x</sub>) and particulate matter (PM), both for diesel and petrol-fuelled vehicles, have become increasingly stringent →.

→ see table 2.02

**EU pollutant emission limits for vehicles with petrol and diesel engines (NO<sub>x</sub> and PM) in the European Union**

→ T2.02

in mg/km



<sup>1</sup> Euro 1: Statutory emissions limit for cars: diesel PM 140 mg/km

<sup>2</sup> Euro 2: Statutory emissions limit for cars: diesel PM 100 mg/km

<sup>3</sup> Euro 3: Statutory emissions limit for cars: diesel PM 50 mg/km, petrol NO<sub>x</sub> 150 mg/km and diesel NO<sub>x</sub> 500 mg/km

<sup>4</sup> Euro 4: Statutory emissions limit for cars: diesel PM 25 mg/km, petrol NO<sub>x</sub> 80 mg/km and diesel NO<sub>x</sub> 250 mg/km

<sup>5</sup> Euro 5: Statutory emissions limit for cars: petrol and diesel PM 5 mg/km, petrol NO<sub>x</sub> 60 mg/km and diesel NO<sub>x</sub> 180 mg/km

<sup>6</sup> Euro 6: Statutory emissions limit for cars: petrol and diesel PM 5 mg/km, petrol NO<sub>x</sub> 60 mg/km and diesel NO<sub>x</sub> 80 mg/km

## The discussion about diesel engine exhaust emissions in 2016

In 2016, the discussion around diesel engine exhaust emissions led to ongoing criticism of the automotive industry, especially in Europe and the USA.

In the course of this discussion, the impression was often created that almost all manufacturers had manipulated exhaust data.

For the BMW Group, compliance with legal requirements, including local test requirements, has top priority. The BMW Group has corresponding Compliance Management Systems to ensure that legal requirements are met. Clear and binding specifications and processes are installed throughout the development processes of the BMW Group in order to prevent any breaches occurring. We are willing to explain our test procedures to the relevant authorities and to make our vehicles available for examination at any time.

Manipulation of our vehicles and breaches of legislation are not compatible with the corporate culture of the BMW Group.

The ongoing criticism of companies in the automotive sector shows that the image of the German automotive industry has suffered considerably in the past year. Even though the BMW Group has repeatedly

emphasised that it has not manipulated its vehicles, the company sees a need to collaborate with other carmakers to regain trust in the industry. In view of the challenges we will be facing – increasing urbanisation, digitalisation and automation – this is in the interest of society. Car-makers will make their contribution towards shaping the future of mobility by providing their expertise and solutions competency.

The BMW Group is of the opinion that diesel cars continue to have a future. Against the backdrop of air quality impact in high-traffic city centres, which is partly also due to NO<sub>x</sub> emissions from diesel vehicles, legislators have been working since 2010 on regulating this, creating in 2015 the effective Real Driving Emission (RDE) law for cars. The RDE law already requires type testing to include monitoring and transparency of emission deviations between the testing facility and actual road driving. In addition, as of September 2017 binding limits must be complied with, which will be further intensified in a second step as of 2020. The BMW Group took early action to keep NO<sub>x</sub> emissions as low as possible through the entire life cycle by further refining its diesel exhaust treatment systems. The BMW Group implemented a combination of NO<sub>x</sub> catalytic converter (NSC) and Selective Catalytic Reduction (SCR) in Europe and later also in the USA. This allows for the respectively better system to be used at low speeds and city traffic as well as during motorway driving with high loads.



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## Appendix

A comparison of worldwide CO<sub>2</sub> and pollutant regulation

→ F2.03

EUROPE	USA	JAPAN	CHINA
<b>REGULATORY APPROACH</b>			
All manufacturers will be required by the EU to reduce CO <sub>2</sub> emissions of the new vehicle fleet in Europe to an average of 95 g/km by 2020 (based on NEDC).	The USA has also set fuel efficiency and CO <sub>2</sub> targets to be fulfilled by 2025. Based on a gradual reduction starting in model year 2012, the new vehicle fleet of all manufacturers must achieve an average of 250 g CO <sub>2</sub> /mile (155 g CO <sub>2</sub> /km) by model year 2016 and 163 g CO <sub>2</sub> /mile (101 g CO <sub>2</sub> /km) by model year 2025.	Japan also set ambitious targets for reducing fuel consumption. For 2020, they have a consumption target of 20.3 km/l – this is equivalent to a CO <sub>2</sub> emissions limit of 117 g CO <sub>2</sub> /km.	In China, the fuel efficiency of the vehicle fleet is regulated. For 2020, an average consumption target of 5 l/100 km has been set. Talks about subsequent regulation have already begun. In addition, weight-based consumption limits have been set for individual vehicles. Initial introduction of a NEV mandate is expected, although a finalised legal standard has not yet been presented.
<b>DETAILS OF MEASUREMENT AND TESTING PROCEDURES</b>			
These figures are calculated based on the number of vehicles sold.	These figures are calculated based on the number of vehicles sold.	The WLTP test procedure will initially be introduced for exhaust emissions as of 2018; it is not expected to be legislated for until after 2020 for fuel consumption. The decision to introduce RDE legislation for pollutant emissions will probably be made in 2017.	With regard to exhaust emissions, China will introduce a two-phase intensification of requirements (phase 1 in 2020, phase 2 in 2023). From phase 2 onwards, compliance with RDE is required in addition to the WLTP cycle requirements. Certain regions such as Beijing will probably introduce measures at an earlier stage.
<p>The European limits for exhaust elements stated in the standards refer to the standardised test cycle NEDC (New European Driving Cycle). As of September 2017, the current NEDC will be replaced by the WLTPs (Worldwide Harmonized Light Vehicles Test Procedure).</p>			

NEDC: New European Driving Cycle

WLTP: Worldwide Harmonized Light Vehicles Test Procedure

RDE: Real Driving Emissions

NEV: New Energy Vehicle

NEV mandate: the NEV mandate sets a quota of NEVs to be fulfilled by every manufacturer based on the total sales of that manufacturer.

- 2.1 Emissions of CO<sub>2</sub>  
and pollutants
- 2.2 Electromobility
- 2.3 Mobility patterns

## Emissions regulation

Medium- to long-term government targets to reduce fuel consumption and CO<sub>2</sub> emissions from vehicles have already been set in Europe, North America, Japan, China and other countries. However, the targets cannot be directly compared internationally, as the calculation cycles are different from country to country, and segment and drivetrain mixes also tend to differ considerably.

Depending on the driving style (crawling, normal or aggressive), the condition of the vehicle (e.g. load factor) and the prevailing surrounding conditions (e.g. temperature and altitude), actual vehicle emissions can deviate to a greater or lesser degree from the cycle limit. For this reason, compliance with cycle limits should also be tested in real conditions in future. Accordingly, RDE (Real Driving Emissions) legislation will be introduced in September 2017 in two phases (phase 1 to take effect as of 2017, phase 2 as of 2020). We support these new regulations as we believe they will create transparency for consumers and for the industry as soon as possible.

Above and beyond national regulations, measures are increasingly being taken on regional and municipal levels. Varying requirements for drivetrain technologies, in particular, will start to have considerable influence on product strategy (e.g. the Californian Zero Emission Vehicle (ZEV) programme or registration plate restrictions in Chinese metropolises).

The BMW Group fundamentally supports the examples of worldwide trends in regulation described above, both in terms of combating climate change and improving air quality. The diversity and lack of harmonisation of different regulations at the national and supranational level is a fundamental challenge for us as a globally active group. We assume that governments will further intensify limit regulations based on different analyses conducted by scientists and NGOs as well as what is technologically possible. These future limits are expected to be very ambitious and will entail considerable investment and development work for the manufacturers.

## Forecast

**In 2017 we will continue to expand the integration of efficiency technologies into our vehicle portfolio, thus further reducing fleet emissions. The main method we will use to achieve this goal is by further expanding our range of electric vehicles →.**

→ see  
chapter 2.2





## → ELECTROMOBILITY

The BMW Group is a leader in taking a holistic approach to premium electromobility.





## 2.2 ELECTROMOBILITY

In order to further reduce CO<sub>2</sub> emissions in our new vehicle fleet, to improve air quality in cities and, in particular, to be able to offer our customers an entirely new, dynamic driving experience based on innovative technologies, we are adding further electric vehicles to our model range. Our BMW i range of electric vehicles are environmentally optimised along their entire life cycle – from the selection of raw materials through to battery recycling.

The electromobility market is starting to show clear signs of growth in a number of regions. The BMW Group aims to increase sales of electric and plug-in hybrid vehicles to 100,000 in 2017 and wants to continue to contribute to the market with its vehicle models and investment in infrastructure: we introduced the fully electric BMW i3 as far back as 2013 and plan to launch further electric vehicles. Customer surveys have shown that interest in electric vehicles is growing in our key markets →. To familiarise customers as well as possible with electromobility, we have been expanding our product range step by step since 2015, adding new plug-in hybrid models and offering the BMW i3 as part of our DriveNow car-sharing programme →.

Achieving longer range, shorter charging periods as well as simplification of access to charging points and billing is essential in order to increase demand for electric vehicles. When developing its vehicles and charging stations, the BMW Group works very hard to fulfil these customer expectations →.

→ see  
chapter 5.1

→ see  
chapter 2.3

→ see  
infobox

### BMW i3: Longer range and shorter charging periods

Since 2016, new customers can opt for a longer-range BMW i3 model with higher battery capacity (33 kWh/94 ampere hours), thus achieving a higher electric range of 300 km (NEDC). The 33 kWh/94 Ah battery is offered to BMW i3 (60 Ah) customers as an update. Both BMW i3 model versions are also available with a Range Extender that offers an additional 150 km in normal daily operation. Recharging is possible within around 40 minutes at high-performance direct current (DC) charging points. The new BMW i Wallbox allows the BMW i3 (33 kWh/94 Ah) to recharge at home in less than three hours using three-phase charging with alternating current (AC). Information on the ChargeNow service of the BMW Group → **chapter 2.3**.

In general, the carbon footprint of an electric vehicle deteriorates with increased range due to higher battery capacity. The BMW Group conducts life cycle analyses to find out what opportunities can be exploited without increasing resource consumption and emissions caused by battery production.

Expansion of the charging infrastructure as well as positive political framework conditions can also make an important contribution towards a breakthrough for electromobility. This has become clear in fast-growing markets for electromobility such as Norway and California. Customers only switch to electric cars if they can rely on an adequate charging infrastructure for everyday driving. Ideally, non-financial incentives such as parking privileges can also accelerate adoption. → **Positive framework conditions for electromobility.**



## BMW i electromobility – securing environmental protection throughout the life cycle

Since 2007, our BMW i project has been developing electric vehicles, and has resulted in completely new concepts for individual mobility as well as vehicle architecture and production that integrate our sustainable solutions in an even more innovative fashion along the entire value chain.

### The benefits of electromobility

With regard to the challenges presented by urban mobility, electric drivetrains enable new vehicle interior concepts to be realised. The fast acceleration of the electric engine offers a further benefit for the user in that it offers driving enjoyment. Electric vehicles are also considerably more silent than combustion engines and make a clear contribution towards reducing traffic noise.

Electric vehicles have the potential to significantly reduce emissions of pollutants and CO<sub>2</sub>. However, this potential can only be tapped if reduction targets are taken into account in the design, selection of raw materials and in production. Here, battery production, recycling and reuse play a particularly important role.

It is also essential to a good carbon footprint that the vehicles be powered with clean, green electricity. In order to make electromobility entirely sustainable, it is therefore of the utmost importance that the energy transition succeed worldwide. Electric vehicles can also play a supporting role in stabilising the electricity grids by acting as interim storage devices. They can help to balance out fluctuations in renewable energy caused by the weather and the time of day.

### Ensuring sustainability in design, raw materials and production

From the very beginning, we planned new and independent vehicle concepts (purpose-built approach) for the BMW i models in order to exploit the full potential of the new drivetrain technology and make it practicable for customers. This includes intelligent lightweight design using carbon-fibre-reinforced plastic (CFRP) and a host of new renewable raw materials, as well as highly resource-efficient and at the same time environmentally friendly production methods. The BMW i value chain stands out for its consistent use of renewable energy sources – from the manufacture of energy-intensive materials such as CFRP, to vehicle production, right up to the BMW Green Energy package we offer our customers when they purchase their vehicle. This is how BMW i creates the basis for a considerable reduction in CO<sub>2</sub> emissions throughout the entire product life cycle.

### Using renewable energy to charge electric vehicles

An electric car can only reach its full potential in terms of sustainability when it runs on electricity that is as carbon-neutral as possible. As part of BMW i 360° ELECTRIC we now offer our customers green energy products with electricity from renewable sources in 15 countries. Ten providers of green energy are among the companies the BMW Group has partnerships with in this area. In addition



Car port in South Africa: charging electric vehicles with solar energy.

we collaborate with four manufacturers of solar energy systems for car ports as well as house and garage roofs. This allows customers to produce carbon-free green energy in their own homes to recharge their BMW i3, BMW i8 or BMW iPerformance plug-in hybrid vehicle.

### Reuse and recycling of batteries to improve our carbon footprint

Batteries that are too old for continued application in the vehicle are reused if possible, gaining a second life that enables them to help integrate renewable energy into the electricity grid and to reduce energy costs in general. The BMW Group has demonstrated the technical and economic feasibility of this approach by introducing a large number of pilot systems in Europe, Asia and the USA. In September 2016, in collaboration with Vattenfall and Bosch, we went live in Hamburg/DE with a large-scale second-life storage unit with 104 used batteries from former BMW Active E and BMW i3 prototype and development vehicles. This storage unit will provide standby power and will thus be able to balance out fluctuations that are created, for example, when renewable energy is fed into the grid.

After a long vehicle life and subsequent use as a stationary storage unit, we aim to achieve the highest possible rate of recycling of the valuable parts. In collaboration with the university TU Bergakademie Freiberg, the BMW Group has developed a procedure by which we can achieve a recycling rate of around 70–75%. This is much higher than the conventional rate of just over 50% and will reduce the carbon footprint of the recycling process by around half. We have already found a company that is interested in implementing the procedure on an industrial level. The recycling procedure will be further refined in order to replace some of the more energy-intensive steps and thus further reduce the carbon footprint. → GRI G4-EN27

### Carbon footprint of vehicles

The carbon footprints of our electric and hybrid vehicles document the environmental impact the vehicle and its components have throughout their entire life cycle. The predecessor/successor comparison provides transparency with regard to improvements made to reduce environmental impact. In addition, the results serve as a basis for the further refinement and optimisation of the next vehicle generation and help us to set further goals.

Additional information can be found in the Environmental Reports (PDF download):

- [Environmental Report BMW i3 \(PDF, 747.5 KB\)](#)
- [Environmental Report BMW i8 \(PDF, 622.7 KB\)](#)
- [Environmental Report BMW 740Le iPerformance \(PDF, 737.7 KB\)](#)

### Integrating electrification into the entire drivetrain strategy

The technological competence BMW i has already feeds into the electrification of further models. By leveraging future technological advances, we will be at the forefront in the medium term of bringing fully electric vehicles with a large range onto the market.

### Leveraging further potential with hybrid iPerformance vehicles

One result of this technology transfer is the BMW i Performance models with plug-in hybrid drivetrains. Since 2015, the BMW Group has expanded its product range step by step to now include the BMW 2 Series, BMW 3 Series, BMW 7 Series and BMW X5 iPerformance. Short- and medium-range journeys can be covered in electric mode by the innovative combination of electric engine, lithium-ion battery and intelligent energy management. The TwinPower Turbo petrol engine is only activated when

needed. In AUTO eDRIVE mode, intelligent energy management determines the most efficient combination of electric and combustion engine – depending on driving speed and battery level. Plug-in hybrid models use up to 50% less fuel than their combustion-powered equivalents. Typical commutes during the week, for example, could be driven in electric mode, while longer journeys can also be undertaken using the combustion engine. The BMW 740e, for instance, has a range of up to 48 km in fully electric mode.

### Increasing range with hydrogen and fuel cells

As an alternative to developing purely electric drivetrains, we are also doing research into hydrogen fuel cell technology. Here, hydrogen is used as an energy source that is converted by the fuel cell into electricity and water by drawing on the oxygen in the surrounding air. In the long run, we want to develop further solutions for emissions-free driving with a greater range. The test vehicles already have a range of up to 700 km.

The launch of fuel cell technology on a broader scale also calls for the corresponding refuelling infrastructure to be installed. For this purpose, the BMW Group has joined forces with four other carmakers to form the European “HyFIVE Project”. This is one of the largest projects in Europe dedicated to promoting fuel-cell-driven vehicles. As part of the project, the BMW Group, in cooperation with TOTAL, opened one of the first public hydrogen filling stations in the summer of 2015, offering two alternative refuelling options. In addition, the BMW Group is an associated partner of H<sub>2</sub> MOBILITY Deutschland GmbH & Co. KG, which was founded in 2015. We also offer expert advice in the process of expanding the infrastructure for hydrogen, which is a viable fuel of the future.

### Electric scooters for more sustainable city mobility

In 2014, we launched our C Evolution electric scooter. The Long Range model of the fully electrically powered scooter has 48 HP at peak performance and a range of up to 160 km. It is designed to be a commuting vehicle, particularly for travel between the outskirts and the city centre. The main focus here is on two requirements: firstly, that performance is comparable to that of a combustion-powered maxi-scooter, and secondly, that it has a long range in real-life conditions.



Fast and emission-free: police in Sardinia's capital Cagliari have gone electric – with 15 BMW C evolution motorcycles.



## Supporting positive framework conditions for electromobility

Subsidisation has proven conducive to the successful introduction of new technologies. For this reason, the BMW Group seeks out dialogue with policy-makers regarding the consistency of policy measures, both on the supply and the demand side. In particular, we discuss measures to promote electromobility, whether by way of financial support or non-monetary packages of measures (for example the use of bus lanes or the introduction of dedicated lanes, or preferential parking).

One challenge in this connection is the wide variation in the intensity and type of promotional measures from country to country, region to region, and city to city. Even within the same community, municipal and non-municipal institutions may pursue divergent and possibly even conflicting goals.

In addition, customers currently react very quickly when incentives are removed (e.g. tax incentives). This is reflected in a reduction in demand.

The BMW Group is involved, for example, in the → **Nationale Plattform Elektromobilität (NPE)** in Germany, in the Foreign Expert Panel of a high-level advisory committee for the Chinese central government as well as in the → **Plug-In Electric Vehicle Collaborative** in California, which addresses issues around market access and of which BMW was a founding member.

We would like to see all markets take similarly effective measures to promote electromobility, such as those already in place in Japan, China and California.



Perfect city vehicle: the BMW i3.

In addition, the BMW Group is involved in local partnerships with other companies and policy-makers: we established an e-alliance partnership, for instance, with the German city of Munich, which will take strategic approaches towards improving the framework conditions necessary for the long-term market success of electromobility. The city's declared targets, for example the reduction of NO<sub>x</sub> emissions or single-occupant traffic provide the impetus for joint measures. The BMW Group has taken on the role of initiator in promoting the expansion and operation of charging stations as part of public infrastructure, and is implementing these projects in collaboration with further electromobility stakeholders in the form of public/private partnerships.

In addition, the BMW Group is incrementally electrifying and expanding its DriveNow fleet. This is how we aim to solve the issues around available charging infrastructure for electric vehicles as well as to increase the visibility and accessibility of electromobility for people in their day-to-day lives. The corresponding action plans were developed and implemented in 2016. In addition, further talks are being planned with other cities in Europe and beyond.



## Expansion of charging infrastructure

The BMW Group is supporting the expansion of charging infrastructure for electromobility worldwide – both for private customers as well as in the public sphere. Since 2014, the BMW Group has taken on the role of an initiator with regard to the expansion of charging infrastructure in public spaces. In collaboration with other carmakers, charging station operators, energy suppliers and grid operators, the BMW Group is working to lower the entry barriers that charging infrastructure faces and initiate new projects. The BMW Group supports this process by providing expertise and financing. The company was active in over 20 countries in 2016 and supported the expansion of over 3,000 DC and 2,000 AC charging stations.

Furthermore, in collaboration with carmakers Daimler, Ford, VW and the brands Porsche and AUDI, the BMW Group is planning a joint venture to set up and operate a high-performance rapid-charging network along major transport axes in Europe.

In addition, as part of the BMW 360° ELECTRIC portfolio, we offer private and fleet customers state-of-the-art charging solutions (wall boxes, charging stations). Furthermore, the BMW Group's charging service ChargeNow is constantly being further refined and expanded → **chapter 2.3.**

### Light & Charge

Light & Charge is a cost-saving alternative to conventional charging stations that integrates the charging point into existing urban infrastructure, for example street lamps, and thus requires no structural intervention. The use of this technology makes sense particularly in residential areas where people park on the street and rely on an adequate charging infrastructure for charging their vehicles overnight. Thanks to the small dimensions of the charging stations, the visual interference in the public space is minimal.



The BMW Group is working worldwide to expand charging infrastructure for electromobility.

### Forecast

We will continue to offer innovative solutions for the diverse mobility needs of our customers. We are deliberately focusing our efforts on building a broad technology base so that in the coming years we can offer tailored solutions for different needs worldwide. We expect that, in the future, a number of different drivetrain types will exist in parallel.





## → MOBILITY PATTERNS

The BMW Group will have permanently changed mobility patterns in selected metropolitan areas by 2020 through the introduction of integrated mobility services.



ReachNow – the American version of the European car-sharing programme DriveNow – has been available since early 2016 in Seattle, Portland and Brooklyn and currently has over 38,000 customers.



## 2.3 MOBILITY PATTERNS

The BMW Group offers its customers premium quality individual mobility. The focus is always on driving enjoyment. This brand promise has become a challenge, in particular in densely populated urban spaces, but also on the motorways around large cities. The increasing volume of traffic in cities often goes hand in hand with a significant rise in noise and air pollution, consumption of space as well as increased risk of accidents. To counteract these effects, we make increasing use of the technologies around connected mobility and automatic driving. Building on this, we develop and establish innovative vehicles and services that have the potential to counteract the rising volume of traffic. In this process, we guarantee the highest standards of vehicle safety and data security.

In 2016, the BMW Group engaged in dialogue with a variety of stakeholders at a number of events addressing the future of mobility. The aim was to generate input from these stakeholders regarding the challenges facing the automotive industry. The schedule of events included our Future Mobility Days in Beijing, London and Santa Monica, California. Some of the central findings in the course of these exchanges were:

- Integration of cars into an inter-modal, increasingly digital transport system – especially in urban areas – is seen as a key and necessary competency.

- Carmakers such as the BMW Group are currently confronted with changes to their business environment and must fundamentally change themselves in order to continue to be successful in the future. The technological shift towards electrification and simultaneous digitalisation are changing the sector. New providers of mobility services are stepping up the competition.

Against this backdrop, we see three key areas of action when it comes to individual mobility:

- Mobility services
- Vehicle connectivity
- Automated driving

Digitalisation opens up new opportunities in terms of safety, convenience and sustainability – for example through less time spent searching for parking spaces, better flow of traffic and inter-modal solutions. However, it also brings new challenges, for example in the area of data privacy, machine ethics, manipulation protection as well as legal and liability issues for companies. Active, open and balanced consideration of these topics is a key component of our management approach towards the digitalisation of individual mobility.

We take an integrated perspective when it comes to this task. We aim to reach the next milestones at the beginning of the coming decade with a new BMW i model that will raise individual premium mobility to a whole new level. BMW iNEXT is the name the BMW Group has given to its project that aims to set new standards in how people experience mobility: in the next generation, we will combine new forms of automated driving and digital connectivity with state-of-the-art interiors, design and lightweight construction.

## Offering innovative mobility services for urban areas

Around 60% of the world's population is expected to live in cities by the year 2030. What is the future of individual mobility in cities with increasingly dense populations? What concepts are needed in order to make traffic climate-friendly and easy on resources? The BMW Group is involved in dialogue and research projects that work to find answers to these questions and develop adequate solutions.

We founded the competence centre for urban mobility in 2015 to engage in dialogue with various local stakeholders with a view to developing a common vision of cities that will offer quality of life. It also initiates pilot projects to directly implement planned solutions at a local level. In addition, an urban mobility workgroup was initiated within the German Association of the Automotive Industry (VDA) and its goals are being actively pursued. The workgroup includes both VDA member companies as well as seven large German cities. We work together to identify the key goals for cities and industries, derive areas to be addressed and specify measures that are then integrated into pilot projects. This is how we ensure that we are as efficient and as fast as possible in finding scalable solutions for urban traffic.



In 2016, the BMW Group launched pilot projects in two districts of Munich and of Hamburg that allow residents to test alternative mobility solutions such as car-sharing and e-vehicles for their usefulness in everyday conditions. The aim is to reduce emissions in the cities and to enhance quality of life in the city.

In 2016, the → **Institute for Mobility Research (ifmo)**, which belongs to the BMW Group, carried out a project to analyse mobility patterns in different urban spaces in China. New solutions and business models, developed to shape mobility more efficiently in Chinese cities, are emerging extremely quickly. Research projects that analyse such changes help the BMW Group to develop sustainable solutions for the future of urban spaces.

### Alphabet

Solutions for fleet customers are taking on increasing importance. This is the specialty of Alphabet Fuhrparkmanagement GmbH, the BMW Group company that provides leasing and fleet management services. Energy efficiency and a sustainable fleet are today the main focuses for many of our fleet customers and are often required by their own car policies. In consultation with the customer, we try to determine how to develop a more eco-friendly fleet. Driver training courses in eco-friendly driving habits as well as a sustainable drivetrain mix are possible solutions. For example, depending on how the fleet is used, hybrid and electric cars can be a very good alternative to conventional fleet vehicles.



**Benefits of car-sharing**

Car-sharing makes it possible to be mobile without having to own a car. Free-floating car-sharing in particular offers the possibility of using a vehicle “as if it were your own”. A number of studies have been carried out to investigate the effect this will have on the vehicle fleet and kilometres travelled. The “Evaluation CarSharing EVA-CS”, conducted by the state capital city of Munich concluded that the some 860 vehicles in the car-sharing fleet had reduced the number of vehicles in Munich/DE by around 1,500 and that the number of vehicle kilometres driven had decreased by 41.2 million. Both have a direct positive impact on the goals of the city with regard to emissions and traffic congestion. Better framework conditions for car-sharing and the larger fleet that would result would probably lead to significantly more impactful results.

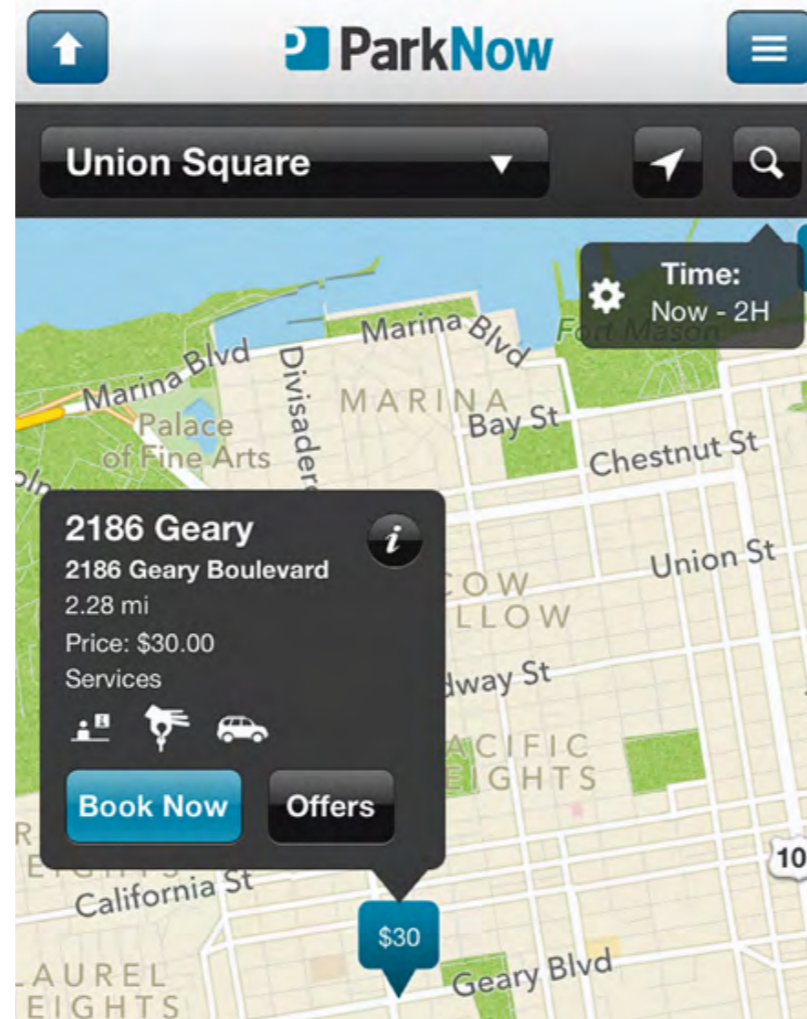
With BMWi and “NOW mobility services”, the BMW Group has laid the foundation for individual mobility solutions that place particular focus on the challenges of urban development worldwide. With offerings such as DriveNow (free-floating car-sharing), ReachNow (on-demand mobility services), ParkNow (digital parking service) and ChargeNow (charging network for electric vehicles), we started early on to direct our efforts towards the increasing importance of digital services. This is a key factor that will determine our future business success.

**Promoting electromobility with premium car sharing**

Since 2011, the BMW Group and Sixt SE have been offering their joint venture car-sharing service → **DriveNow**. Today, DriveNow is available in eleven European cities, having most recently been launched in Milan in 2016. The DriveNow fleet currently comprises more than 5,400 vehicles, of which around 15.4% are fully electric BMW i3 vehicles. By 31 December 2016, DriveNow had a total of some 607,000 customers in Germany and around 815,000 Europe-wide (in 2015: over 580,000 Europe-wide). In Germany, DriveNow is one of the main drivers of electromobility. To date, around 190,000 customers have driven some 6.5 million carbon-free kilometres using DriveNow’s BMW i3 electric vehicles. This means that 11.4% of the journeys were completed electrically.

**Offering additional mobility services with ReachNow USA**

On 8 April 2016, the BMW Group launched an advanced car-sharing programme in the USA under the name → **ReachNow**. To date, ReachNow is available in Seattle, Portland and Brooklyn. ReachNow currently has around 38,000 customers and a fleet of over 1,400 vehicles. Since the end of 2016, ReachNow has been piloting innovative services in addition to the classical car-sharing programme. Additional services include personal drivers (“Ride”) as well as a reservation and delivery service for vehicles that are rented for longer periods of 2–5 days (“Reserve”). “Fleet Solutions” targets companies and ReachNow members in selected residential areas. They can have exclusive use of a fleet of premium vehicles that are permanently parked nearby. Another pilot being tested by ReachNow is the opportunity to rent out your own car to the fleet (“Share”).



Find, book and pay for parking spaces with the ParkNow App.

### Creating sustainable parking patterns with ParkNow

→ **ParkNow** is an app- and web-based service that enables digital payment of parking spaces on streets and in car parks. Cashless and ticketless parking is now possible in over 38 cities: this reduces the volume of traffic engaged in searching for parking spaces. Since November 2016, ParkNow has given users the option to pay for parking spaces without leaving their BMW vehicles (first launched in the new BMW 5 Series). So far, ParkNow has been integrated into vehicles in Germany, Austria and the USA.

### Building convenient electromobility with BMW i 360° ELECTRIC and ChargeNow

One example of our holistic approach to electromobility is our 360° ELECTRIC package of products and services. It includes recharging both at home with the BMW i Wallbox and on the go at public charging points that accept → **ChargeNow** – a recharge card that enables access and payment at around 62,800 public charging points installed by various providers. It is available in 26 countries worldwide and includes a cashless payment system.

In 2016, the BMW Group launched a new BMW i Wallbox generation. The benefits of the BMW i Wallbox lie in the faster charging time – it charges up to six times faster than the charging cable provided as a series component. In addition, several users can set up a personal profile for the BMW i Wallbox Plus and BMW i Wallbox Connect models, to generate individual invoices.

The BMW Group also offers an installation service that checks which BMW i Wallbox can be installed at the customer's home. If requested, the qualified on-site electrician from our partner installation company can also deliver, install, start up and provide instructions on how to use the system. 360° ELECTRIC also includes Assistance Services with ConnectedDrive products designed specifically for electromobility, as well as further service and repair offerings.

## Vehicle connectivity for enhanced inter-modal mobility

Global migration to large cities continues unabated. As there is little room for expanding the existing traffic routes in the cities, the existing infrastructure has to deal with ever increasing traffic volumes. This leads to more traffic jams and more dissatisfaction among road users. That's why we need vehicle connectivity concepts that are designed for sharing, especially in urban areas. Our experience with DriveNow is a clear indication that car-sharing customers use more modes of transport than others. That's why vehicle connectivity is already a decisive purchasing factor, both for fleet operators and for private buyers.

We already offer a traffic jam avoidance service, RTTI (Real Time Traffic Information). In addition, BMW i Connected-Drive Services include intermodal routing and integration of public transport, vacant parking space searches close to the respective public transport stop and bicycle availability by Call a Bike – the bike rental system of German rail company Deutsche Bahn AG. In this way, the BMW Group makes an active contribution towards increasing inter-modal mobility in cities.

### BMW Connected – personalising and simplifying mobility

In 2016, we launched BMW Connected in the USA and Europe – a holistic digital concept that provides seamless support for individual mobility.

The BMW Connected digital mobility assistant has a large number of functions that support day-to-day mobility needs. For example, based on the flexible platform Open Mobility Cloud, a range of devices such as smartphones and smartwatches can be connected with the vehicle. The user's self-learning digital BMW-ID enables BMW Connected to provide personalised experiences across a large number of "touchpoints".

In this way, the digital services provided by BMW Connected simplify day-to-day planning of journeys and appointments. Depending on the devices that are connected, BMW Connected identifies mobility-relevant information such as addresses in calendar entries and passes these on directly to the vehicle. Users are alerted in advance by their smartphones of the ideal time to start their journey, based on real-time traffic information. In addition, frequent destinations and the user's personal mobility patterns are automatically saved, thus providing additional support to the driver.

### Automated driving for more convenience, safety and efficiency

With project i (BMW i), the BMW Group was an early mover in actively engaging with the topic of electromobility and developing solutions for application on an industrial level. The project i 2.0 is now taking the same approach for automated and fully connected vehicles. Our focus here is on high-precision digital cards, sensor technology, cloud technology and artificial intelligence, all of which will make a decisive contribution towards our success in this segment.

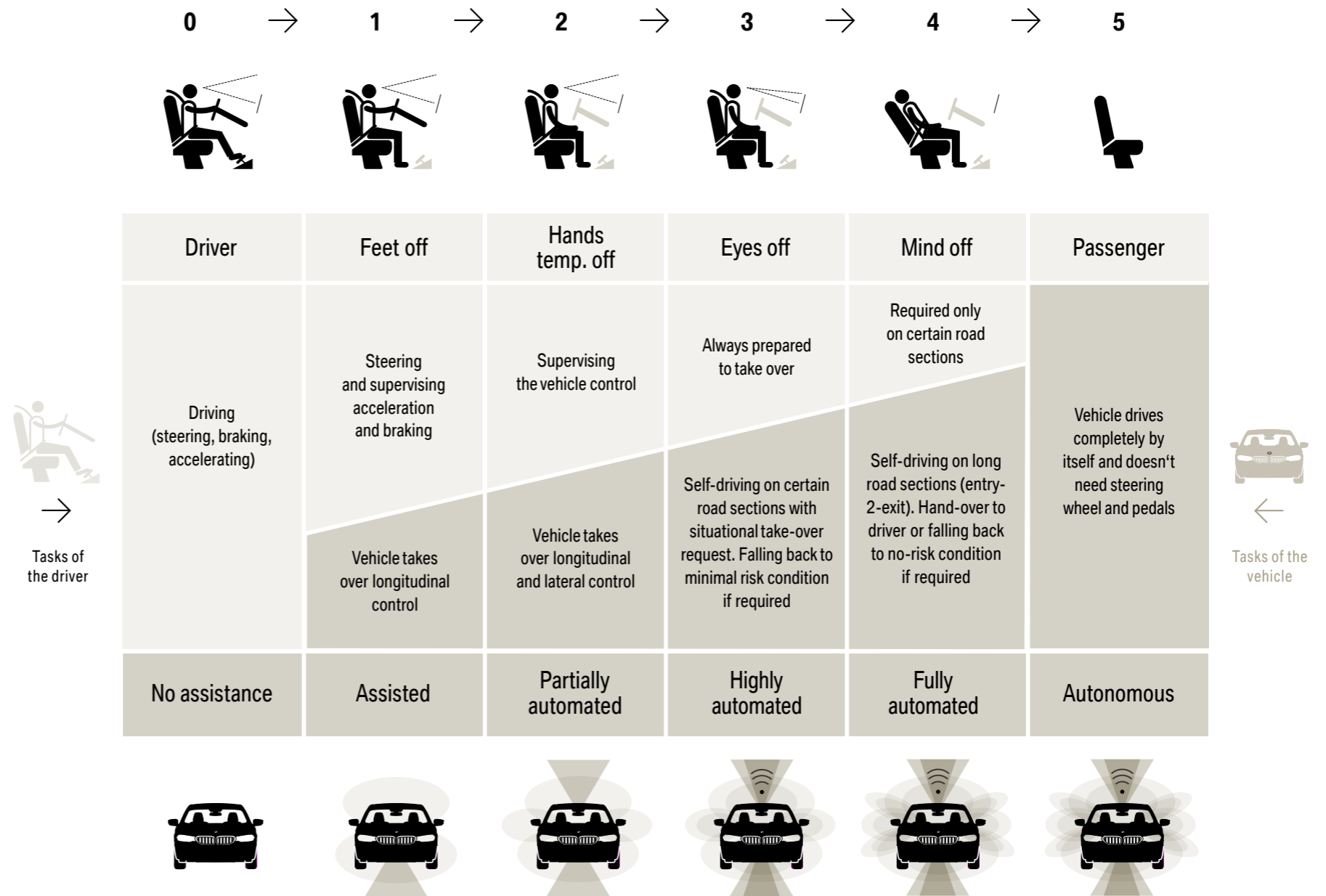
Under the umbrella of BMW Personal CoPilot, the BMW Group brings together the technologies and systems that will support us on our way towards autonomous driving: from the already available driver assistance systems right through to highly- or fully-automated and finally to the autonomous driving that will be with us in the future →. By 2021, we aim to have mastered the initial quantum leap from partially- to highly-automated motorway driving.

→ see  
figure 2.04



The five development stages of automation

→ F2.04

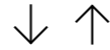
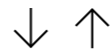


In the future, we want to enable our customers to partially or fully delegate driving to the vehicle in non-challenging situations, for example in traffic jams or in stop-start traffic. The basic principle is that it is the driver who decides whether the vehicle should switch to a more automated mode or not. Although this involves a number of regulatory and societal challenges, it is a great opportunity in

terms of revolutionising mobility: in addition to the safety aspects, we also see there being a considerable gain in terms of time and convenience for our customers – as well as improved driving efficiency. This creates significant freedom for our customers to use their time as they see fit while the vehicle does the driving.

**The benefits of automation at a glance**

→ F2.05

**Premium driving convenience**Support for driver – when under/over-challenged (traffic jam, bottleneck);  
in-vehicle free time due to automation**Increased safety**The vehicle sees: fast, comprehensively, simultaneously, tirelessly;  
safe driving, with and without automation**Enhanced efficiency**Optimised use of road infrastructure, traffic jam avoidance;  
Use of extended traffic services and mobility concepts;  
reduction in air and noise emissions**Experiencing modern assistance systems  
with the BMW 5 and 7 Series**

Equipped with a stereo camera and five radar sensors, the BMW 7 Series stays in its motorway lane and keeps its distance to the vehicle ahead, even at high speeds. And thanks to Remote Control Parking, the BMW 7 Series finds its way into the garage, at the push of a button. The BMW flagship is already the benchmark in the areas of connectivity and operation when it comes to comprehensively integrating gesture control. In addition, driver assistance has been taken to the next level in the new 2016 BMW 5 Series: new features include partially automated lane changing on motorways and the emergency steer assist that uses precise, highly dynamic steering support to give the driver additional safety during critical manoeuvres. These active assistance systems are helping to gradually make vehicle traffic safer. This applies not only to the driver but also to all other road users. The BMW Group finds it particularly important that these support mechanisms always make the driver aware of the system's limits so that he is not unconsciously distracted from the traffic situation. Assistance

systems require the driver's full attention and should not be confused with a high degree of – or full – automation that in some cases allows the driver to actively turn their attention away from traffic.

**Setting new standards for automated driving  
with BMW iNEXT**

The BMW Group wants to lead the way in automated driving and will continue to work hard on further developing the associated technologies in the coming years. New sensors and higher performance software as well as clear advances in artificial intelligence research make it possible to move forward dynamically with the next steps in automated driving. With our planned BMW iNext model, we want to set new standards in this area by 2021. In this process, we are relying both on our own technological strength as well as on pooling our expertise in collaboration with innovative partners.

The first milestone was reached at the end of 2015, when the BMW Group and other carmakers purchased the navigation service HERE, benefitting from this company's extensive portfolio of maps, pioneering understanding of locally focussed services and secure data processing that complies with data privacy legislation.

A further important partnership on the road to automated driving is our collaboration with Intel and Mobileye. This partnership brings together three leading companies from the automotive, technology and computer vision and machine learning industries. Our common goal is to develop an open industrial standard for autonomous driving (a "non-exclusive industry platform"). Together, we aim to bring solutions for highly – and possibly even fully – automated driving into series production by 2021.

The BMW Group is continuing to expand its capacities in this area and is participating in collaborative research initiatives with science and industry with a view to developing the best solutions and integrating them into series production as quickly as possible. Key research areas are automation in urban areas, traffic management and driving safety systems as well as technical solutions. This includes safe return to the driver, addressing disruptions and barriers as well as predictive driving. The first automated research vehicles are to be tested not only on motorways but also in Munich/DE, in order to test the vehicles in city traffic conditions. In the automated test vehicles, a driver will be present who can take over control in any situation.



The BMW Group will start series production of solutions for highly and fully automated driving by 2021.

In another project, the ifmo research institute is currently investigating the long-term effects of autonomous vehicles on mobility patterns. The results indicate that autonomous vehicles could increase the number of kilometres covered by cars. However, any future offering of autonomous car-sharing fleets as part of public transport systems has the potential to reduce traffic volumes in urban areas.

### Autonomous driving – pooling capacities within the development centre

In 2017, the BMW Group will pool and further expand its capacities within a new development centre for autonomous driving. The new centre will require a total of around 2,000 employees, creating a large number of new jobs. By taking this step we are preparing for the technical challenges we face as we gradually introduce automation.

What is important to us in this context is to make sure our communications with customers and the public are based on the facts alone. Therefore, we continue to present a clear picture of the degree of automation and do not promise customers more than our systems can provide.



## Mastering the challenges of digitalisation and automation

The focus of the technological changes is on the safety of the driver, vehicle occupants and pedestrians. Autonomous driving technology has not yet reached maturity. Furthermore, clear legal framework conditions need to accompany the introduction of this technology. The data transfer that accompanies the developments in digitalisation and automation also necessitates an intensification of the requirements placed on aspects of manipulation and data privacy.

### Preventing manipulation

The advance of digitalisation requires additional measures to protect against unauthorised access to the vehicles. In order to protect our systems from manipulation, we have a clear procedure in place that forms an integral part of our development work. Methodically executed penetration tests identify potential weak points and close security gaps even before the respective components are approved. We turn newly emerging knowledge into binding standards on an ongoing basis. In this way, the BMW Group aims to offer its customers the utmost in manipulation protection and to ensure that there is no unauthorised access to control devices or vehicle interfaces.

Non-discriminatory vehicle data will in future be made available to authorised applicants via a manufacturer backend system. This enables simple and secure sharing of vehicle data with third-party service providers via a standardised interface. If our customers so wish, we can use this interface to transfer, for example, personal driver profile data to insurance companies to calculate pay-as-you-drive insurance fees. By using a backend system for data transfer, the BMW Group minimises the vulnerability of the vehicle fleet to hacking attacks, as direct and often unprotected data connections between the vehicle and third parties can be avoided.

### Systematically securing data protection

The BMW Group is committed to the principles of data processing transparency and data minimisation. In 2014, we were the first carmaker worldwide to successfully complete the validation process for the Binding Corporate Rules (BCR) scheme. The BCR regulation guarantees a data protection standard that is to be upheld and maintained by BMW AG and all its subsidiaries. This ensures that in the BMW Group, personal data is always handled at a uniformly high security level, regardless of whether the data is processed for example in Europe, Asia or America. An international network of local data protection coordinators ensures compliance with the Binding Corporate Rules.

Protection of information and data is an integral part of the business processes at the BMW Group, and we comply with the international security standard ISO/IEC 27001. In the field of vehicle communication (BMW ConnectedDrive) and also digitalisation, transparent for the customer as well as data security and prevention of misuse are key concerns. Personal data is only collected, processed or used if this is legally permissible and granted with the consent of the person in question. In addition, we invest in technical measures to protect the data. If customers or prospective customers lodge any complaints regarding data protection, for example with respect to advertising campaigns, such complaints are addressed promptly.

### Taking account of registration and liability legislation

There are still a number of hurdles to overcome on the path to automation: In addition to the Vienna Convention of 1968, there are also issues regarding registration and liability-related legislation, which still make it difficult to introduce automated road traffic driving. There must be clarity regarding which traffic situations a highly automated vehicle has to recognise independently. With regard to liability issues, a “black box” is required that stores certain data necessary to sort out accident liability. This data storage unit can contribute towards allocating responsibility between human and machine when accidents happen.

### Promoting innovative mobility concepts

In addition to services we have developed in-house, the BMW Group’s BMW i Ventures also has shareholdings in promising start-up companies. BMW i Ventures is headquartered in Silicon Valley and invests in start-up enterprises in the area of mobility services and e-mobility as well as in pioneering technologies from the area of autonomous driving and digitalisation – specifically in the investment fields of “Enabling Technology” and “Digital Vehicle Technology”, “Mobility and Digital Services”, “Customer Experience” and “Advanced Production Technology”.

The investment fund can invest up to €500 million. By investing in business models and technologies that are fit for the future, the BMW Group can act with more autonomy and continue to identify and engage with trends in the world of mobility. This is a clear advantage in view of the fact that the IT and tech sectors have faster development cycles than the automotive industry. Our partners benefit from our many years of experience, our reach and our broad network of established brands.

Some of the investments of BMW i Ventures include:

- → **Zendrive for more economical road driving**  
Drawing upon mobile technologies and large data volumes, Zendrive provides driver-specific analyses of the economy of the driving style, for example. The driver can access these analyses at any time.
- **Intermodal route planning with → Moovit**  
The Moovit app integrates comprehensive information on the bus, tram and subway schedules of local transport companies by using their timetable data as well as real-time information from the “Moovit Community”.
- → **ZIRX on-demand parking service**  
Users can enter their destination into the ZIRX smartphone app. When they arrive, a ZIRX agent will be there to park the car. While the car is parked, users can book additional services via the ZIRX app.

**BMW Startup Garage**

Die BMW Startup Garage, located in Munich, is a programme that aims to secure access to innovative start-up technologies. The BMW Group acts as a “Venture Client” to the start-up company. This means that we become a client to the start-up company very early on. This approach is very efficient for all involved as it enables the start-up companies to validate their solutions at an early stage, and the BMW Group can then have these solutions tailored to its needs.

→ Further information: [www.bmwstartupgarage.com](http://www.bmwstartupgarage.com)

**URBAN-X**

URBAN-X is a New-York-based start-up accelerator by MINI and SOSV, created to invest in start-up companies that are shaping the future of cities through technology and design. URBAN-X combines the core competencies of MINI, including design, engineering, and usability, with SOSV’s skills as a longtime investor and supporter of start-ups as they evolve. With its best-in-class accelerator programmes worldwide, and \$300 million in capital under management, SOSV was recently named the third-largest seed investor worldwide.

→ Further information: [www.urban-x.com](http://www.urban-x.com)



URBAN-X is a start-up accelerator in New York.

**Forecast**

**We will continue to work on intelligent networking of mobility services, vehicles and infrastructure in order to make urban mobility more flexible, convenient and sustainable. The BMW Group brings together its strong brands, technological expertise and innovative strength with new strategic partnerships and collaborations (HERE, Intel and Mobileye) and their innovative solutions.**



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Strategy

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Products  
and services

**3**

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→ Production  
and value creation

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3.1 Consumption  
of resources

3.2 Renewable energy

3.3 Sustainable,  
resource-efficient  
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Appendix

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# PRODUCTION AND VALUE CREATION

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**3**

STAKEHOLDER  
INPUT

2

## SUSAN DREYER

CDP,  
Country Director Germany**What challenges does a globally operating automotive group currently have to face in decarbonising its value chain?**

Driving down CO<sub>2</sub> emissions along the automotive value chain has systemic impacts on car design, with consequences for the production system, industry structure and the viability of current business models. The industry is thus required to rethink its business model at large, as a more radical design philosophy would question core elements of the product. Similarly, the complex and sometimes opaque supply chains of global automotive groups carry sustainability challenges, resource risks, and efficiency opportunities. Another challenge is getting BMW's suppliers to engage with their own suppliers. On average supply chain emissions are many times greater than those from direct operations – so it's crucial that engagement cascades down the supply chain.

**Why do automotive manufacturers have to rely on “sustainable mobility and sustainable production” in the long term?**

At a European level, ELV (end of life of vehicles) legislation already stipulates an 85% recycling rate. So it's important for automakers to work closely with vehicle dismantlers, shredders and recyclers to ascertain the best methods for high value extraction of mechanical parts. Additionally, auto manufacturers are increasingly investigating the potential for circular economy realisation across the entire value chain. The Paris Agreement and adoption of SDGs are the beginning of a new era in which businesses must develop innovative strategies to survive in a low-carbon

economy. It can no longer be business as usual, with 83% of BMW suppliers that are reporting into CDP already identifying climate-related risks, increasing pressure on resource availability, impending shifts in regulation and changing consumer expectations. As such, the industry will be expected to innovate and experiment.

**How does the BMW Group face the challenges from your point of view?**

Car companies will be able to identify and capitalise on the risks and opportunities on their path towards sustainable mobility and production by valuing non-financial reporting and encouraging their suppliers to do the same. BMW Group has integrated sustainability into its supply chain strategy and targets. Among other things, the company is assessing its top 100 suppliers against key indicators such as emission targets, reduction initiatives and changes in absolute emissions. This allows the company to track annual performance, develop competitive benchmarks and inform its future supplier engagement strategy. As a result, BMW Group was able to initiate pilot projects for emission reductions in collaboration with key suppliers, and covers 69% of its procurement overall spend, among the largest coverage known to us. BMW's sustainability work has made it one of only two companies worldwide (out of 5,800 who reported to CDP in 2016) to achieve an A score in CDP's Climate Change programme for seven years in a row.

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# RELEVANCE FOR BMW GROUP

**Climate change is one of the greatest challenges facing society today. Negative impacts on particularly vulnerable areas and populations can already be seen. At the same time, the world population is growing and with it the consumption of resources. CO<sub>2</sub> and pollutant emissions are also increasing due to the production of consumer goods. In order to fulfil our vision of being the most sustainable premium manufacturer, we are continuously reducing CO<sub>2</sub> emissions and resources used per vehicle produced. We are increasingly using renewable energies at our locations worldwide. In addition, we foster the implementation of social and environmental standards as well as transparency and resource efficiency in our supply chain. These measures are becoming increasingly important in the development of electromobility. We are therefore making a contribution towards solving the challenges faced by society, and are reducing both risk and production costs.**



# KEY FACTS AND FIGURES

Share of renewable energy purchased  
from third parties in %

**63**

↗ 2016

**58**  
2015

Energy consumption per vehicle  
produced in Mwh/vehicle

**2.21**

↗ 2016

**2.19**  
2015

Water consumption per vehicle  
produced in m<sup>3</sup>/vehicle

**2.25**

↗ 2016

**2.24**  
2015

CO<sub>2</sub> emissions per vehicle produced  
in t/vehicle

**0.54**

↘ 2016

**0.57**  
2015

Waste for disposal per vehicle  
produced in kg/vehicle

**3.51**

↘ 2016

**4.00**  
2015

Share of production-relevant  
purchasing volume in the CDP Supply  
Chain Programme in %

**69**

↗ 2016

**53**  
2015



## → CONSUMPTION OF RESOURCES

**The BMW Group will reduce its resource consumption (energy, water, waste, solvents) per vehicle produced by 45% by 2020 (base year 2006).**



## 3.1 CONSUMPTION OF RESOURCES

Our company is facing the challenge of conserving resources and tackling climate change. This is also very relevant for the production processes of the BMW Group. We require resources for the production of our vehicles and the energy we consume generates emissions. What is more, production can be impaired by the impacts of climate change. For this reason, we continuously increase our energy and resource efficiency and minimise CO<sub>2</sub> and pollutant emissions from our production. We see this as the most important component of responsible business management. In addition, our measures help reduce production costs, meet the needs of our customers and stakeholders and prepare for new legal requirements.

Since 2006, we have reduced our use of energy and water, waste and waste water as well as solvents and CO<sub>2</sub> emissions from vehicle production per vehicle produced by an average of 50% →. In 2016, utilisation of resources and emissions per vehicle produced were reduced by an average of 4.9% compared with the previous year.

→ see  
table 3.01

Further improving the good figures achieved in recent years is a major challenge for our environmental management system. We continuously work on this at all existing and new locations. On the one hand, we want to achieve our internal goals through our environmental management system. On the other hand, it is important to respond to external trends, such as increasing prices of raw materials or growing involvement of our locations in urban metropolitan areas, which requires further reduction of environmental impacts.

We are among the leading automobile manufacturers in the areas of emissions, waste and process waste water and have also already achieved our internal objectives. We will continue our efforts to make further improvements in these areas. Our main focus is now on energy and water consumption, where there have been slight increases in the reporting period and we are yet to achieve our objectives. In this area we systematically follow our reduction plans and continue to work on achieving our objectives.

### Improvement in resource consumption and emissions from vehicle production since 2006

→ T3.01

Energy consumption	-35.4%
CO <sub>2</sub> emissions	-48.6%
Waste for disposal	-81.5%
Water consumption	-31.0%
Process waste water	-48.8%
Solvent emissions	-54.6%

In 2001, the BMW Group signed the → **International Declaration on Cleaner Production** of the United Nations Environment Programme and expressly committed to keeping the environmental impact and resource consumption of our production activities as low as possible.



We have thus established environmental management systems at all existing production plants, with plans to install them at all future locations. With the exception of motorcycle production in Manaus/BR and Hosur/IN, all of our production locations, German dealerships, as well as six others in Europe (Vienna/AT, Zurich/CH, Rome/IT, Milan/IT, Madrid/ES and Barcelona/ES) are now certified according to ISO 14001 →. After the standard was revised in 2015, we are now implementing the environmental management systems at our locations in line with the changes. The newly set priorities include greater involvement of stakeholders and consideration of the entire life cycle of our products and services. Most of these changes correspond to our long-standing practice. However, they must also be integrated into our management system check according to ISO 14001:2015.

Our six competence centres (for water, waste, energy, emissions, training and environmental management system) are staffed by environmental experts from the different plants and by specialists from Corporate Environmental Protection. They discuss legal requirements and best-practice solutions with technology experts from the production plants and develop reference systems on which to base future planning and process improvements. Environmental improvements that have been effective at one location are implemented at other locations wherever possible. Both existing and new locations benefit from this, such as our future plant in San Luis Potosí/MX. Furthermore, we pass on our experiences to our suppliers in order to improve sustainability in our supply chain where possible →.

## Optimising energy efficiency

In 2016, energy consumption from our vehicle production slightly increased to 2.21 MWh per vehicle produced compared to the previous year (2015: 2.19 MWh) →. This can essentially be attributed to the launch of the new engine plant in Shenyang/CN and the construction of a new, efficient paint shop in Munich/DE. As soon as the new, highly efficient plants and production facilities are underway, the old facilities that they replace will be deactivated. In line with this, we expect energy consumption to decline as soon as 2017. We are coming closer to our goal of reducing consumption per vehicle by 45% by 2020 compared to 2006. A number of measures are already planned to help us achieve this, including heat regeneration, the comprehensive use of LEDs and further increases in efficiency at paint shops using integrated painting processes. So far, we have achieved a reduction of 35.4% compared to the base year of 2006. → GRI G4-EN5, GRI G4-EN6

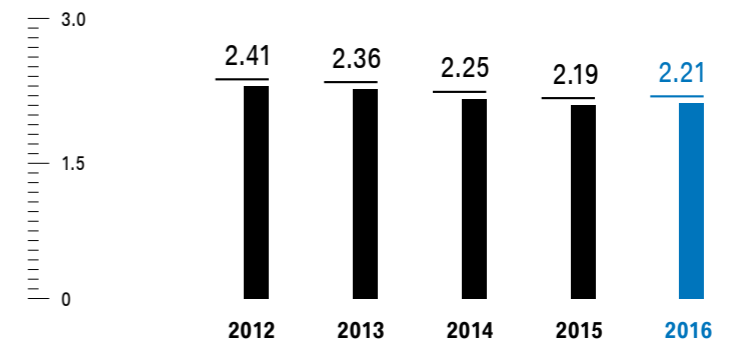
→ see  
table 3.02

→ see  
Further  
key indicators

### Energy consumption per vehicle produced<sup>1</sup>

→ T3.02

in MWh/vehicle



<sup>1</sup> Efficiency indicator = electricity, heat, natural gas and heating oil consumption from vehicle production (without motorcycles) minus CHP losses, divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

→ GRI G4-EN5, GRI G4-EN6

→ see  
chapter 3.3

**Smart management of energy data**

The BMW Group continuously takes measures which help save energy and reduce CO<sub>2</sub> emissions at the same time. For instance, a forecast-based building control system was installed in the IT centre of the Munich/DE location, which uses weather forecasts, a building structure simulation as well as regular measurement data to optimise energy consumption for the ventilation and heating of the office building with a surface area of almost 60,000 m<sup>2</sup> and 3,000 employees. The system was planned there as a pilot. It not only reduces the heat consumption by 1,200 MWh, but also increases convenience of use for employees. After this successful pilot project, there are now plans to implement the concept at other locations.

At our branch in Stuttgart/DE, energy costs were reduced by 40% through the use of the energy management system “Emsyst 4.0”. The system uses sensors to record all consumption and controls it so that heating is turned down, for instance, when windows are open.

In April 2016, the BMW Group was selected as one of just nine companies to take part in the North American Energy Management Pilot Program (NAEMPP). This programme fosters exchange between participants in the USA, Canada and Mexico and therefore supports the faster implementation of the ISO 50001 standard and the Superior Energy Performance® certificate of the U.S. Department of Energy to reduce energy consumption and CO<sub>2</sub> emissions. The project began in 2016 and will end in mid-2017 with an evaluation and assessment including best practice transfer. Specific measures include the creation of an inter-disciplinary energy management team, the formulation and approval of a plant energy policy with long-term energy planning, as well as the identification of statistics which further increase transparency for targeted energy consumption.

**Systematically reducing CO<sub>2</sub> emissions**

In light of climate change, the reduction of CO<sub>2</sub> emissions is highly relevant for the BMW Group. Reducing CO<sub>2</sub> emissions not only makes environmental sense – it is also a business opportunity for the company. Fewer CO<sub>2</sub> emissions mean cost savings and competitive advantage due to less energy consumption and avoidance of CO<sub>2</sub> levies. In addition, many of our fleet customers have high expectations with regard to green car policies. So we are reducing CO<sub>2</sub> emissions both in our own production as well as along the value chain.

**Minimising CO<sub>2</sub> emissions at company locations**

CO<sub>2</sub> emissions at the BMW Group locations are generated directly from burning fossil fuels (Scope 1 emissions) and indirectly through the company’s electricity and heat consumption (Scope 2 emissions). We focus on reducing CO<sub>2</sub> emissions from our production facilities, which account for around 90% of these Scope 1 and 2 emissions. We are pursuing our vision of carbon-free energy supply at all locations.

Through our measures to increase energy efficiency, as well as the use of electricity from renewable sources at our production plants, CO<sub>2</sub> emissions from vehicle production per vehicle produced decreased in the reporting period by another 5.3% to 0.54 t compared to the previous year (2015: 0.57 t CO<sub>2</sub> per vehicle).

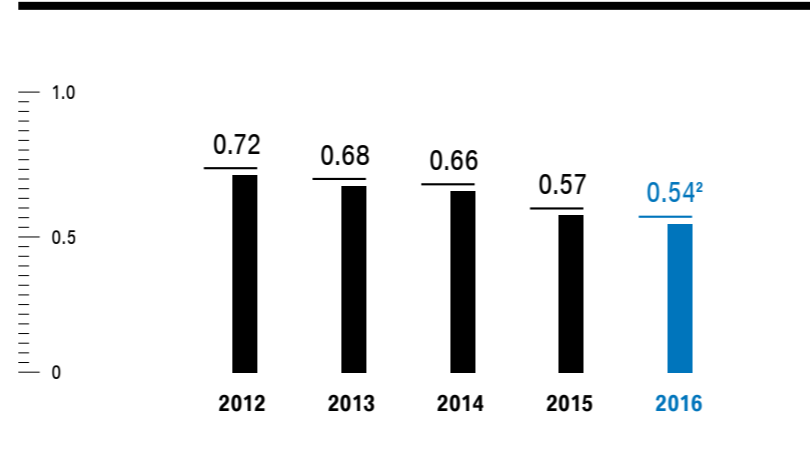
To increase energy efficiency, we are currently developing CHP systems at seven locations. These highly efficient new systems quadruple the production capacity of the eight systems that we currently have.

Another example of the increase in energy efficiency and the associated reduction of CO<sub>2</sub> emissions is the extensive replacement of lights by LEDs, a process which the BMW Group began in 2016. Around 115,000 lights were replaced in total. As a result, a reduction in the energy demand amounting to 6,848 MWh was achieved in 2016, which meant that we were able to avoid CO<sub>2</sub> emissions of around 2,800 t.

**CO<sub>2</sub> emissions per vehicle produced<sup>1</sup>**

→ T3.03

in t/vehicle



<sup>1</sup> Efficiency indicator = CO<sub>2</sub> emissions (from vehicle production, without motorcycles) from Scope 1 and Scope 2 minus CHP losses divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

<sup>2</sup> Calculated using revised emissions factors.

→ GRI G4-EN18

In 2016, emissions in our production network amounted to 1,254,961 t CO<sub>2</sub> (2015: 1,267,485 t). This means that, in spite of an increase in production volume, we achieved a decrease in overall CO<sub>2</sub> emissions in this area for the second year in a row. This was possible thanks to a steady increase in the amount of green electricity purchased. We see the consistent decrease in CO<sub>2</sub> emissions per vehicle produced in recent years as confirmation of the effectiveness of our measures →. → GRI G4-EN18, GRI G4-EN19

**Reducing CO<sub>2</sub> emissions in the value chain**

Both upstream and downstream in the value chain, we continually reduce emissions caused by the use and disposal of our products, in our supply chain, in transport logistics and by employees commuting to and from work (Scope 3 emissions). Around 70% of these Scope 3 emissions are generated during utilisation of the vehicles sold. The emissions generated during fuel production are not counted here. With our Efficient Dynamics technologies, we are continually reducing the average fleet emissions of CO<sub>2</sub> per kilometre worldwide – in 2016 by 2% to 144 g CO<sub>2</sub>/km (2015: 147 g CO<sub>2</sub>/km) →.

→ see chapter 2.1

Around a fifth of Scope 3 emissions were generated in the upstream supply chain. We constantly work with our suppliers to look for further possibilities to use resources more efficiently →.

→ see chapter 3.3

Furthermore, around 2% of Scope 3 emissions are caused by the global transport volume required to supply our production plants with materials, to deliver our vehicles and to supply spare parts to the markets. In order to keep these CO<sub>2</sub> emissions to an absolute minimum, we work on the principle “production follows the market”. We also continually increase the share of low-carbon modes of transport. Increasing rail transport is a measure to reduce CO<sub>2</sub> emissions. For instance, we were able to keep the number of new vehicles that leave our plants by rail at the high level of 59.7% (2015: 63.1%). The small decrease is due to a slightly altered regional distribution of our production →. Rail also plays an important role in supplying the plants with production material. For example, a train with vehicle components runs on the Trans-Siberian railway from Germany to China twice a week. Furthermore, in cooperation with logistics service providers we are deploying the first all-electric lorries in the transport of goods near the plants.

→ see Further key indicators

→ see table 3.03



With Design for Recycling, we ensure that as many of the components as possible flow back into the materials cycle once the vehicle has reached the end of its life cycle. This leads to lower CO<sub>2</sub> emissions in the value chain →.

→ see  
chapter 2.1

## BMW Group CO<sub>2</sub> footprint

→ T3.04

in t CO <sub>2</sub>	2012	2013	2014	2015	2016
<b>Total emissions<sup>1</sup></b>	61,603,503	64,019,874	66,913,264	68,991,955	<b>70,818,970</b>
<b>SCOPE 1: DIRECT GREENHOUSE GAS EMISSIONS (CO<sub>2</sub>, NO<sub>x</sub>)</b>					
<b>Total emissions</b>	484,612	492,798	494,931	536,168	<b>562,146</b>
Emissions of BMW Group locations <sup>2</sup>	395,012	399,473	403,810	443,575	<b>472,021</b>
Emissions of company vehicles	84,633	88,695	85,695	87,358	<b>85,008</b>
Emissions of company-owned planes	4,966	4,630	5,426	5,235	<b>5,117</b>
<b>SCOPE 2: INDIRECT GREENHOUSE GAS EMISSIONS</b>					
<b>Total emissions<sup>3</sup></b>	862,214	922,843	966,067	923,313	<b>868,089</b>
Electricity/heat purchased by BMW Group locations <sup>3</sup>	862,214	922,843	966,067	923,313	<b>868,089</b>
<b>SCOPE 3: INDIRECT GREENHOUSE GAS EMISSIONS</b>					
<b>Total emissions</b>	60,256,678	62,604,233	65,452,266	67,532,474	<b>69,388,735</b>
Emissions of logistics	1,247,100	1,383,774	1,518,304	1,402,082	<b>1,427,399</b>
Emissions of emissions of business trips	111,971	113,388	137,601	138,522	<b>166,164</b>
Emissions of employees' commuter traffic <sup>4</sup>	113,505	122,584	121,428	133,690	<b>139,797</b>
Emissions of upstream chain <sup>5</sup>	12,592,090	13,274,865	14,331,118	14,886,300	<b>15,391,154</b>
Emissions of utilisation phase <sup>6</sup>	45,251,958	46,696,786	48,239,470	49,582,958	<b>51,079,073</b>
Emissions of disposal <sup>5</sup>	940,054	1,012,836	1,104,345	1,145,158	<b>1,185,148</b>

<sup>1</sup> Addition of emissions from employees' commuter traffic, from 2012 onwards emissions from supply chain, utilisation phase and disposal as well as from 2015 onwards BMW Group location emissions from BMW Motorrad Berlin/DE and corporate functions, development and administration in Munich/DE. The emissions listed account for around 90% of the Scope 1 to Scope 3 emissions of the BMW Group. Climate-relevant gases other than CO<sub>2</sub> are not included in Scope 1 and 2 emissions.

<sup>2</sup> Figures from 2015 onwards not directly comparable to previous years due to changes in system boundaries. Emissions from company production locations, including BMW Motorrad Berlin/DE as well as corporate functions, development and administration in Munich/DE. Application of VDA emissions factors revised in 2015.

<sup>3</sup> Figure from 2015 onwards not directly comparable to previous year due to changes in system boundaries. Emissions from company production locations, including BMW Motorrad Berlin/DE as well as corporate functions, development and administration in Munich/DE. Market-based emissions in accordance with GHG Protocol Scope 2 Guidance. Application of supplier electricity labelling 2015 in Germany and UK as well as the VDA factors revised in 2015. Scope 2 emissions calculated using "location-based" method (overall third-party electricity and heat purchased calculated using VDA factors): 1,532,448 t CO<sub>2</sub>.

<sup>4</sup> Extrapolation from the table "Means of transport used by BMW employees and indirect CO<sub>2</sub> emissions from employees' commuter traffic".

<sup>5</sup> Thinkstep's LCA tool Gabi calculates emissions from supply chain and disposal processes, based on the carbon footprints of representative vehicles from the product lines (including the climate-relevant gases CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>, NF<sub>3</sub>, among others). Corresponding with the CO<sub>2</sub> emissions, energy consumption (lower heating value) is calculated based on the environmental footprints. Around 70,205,000 MWh in the supply chain as well as 476,000 MWh at the disposal companies.

<sup>6</sup> The fleet emissions are extrapolated from the average fleet emissions of the main sales markets of the BMW Group. The calculation was based on an average mileage of 150,000 km.

→ GRI G4-EN4, GRI G4-EN15, GRI G4-EN16, GRI G4-EN17

## BMW Energy Services – developing business models for the energy transition

The newly created business unit BMW Energy Services operates a number of digital business models that aim to participate in the energy market of the future and help drive the energy transition.

In 2015, we founded “Digital Energy Solutions”, a joint venture company in collaboration with Viessmann. The digital-based services of Digital Energy Solutions are designed for small and medium-sized enterprises from trade and industry. One of the key aims of the business model is to identify and utilise the potential presented by energy flexibility. Another goal is to effectively use excess volumes of power – particularly from renewable energy sources – to bundle the synergies that can be found between the electricity, heat/cooling and mobility sectors. For example, excess power from a photovoltaic system can be used to directly charge the electric vehicle fleet. Customers benefit from this service in three ways: their energy costs are optimised holistically, their carbon footprint is reduced sustainably and they can be sure of improved security of supply at their company locations. The overall aim of the joint venture is to achieve the CO<sub>2</sub> emissions targets in the energy, heat and transport sector at low cost, in particular in Germany and Austria.

At some BMW Group locations, the BMW Group has been using “balancing energy” since 2015 to sell its flexible capacity from the heat and power it generates in-house.

In addition, we implement solutions based on used vehicle battery storage, storing environmentally-friendly but volatile solar and wind energy to be used when required →.

→ see  
chapter 2.2

## Using raw materials intelligently

The environmentally friendly use of raw materials is taken into account as early as the vehicle development phase via Life Cycle Engineering →. We shape our supply chain and material cycles accordingly, allowing us to gradually increase the use of secondary raw materials in our vehicles. Up to 20% of the thermoplastic materials in our vehicles are now made from recyclates (2013 to 2016: up to 20%). These materials account for an average of 12% of vehicle weight →. We use up to 50% secondary aluminium in high-strength cast aluminium parts. → GRI G4-EN2 Wherever it makes technical, business and environmental sense and is socially viable, we replace artificial materials with renewable materials. For example, we replaced supports of door trim panels with natural fibres. These are used in the BMW i3, BMW 7 and BMW 5 models, among others. This way, we make a significant contribution towards resource efficiency.

→ see  
figure 2.02

→ see  
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key indicators

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 Appendix
 

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We carefully consider weight, function and costs in the use of rare earths. Rare earths are key raw materials for a number of components in modern vehicles. How we use rare earths can contribute towards reducing fuel consumption, for example by increasing the efficiency of electrical systems. In some components, such as the engine fan, we have completely replaced rare-earth elements that are potentially critical to supply.

### End-of-life vehicle recovery and recycling

We do not consider end-of-life vehicles as waste to be disposed of, but rather as a secondary source of raw materials. Established recovery systems for end-of-life vehicles, components and materials ensure that they are reintegrated into the raw materials cycle.



At the BMW Group's recycling and dismantling centre (RDZ) in Unterschleissheim/DE, research is done into environmentally friendly and efficient recycling of BMW vehicles.

Together with its sales organisations in each country, the BMW Group has installed recovery systems for end-of-life vehicles in 30 countries and offers vehicle owners environmentally friendly vehicle recycling at dedicated recovery centres. → GRI G4-EN27, GRI G4-EN28

All BMW Group vehicles brought onto the market since 2008 meet the strictest global requirements set for the recycling of end-of-life vehicles, components and materials (95% total recycling, 85% reuse and material recycling).

At our recycling and dismantling centre (RDZ), we test new recycling concepts for innovative vehicle components on an ongoing basis. Furthermore, we promote the implementation of new recycling technologies, such as the recycling of high-voltage batteries and carbon fibre components through cooperation with research institutes and suppliers. We also intend to close the material cycles in this area by using secondary raw materials in the production of lithium-ion batteries.

In September 2016, we founded the Joint Venture Encory together with the ALBA Group, which recovers, prepares and sells used automotive parts. The goal of the company is to increase recycling of high-quality vehicle parts, as well as to effectively and efficiently organise the collection and preparation of used parts.



## Avoiding and recycling production waste

We have already achieved our goal of reducing waste volume in vehicle production by 45% by 2020 compared to the base year 2006. In spite of this, we continue to minimise the amount of waste for disposal, and integrate as many residual materials as possible into a complete life cycle management system. We achieve this by improving our waste separation processes and working hard to find further recycling and reuse options for the individual waste types. In 2016, we obtained an official permit for the Tiexi plant in Shenyang/CN for the recycling of material from dry separation. The permit makes it possible to use the material for recycling in a cement plant.

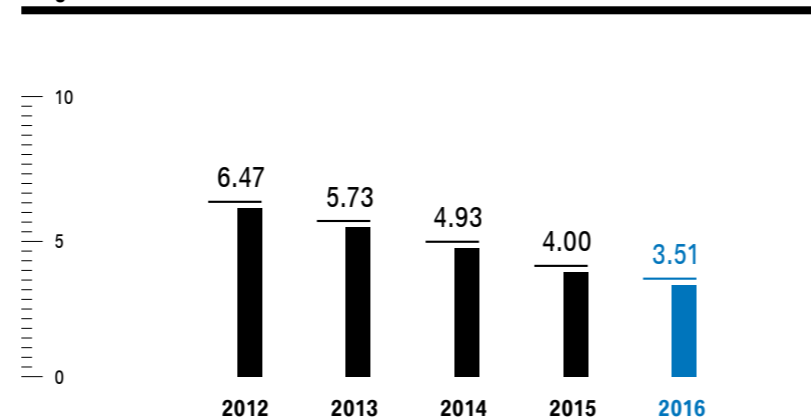
The waste from production that cannot be recycled was further reduced in 2016 to 3.51 kg per vehicle produced (-12.3% compared to 2015 →). We see this as an indicator of the effectiveness of our reduction efforts.

→ see  
table 3.05

### Waste for disposal per vehicle produced<sup>1</sup>

→ T3.05

in kg/vehicle



<sup>1</sup> Efficiency indicator = waste for disposal from vehicle production divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

## Reducing water consumption and waste water

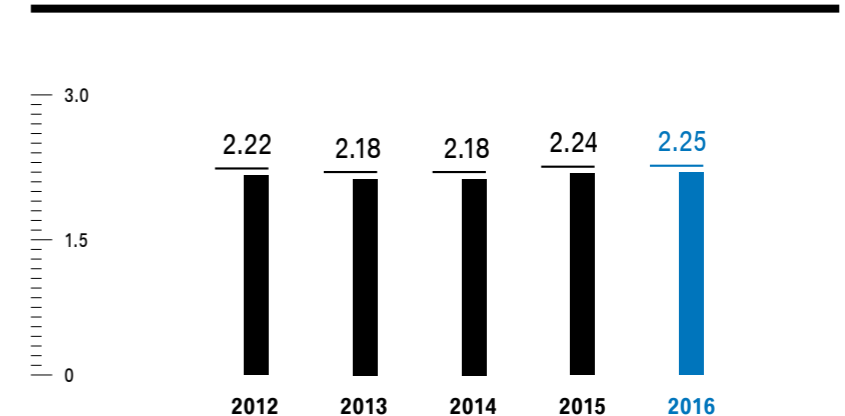
We work on an ongoing basis to reduce our water consumption. In doing so, we place a special focus on production plants in countries with an increased water risk such as South Africa, the USA or China. There are currently no water supply risks at our production plants.

The three largest water consumers at the BMW Group are the sanitary facilities for our workforce (47%), evaporation, mainly at cooling towers (around 34%) and the production processes, in particular at the paint shops (around 19%). We are continuously improving our resource efficiency in all three areas. During the reporting period, we reduced the water consumption of our plants in Munich/DE, Regensburg/DE and Rosslyn/ZA by optimising processes and upgrading paint shop facilities as well as by reusing water from wastewater treatment for production and cooling.

### Water consumption per vehicle produced<sup>1</sup>

→ T3.06

in m<sup>3</sup>/vehicle



<sup>1</sup> Efficiency indicator = water consumption from vehicle production divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

Water consumption per vehicle produced was maintained roughly at the level of the previous year in 2016 despite worldwide temperature records with long hot spells (2016: 2.25 m<sup>3</sup>, 2015: 2.24 m<sup>3</sup>). Energy consumption was reduced by 31% compared to the base year 2006 →.

→ see  
table 3.06

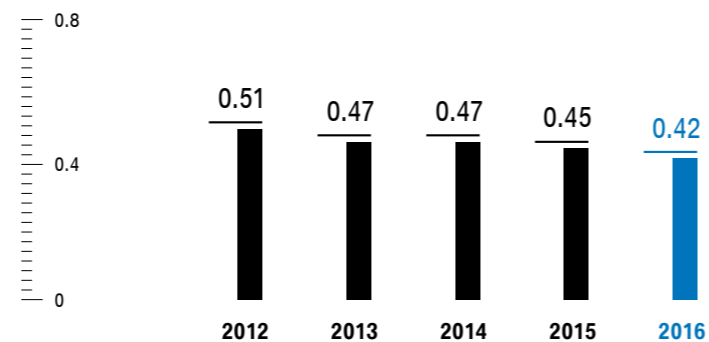
We continuously work on implementing our vision of water-free processes in production. In 2016, 0.42 m<sup>3</sup> of process waste water was generated per vehicle produced →. By continuously improving our plants, and in particular optimising our paint shops and wastewater treatment plants in Spartanburg/USA, Rosslyn/ZA and Dingolfing/DE, a reduction of 6.7% compared to the previous year was achieved (2015: 0.45 m<sup>3</sup>). With a reduction of 48.8% compared to 2006, we have already achieved our 2020 goal (45% compared to 2006).

→ see  
table 3.07

### Process waste water per vehicle produced<sup>1</sup>

→ T3.07

in m<sup>3</sup>/vehicle



→ see  
table 3.08

<sup>1</sup> Efficiency indicator = process waste water from vehicle production divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

## Minimising solvents

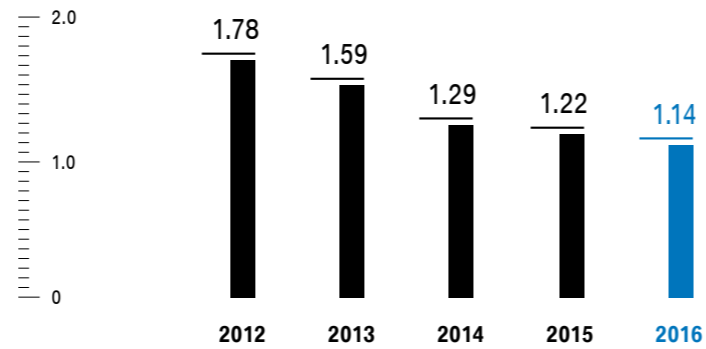
In our Group-wide environmental efforts, we also aim to minimise the impact of our emissions of volatile organic compounds (VOC) on the environment. These are primarily generated in our paint shops. By the end of 2016, VOC emissions from vehicle production per vehicle produced had been reduced by 54.6% compared to 2006, significantly exceeding the goal we had set ourselves of a 45% reduction by 2020.

With an average of 1.14 kg VOC emissions per vehicle produced, we are below the stringent maximum levels stipulated in Germany at almost all plants worldwide. The paint shop is being refurbished at the location in Rosslyn/ZA, which is the last one that does not yet comply with the maximum levels stipulated in Germany. According to predictions, we will also be below these maximum levels there after the upgrade. The maximum levels stipulated by the individual countries are also complied with at all production locations. VOC emissions per vehicle produced dropped by 6.6% in 2016 compared to 2015 →. This was achieved by implementing further post-combustion measures as well as through improved process technology (for example, use of robots at the paint shop in Rosslyn/ZA) in the global production network, although VOC emissions increased slightly at two locations due to the introduction of new processes.

Solvent emissions per vehicle produced<sup>1</sup>

→ T3.08

in kg/vehicle



<sup>1</sup> Efficiency indicator = VOC emissions from vehicle production divided by the total number of vehicles produced, not including the vehicles from the Magna Steyr/AT and Nedcar contract production plants.

## Forecast

In the coming years, we will continue to pursue our efforts to increase resource efficiency and in doing so pay particular attention to the materials needed to expand electromobility. The Group-wide conversion of the environmental management system according to the revised ISO 14001:2015 standard will remain a priority.

The new paint shop in our plant in Munich/DE will be fully operational in the third quarter of 2017. It will contribute towards the reduction in energy and water consumption. Other energy- and water-saving measures are planned for various locations: for example, a new wastewater plant at the Regensburg/DE plant, the completion of the modification of the paint shop in Dingolfing/DE, a process change in the foundry in Landshut/DE, the completion of the factory refurbishment in Rosslyn/ZA and the plant expansion in Shenyang/CN.

From 2019 onwards, our new plant in Mexico, which is currently under construction, will make a significant contribution to our resource efficiency. From its first full production year, it is expected to become the most resource-efficient plant of the BMW Group.





## → RENEWABLE ENERGY

The BMW Group is the leader in the use of renewable energy in production and value creation.

Four wind turbines in Leipzig help ensure production of the BMW i3 is 100% CO<sub>2</sub>-free.

## 3.2 RENEWABLE ENERGY

Renewable energy plays a crucial role in the reduction of CO<sub>2</sub> emissions. In order to tackle the effects of climate change, we are expanding our own production of renewable electricity at our locations and increasingly using electricity from renewable sources on a global scale. This way, we improve our environmental performance, support the development of sustainable energy generation and contribute towards protecting the climate. Last but not least, this approach is consistent with our understanding of sustainable mobility with vehicles that are produced with the lowest emissions possible. Our commitment is also financially sound, since green energy is becoming increasingly cheaper thanks to technological advancements.

We are increasingly using renewable energy along the entire value chain. Besides promoting renewable energy in vehicle utilisation →, our main focus is on our own plants. A large share of CO<sub>2</sub> emissions in the manufacture of our products is generated by our suppliers. That's why we support the use of renewable energy in our supply chain, too.

In 2016, we continued to expand our use of renewable energy to 63% →. The steady increase in green electricity shows that our measures are taking effect. The changing political and economic situation prevent an even quicker expansion at many locations. In this regard, we continuously strive to find technically as well as economically and politically viable solutions.

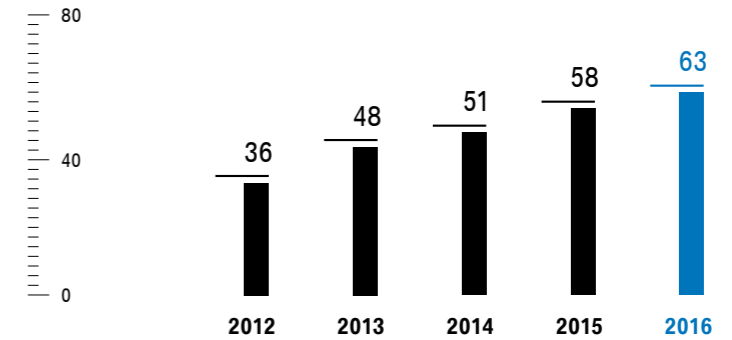
→ see  
chapter 2.2

→ see  
table 3.09

### Share of renewable energy purchased from third parties<sup>1</sup>

→ T3.09

in %



<sup>1</sup> Figures from 2015 onwards not directly comparable with figures for 2012-2014. Figures from 2015 onwards include all BMW Group production plants as well as corporate functions, development and administration in Munich/DE.

### Expanding use of renewable energy at BMW Group locations

We decide at each location which form of renewable energy makes the most sense in view of local conditions. A number of different technologies are therefore used to generate energy at our locations.

We make producing our own renewable energy a priority. If this is not possible due to prevailing conditions, we purchase green electricity locally as far as possible. At all locations we continuously work on increasing the amount of electricity from renewable sources. For this purpose, we conduct regular country analyses in which we regularly assess the political and economic conditions. This regularity is necessary as local legislations regarding renewable energy are amended continually. We have already concluded these for Germany and the UK and are implementing appropriate measures. We started assessing the situation in the USA in 2016.



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**Appendix**

As far as possible at new plants, we integrate renewable energy into planning from the start. An example of this is our plant in Mexico, which is currently under construction. We cover the basic load of the plant with photovoltaic electricity from our own solar energy facility. Grounds for the building of photovoltaic systems were first earmarked in the initial planning stage.

One of our measures of the previous year took full effect in our plant in South Africa: the Bio2Watt system, which is operated with biogas from cow and chicken farm waste as well as food production waste and has supplied our plant in Rosslyn/ZA with CO<sub>2</sub>-free electricity since 2015, had its first full operational year in 2016. In total, it supplied 15,844 MWh electricity, which corresponds to 25% of the total electricity requirement of the plant.



Using renewable energies: hydropower plants on the Columbia River supply the Moses Lake facility.

Besides production plants, we are also active in our office buildings. We have extensively renovated our new BMW Classic building in Munich/DE and equipped it with a photovoltaic system. Furthermore, we carried out energy-based refurbishment in our Head Office in South Africa and achieved a 5-star rating from the Green Building Council SA (GBCSA). The building received the highest scores in the area of energy, based on the photovoltaic system installed on the roof of the building, among other things. Moreover, electricity meters were installed in order

to achieve the highest level of transparency with regard to energy consumption. These measures enabled us to reduce peak electricity consumption of the building by 30% compared to the condition before the renovation. Our own photovoltaic system covers a major part of the remaining electricity demand.

**Using green electricity for IT**

Computer centres also require great quantities of electricity. We therefore pay attention to energy efficiency, use the highest possible amount of green electricity and also try to find climate-neutral solutions in the creation of conditions. For example, we cool our computer centre in Munich/DE with groundwater from wells along the Munich metro line. In this way, no CO<sub>2</sub> emissions are generated through cooling.

The new computer centre, which is built in Aschheim/DE outside of Munich/DE and used by the BMW Group as a co-location, requires electrical power of up to 36 MW in the final expansion. A sophisticated cooling concept using very efficient air/air-heat exchangers provides climate control with the lowest electricity consumption possible.

Like our plants in Germany, our computer centres here are also operated with a mix of energy, of which the share of green electricity is a lot higher than that of the German electricity network. In 2016, our plants and computer centres in Germany were supplied with more than 80% green electricity.

Another computer centre of the BMW Group is located in Iceland, where the entire electricity demand is covered by geothermal energy and water power.



## Promoting renewable energy in the supply chain

We also promote the use of renewable energy in our supply chain. Our work begins at the strategic level: based on information we draw from our suppliers as part of the → **Supply Chain Programmes (CDP)** →, we reach agreements with our suppliers that they will increase the share of renewable energy they use. We assess the CO<sub>2</sub> performance as part of annual Supplier Performance Reviews for our top 100 suppliers. The share of renewable energy is one of the ten points that are relevant for the BMW Group. This means that the reported share of renewable energy is compared to that of a reference group, and required action is derived on this basis. We regularly come to agreements with clients on how to increase this share. A particularly outstanding example from 2016 is the DRÄXLMAIER Group, a family-owned enterprise and one of the top 100 automotive providers worldwide with the focus area of vehicle electrical and interior systems. The DRÄXLMAIER Group agreed to switch to renewable gas and electricity for all locations in Germany and Austria, and then implemented this in 2016. In addition, the BMW Group has communicated science-based targets in its own public CDP reporting – and a complete shift to renewable energy is required to achieve these. We ask all suppliers involved in the CDP Supply Chain Programme to check that their emission goals for the reporting period of 2017 are compliant and to formulate their own science-based targets. This process cannot be implemented without a clear strategy change towards renewable energy.

→ see  
chapter 3.3

## Forecast

In the coming years, we will examine the conditions for the expansion of renewable energy in other countries and take appropriate measures.

For example, as of 2017, 30% of the electricity requirements of our branch in Stuttgart/DE will be met by a photovoltaic system. In Mexico, the construction of the solar energy facility in the new plant in San Luis Potosí is scheduled so that carbon-free energy will be available to the plant at the start of production in 2018.

In addition, we will continue to move forward with our strategic analyses for the best solution for carbon-free energy supply in the USA as an important market with one of the largest production plants of the BMW Group.

Aside from the use of green electricity, we work on developing strategies to meet the future heat and energy requirements of our locations worldwide without generating emissions.





# → SUSTAINABLE, RESOURCE-EFFICIENT SUPPLY CHAIN

The BMW Group will significantly increase supply chain transparency and resource efficiency by 2020.



## 3.3 SUSTAINABLE, RESOURCE-EFFICIENT SUPPLY CHAIN

Much of the value added is created by our suppliers. The global growth of the BMW Group creates ever more complex supply chains. The implementation of environmental and social standards along the entire value chain is one of our greatest challenges. We work closely with our suppliers to increase transparency and resource efficiency in the supply chain and ensure that sustainability standards are complied with. Only by fulfilling our social and environmental responsibility can we secure the sustainability of our business model.

The basis for increasing transparency and resource efficiency is our → **BMW Group Supplier Sustainability Standards**, which establish social and environmental criteria for our suppliers as well as their suppliers. The minimum requirements to be satisfied by all suppliers are complemented by specific requirements for selected projects.

In order to ensure compliance with the sustainability requirements, we use an industry-wide sustainability questionnaire as part of our risk management process. The resulting evaluation of our suppliers is a crucial criterion for order placement. The individual production plants of the supplier are taken into account in this – not just the headquarters. Together with our suppliers, we develop approaches for more efficient handling of resources. We also analyse the impact of selected raw materials or materials along the entire supply chain and support specific initiatives to increase sustainability.



The BMW Group works with over 12,000 direct suppliers.

We were able to make significant progress in 2016:

- During the reporting period, 5,616 (2015: 1,900) potential and existing supplier locations were evaluated via a sustainability questionnaire. The evaluated sustainability is a tendering criteria for almost all our parts suppliers → **Retrieve self-assessment questionnaire.**
- More and more suppliers are now satisfying our minimum requirements at the time of commissioning. 38% of suppliers commissioned in 2016 already had ISO 14001 certification. We demand that designated supplier locations comply with minimum requirements by the start of production or agreed target date at the latest.
- Suppliers who took part in the Supply Chain Programme of the CDP in 2016 made up 69% of the BMW Group purchasing volume in 2016 (2015: 53%). This meant that transparency concerning CO<sub>2</sub> emissions in the supplier chain was significantly increased. Suppliers taking part in the programme reported an overall reduction of around 36 million tonnes in CO<sub>2</sub> emissions (2015: 35 million t). In addition, we have started to reach agreements with individual suppliers on pilot projects to reduce emissions on this basis.



### Principles and standards for suppliers

For the BMW Group, it is essential that our business partners meet the same environmental and social standards we have set ourselves. The BMW Group Supplier Sustainability Standards stipulate compliance with internationally recognised human rights as well as environmental, labour and social standards for all suppliers of the BMW Group. The BMW Group Sustainability Standard is an integral part of the request for proposal documentation for new suppliers and is thus a key tool in the integration of sustainability aspects into the procurement process.

Each potential new supplier must take into consideration the BMW Group sustainability requirements when submitting a proposal. All agreements concluded by BMW AG with its suppliers contain clauses based on the principles of the → **UN Global Compact** and the → **International Labour Organization (ILO)**. These agreements also specify that a contractual commitment must be made to comply with human rights, labour and social standards as well as to implement environmental management systems and specific environmental protection measures → **BMW Group website on supplier network**.

When they sign the contract, our suppliers also commit to ensuring that their suppliers in turn comply with these agreements. Accordingly, our suppliers are instructed to ensure that sustainability criteria are also met in the upstream supply chain.

### Training employees and suppliers

With our training programmes, we aim to raise awareness of the topic of sustainability in the supply chain among both purchasers and our suppliers. We explain cause and effect and clearly communicate our expectations to them. In this way, we enable participants to make decisions that contribute towards greater sustainability in the supply chain.

We aim to train as many of our purchasers as possible. During the reporting period, 156 purchasers took part in a face-to-face training course in sustainability which includes social, ecological and governance topics. 53 purchasers underwent specific training in administration of the sustainability questionnaire.

We also provided training to 25 of our suppliers as part of a two-day certificate course (2015: 20) and carried out cross-industry training courses for BMW suppliers with identifiable sustainability deficits in China and the Czech Republic. More than 120 employees of our suppliers were trained on the topic of sustainability, with a focus on social standards. Another area of focus was raising awareness among 17 BMW Group logistics providers at an industry-wide event. In addition, we held a two-day basic training programme on sustainability as part of the Supplier Training Days in Mexico City in June.

In January 2016, we used the industry-wide event “Automotive Supply Chain Forum – Enhancing Sustainability Through OEM – Supplier Collaboration” in Shanghai/CN to train top managers and operations employees of 33 of our suppliers onsite on specific requirements of the BMW Group.

### Increasing transparency and minimising risks

The main instrument we use to ensure implementation of our sustainability standards is our sustainability risk management process. It is made up of the following three steps →.

→ see  
figure 3.01

## Risk management process of the BMW Group

→ F3.01

1. IDENTIFY RISKS		2. RETRIEVE SELF-ASSESSMENT QUESTIONNAIRE		3. CARRY OUT ASSESSMENTS AND AUDITS	
Identify high-risk supplier locations based on sustainability risk filter	Identify and analyse high-risk suppliers based on media screening	Obtain self-assessment/sustainability questionnaire	Develop supplier-specific corrective action plan, based on self-assessment	Sustainability audit conducted by independent external auditors	Corrective action plan based on audit and assessment result
				Sustainability audit conducted by employees of the BMW Group	

**1. Identify risks**

In order to identify risks, we use a BMW Group-specific sustainability risk filter. This filter takes account of both regional and product-specific risks. This includes, for instance, an assessment of social risks in certain countries, such as child labour or forced labour. However, we also consider process materials containing substances that can be hazardous to health and environmental risks such as damage to nature and emissions.

**2. Retrieve self-assessment questionnaire**

Before nomination, each production and distribution location of the supplier must provide information about how they implement environmental, social and governance standards in an industry-specific sustainability questionnaire. Information regarding observance of human rights and bans on forced labour, resource-conserving material use, as well as ISO 14001 or EMAS environmental management systems is collected. → GRI G4-EN32, GRI G4-LA14, GRI G4-HR10, GRI G4-S09 These and other aspects → are relevant criteria for the tendering decision.

→ see  
infobox  
on page 74

In 2016, 5,616 nominated, active and potential suppliers were assessed via this questionnaire. This included 89% (2015: 86%) of new suppliers of materials needed for production with a tendering volume of more than €2 million of BMW AG as well as 96% (2015: 91%) of new suppliers of materials not needed for production with a tendering volume of more than €5 million of BMW AG. → GRI G4-EN32, GRI G4-LA14, GRI G4-HR10, GRI G4-S09

By establishing sustainability requirements in the tendering process, a number of our suppliers have taken decisive measures to better integrate sustainability into the organisation and processes of their companies. Specific measures, such as a comprehensive changeover to renewable energy, have already been initiated →.

→ see  
chapter 3.2

If a low sustainability level is identified on a supplier's questionnaire, we communicate the industry-wide standard recommendations to them. In order to ensure that such a supplier qualifies for nomination in the tendering process, the BMW AG purchaser requires that improvement measures be implemented by start of production at the latest. If required, we supplement the supply agreements with corrective action plans and binding rules, such as the certification of the health and safety management system. This ensures that all sustainability requirements are met by the time the supplier begins providing services.

## Sustainability in the tendering process: minimum requirements for suppliers

By integrating sustainability criteria into the tendering process, we raise awareness among our suppliers' top management and kick-start the process of developing and implementing sustainability strategies and programmes at our suppliers. This is how we spread our sustainability approaches to the supply chain. We expect our suppliers to fulfil the following minimum requirements:

In addition we have set down additional criteria specific to the BMW Group that all suppliers must comply with. These requirements are also binding for selected projects such as the production of the BMW i series. → GRI G4-EN32, GRI G4-LA14, GRI G4-HR10, GRI G4-S09





### 3. Carry out assessments and audits

If the sustainability risk filter, media screening and/or sustainability questionnaire identify selected supplier locations that demonstrate an increased risk of non-compliance with sustainability standards, they are checked and qualified by independent sustainability audits or BMW Group sustainability assessments. The sustainability audits are carried out by external auditors, while the sustainability assessments are implemented by employees of the BMW Group. In 2016, 15 audits (2015: 11) and 28 (2015: 2) assessments were conducted. Sustainability assessments have been carried out since the end of 2015. Crucial areas of action identified by audits and assessments have been highlighted, particularly in the areas of hazardous substance management, waste management and general working conditions.

If the results of an audit or assessment show non-compliance or potential for improvement, we work with the supplier to develop a specific plan of action and provide as much assistance as possible with implementation, which generally must take place before start of production. If the supplier is uncooperative or in breach of a fundamental BMW Group sustainability clause, the contract may not be granted or termination of business relations may follow. Our goal, however, is to determine the majority of risks during the first two stages, to manage these risks and to help suppliers raise their sustainability standards.

During the reporting period, our employees from procurement introduced the process for identifying and evaluating sustainability risks at 5,616 potential and existing supplier locations related to production and relevant sub-supplier locations (2015: 1,900). Sustainability deficits were identified at 3,368 potential and existing supplier locations and corrective measures to remedy the sustainability deficits were defined for 2,353 (2015: around 400). The key corrective measures from the perspective of the → **UN Global Compact** were related to implementation of the following aspects:

- Environmental management system
- Company policy that clarifies principles regarding collective bargaining, freedom of association and/or bribery
- Environmental policies covering the handling of substances and chemicals that are usable to a limited extent.

→ GRI G4-EN33, GRI G4-LA15, GRI G4-HR11, GRI G4-SO10

779 supplier locations implemented the corrective measures by the end of 2016. Confirmation that the corrective measures have been implemented by the supplier is a prerequisite for commissioning. 650 supplier locations were not commissioned because they did not meet the sustainability requirements of the BMW Group, among other things. We have not, however, terminated any existing cooperation. We regard this as confirmation of the success of our risk management approach of addressing and demanding sustainability requirements early on in the procurement process. → GRI G4-EN33, GRI G4-LA15, GRI G4-HR11, GRI G4-SO10

Our Supply Chain Response Team responds to indications of potential non-compliance with our sustainability principles. The team is made up of a representative from Operational and Strategic Purchasing, Corporate Strategy (sustainability experts), Corporate Communications as well as the works council. In 2016, the Supply Chain Response Team follows up three indications of three potential breaches of sustainability requirements, which were related to non-compliance with freedom of association, child labour as well as inappropriate treatment of animals. These cases are currently being reviewed and processed. → GRI G4-EN33, GRI G4-LA15, GRI G4-HR11, GRI G4-SO10

## Improving resource efficiency

In addition to our sustainability risk management system, we use the Supply Chain Programme of the → **CDP** to increase resource efficiency and transparency in the supply chain.

We have been involved in the Supply Chain Programme of the CDP since 2014. With a coverage rate of 69%, we have already achieved our goal of having significantly more than 50% of our production-related purchasing volume covered by the CDP reporting of our suppliers by 2016. In the coming years we will be placing the focus on stabilising the participating supplier group, increasing transparency and implementing measures to reduce emissions.

Within the CDP, participating suppliers report on their CO<sub>2</sub> status and, if applicable, the water consumption status of the respective reporting period. The Supply Chain Report answers a number of qualitative and quantitative questions: from targets and initiatives, to risk management, through to integration into the corporate strategy, from CO<sub>2</sub> emissions through to the share of renewable energy. An overall evaluation verifies the completeness and content of the answers. The results are fed into the purchasing strategies of the relevant departments and a competitive comparison is played back to the key suppliers during their annual supplier development interviews. During these interviews we discuss the action required with the top managers of our suppliers and agree on specific improvement measures. In the reporting period this included further increase in transparency, particularly in the area of indirect emissions, and – in the case that this has already been achieved – measures to reduce emissions, for example by increasing the percentage of renewable energy.



Resource-efficient 40-tonner: the electric trucks that drive to BMW Group plants produce 21 tonnes less CO<sub>2</sub> per year than a diesel truck.

Of the 163 BMW suppliers participating in the CDP in 2016 (2015: 99), 83% (2015: 84%) integrated measures to combat climate change into their corporate strategy and 68% (2015: 64%) also set themselves corresponding targets. 81% (2015: 80%) of participating suppliers already reported reduced emissions for individual projects and 45% (2015: 35%) were even able to keep their overall CO<sub>2</sub> emissions constant or reduce them. Savings of around 36 million tonnes of CO<sub>2</sub> equivalent were reported to us from our supplier network for the year 2016 (2015: 35 million t). These savings mainly resulted from an increase in energy efficiency in production processes and from optimisation of transport processes.

The rising number of suppliers in the CDP and the positive results that have been achieved thus far would seem to indicate that our efforts to increase transparency and resource efficiency in the supply chain are effective.

## Sustainable extraction and procurement of raw materials

Given the intermediate trade and processing stages and commodities trading on the stock exchange, implementing sustainability standards as early as the raw materials extraction stage is quite a challenge for both us and our suppliers.

The BMW Group Supplier Sustainability Standards oblige our suppliers to ensure that their own suppliers also comply with our sustainability requirements. Furthermore, our potential influence on sub-suppliers is restricted given the number of global suppliers.

We have identified particularly critical raw materials in our material strategy. For these, we analyse the relevant need for action and derive the procedure as well as specific measures for joint implementation with our supplier network.

In terms of quantity and costs, steel is one of the main raw materials used in production by the BMW Group. Due to this particular relevance, we aim to gradually increase transparency in steel supply chains. We therefore examined supply chains from the mine to production and determined such factors as the CO<sub>2</sub> emissions of the suppliers as part of a pilot study. The result revealed that the CO<sub>2</sub> emissions of individual BMW suppliers per tonne of steel are substantially lower compared to the previously known and used average industrial values.

Aluminium is another main raw material of the BMW Group. Besides increasing the amount of secondary aluminium, we are committed to establishing a certification standard for aluminium along the value chain. In addition, as a founding member of the → **Aluminium Stewardship Initiative (ASI)**, the BMW Group is active in both its Board of Management and standards committee. In 2016, the necessary governance structures of the ASI as an independent institution were developed, the member base significantly enlarged and public consultation on the traceability report, the so-called Chain-of-Custody Standard, carried out.



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Another relevant raw material is cobalt which is used in batteries, among other things. We are aware of the risks involved in extracting cobalt and receive many requests from interested parties regarding this. In order to ensure respect of human rights and due diligence, we are in constant contact with our suppliers. For some years now, we have asked our suppliers to disclose the origin of this raw material. As cobalt is a raw material involving high risks in terms of human rights, we also work on establishing a transparent supply chain. Individual companies alone cannot reduce the human rights risks of cobalt extraction. For this reason, we initiated an exchange with suppliers, other companies and representatives of civil society and organised a round table on the topic of cobalt in cooperation with CSR Europe in November 2016.



Since 2009, every supplier has had to complete a sustainability questionnaire before being awarded a new contract.

We invited key players to discuss potential further steps with us and find practical approaches. We also have an active role in the Responsible Cobalt Initiative (RCI). At the same time, we have commissioned a scientific study together with other companies, in which households, miners as well as other figures involved in the Democratic Republic of Congo were surveyed. The goal is to better understand the lead-ups to the current situation in order to derive appropriate measures.

As regards the supply chain of the natural fibre kenaf, which is used for the interior equipment of the BMW i3, we are working in Bangladesh together with our suppliers, the DRÄXLMAIER Group, to ensure sustainable production. The programme includes training activities for farmers in order to increase cultivation efficiency and fibre quality. 960 farmers have taken part in these activities so far. Development of a more transparent and leaner supply chain as well as implementation of measures to increase sustainability in the supply chain are also part of the programme.

Within our sustainability questionnaire, all of our suppliers are systematically consulted about conflict minerals and asked to report back on their status regarding absence of conflict. This way, sustainability criteria on raw materials extraction flow into our supplier selection process. We therefore work continuously on improving transparency in order to ensure far-reaching absence of conflict in the supply chains.

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We are incrementally implementing our new material strategy in the selection of materials for our future vehicle production. As of 2017, there will be new BMW Group specifications for suppliers on supply chain transparency. The objective is to create traceability right through to the relevant sub-suppliers, particularly for critical supply chains. With the inclusion of sub-suppliers, we strive to significantly increase transparency in our supply chain even further in the coming years.

In addition, the rise in energy efficiency and increase in the share of renewable energy in the supply chain will contribute to the reduction of CO<sub>2</sub> emissions. Membership of CDP enabled us to integrate CO<sub>2</sub> scoring of our suppliers into the supplier strategy of our procurement departments. We are currently working on joint measures with CDP within the automotive industry in order to strengthen this approach.



Kenaf from Bangladesh.

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# EMPLOYEES AND SOCIETY

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**4**



**MATTHEW HODES**UN Director,  
for the Alliance of Civilizations**What are the main challenges nowadays for a global company acting across different cultures?**

Every organisation operating at a global level faces the challenge of balance. The influence of cultural norms applies to those you serve and your staff. The best global organisations are constantly learning how best to balance core values of the organisation with the values of the societies in which they work. Integrating those values effectively leads to success.

**What do you think a company needs to do to promote diversity within its organisation?**

Diversity is a core value. Greater inclusion is good for an organisation as it expands on the sources of talent it can access. It is also good for society as it expands opportunity for those who might otherwise be left out. Recruitment, promotion and retention processes need to reflect that core value.

**How can the private sector contribute to the achievement of the UN Sustainability Goals?**

The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. They represent a common plan to address the world's most pressing problems. They point the way to peaceful, inclusive societies, which, in turn, provide the healthiest environments for business. The UN recognises the need to connect its efforts with the complimentary efforts of the private sector.

Initiatives such as the Business Call to Action and the UN Global Compact provide direct linkages between the private sector and the UN. The public sector can develop strategic goals and targets to measure progress to those goals, but cannot reach them without a broader partnership. The private sector has the ability to use innovation, increased efficiencies, and rapidly improving technology to reach these objectives. Doing good while doing well – this is the essence of corporate social responsibility.

**How do you view the BMW Group's approach on sustainability?**

BMW Group has been comprehensive in its approach, addressing the products they make as well as the way in which they make those products. More electric vehicles, increasing use of renewable energy sources, reducing the amount of hazardous materials created during construction, these are core elements of sustainability. BMW Group has also recognised diversity as part of this equation, a concept reflected in its human resource policies and through its support to intercultural understanding through the Intercultural Innovation Award in collaboration with the United Nations Alliance of Civilizations (UNAOC).

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# RELEVANCE FOR BMW GROUP

**Foresight and flexibility is called for when it comes to the increasing average age of the world population, far-reaching changes in the working world brought about by digitalisation and automation coupled with a greater diversity of lifestyles and cultures among employees. As a company that is currently active in over 150 countries, the BMW Group is responding to these developments worldwide. By helping our employees to acquire the relevant expertise and skill sets, we provide the flexibility and capabilities to successfully master these trends. We therefore offer employees personal development opportunities over the course of their entire career. In this way, we foster their diverse talents and help them to develop their potential so that we can lay the groundwork for our future success.**

# KEY FACTS AND FIGURES

BMW Group employees at  
end of year number

**124,729**

↗ 2016

**122,244**

2015

Share of female employees in manage-  
ment positions at BMW Group in %

**15.3**

↗ 2016

**14.5**

2015

Expenditure on corporate  
citizenship in € thousand

**87,837**

↗ 2016

**39,109**

2015

Attrition rate at BMW AG  
as a percentage of workforce

**2.70**

↗ 2016

**2.08**

2015

Expenditure on donations by the  
BMW Group in € thousand

**70,356**

↗ 2016

**17,066**

2015





## → HEALTH AND PERFORMANCE

To preserve the health and the performance of its employees in the long term, the BMW Group promotes personal responsibility and an appropriately designed work environment.



## 4.1 HEALTH AND PERFORMANCE

**In an ageing society, we can only be successful in the long term if we contribute towards ensuring that our employees remain healthy. Maintaining the health and performance of our employees is therefore a top priority at BMW. Our occupational health and safety concept provides for a holistic health management programme with a focus on healthy canteen meals, integrated management of work safety and ergonomics as well as ageing-appropriate work systems.**

The measures we have implemented have enabled us to avoid occupational accidents and reduce absenteeism as well as health-related costs. With fewer absences and more motivated employees, the BMW Group is able to keep its HR costs competitive. Our health promotion activities also pay off in other ways as they lead to more creativity, productivity and innovation. The success of our efforts is demonstrated by the low rate of absenteeism due to illness, which last year was again below the industry average.

### Fostering health and performance in a holistic manner

We foster our employees' health and performance holistically through the BMW Group Health Initiative. The initiative raises greater awareness for the importance of health with offerings ranging all the way from general medical check-ups and targeted physiotherapy, nutritional advice and relaxation exercises to dialogue-based events and manager training courses.

We also offer an extensive prevention and rehabilitation programme. This includes fitness courses and other sports activities as well as nutrition seminars and courses on work safety as well as ergonomics and stress management. The current international campaigns "Healthy drinking", "Safe walking" and "Mental resilience" show employees how even small changes can improve their everyday lives. Regular special events draw attention to important topics such as resilience, cancer prevention and addiction hazards. They are designed to motivate employees and executives to become proactive in these areas.

#### **Health Management 2020: promoting personal responsibility**

The "Health Management 2020" programme is a holistic, internationally focused approach to fostering the long-term health and performance of our employees throughout their working life.

The programme follows a cycle of four stages:

1. Building knowledge about health, for example through information, talks, seminars and training courses
2. Identifying health issues by means of a questionnaire and thorough medical check-up



3. Deriving and developing needs-based measures, both individually (on the basis of the personal health reports and medical consultations provided) and at the departmental level
4. A repeat check-up to evaluate improvements in health associated with the programme

Since the introduction of the “Health Management 2020” programme in 2014, over 47,000 BMW Group employees have taken part, including 15,000 in 2016 alone. This corresponds to around 42%, or 13% of the core workforce worldwide. All participants receive a personal health report, which gives the employee an easy-to-understand summary of his or her medical and work-related parameters. In the subsequent medical consultation, prevention measures can be derived based on individual needs.

At departmental level, approximately 200 reports were compiled in 2016, identifying a range of strengths and potential improvements in the areas of health promotion and the working environment. Possible measures range from helping employees in the process of better reconciling family life and career to ergonomic improvements. The programme thus contributes both to reinforcing individuals’ sense of personal responsibility and to designing a healthy working environment. In 2017, the first departments will have completed the evaluation cycle. We will then use the results to comprehensively assess the impact of the programme.

## Working with new technologies

Working with new technologies and increasing automation presents the company with new challenges in terms of occupational health and safety. For example, the BMW Group is taking a very close look at the area of human-machine collaboration, with one focus in 2016 being to ensure the safe operation of autonomous tigger trains. We collaborated here with the professionals in the occupational safety association as well as the manufacturers. Now that the pilot applications have been tested in Dingolfing, Regensburg and Leipzig, the tigger trains are ready for productive use in further BMW Group locations in the coming year.

## Integrated health and safety management

At present, 28 of our 31 production locations have occupational health and safety management systems certified according to the OHRIS (Occupational Health and Risk Management System) or OHSAS (Occupational Health and Safety Assessment Series). We plan to certify the plant we are building in Mexico according to OHSAS 18001 by 2020.

In addition, active occupational health and safety committees with representation from both the employer and employee sides, in particular works councils, are at work at almost all BMW Group locations making continuous improvements in health and safety at the workplace. → GRI G4-LA8 Well over 90% of employees are represented on these health and safety committees by union representatives (works councils). This figure also includes temporary workers, interns, thesis students working at the company as well as doctoral candidates. → GRI G4-LA5



There have been no fatal accidents at the BMW Group for the last eleven years. → GRI G4-LA7 In 2011, we set ourselves the target of reducing the accident frequency rate worldwide to below 4.5 accidents per one million hours worked by 2020. This is a decrease of around 50% compared to the rate in 2010. This figure includes all accidents that lead to at least one day of absence from work. Continuous improvement of occupational health and safety systems and workplace safety conditions as well as dedicated safety training courses already helped us to beat this target in 2015. In 2016, we worked even more closely together within our global network by way of workshops and expert groups as well as on the BMW Group's own social platform in order to further improve work safety. In addition, we were able for the first time to record accidents across the entire BMW Group. The accident frequency rate at the BMW Group was 4.0 accidents per one million hours worked. → This represents a further improvement over the previous year.

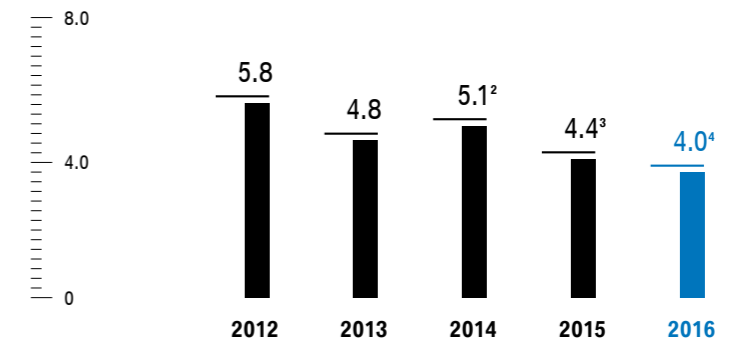
→ see  
table 4.01

The accident frequency rates recorded differ worldwide, due in part to varying legal and insurance-related requirements in the respective countries. In some cases, the differences are also due to regional variations in how the applicable management system standards are applied. Particularly in our plants in South America and Asia, we were able in some cases to realise a rate of fewer than two accidents per one million hours worked last year. To achieve this low rate, work safety experts are working hand-in-hand with colleagues from the corporate departments of the BMW Group to develop management systems ensuring that existing knowledge is put to effective use.

## Accident frequency rate at BMW Group<sup>1</sup>

→ T4.01

in %



<sup>1</sup> Number of occupational accidents per one million hours worked with at least one day of absence from work.

<sup>2</sup> Figure not directly comparable to previous years' due to expansion of scope to include the German dealerships. Around 88% of BMW Group employees represented.

<sup>3</sup> Figure not directly comparable to previous year due to expansion of scope to include the plants in Brazil, Thailand and India. Around 90% of BMW Group employees captured.

<sup>4</sup> Expansion of scope to include 100% of BMW Group employees.

→ GRI G4-LA6

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SERA – Safety and Ergonomics Risk  
Assessment

As a global enterprise, the BMW Group must observe varying requirements with regard to assessing the workplace for potential hazards from the point of view of ergonomics and safety. We met this challenge in 2016 by introducing SERA (Safety and Ergonomics Risk Assessment). The system replaces the former ABATech system for analysing potential health and safety risks as well as other methods previously used in the BMW Group. The introduction of SERA simplifies the procedure for assessing hazards and exposure in production, in production-related areas, in development and in the BMW Group service garages, thus offering a comprehensive solution. The user selects a specific workplace on the tablet-optimised interface and all working steps for that activity are then assessed. The system captures and evaluates for example the forces required for the individual work steps as well as their duration and the posture adopted by the worker. After a workplace has been assessed using SERA, the office for health and safety and ergonomics then advises on how excessive stress and strain can be minimised by modifying the technical conditions, altering the work step or by staff rotation.

SERA was introduced at five German locations in 2016. Training sessions lasting 1.5 days familiarise those in charge with the new system. The entire new vehicle development process is already being assessed with the help of SERA and the international rollout is planned for 2017.

Creating ageing-appropriate working  
conditions and supporting people with  
performance limitations

Demographic change is a challenge that we at the BMW Group are actively addressing. We have been developing constructive responses to this trend for many years now in our “Today for Tomorrow” programme. We aim to create working conditions worldwide in which young employees can remain healthy as they grow older, while older employees can contribute their particular strengths. The BMW Group therefore speaks not of age-appropriate but of ageing-appropriate working conditions that preserve employee health and performance.

At our plants, we make every effort to provide long-term job security to employees with debilitating health issues. And last year we continued to develop our BMW Group strategy for integrating employees with newly restricted capabilities. Such employees are no longer able to do the work they once did following an illness or accident. The share of BMW AG employees with severe disabilities was again 6.4% in 2016 →.

→ see  
table 4.02



The BMW Group tries to provide long-term employment to staff with health problems, giving support in the form of a learning workshop for the hard of hearing.

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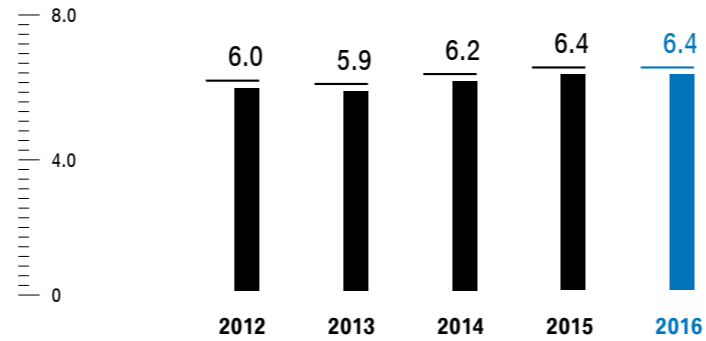
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Share of employees with severe disabilities  
at BMW AG<sup>1</sup>

→ T4.02

in %



<sup>1</sup> The share of employees with severe disabilities is based on the statutory requirements in accordance with the German Social Code (SGB IX). In addition, the BMW Group awarded contracts amounting to around €35.6 million to workshops for the severely disabled in Germany in 2016, of which around €10.5 million can be written off in accordance with the compensatory levy act. The BMW Group thus makes a considerable contribution towards securing the livelihood of the severely disabled individuals at these workshops.

## Forecast

Due to its success, the “Health Management 2020” programme will continue to be implemented and evaluated internationally in 2017. The campaigns launched in 2015 and 2016 as part of the “Health Initiative” will likewise continue in 2017 and new campaigns are also being prepared. We will continue to meet the challenge of integrating the varying worldwide requirements and standards into our BMW Group management approach. In future, our target agreements will also be drafted in a similar way worldwide. The global rollout of the SERA system in 2017 will be a major step toward ensuring uniform international safety and prevention standards. Through innovative measuring techniques such as motion capture, digitalisation can help employees to keep ergonomic factors in mind as they work. We will focus on driving further digitalisation of measurements and measuring technology in the future. Human-machine collaborations will increase in the coming years. Occupational safety and health systems will then face the challenge of technically assessing the impact of these new processes.





## → LONG-TERM EMPLOYEE DEVELOPMENT

The BMW Group ensures long-term employee development by seeking out the right employees, making the most of their talents, developing potential and ensuring employability.



In 2016, 89.9% of employees took part  
in specialised further education programmes.



## 4.2 LONG-TERM EMPLOYEE DEVELOPMENT

The success of the BMW Group is based on the dedication and technical expertise of its employees. We make every effort to recruit and keep the best people. To achieve this, we offer them attractive and secure jobs, a sound work-life balance, comprehensive development and training opportunities, and good long-term career prospects.

Thanks to the high demand for our products and services, the number of employees working for the BMW Group increased worldwide by 2.0% to a total of 124,729 by the end of 2016 →.

→ see table 4.05

Satisfied and motivated employees are a key success factor for the BMW Group. Job security is therefore a high priority for us. We pay above-average compensation and give our employees a range of options to help them find the right work-life balance. The BMW Group also attaches great importance to the training and further education of our employees →. This is essential for keeping pace with the rapid technological advances in the automotive industry. Increasing digitalisation, for example, calls for new skills in fields including artificial intelligence, Big Data analytics and Industry 4.0. The BMW Group thus consistently pursues the concept of life-long learning.

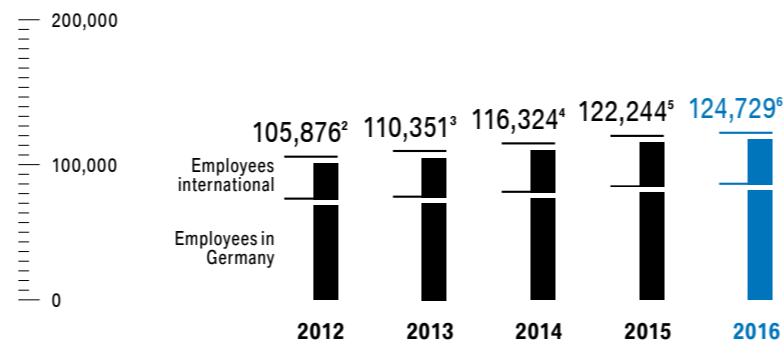
As one of the world's most attractive employers, the BMW Group has a decisive advantage in the competition for skilled workers. This is demonstrated, for example, by studies on the attractiveness of employers conducted by Trendence and Universum, in which we were once again given top ratings in 2016.

→ see table 4.03

### BMW Group employees at end of year<sup>1</sup>

→ T4.03

Number of employees



<sup>1</sup> Figures exclude suspended contracts of employment, employees in the non-work phases of pre-retirement arrangements and low-income earners.

<sup>2</sup> Of whom 35.2% are tariff-bound production employees of the BMW Group.

<sup>3</sup> Of whom 35.1% are tariff-bound production employees of the BMW Group.

<sup>4</sup> Of whom 36.1% are tariff-bound production employees of the BMW Group.

<sup>5</sup> Of whom 36.3% are tariff-bound production employees of the BMW Group.

<sup>6</sup> Of whom 35.4% are tariff-bound production employees of the BMW Group.

→ GRI G4-10

### Offering fair pay and attractive social benefits

The BMW Group policies for remuneration and additional benefits apply for all of our companies and regardless of employees' gender, religion, origin, age, disability, sexual orientation or country-specific characteristics. We follow the guiding principle that the total remuneration package must be above the average for the respective labour market. We thus conduct annual compensation studies worldwide to determine our current market positioning and ensure that every employee receives compensation commensurate with the relevant labour market. → GRI G4-LA13

The total remuneration package is made up of the monthly fixed salary, a variable share in the company's profits and a wide range of social benefits, for example a company pension. This enables us to reward personal performance in a fair manner while continuously promoting employee motivation. Our remuneration policy is thus an integral part of a consistent and transparent process of employee development. → GRI G4-LA2 In 2016, BMW AG received the HR Excellence Award in the digitalisation category for its company pension portal and app.

In order to ensure that remuneration is not only market-neutral but also gender-neutral, the BMW Group has established a multidimensional monitoring process to annually assess the previous year's salaries. The monthly salaries of women and men are compared, taking into account the dimensions of full- or part-time work, pay grade and age. The analysis carried out in 2016 for the year 2015 found no significant differences between the base salaries of women and men. → GRI G4-LA13

## Encouraging work-life balance

The working hours that function best for employees vary depending on what phase of life they are in, their individual life plans and their work situation. To enable the best possible work-life balance, the BMW Group offers its employees a wide range of flexible modules so they can tailor their working hours and locations to their personal needs.

## Offering flexible working hours

Through the concept of the working time account, all employees can exert some influence over their working hours. Office employees can take advantage of flextime, for example, or production staff can trade shifts or reduce their hours to gain some free days. In addition to statutory working time arrangements in some countries such as part-time work or parental or caregiver leave, the BMW Group also offers employees options such as sabbaticals or the "Vollzeit Select" (Full-time Select) scheme to provide further attractive ways to individually plan working hours. Sabbaticals can be arranged by employees worldwide, and our "Vollzeit Select" working time tool allows employees in Germany and Austria to take 20 additional days of leave each year with corresponding adjustments to their salaries, without any complicated red tape. Demand for these options continued to grow in 2016 →. The offer of flexible working time arrangements thus meets a real need and will therefore continue to be developed further.

→ see  
table 4.04

## Enabling mobile working

In 2015, some 25,000 employees, or around 50% of those working outside the direct production areas, chose to work at least one partial and/or full day on a mobile basis. This value was then already exceeded in the second quarter of 2016 →. Mobile working does not change the volume of work but allows for a more flexible organisation of existing working hours. Childcare or caring for dependents, for example, can then be better integrated into the everyday work routine. The employee and manager agree in advance to what extent the employee will be accessible or not. Outside of agreed working hours, employees have the right to switch off and be unavailable. Mobile working at the BMW Group stands for a culture of trust and relies on constructive dialogue.

→ see  
table 4.04



Alternative work forms at BMW AG<sup>1</sup>

→ T4.04

Number of employees	2012	2013	2014	2015	2016
Part-time employees	3,948	3,966	3,739	3,943	4,294
in % of total number of employees	5.8	5.7	5.1	5.1	5.0
Teleworking positions <sup>3</sup>	15,235	18,094	22,297 <sup>2</sup>	25,072	28,088
in % of total number of employees	22.5	25.9	49.9	53.0	59.4
Number of employees who use "Vollzeit-Select"	2,199	2,506	2,668	3,592	3,998
in % of total number of employees <sup>4</sup>	3.2	3.6	3.6	4.7	5.1
Sabbaticals	514	511	516	462	598
in % of total number of employees	0.8	0.7	0.7	0.6	0.7
Parental leave	1,674	1,968	2,271	2,535	3,028
in % of total number of employees	2.5	2.8	3.1	3.3	3.5

<sup>1</sup> Figures refer to employees with permanent and part-time contracts.<sup>2</sup> Reporting logic was adapted when teleworking was introduced in 2014. In the past, reporting was based on the technical possibility of teleworking; since 2014, the number of employees is reported who actually engage in teleworking.<sup>3</sup> Administrative positions.<sup>4</sup> Statistical population not including trainees, interns, thesis students working at the company, and doctoral candidates.

→ GRI G4-10, GRI G4-LA3

## Supporting parents through childcare

The BMW Group has been offering its employees family support services for many years. In 2016, we launched a collaboration with the parent support service of the Arbeiterwohlfahrt (Workers' Welfare Association, AWO) in Germany. Experts from the AWO's parent support service are available to help employees in Germany organise childcare and care for dependents as well as arranging household services. A hotline is also available to employees around the clock, offering quick help in case of emergency. Through services like these, we ease life's burdens on our employees and contribute to their long-term performance.

In addition, we have established childcare services at many of our German locations. With the support of parents' initiatives, we were able to accommodate over 460 children aged zero to six years at our German sites as of the end of 2016.

## Fostering talent and training employees

In a dynamic and fast-changing environment, life-long learning takes on tremendous importance. We therefore invest in training our employees and fostering their talents on an ongoing basis. This helps them keep up with the latest advances and gives them the skills they need to master the demands of new fields such as Industry 4.0 and digitalisation. The BMW Group's global package of measures ranges from vocational training and young talent programmes for student target groups to specialised training and high-potential programmes for future managers.

The BMW Group continued to invest substantially in training and further education in 2016, with expenditure of €352 million (2015: €352 million). On average, our employees participated in 3.8 days of further training in 2016 →. → GRI G4-LA9 This puts us in the upper range for our industry. Furthermore, every BMW Group employee receives a consistent and comprehensive individual performance and career development review at least once a year.

→ see  
table 4.05

→ GRI G4-LA11

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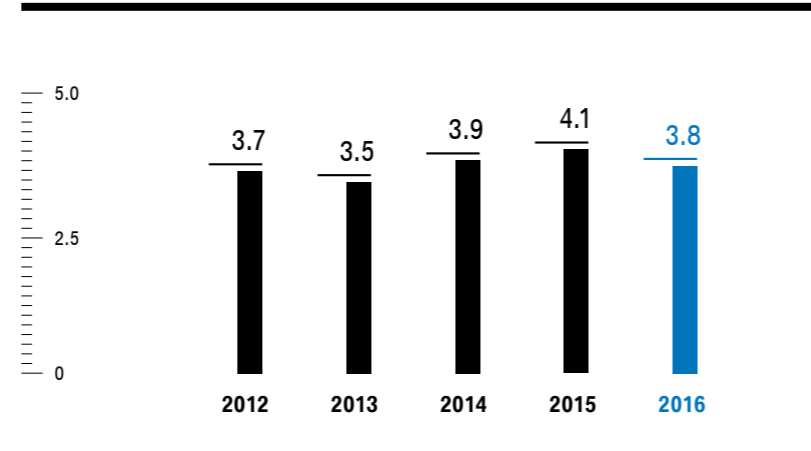
With a greater number of employees taking part in vocational training at plants in locations including the USA and Thailand, the BMW Group further expanded its international training activities in 2016. The number of people starting their careers at the company's German training centres remained constant, at 1,200. On the reporting date, 4,613 young people had vocational training contracts or were employed in young talent promotion programmes (2015: 4,700) →. We use the dual vocational training system in China, the USA, South Africa and the UK, and have now introduced it in Brazil, Thailand and Mexico as well.

→ see chapter on Further key indicators table 4.23

### Average days of training and further education per BMW Group employee<sup>1</sup>

→ T 4.05

Number of days



<sup>1</sup> Data retrieved by direct representation of the number of participants as well as a small share by qualified extrapolation.

→ GRI G4-LA9

### Building digital skills

Digitalisation changes the characteristics of products and services and influences how they are developed, manufactured and deployed. Production processes are obviously being transformed, but the BMW Group is also developing new, digitally networked automobiles that will one day be able to drive completely autonomously. These changes will inevitably affect the way our employees work. Our goal is therefore to equip existing employees with the required knowledge as well as to recruit new “digital talents”.

### Developing leadership skills

Our Group-wide “Corporate Leadership Programme” offers our managers a wide range of advanced training opportunities. The programme promotes the further development of strengths-based leadership skills at all hierarchy levels.

To foster international young talent, the BMW Group developed the “Global Leader Development Programme”. Integral components of the programme are various practical phases in Germany and abroad, targeted training measures, and diverse networking and exchange opportunities. Special emphasis is placed on developing intercultural competence. → GRI G4-LA10



Young management talent at BMW Group participating in a workshop on shaping the future of the company.

## Retaining satisfied employees

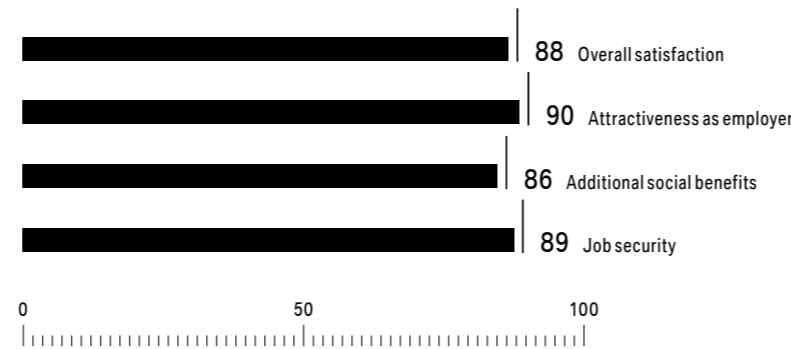
A Group-wide employee survey is conducted every two years, most recently in June and July 2015. 88% of those surveyed were satisfied with the BMW Group. Very positive ratings were given to attractiveness as an employer (90%), social benefits (86%) and job security (89%) →.

→ see table 4.06

### Group-wide BMW Group employee survey in 2015

→ T4.06

in %



### Achieving a low attrition rate

In 2016, the employee attrition rate rose compared to the previous year, to 2.70% →. This was mainly due to more employees retiring in 2016 →. If figures for retirement, pre-retirement and death are excluded, the attrition rate for 2016 was 1.13%. This low rate demonstrates the effectiveness of the BMW Group's proven programmes and measures geared toward increasing its attractiveness as an employer.

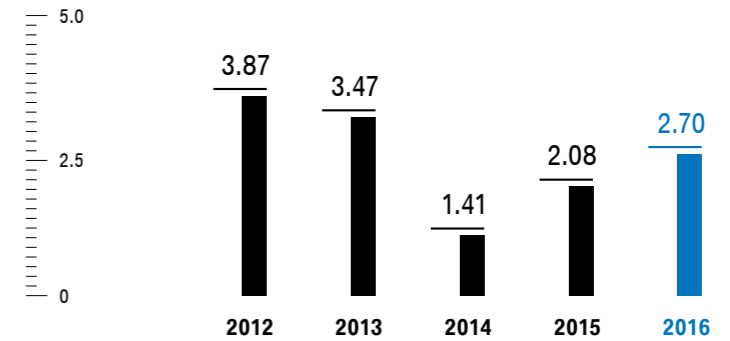
→ see table 4.07

→ see chapter on Further key indicators table 4.21

## Employee attrition rate BMW AG<sup>1</sup>

→ T4.07

as a % of the workforce



<sup>1</sup> Number of employees on unlimited employment contracts leaving the company.

→ GRI G4-LA1

## Forecast

Digitalisation along with new drivetrain concepts and business models were at the core of the revision of our corporate Strategy NUMBER ONE > NEXT. We will soon be establishing this strategy for the long term among our executives and employees. For this purpose, all executives will receive training on Strategy NUMBER ONE > NEXT during 2017. We will also be adapting our HR tools and framework conditions to incorporate the required skills.





## → DIVERSITY

Through its diverse workforce, the BMW Group increases its competitiveness and enhances its innovative strength.



The BMW Group supports diversity in the workforce in terms of gender, cultural background and age.



## 4.3 DIVERSITY

Modern society is characterised by a variety of different lifestyles. As an international company, the BMW Group regards an intercultural workforce, an appropriate gender balance and a good age mix as beneficial to our business. We are convinced that a diverse workforce increases our innovative strength and further enhances our competitiveness, for example by helping us to better understand customers' needs.

Each and every one of our employees, in all their diversity, is accorded equal levels of appreciation, respect and opportunity. To further promote diversity among our workforce, the Board of Management passed a Diversity Concept in 2010, defining three dimensions where diversity is to be strengthened throughout the BMW Group: gender, cultural background, age and experience – taking due consideration of local conditions.

The BMW Group's declared goal is to promote human diversity in the company worldwide, because employees' unique and different talents and personalities are a valuable resource. The BMW Group Legal Compliance Code prohibits discrimination of any sort. At all of our locations, we seek to prevent discrimination on the grounds of gender, age, sexual orientation, religion, disability or origin. Employees can address any queries in connection with this to their own managers, the relevant offices of the BMW Group, the HR department or the works council. The BMW Group SpeakUP Line furthermore gives all employees worldwide a way to anonymously and confidentially report possible breaches of this principle. → GRI G4-HR3

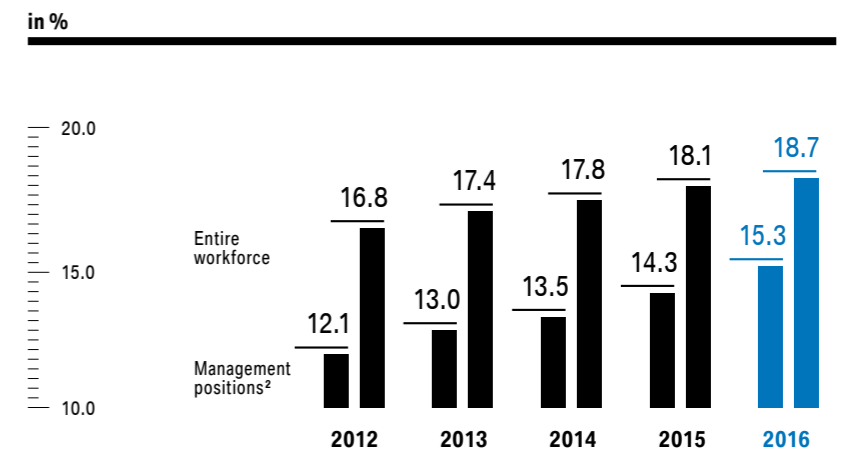
## Promoting female employees and managers

The BMW Group's Diversity Concept aims to bring the share of women in management positions into line with the overall employee structure. With a ratio of 30% women on the Supervisory Board, we are complying with the recommendation of the German Corporate Governance Code. In 2011, together with the other DAX 30 companies, we made a commitment to increase the share of females in management positions. We were able to further raise the proportion of women in management positions as well as youth training programmes during the reporting period →. The ratio of female employees in the total BMW Group workforce, at 18.7% (BMW AG: 15.8%), is now above our self-imposed target range of 15–17%. The share of female managers in the BMW Group worldwide rose to 15.3% (BMW AG: 13.3%). In the vocational training programmes, the ratio of women in the year under review was around 44% for the trainee programme and about 29% for the academic youth talent programmes.

→ see  
table 4.08

### Share of female employees in management positions and in the entire workforce at BMW Group<sup>1</sup>

→ T 4.08



<sup>1</sup> The share of female employees at BMW AG is 15.8% of the total workforce and 13.3% in management positions. The share of women on the Supervisory Board is 30.0% and 12.5% on the Board of Management.

<sup>2</sup> Reporting on the ratio of female employees has been changed for all years from a breakdown according to staff level to one based on management function.

→ GRI G4-LA12

### Getting women interested in technical occupations

We place a special emphasis on women in both our academic youth talent programmes and our vocational training programmes in an effort to recruit more female employees in the long term. The proportion of women in the “Global Leader Development Programme” was 44% at the end of December 2016 →. This creates the basis for a new generation of leadership that is more feminine, technically competent, well-networked, and sensitive to cultural and social issues.

→ see  
chapter 4.2



The BMW Group is active in over 150 countries.

### Understanding customers better through cultural diversity

As a company that is currently active in over 150 countries, we see diversity among our workforce as a major opportunity. In Germany, we currently have employees from 119 different countries working together very successfully. → GRI G4-LA12 The diversity of our employees helps us to understand the specific needs of our customers worldwide. Moreover, we are convinced that mixed teams are more creative and perform better.

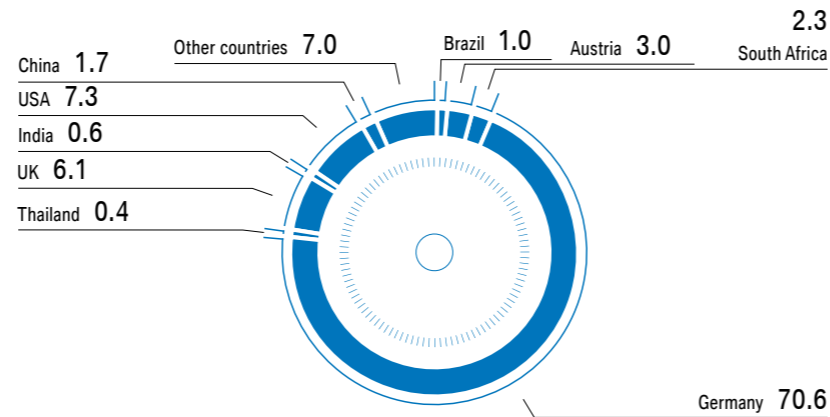
To further promote an international perspective and intercultural understanding among our new employees, we designed our BMW vocational training as well as the “Global Leader Development Programme” with the needs of international participants in mind. As a global company with an intercultural workforce, we focus on recruiting managers with international experience and are also working to increase the share of non-German top managers. The international character of the Board of Management and the Supervisory Board of BMW AG also reflects the global scope of the company’s business.



Share of employees per country with production location(s) 2016

→ T4.09

in %



→ GRI G4-10

Taking account of age diversity

At the BMW Group, we take into consideration the diversity of ages represented in our workforce so we can focus on tapping into the specific strengths of different age groups while avoiding age structure issues. When setting up new locations or divisions we recruit people from a range of age groups. Since 2013, the share of BMW Group employees aged between 30 and 50 years has been steadily decreasing. At the same time, the proportion of those over 50 years of age has grown.

BMW AG employees according to age group, divided into functions and gender<sup>1</sup>

→ T4.10

in %	< 30 years old	30–50 years old	> 50 years old
2014 total	12.5	62.0	25.5
2015 total	13.0	60.6	26.5
2016 total	12.5	60.2	27.3
direct <sup>2</sup>	16.4	54.8	28.8
indirect <sup>3</sup>	10.0	63.7	26.3
male	11.1	60.1	28.8
female	20.6	60.9	18.5

<sup>1</sup> Figures refer to employees with permanent contracts.

<sup>2</sup> Clock-controlled and production employees.

<sup>3</sup> All employees without clock control.

→ GRI G4-LA12

Our goal is to take early action – including in more indirect ways – to ensure sound ageing management while encouraging a lively exchange between the generations. In addition to safeguarding knowledge that comes from long years of experience, we want to make sure young and old work together productively and that each employee can optimally realise their potential.

The number of years each employee works for the BMW Group is increasing. This is a result of earlier entry into the company and later exit, due for example to rising retirement ages. To maintain employees’ performance as the workforce ages, we introduced the “Today for Tomorrow programme” → To complement this, we raise awareness among managers of the challenges posed by mixed-age teams.

→ see chapter 4.1

In 2016, the BMW Group once again took part in the activities for German Diversity Day, which helps businesses and institutions raise awareness of diversity issues and show how diversity makes them stronger. A special highlight this year was the Diversity Parcours, an interactive exhibition that was on view for two weeks at the BMW Research and Innovation Center in Munich and which informed employees about cultural diversity and the importance of exchanges between generations and genders.

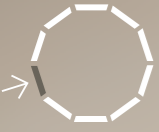
In order to better understand the needs of older employees, we conducted a workshop series over the past one and a half years with employees aged over 50. Participants worked together to draft new approaches to topics such as “Knowledge Sharing” and “Reverse Mentoring” (younger employees advising older ones). The workshop series was accompanied by a scientific paper that defined fields where the BMW Group can take action on these issues, proposing concrete measures to be taken.

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## Forecast

**In the coming years we intend to integrate our Diversity and Inclusion Concept even more thoroughly in the entire BMW Group. We will focus on carrying on our event and dialogue formats to raise awareness of diversity issues among managers and employees. In addition, we will sustainably implement our ongoing recruitment and human resources development measures throughout the organisation, while fostering formats geared toward different target groups in our divisions and departments. Central to these efforts is the responsibility assumed by our managers with their function as role models.**





## → INTERCULTURAL UNDERSTANDING

The BMW Group is a leader in intercultural understanding.





## 4.4 INTERCULTURAL UNDERSTANDING

The BMW Group works in a complex, fast-changing environment. Our success depends not only on our own performance and innovative strength, but also on the impact of developments in society and our interaction with a variety of stakeholders. With our commitment to improving intercultural understanding, we want to create added value for society. This lays the cornerstone for our future viability, because only companies that are relevant to society have a chance at long-term success.

Effective corporate citizenship forms an integral part of the BMW Group's vision of itself as a business enterprise. We attach particular importance to knowledge transfer and to ensuring that our support measures help people to help themselves in the long run. We therefore inaugurated a more professional approach to our corporate citizenship efforts in 2016, focusing on social projects with a measurable impact. In order to place our initiatives and projects on a sound institutional footing, we pursued collaborations worldwide, including with universities, and also initiated the establishment of not-for-profit organisations such as foundations.

### Promoting intercultural understanding and social inclusion

As a global corporation with a multinational workforce, the BMW Group has been working for many years now to promote understanding between different nations, religions and ethnic groups. We set ourselves the goal of reaching out to a total of one million people by 2020 with our activities in the areas of intercultural understanding and social inclusion. This goal was, however, achieved much sooner: by the end of 2015, we had already reached out to more than one million people worldwide through exchange programmes, online platforms, educational projects, and in particular through the → **Intercultural Innovation Award**. According to a survey by the United Nations Alliance of Civilizations, the number had reached over 1.2 million by the end of 2016. The activities vary from country to country and are geared toward local needs.

We have been bestowing the Intercultural Innovation Award since 2011, in collaboration with the → **United Nations Alliance of Civilizations (UNAOC)**. The award recognises innovative projects that set an example with their approaches to solving intercultural tensions and conflict. The special added value is that selected projects receive comprehensive advisory support from the BMW Group and the UN-AOC. The finalists receive a grant of \$100,000 for their project and can also participate in workshops on topics such as strategy and planning, implementation analysis and media training.

#### Rewarding volunteer work by employees

The BMW Group has been recognising the volunteer efforts of its employees every year since 2011 with a "Social Responsibility Award", under the auspices of Board of Management member Milagros Caiña Carreiro-Andree. The jury selects three projects that have created exceptional added value for society. An additional special prize awarded by the Doppelfeld Foundation recognises the efforts of younger employees. In the past several years we have received nearly 600 applications from a wide range of countries and sectors. The diverse projects range from

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refugee assistance to capacity building in developing countries and also include support projects for disadvantaged or disabled children and young people. In 2017, four projects will once again be recognised with project grants of €5,000 each. The four winners will be selected by a BMW Group jury and presented at a festive gala in May 2017.

### Integrating refugees

The initiative “WORK HERE!” was launched in 2015. It is a collaboration between the BMW Group, the German Federal Employment Agency and the local job centres that offers motivated refugees the opportunity to take part in a six- to nine-week course of practical training in various departments. The programme helps refugees find their way in the German labour market. The participants are mentored by BMW Group employees and also receive daily German language lessons and integration training. The project was extended to six locations in Germany in 2016. For younger refugees, there is a programme offering a six-month “starter qualification” preparing them for the job of production mechanic.



More than 300 refugees have taken part in the BMW Group's work experience programme “WORK HERE!” so far.

A total of over 300 refugees participated in “WORK HERE!” or the starter qualification in 2016, and we were in fact unable to allocate all available programme spaces. The participants' experiences up to now have shown that language skills, cultural understanding and technical proficiency are the key factors for integration into German working life. Despite the many challenges posed by these areas, we will push forward with our integration programme for refugees in 2017.

### Adapting global commitment to local needs

With 31 manufacturing and assembly plants and a network of over 150 national sales companies in countries around the world, the BMW Group is a truly global enterprise. In addition to our focus on intercultural understanding, we also develop specific educational offerings and corporate citizenship projects for our various locations. We believe it is possible to successfully shape a society that is based on social cohesion and innovation if the competencies and skills of each individual are harnessed for the general good and used to implement social change.

Before we launch a project, we examine the social challenges faced at the local level. The key question we ask ourselves is whether and how the expertise we provide can actually improve local conditions. We also benefit as a company from our corporate citizenship activities. For example, we become more familiar with local social structures, we learn to see things from an alternative perspective, and on this basis we are able to reach new target groups.

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In order to make our corporate citizenship efforts even more focused and effective, in 2015, we conducted a field analysis of the programmes being implemented at the BMW Group locations with the following results:

- Corporate citizenship mainly takes the form of support for existing programmes.
- The BMW Group is perceived as a sponsor of social activities rather than as a local stakeholder responsible for its own projects.
- There is no uniform understanding of corporate citizenship within the company and in most cases no involvement of dealerships, customers and partners.

Based on this analysis, we developed a roadmap for the strategic further development of corporate citizenship at the BMW Group, and in 2016 the following measures were initiated:

- A local foundation was set up in India with the involvement of dealerships, customers and employees.
- A strategic approach was drafted to position the BMW Group as a socially responsible local company in South Africa, Brazil, Mexico and Thailand.
- Corporate citizenship in the UK, Japan and Russia was given a more strategic orientation, and educational projects were developed in the fields of mathematics, information technology, natural sciences and technology.

Two good examples of strategic corporate citizenship at the BMW Group are the BMW Warm Heart Fund in China and the BMW Korea Future Fund. Both funds offer a platform that enables the BMW Group, its workforce, dealerships and customers to make a contribution towards improving society in the respective countries. In Beijing, ten teams of talented young people from universities and research institutes presented their ideas for the urban mobility of the future at the “BMW Next Mobility Youth Camp 2016”. In South Korea, the “Young Engineer Dream Project”, a one-year mentoring programme, supports disadvantaged students at technical schools. BMW Group technicians from nearby company locations help the young people in planning their education and careers.



Since 2013, BMW Korea’s “Young Engineer Dream” project has been supporting underprivileged university students, with BMW and MINI volunteer technicians mentoring them for a year. 131 students and 48 mentors have participated in the project so far.



## Vehicles for research and education

The BMW Group has been promoting young talent for years by providing vehicles free of charge to educational institutions in Germany and abroad. This is a prime example of how our corporate citizenship efforts combine business interests with social aspects. The objective of this kind of support is both to foster the next generation and to work together with universities. At the same time, the BMW Group contributes to keeping education and research up to date with the latest technological advances. More than 1,500 vehicles have been donated in different countries.

## BMW Foundation Herbert Quandt: helping to improve society

The work of foundations associated with the BMW Group provides an important source of inspiration for our corporate citizenship endeavours and the establishment of initiatives. On the occasion of the centenary of BMW AG in March 2016, the decision was made to pool the strengths and resources of the two corporate foundations, the BMW Foundation Herbert Quandt and the Eberhard von Kuenheim Foundation. The BMW Group doubled the capital of the BMW Foundation Herbert Quandt from €50 to €100 million and plans to support its ongoing activities with annual donations.

The BMW Foundation Herbert Quandt inspires leaders from all sectors of society to exercise their social responsibility in both the private and professional context. Through the global Responsible Leaders Network, it campaigns across national, cultural and sector boundaries for positive social change. The framework for these efforts is provided by the Agenda 2030 adopted by the United Nations and by its Sustainable Development Goals. The goal of the foundation is to stimulate socially relevant processes and to provide lasting support for innovative organisations and initiatives. In short: to promote concrete commitment by responsible leaders all over the world.

The BMW Foundation Herbert Quandt can also make a difference through so-called “impact investing”. It thus pursues its objectives not only with proceeds from its endowment but also by investing through the Eberhard von Kuenheim Fund a significant share of its core assets in organisations with high social impact as well as promoting national and international exchange via socially positive forms of investment.

### Funding corporate citizenship expenditures

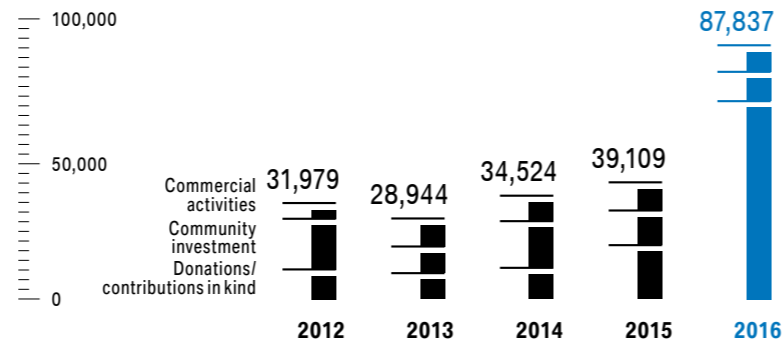
In 2016, we spent a total of €87.8 million on our corporate citizenship activities (2015: €39.1 million). To see how these funds were allocated to our various areas, please refer to →. Total expenditure by the BMW Group on corporate citizenship activities thus increased in 2016 compared to the previous year by more than 300%. This significant jump is mainly due to a rise in donations to the BMW Foundation Herbert Quandt.

→ see  
table 4.11 and  
table 4.12

**Amount of expenditure on corporate citizenship, by type of activity<sup>1</sup>**

→ T4.11

in € thousand



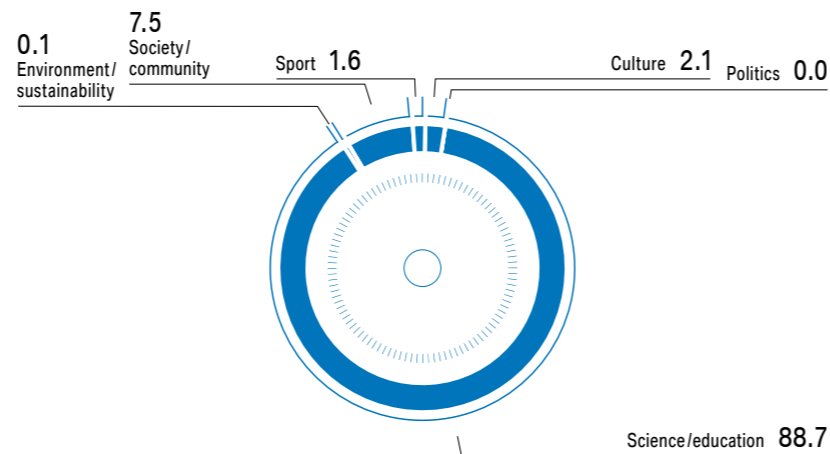
<sup>1</sup>The activities of the BMW Group in the area of corporate citizenship are divided into three main areas. Firstly: monetary donations and donations in kind. Secondly: community investment. Community investment refers to investment in project initiatives conceived in-house, cooperative endeavours and partnerships as well as corporate volunteering by BMW Group employees. And thirdly: commercial activities, i.e. sponsorship and cause-related marketing.

→ GRI G4-EC1

**BMW Group donations worldwide in 2016**

→ T4.12

in %, total amount 70,356,147 €<sup>1</sup>



<sup>1</sup> The sum indicated here does not include either cause-related marketing or sponsorship and does not contain the projects and activities carried out in the context of the company's corporate citizenship and cultural activities.

→ GRI G4-EC1

**Forecast**

The BMW Group will continue to expand the content and structure of its corporate citizenship activities in the focal areas of intercultural understanding and social inclusion. Our aim is to implement the roadmap we developed in 2016 and to create platforms for actively involving employees, customers and dealerships. This will make our corporate citizenship efforts even more focused and effective.

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# FUNDAMENTALS

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5



# RELEVANCE FOR BMW GROUP

**The BMW Group manages its business in accordance with the principles of sustainable and responsible Corporate Governance. This includes lawful conduct, observing sustainability criteria and respecting human rights along the entire value chain. We also maintain an ongoing dialogue with our stakeholders and integrate sustainability as a watchword for all we do into our corporate structure, culture and processes. In this way, we are able to increase customer satisfaction and ensure the long-term competitiveness of the BMW Group. At the same time, we contribute to value creation and the advancement of society. We comprehensively inform our customers about the proper use of our products and ensure the protection of health and the environment through active and passive safety systems as well as by selecting at an early development phase safe materials for use in production.**

## → 5.1 Customer satisfaction

## 5.2 Product safety

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## 5.1 CUSTOMER SATISFACTION

The right approach to sustainability is taking on increasing importance for product design and the overall image of a company, together with classical factors such as product and service quality. The BMW Group has therefore made sustainability one of the fundamental principles of its brands. Various aspects of sustainability are also addressed in our customer surveys, the results of which we incorporate into our decisions. This is because satisfied customers are essential to the long-term success of the company.

Most customers hold the companies they purchase from responsible for developing their products and services in a sustainable manner. They expect sustainability to be an integral part of the business model. This is a stable trend that has been identified in all areas, not just among customers with a special awareness of sustainability.

Our brands address sustainability in multiple ways, from the development of fuel-efficient and electric drivetrains to the use of renewable raw materials in the vehicle interior all the way to our mobility services. With our sub-brand BMW i, developed as a mobility solution integrating all aspects of sustainability, we aspire to take on a pioneering role in the automotive sector →.

→ see  
chapter 2.2

As many different factors go into the decision to purchase a particular vehicle, there are sometimes contradictions between our customers' expectations of sustainability and their individual preferences. For example, short-term trends such as low fuel costs may reduce demand for the most fuel-efficient vehicle types. Purchasing decisions by fleet customers, by contrast, are much more likely to reflect an interest in sustainability. For these customers, fuel efficiency and CO<sub>2</sub> emissions are crucial criteria.

### Responding to customer expectations

We conduct annual surveys to enable us to optimise our products, services and support according to the needs and expectations of our customers. We also continuously measure customer satisfaction on the basis of uniform global standards.

The results of the surveys are evaluated both at the BMW Group level and also at our subsidiaries and dealerships so that we can respond quickly and in a targeted manner to customer wishes. Recent surveys have shown that customer satisfaction is at a constant good level and is continuing to improve even more. We see this as proof of the effectiveness of our ongoing efforts. At the same time, it is evident that our customers' needs can vary considerably from country to country. We take these national and cultural differences into account in our decisions.

→ GRI G4-PR5

A customer survey conducted in the spring of 2016 in Germany, the USA and China regarding various drive systems including electric mobility provided valuable insights for the further development of our product and service range.

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The survey showed that the interest in electric vehicles increased overall in the participating countries from 2014 to 2016. In all three countries, environmental considerations and low running costs were cited as motives for purchasing an electric vehicle. In addition, customers in Germany also mentioned enthusiasm for the new technology and driving enjoyment as decisive factors, while for drivers in China state subsidies played a major role.

Nearly all of the respondents who already own an electric vehicle indicated that they would purchase one again in future. Among the drivers of plug-in hybrids, about half would buy one again while almost one third would like to switch to an electric vehicle next time. Customers driving conventional premium cars said it was important to them that switching to a plug-in hybrid or electric vehicle would entail no restrictions with respect to range and the selection of models available. → GRI G4-PR5

The sales organisations in our largest markets (such as the USA, China and Germany) report regularly on customer satisfaction to a specially established committee that includes members of the Board of Management. In addition, specific customer concerns are analysed at the management level to identify potential process weaknesses and develop appropriate solutions.



Focus on the customer: picking up a vehicle at the BMW World in Munich.

## Experiencing sustainability in sales and services

To drive sales of sustainable vehicles, it is vital that our customers have the necessary information available to them. Our goal is therefore for the sales staff at our dealerships to be so well-informed that they are able to answer almost any question customers may have about the BMW Group's products and sustainability activities.

Aspects of sustainability are an integral part of our sales training, and all sales staff are trained on the theme of sustainability from the very start of their career. Training for staff dealing with the BMW i series includes particularly extensive information about how these vehicles contribute to sustainability. We also carry out special train-the-trainer qualifications for multipliers in sales in which we go into topics such as our vehicles' CO<sub>2</sub> emissions throughout the product life cycle, safety and environmental protection in aftersales as well as the sustainability strategy practised by the BMW Group. Besides helping employees to understand what the concept of sustainability is all about, this training is also designed to demonstrate the benefits a sustainable approach can bring for our business.



## 5.2 PRODUCT SAFETY

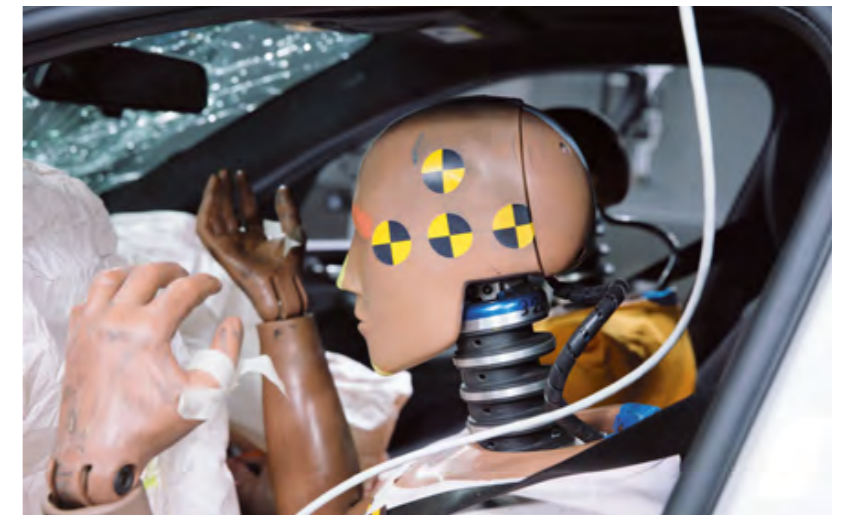
As a provider of premium products, the BMW Group views safety as fundamental to its sense of product responsibility. By incorporating active and passive safety systems in our vehicles, we reduce the accident risk for both our customers and other road users. In addition, driving safety training helps drivers to avoid dangerous situations in the first place. We provide our customers with extensive information on the proper use of our products and services. In the early development phase, we evaluate the potential materials to be used in a product in order to determine their possible effects on health and the environment and eliminate any problematic materials from the outset.

All BMW Group products are developed and manufactured in strict compliance with quality management systems. The BMW Group monitors its products on the market and examines all feedback on the topic of safety. If necessary, the responsible authorities are informed without delay and all measures that serve customer safety are initiated. The BMW Group has established the relevant committees, processes and organisations for this purpose. → GRI G4-PR1

### Promoting safety in all areas and keeping customers informed

We actively communicate our safety concepts by holding joint events as needed with fire departments, rescue forces and salvage operations. Our general and specialised driver safety training also plays a part in improving the safety of our customers and other road users. Customers learn how to handle certain dangerous situations that may arise. The BMW Group has been offering driver safety training for 40 years.

Today, the BMW and MINI Driving Experience programme offers various training courses in over 30 countries worldwide for BMW and MINI cars and BMW motorcycles. In 2016, over 25,000 participants took part in this programme in Germany and at international training locations.



With active and passive safety systems, the BMW Group reduces the risk of accident for its customers and other road users.

## Reducing accidents and their consequences through active and passive safety systems

BMW Group vehicles are equipped with active and passive safety systems that meet the highest quality standards. Active safety includes perfect chassis tuning, optimal traction and effective brakes. Electronic chassis control systems as well as a range of driver assistance systems also contribute towards preventing accidents. In addition, a number of passive safety systems installed in our vehicles minimise the consequences of an accident. These include energy-absorbing crumple zones, safety passenger cells, belt systems and airbags.

### Vehicle recall at the first sign of a problem – Takata airbags as an example

The BMW Group aims to ensure through product recalls that product defects do not lead to any harm. Recalls are organised as a precaution in the event of a suspected defect and communicated to the public.

The BMW Group organised the replacement of airbags supplied by Takata purely as a precaution. A few cases became known among our competitors in which faulty triggering of the airbags led to occupant injury and even a few fatalities when the gas generator ruptured. No such case is known in BMW Group vehicles. As a precautionary measure, BMW decided in 2013 to launch an initial recall to exchange the affected airbags. At that time, 237,000 BMW 3 series vehicles (E46) were affected worldwide. In the course of further investigations and contacts with the authorities in various markets, BMW organised additional recalls for over 6 million vehicles worldwide. Vehicles affected by these precautionary recalls are mainly those in the BMW 3 series, BMW 5 series and the BMW X5 as well as a few other models with driver and front passenger airbags from the model years 2000–2012.

## Guaranteeing product and service information for customers

Information on the safety of our vehicles and on protecting the health of our customers can be found in the in-vehicle operating manuals, in printed form or as an app. These manuals are also available on the Internet. This is complemented by vehicle signage and additional background information on services, accessories and components.

The BMW Group is obliged by the applicable legislation to inform customers about the proper use of its products and services as well as any potential risks and hazards. A technical and legal assessment during the release process ensures that product and service information for customers (manuals in particular) meets all legal requirements with regard to product liability. Each component of our vehicles can be tracked back to the supplier via the part number. The BMW Group complies with the reporting requirements for all products and services. For example, information on fuel consumption and CO<sub>2</sub> emissions for each vehicle model is published on the websites of the individual brands. → GRI G4-PR3

**Using safe materials**

In the early development phase, we evaluate the potential materials to be used in a product in order to determine their risk potential and eliminate any problematic materials from the outset. This ensures worldwide compliance with all legislation concerning product safety, health and the environment for every phase of the vehicle life cycle (from development to utilisation, and right up to the recycling stage). We observe here not only the strict European Union legislation, for example REACH (registration, evaluation, authorisation and restriction of chemicals), but also other regulations in effect at our production and sales locations. People with nickel allergies, for example, will be happy to hear that there are no exposed nickel surfaces in current BMW vehicles.



The BMW Group complies with all legislation in selecting materials to protect health and the environment.

**Ensuring high air quality in the vehicle interior**

Due to our internal commitment to Responsible Care, the BMW Group has been collaborating with independent toxicologists since the 1990s to measure emissions in vehicle interiors, in order to ensure that the targets set by the experts are met in all new vehicles. Our own emissions test benches test our vehicle interiors applying various user profiles to make sure they meet the most recent international standards. The BMW Group also requires component suppliers to meet component emissions targets, compliance with which is tested during the development process. In addition, all BMW/MINI/Rolls Royce vehicles come equipped with cabin air filters. Outside air is filtered in three ways (mechanically, electrostatically, and optionally also with activated charcoal) before it enters the vehicle. This almost completely filters out particles such as dust, pollen and pollutants from the outside air.



## 5.3 COMPLIANCE AND HUMAN RIGHTS

We regard lawful conduct and respect for human rights as fundamental prerequisites for fair competition and good corporate citizenship. As an international enterprise with highly complex supply chains, the BMW Group is exposed to increased risk of being associated directly or indirectly with legal or human rights violations. We therefore treat compliance with legal provisions and the protection of human rights as top priorities and require our business partners to do the same.

Responsible and lawful behaviour is an integral part of our corporate culture and is the reason why customers, shareholders, business partners and the general public place their trust in us.

### Managing compliance

In order to protect the company systematically against compliance-related and reputational risks, the Board of Management set up a Compliance Committee in 2007. The BMW Group Compliance Management System has been continuously developed further since then, in 2016 notably through the establishment of local compliance functions. These take on many of the compliance management tasks and are better able to identify and take into account local risks.

Our updated Compliance Management System “Compliance” covers a broad range of topics. The current focus is on compliance with anti-trust regulations, corruption prevention and the protection of human rights.

The extent and intensity of our compliance activities are based on an annually updated Group-wide compliance risk assessment covering more than 300 BMW Group business units and functions worldwide. These compliance activities include training and communication measures, individual counselling, consistent follow-up on cases of non-compliance as well as the management of compliance-relevant processes and controls. The Compliance Committee carries out several Compliance Spot Checks each year based on the top 50 risks on the risk list. The spot checks are carried out jointly with an external service provider to monitor compliance with legal requirements. → GRI G4-S03

The → **BMW Group Legal Compliance Code**, which was updated in 2016, is the cornerstone of the Group’s Compliance Management System, spelling out the Board of Management’s acknowledgement of the fact that compliance is a joint responsibility. In our → **Annual Report 2016**, we provide comprehensive information on the actions we take to ensure responsible and lawful conduct throughout the BMW Group.

## Training employees in compliance and human rights

Fair competition is the basis for all of our business dealings. We have therefore further refined our Compliance Management System to place emphasis on preventing corruption as well as compliance with anti-trust law. In classroom and online training, we teach our employees a basic understanding of this topic. The training courses are tailored to the needs of the respective divisions, for example research and development. Around 17,000 managers and employees have completed one of these training courses since 2011.

More than 32,500 managers and staff worldwide have received training in compliance and anti-corruption basics since the introduction of the BMW Group Compliance Management System in 2008. As part of the training, participants work on case studies on the topic of corporate hospitality and gifts. Training in the BMW Group Policy of "Corruption Prevention" also looks at additional financial and in-kind gifts relevant to the Group business model, for example vehicle donations, sponsorship, monetary donations and memberships. Participation in the training programme is mandatory for all BMW Group managers. Compliance training is also available to all other employees throughout the BMW Group. → GRI G4-S03, → GRI G4-S04

In addition, we educate our employees on the specific requirements with regard to human rights in business operations. The training is geared in particular toward managers and focus groups, for example in Purchasing. The participants are informed of what they have to be aware of in their daily actions and whom they can turn to for questions.

→ see  
chapter 3.3

In the reporting period, 156 purchasing employees took part in classroom training on sustainability, which also includes human rights requirements. 53 of them went through special training on how to use the OEM sustainability questionnaire →. The issue of human rights was also part of the classroom training in compliance offered in 2016. As we update our compliance training in the coming year, this subject will also be incorporated in the compulsory employee training for all managers. → GRI G4-HR2

## Ensuring due diligence with regard to human rights

Our due diligence process for human rights is modelled on the → **UN Guiding Principles on Business and Human Rights**. In particular, we expect our employees to respect human rights and protect them in their daily actions. We also require our business partners to respect human rights.

By integrating human rights requirements into our global Compliance Management System, they can be entrenched even more firmly in existing processes at all of our locations and closely monitored. → GRI G4-HR9 Implementation is also ensured through a Compliance Management Manual.

A special focus in 2016 was preparing for reporting in accordance with the UK Modern Slavery Act, which will be published for the first time in 2017. For this purpose, we examined the relevant suppliers, initiated any necessary improvement measures and conducted appropriate staff training.

## International conventions and principles

Our models for ensuring compliance with environmental and social standards along the value chain are based on various internationally recognised guidelines. The BMW Group is committed to adhering to the Organisation for Economic Cooperation and Development (OECD) → **Guidelines for multinational companies**, the contents of the → **ICC Business Charter for Sustainable Development** as well as the United Nations → **Environment Programme Cleaner Production Declaration (UNEP)**.

By signing the → **United Nations Global Compact** in 2001 and, together with employee representatives, issuing a → **Joint Declaration on Human Rights and Working Conditions in the BMW Group**, the Board of Management gave its commitment to abide worldwide by internationally recognised human rights and with the fundamental working standards of the → **International Labour Organization (ILO)**.  
→ GRI G4-15, GRI G4-56

If employees have any questions regarding human rights, they can ask their line managers or the BMW Group Compliance Contact helpline. Employees also have the opportunity to submit information about possible human rights violations within the company via the BMW Group SpeakUP Line – anonymously and confidentially. In addition, our annual compliance questionnaire, which must be filled out by all BMW Group companies, includes a question for local risk assessment of possible human rights violations. The answers are used to derive further local measures for minimising risk.

The BMW Group Compliance Committee Office handles any reports by employees and initiates measures as required to remedy possible violations.

→ see  
chapter 3.3

The Supply Chain Response Team responds to reports of possible human rights abuses in the supply chain →. In 2016, the Supply Chain Response Team received two notifications of potential human rights violations concerning non-compliance with freedom of association and an alleged incidence of child labour. These cases are currently being investigated. → GRI G4-HR12

Local assessments of the risk of possible human rights violations also become part of Group-wide annual compliance reporting, from which further local risk reduction measures are derived.



## Obliging business partners to observe human rights

We expect our business partners along the entire supply chain to consistently observe human rights and we see this as an important criterion for long-term business relations. The international value creation processes in the automotive industry and the division of labour it entails lead to risks, particularly in the supply chain. We thus ensure our suppliers' commitment to respecting human rights via our risk management process →.

→ see  
chapter 3.3

We also take human rights requirements into account in investment decisions and the choice of company sites. In 2016, 100% of the order volume for our material investments in property, plant and equipment (including production equipment and buildings) were covered by human rights clauses. → GRI G4-HR1

Both our international purchasing conditions and also all dealership contracts in Europe as well as Korea, Thailand, Singapore, Malaysia and Indonesia, along with all contracts with importers worldwide, currently contain a binding human rights clause. We intend to gradually integrate this clause into all dealership contracts worldwide.

We see the integration of human rights clauses into contracts with business partners as an important step in establishing human rights requirements in the value chain, and as an indicator of growing awareness on the part of our partners.

# 5.4 ECONOMIC EFFECTS

Sustainable management combines long-term commercial success with added value for society. As a global company, the BMW Group acknowledges its responsibility to contribute to social prosperity. Therefore, we not only strive for a continuous increase in value creation but we also make specific contributions to economic development and quality of life at our locations.

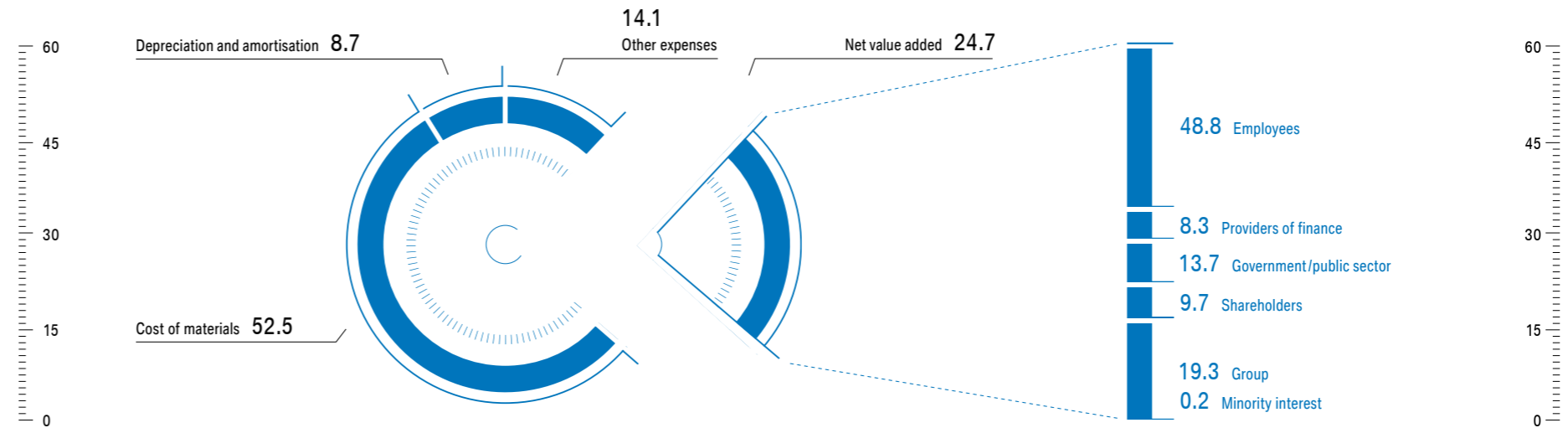
The sustainable, profitable growth of the BMW Group enables risk-commensurate returns for capital providers, attractive salaries for employees as well as a social contribution through income tax payments. These direct positive economic benefits are quantified in the allocation statement for net value added. At €23,623 million (2015: €22,524 million), the net value added of the BMW Group has remained at a constant high level. The bulk of the net value added is applied to employees (2016: 48.8%, 2015: 48.3%). The proportion applied to providers of finance declined compared to the previous year, to 8.3%. The government/public sector (including deferred tax expense) accounted for 13.7%. The proportion of net value added applied to shareholders, at 9.7%, was higher than in the previous year →. → GRIG4-EC1

→ see table 5.01

## BMW Group value creation

→ T5.01

in %, basis: production material



→ GRIG4-EC1

## Contributing to prosperity through growth

The BMW Group currently employs 124,729 people (2015: 122,244) and is training 4,613 young people at its worldwide locations (2015: 4,700). The purchase of intermediate products also secures jobs worldwide in our supply chains. Because we source the main components for vehicle production locally whenever possible, our business activities create jobs and increase prosperity at our locations. → G4-EC8

By paying income taxes, and indirectly through taxes paid by our employees and suppliers, we boost the tax revenues of the regions where we operate. In 2016, the BMW Group paid a total of approximately €2,755 million in income taxes (2015: €2,828 million).

## Expanding local infrastructure

The BMW Group contributes directly to the expansion of local infrastructure. With ChargeNow, for example, we are building a public charging infrastructure for electric ve-

→ see  
chapter 2.2

hicles all over the world →. When setting up new plants, we also, for example, build new roads as needed and lay electricity and water supply lines. During planning at a new company location, we first examine how we can contribute to the specific needs of the local community. → GRI G4-EC7

## Opening up new business fields

By implementing innovations, the BMW Group opens up new business fields and thus fosters the creation of new value chains and jobs. Examples include the URBAN-X accelerator programme and the BMW Startup Garage, along with further initiatives supporting pioneering technologies and urban mobility → as well as the joint venture Encory, which promotes the reuse of vehicle parts →. → GRI G4-EC7, GRI G4-EC8

→ see  
chapter 2

→ see  
chapter 3.1

As in previous years, the figures indicating the economic effects of the BMW Group continued to see an upward trend in 2016, confirming our contribution to social prosperity in our locations. → GRI G4-EC7, GRI G4-EC8

## Financial figures

→ T5.02

in € million	2012	2013	2014	2015	2016	Change in %
Capital expenditure	5,240	6,711	6,100	5,890	5,823	-1.1
Revenues	76,848	76,059	80,401	92,175	94,163	2.2
Profit before financial result	8,275	7,978	9,118	9,593	9,386	-2.2
Profit before tax	7,803	7,893	8,707	9,224	9,665	4.8
Income taxes	2,692	2,564	2,890	2,828	2,755	-2.6
Net profit	5,111	5,329	5,817	6,396	6,910	8.0

→ GRI G4-EC1



## 5.5 STAKEHOLDER ENGAGEMENT

As the BMW Group is a global corporation, both our manufacturing activities and our products have an effect on the environment as well as on diverse groups of stakeholders. At the same time, the viewpoints, decisions and actions of our stakeholders have a decisive impact on the success of our enterprise. The BMW Group therefore engages in ongoing dialogue with its stakeholders at all its locations and in relevant markets.

By fostering dialogue with our stakeholders, we want to build trust, gain a better understanding of each other's positions, identify trends and consolidate partnerships. This helps us to understand better what steps are needed and expected from us next in the various fields of activity. At the same time, the exchanges give us an opportunity to clearly and transparently explain the extent of our potential influence on social and environmental issues and what prerequisites and framework conditions are important for us.

Our → **Stakeholder Engagement Policy** forms the basis for continuous dialogue. It defines the goals of the dialogue, sets the criteria for identifying and prioritising our stakeholders, and provides a template for a range of suitable dialogue formats and communication channels. → GRI G4-25

### Regular and systematic dialogue with stakeholders

Our subsidiaries, our political offices in the different markets and the representatives from our plants engage in regular dialogue with local stakeholders on relevant topics. A range of committees and channels allow our different corporate departments to contact relevant stakeholder groups directly.

One of the cornerstones of this dialogue is our ongoing and systematic identification and prioritisation of stakeholders and their topics of interest. To this end, we regularly map out stakeholder groups that are involved in strategically important topics at all relevant locations.

Our basic goal is to host at least one multi-stakeholder dialogue per year in our primary sales regions in Europe, Asia and North America respectively. We set the themes for these stakeholder dialogues according to how topical they are and how well they lend themselves to comparing and contrasting the different regions. In 2016, we conducted stakeholder dialogues on the topic of urban mobility in Seattle/USA, Boston/USA, Madrid/ES, Tokyo/JP and Barcelona/ES. In the coming year, urban mobility will once again be on the agenda, along with other key issues such as digitalisation.



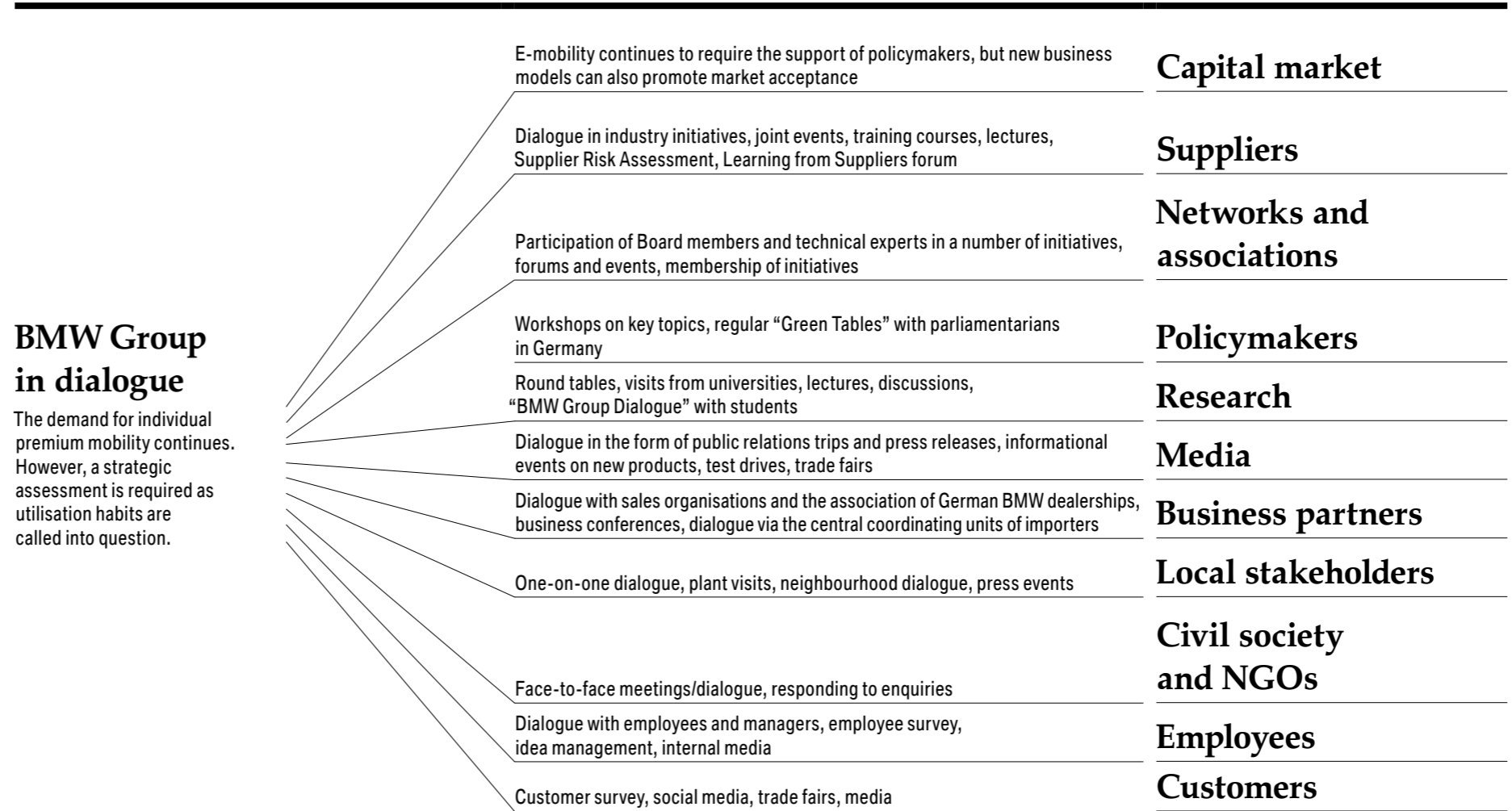
Stakeholder dialogue in Madrid on the topic of urban mobility.

In addition to these events, we also have direct contact with individual stakeholders on occasions when special topics arise (for example, in 2016 there were many requests for information on environmental protection and the observance of human rights in the supply chain). To respond to our stakeholders' interest in these issues, the BMW Group held

two dialogue events in Berlin (in July and December 2016) at which we presented the general sustainability standards in the BMW Group supply chain and discussed in greater depth projects and measures being undertaken with regard to the raw materials kenaf and cobalt.

**Stakeholder groups and forms of dialogue**

→ F 5.01



→ GRI G4-24, GRI G4-26

In 2016, various media and NGOs alerted us to possible human rights violations in our supply chain. As stipulated in our corporate processes, our Supply Chain Response Team looked into each case within a matter of days, asking the management of the supplier company to respond to the specific issue or case. If we still had doubts, we intensified our investigation and sent someone to look into things on site. In one case, information provided by our stakeholders led us to work with our suppliers to restructure a supply chain so as to rule out any potential future risk.

For an overview of the forms of dialogue and stakeholder groups of the BMW Group →.

→ see figure 5.02

All of our stakeholder dialogue formats are based on one principle: that the views of our stakeholders feed back into the company's strategy. On the other hand, the stakeholders become familiar with the BMW Group's views and positions on certain topics and can take account of these in their day-to-day work. For an overview of the results of the stakeholder dialogues in 2016 →.

Further information on specific events taking place as part of the → **BMW Group Dialogue** are published online on the BMW Group website.

→ see figure 5.01

**Key stakeholder perceptions and recommendations**

→ F 5.02

**STAKEHOLDER PERCEPTIONS**

Greater policy support possible for BMW e-mobility and car-sharing programmes through the integration of connectivity and automation, e.g.:

- delivering real time data on parking, infrastructure and traffic conditions,
- new services for physically challenged groups,
- supporting a stable energy infrastructure and integration of electric vehicles into existing networks.

The BMW Group's approach to car-sharing is not fully understood:

- advocating for less cars while selling cars?
- premium is still associated with exclusivity of ownership.
- Brand is perceived to be less relevant in sharing schemes.

Connected and autonomous cars might challenge The BMW Group's brand DNA and core competencies

- What are the new business models for the BMW Group?
- How is the organisational change being managed?

Zeitgeist is focused on breakthrough innovation rather than gradual change. Thus, systemic approaches to energy transition are attractive (battery, charging, energy generation and storage).

Some competitors don't have "legacy automotive business", which allows them to focus resources within R&D and manufacturing as well as to execute a stronger marketing strategy.

**STAKEHOLDER RECOMMENDATIONS**

Increase availability of car-sharing through reward schemes, e.g.:

- gamification and loyalty programmes.
- flexible pricing to incentivise ride-sharing and sharing of private parking spaces, for example.

Foster vehicle-to-grid integration to promote decentralised energy systems that support

- disaster resilience,
- and energy transition through storage and bi-directional charging,
- also provides further options to reduce TCO (Total Cost of Ownership) of electric vehicles.

Strengthen car as private space e.g. through:

- tailored interior design,
- advanced entertainment solutions,
- assuring confidentiality of private communication,
- developing more ideas for stationary use.

Increase digital availability of cars and services in cutting-edge digital market platforms (own, partner, external).

Use car-sharing as an introductory platform for premium/advanced technology, e.g. regarding electrification and connectivity.

Premium data privacy i.e. trust in responsible handling of data, full control of privacy settings and reward schemes for sharing of data could be essential USP for BMW.

→ GRI G4-27



## In dialogue with investors

Engaging in a regular and intensive dialogue with the capital market has always been a high priority for the BMW Group. When making their decisions, investors are increasingly focusing on how the BMW Group integrates aspects such as the environment, society and corporate governance into its business model, products and activities. This is particularly true of institutional investors with long-term strategies.

In 2016, we continued to maintain and expand our contacts with sustainability-oriented investors and analysts. In a number of individual and group discussions at SRI roadshows and conferences (SRI = Socially Responsible Investment) in Europe's financial centres and the USA, visitors were informed of our current progress in the area of sustainability and the focus topics in our Strategy NUMBER ONE > NEXT. We also conducted another Perception Study to determine how investors view the financial aspects of sustainability communications and integrated the results into the further development of our SRI communications.



The BMW Group in dialogue with decision-makers on the topic of sustainability.

## In dialogue with political decision-makers

By engaging in regular, active and open dialogue with political decision-makers, union representatives and associations as well as non-governmental organisations (NGOs), we play a constructive and transparent role in shaping the general political framework for our business activities. We offer our expertise to help promote fair competition for all involved and find sustainable solutions. We regard this as an important aspect of our corporate responsibility.

Our political offices concern themselves with public affairs as they affect environmental, financial and socio-political topics and deal with relevant economic policy and industry-specific issues. In the period under report, the main topics in this regard were how to put emissions regulations into practice, how to deal with trade barriers, fair taxation legislation, changes brought about by digitalisation, the challenges of urban mobility as well as international regulations on measuring emissions.

We take a public stand on the issues and report on our positions on important policy developments and legislative initiatives.

### Approaches to promoting recycling and life cycle management

The BMW Group engages in an ongoing dialogue with policymakers on the theme of recycling and life cycle management. We were represented, for example, at the G7 conference held by the United States Environmental Protection Agency (EPA). The conference dealt with the use of life cycle approaches to increase resource efficiency.

## Position on the implementation of the EU CSR Directive in Germany

The European Union passed a directive on CSR reporting in 2014 that is to be implemented in the member states as national law by the end of 2016. With a slight delay, the law was adopted by the German Bundestag in early 2017, meaning that the reporting requirement will take effect for Germany for business year 2017. The companies concerned must disclose in their management report or a separate sustainability report non-financial information on their policies, main risks and outcomes relating to at the minimum environmental matters, social and employee aspects, respect for human rights, anti-corruption and bribery issues as well as equal opportunity and diversity in their board of directors.

After many years of reporting in accordance with the GRI G4 comprehensive guidelines, the BMW Group is confident that it will be able to meet the new reporting obligations without any major changes in its annual drafting process. The BMW Group supports the new legislation provided that its operational interpretation leads to greater clarity and focus in the resulting reporting.

## Taking a stand on emissions regulation

Legal regulations on emissions are becoming increasingly stringent worldwide, continually posing new challenges to the automotive industry. As early as 2000, the BMW Group set the course for reducing fuel consumption as well as CO<sub>2</sub> and pollutant emissions with its Efficient Dynamics Strategy. Electromobility is essential for achieving further reductions.

Favourable economic conditions have proven conducive to the successful introduction of new technologies. In the dialogue with the political stakeholders in the main markets, the following issues are of central importance to the BMW Group:

- Promoting electromobility
- Not distorting competition according to market segment
- Supporting new efficiency technologies
- A realistic connection between targets and measuring methods
- Consistency of supply-side and demand-side policies

The BMW Group would like to see countries in all markets take effective measures to promote electromobility, such as those already in place for example in Japan, China and California (for further information, →).

→ see  
chapter 2.1  
and 2.2

**Promoting the transatlantic free trade agreement**

As a global enterprise, the BMW Group has always supported the further opening of worldwide markets as well as the continuous reduction of tariff and non-tariff trade barriers. The BMW Group manufactures vehicles worldwide, takes advantage of global sourcing and is convinced that free trade is an important component for a sustainable growth and employment policy.

Despite increasing globalisation, trade policy has been characterised for the past several years by a trend toward greater protectionism. Market entry barriers are on the rise in many regions of the world. Where tariff trade barriers are abolished, they are often replaced by non-tariff-based obstacles.

The latest developments with regard to the UK's planned withdrawal from the European Union as well as the trade policy discussions triggered by the new administration in the USA can be seen as results of a global trend toward isolation and disintegration that has been observed for some time now.

The BMW Group approaches its investment decisions with sustainability in mind. Long-term investments are the result of careful consideration and strategic planning processes. In particular in countries such as the UK and the USA, where changes in trade policy are now being discussed, we are firmly established partners in the local economy and wish to remain so. Our future involvement in Mexico is likewise more than a pure investment decision. It also reflects our sense of responsibility for the jobs being created there as well as our social and cultural commitment.

The BMW Group therefore hopes that its sustainable global investment and sales planning will be flanked by responsible policy decisions designed to maintain the growth, prosperity and employment brought by open markets and international integration.

**Supporting democratic parties**

The BMW Group supports the work on social policy carried out by democratic parties in Germany (CDU, CSU, SPD, FDP and Bündnis90/Die Grünen). The company places high value on transparency in this regard and complies with the relevant legislation. Since 2014, the BMW Group has supported the work of political parties in Germany solely through content-based partnerships, for example by sponsoring public discussion forums and dialogue formats. All partnerships are subject to the clear sponsorship guidelines of the BMW Group.



## 5.6 REINFORCING SUSTAINABILITY

The BMW Group manages its business in accordance with responsible corporate governance principles geared to long-term value creation in all areas of the company. To ensure compliance with these principles, clear lines of accountability have been defined in the BMW Group's management system, which are reinforced through guidelines as well as control and incentive systems.

The Board of Management governs the enterprise under its own responsibility, acting in the interests of the BMW Group with the aim of achieving sustainable growth in value. It thus determines the strategic orientation of the enterprise and ensures its implementation. The Board of Management is furthermore responsible for compliance with all provisions of the law and internal regulations as well as for adequate risk management and risk controlling. The Supervisory Board advises and supervises the Board of Management in conducting its duties (dual management system).

→ GRI G4-34, GRI G4-39

Sustainability is a component of our corporate strategy. For this reason, our Sustainability and Environmental Protection department has been directly incorporated into our Corporate Planning and Product Strategy unit since 2007, under the mandate of the Chairman of the Board of Management. This unit is responsible for the sustainability strategy and sustainability management worldwide. Some of the department's tasks are:

- To identify challenges and opportunities for sustainable operations
- To develop and monitor sustainability goals
- To further develop, specify and integrate our sustainability initiatives into individual divisions, taking account of the entire value chain
- To ensure the cooperation of all departments in the company involved in sustainability
- To provide a central corporate function for environmental protection (Group Representative) and manage the environmental protection network
- To manage global centres of competence on a range of environmental issues

### Managing sustainability

The Sustainability Board makes decisions on the long-term alignment of the sustainability-related areas of action included in Strategy NUMBER ONE > NEXT. The entire Board of Management is represented on the Sustainability Board, along with the heads of Sustainability and Environmental Protection and of Corporate Communications. → GRI G4-34 The Sustainability Board convenes twice a year to assess the company's progress on economic, environmental and social issues. In particular, it determines the degree to which sustainability principles have been integrated into the various divisions. → GRI G4-47 The Sustainability Circle, which comprises department heads from all divisions, meets at least twice a year to draft decisions for presentation to the Sustainability Board. Given the increasing relevance of the topic of sustainability for the core business of the BMW Group, a proposal has been made to integrate the Sustainability Circle into the Strategy Circle. This integration represents a logical next step toward establishing sustainable business practices as an integral part of the business model →. → GRI G4-35, GRI G4-36, GRI G4-42, GRI G4-43 The BMW Group management principles are also set down in the → **Corporate Governance Codex**.

→ see  
figure 5.03

## 1

## Strategy

## 2

Products  
and services

## 3

Production  
and value creation

## 4

Employees  
and society

## 5

## Fundamentals

## 5.1 Customer satisfaction

## 5.2 Product safety

5.3 Compliance  
and human rights

## 5.4 Economic effects

## 5.5 Stakeholder engagement

→ 5.6 Reinforcing  
sustainability

## Further key indicators

## GRI G4 Content Index

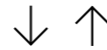
## Appendix

## Organisation of sustainability in the BMW Group

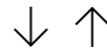
→ F 5.03

**Sustainability board**

Comprises the entire Board of Management  
Chairman: Chairman of the Board of Management  
Responsible for strategic alignment

**Sustainability Circle  
within Strategy Circle**

Comprises department heads from all divisions  
Responsible for preliminary work to support decision-making

**Specialist divisions**

Implement measures and processes needed for the  
BMW Group to achieve its sustainability goals

**Integrating sustainability as a  
strategic corporate objective**

Sustainability has been integrated “top down” at all corporate levels of the BMW Group since 2009 as a strategic objective based on specific targets and key performance indicators. Sustainability is therefore an explicit component of the BMW Group’s management system. This means that every major issue and project must be measurable in terms of “Sustainability” as a corporate objective, ensuring that, in addition to economic factors, environmental and social aspects are also accounted for in the decision-making process.

It also means that sustainability as a corporate objective is broken down to the level of business areas and divisions. As a result, the personal targets set for managers include sustainability aspects and criteria that have an effect on their performance-based remuneration.

**Rewarding sustainable business success**

The Supervisory Board decides on the level of compensation received by members of the Board of Management, orienting its decisions on the sustainable development of the BMW Group. Bonuses are also based in part on personal performance, evaluated primarily according to qualitative criteria. These criteria include ecological innovation (e.g. reduction of CO<sub>2</sub> emissions), customer focus, leadership accomplishments and the ability to lead change processes.

Further key performance indicators for measuring contributions made to the sustainable development and future viability of the company are enhancing its attractiveness as an employer, progress in the implementation of the diversity concept, which is presented in a report to the Supervisory Board, as well as activities that advance corporate citizenship in the BMW Group → **Compensation Report in the 2016 Annual Report** → GRI G4-43, GRI G4-44, GRI G4-51

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Introduction

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GRI G4 Content Index

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Appendix

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# FURTHER KEY INDICATORS

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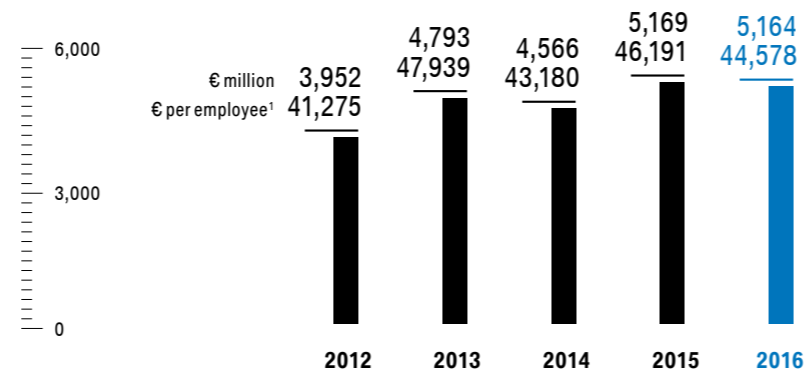


## Further key indicators: Strategy

## Research and development expenditure

→ T 1.01

in € million and € per employee



<sup>1</sup> Based on the average number of people employed during the financial year (not including trainees and students gaining work experience).

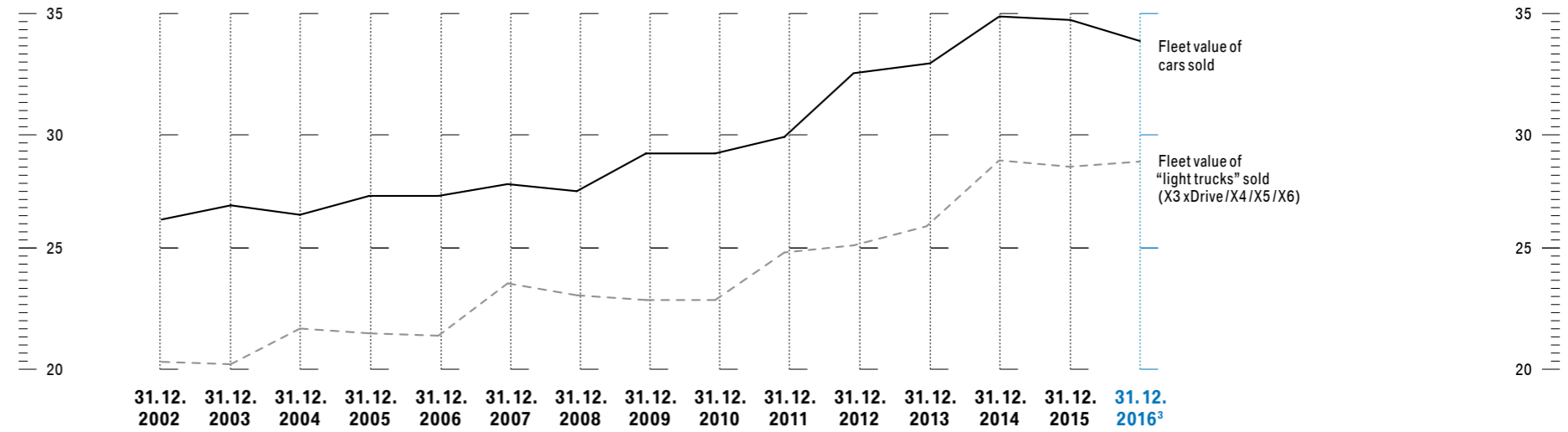
In the reporting period, expenditure on research and development, in particular projects to safeguard the future, remained at the same level as the previous year at €5,164 million (2015: €5,169 million). It accounted for 5.5% of revenues (2015: 5.6%) thus remaining virtually unchanged since the previous year.

## Further key indicators: Products and services

### Fleet consumption of BMW Group vehicles sold in the USA (according to CAFE<sup>1</sup>)

→ T2.03

in mpg<sup>2</sup>



<sup>1</sup> CAFE: corporate average fuel economy.

<sup>2</sup> mpg: miles per gallon.

<sup>3</sup> BMW Group forecast, not yet officially confirmed by National Highway Traffic Safety Administration (NHTSA).

The BMW Group's Efficient Dynamics strategy calls for fuel economy technologies to be made accessible to all customers worldwide as soon as possible. Efficient Dynamics are thus part of the standard equipment in our vehicles. The slight decrease is primarily due to the drop in fuel prices and the accompanying increase in customer demand for larger models and more powerful engines.

→ GRI G4-EN27

**Further key indicators**

Strategy

Products and services

→ Production and value creation

Employees and society

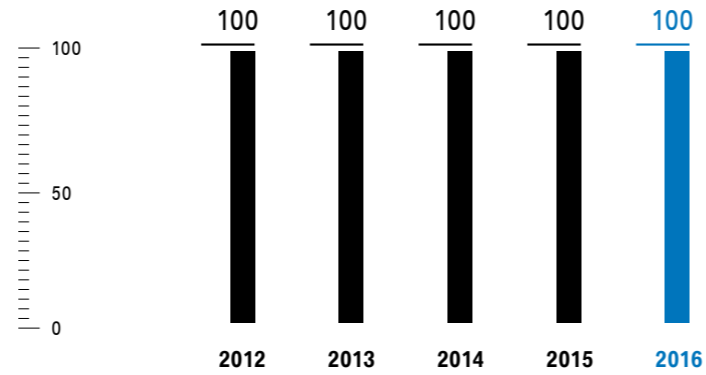
Fundamentals

Further key indicators:  
Production and value creation

Coverage rate of the production locations with quality management systems

→ T3.10

as a % of production location workforce





## Energy consumption in detail

→ T3.11

in MWh	2012	2013	2014	2015 <sup>1</sup>	2016 <sup>1</sup>
<b>TOTAL ENERGY CONSUMPTION (UPPER HEATING VALUE IN CASE OF FOSSIL FUELS)</b>					
Total energy consumption	4,549,788	4,721,174	4,867,094	5,479,002	5,783,841
of which vehicle production	4,549,788	4,721,174	4,867,094	5,054,722	5,328,856
of which motorcycle plant in Berlin/DE	—	—	—	80,535	85,559
of which corporate functions, development and administration in Munich/DE	—	—	—	343,745	369,426
<b>TOTAL ENERGY CONSUMPTION IN DETAIL (UPPER HEATING VALUE IN CASE OF FOSSIL FUELS)</b>					
Electricity (external source)	1,790,534	1,910,065	2,141,222	2,485,881	2,584,570
Community heating	249,123	316,532	281,216	366,593	381,340
Community cooling in MWh	—	—	—	1,002	1,084
<b>FOSSIL FUELS</b>					
Fuel oil	12,622	14,023	7,459	4,667	3,522
Natural gas	2,169,059	2,165,362	2,198,202	2,393,723	2,575,089
of which CHP losses	210,514	191,840	210,740	214,569	245,899
<b>NON-FOSSIL FUELS</b>					
Biogas (landfill gas)	328,450	315,192	238,654	226,146	237,446
of which CHP losses	103,422	94,486	73,638	98,670	108,536
Wood pellets	—	—	—	430	220
<b>REGENERATIVE FUELS</b>					
Solar energy (photovoltaics)	114	142	341	559	570

<sup>1</sup> To further increase transparency, energy consumption from the corporate functions, development and administration in Munich/DE as well as the motorcycle plant in Berlin/DE were included in the report for the first time in 2015.

In 2016, the energy consumption of our vehicle production was at 2.21 MWh per vehicle produced, a slight rise compared to the previous year (2015: 2.19 MWh). This is mainly due to the launch of the new engine plant in Shenyang, China and the installation of a new, more efficient paintshop in Munich/DE, which necessitated operation of two paintshops at the same time.

→ GRI G4-EN3

## Certified environmental management systems in production facilities of the BMW Group

→ T3.12

Site	Environmental management systems	Most recent year of certification
Berlin plant, DE	ISO 14001/ EMAS	January 2015
Dingolfing plant, DE	ISO 14001/ EMAS	January 2015
Eisenach plant, DE	ISO 14001/ EMAS	January 2015
Goodwood plant, UK	ISO 14001	January 2015
Hams Hall plant, UK	ISO 14001	January 2015
Landshut plant, DE	ISO 14001/ EMAS	January 2015
Leipzig plant, DE	ISO 14001/ EMAS	January 2015
Munich plant, DE	ISO 14001/ EMAS	January 2015
Oxford plant, UK	ISO 14001	January 2015
Regensburg, plant, DE	ISO 14001/ EMAS	January 2015
Rosslyn plant, ZA	ISO 14001	January 2015
Spartanburg plant, US	ISO 14001	January 2015
Steyr plant, AT	ISO 14001/ EMAS	January 2015
Swindon plant, UK	ISO 14001	January 2015
Wackersdorf plant, DE	ISO 14001/ EMAS	January 2015
CKD plant, Araquari, BR	ISO 14001	November 2016
CKD plant, Chennai, IN	ISO 14001	January 2015
CKD plant, Jakarta, ID (external production)	ISO 14001	May 2016
CKD plant, Cairo, EG (external production)	ISO 14001	October 2014
CKD plant, Kaliningrad, RU (external production)	ISO 14001	August 2014
CKD plant, Kulim, MY (external production)	ISO 14001	November 2013
CKD plant, Manaus, BR (external production)	National standard <sup>1</sup>	Implemented
CKD plant, Rayong, TH	ISO 14001	January 2015
BMW Brilliance Automotive, Shenyang, CN (joint venture)	ISO 14001	December 2015
SGL Automotive Moses Lake, US (joint venture)	ISO 14001	March 2015
SGL Automotive Wackersdorf, DE (joint venture)	ISO 14001	March 2015
Magna Steyr Fahrzeugtechnik Graz, AT (contract production)	ISO 14001/ EMAS	July 2015
TVS Motor Company Hosur, IN (contract production)	National standard <sup>1</sup>	Implemented
VDL Nedcar, Born, NL (contract production)	ISO 14001	October 2014

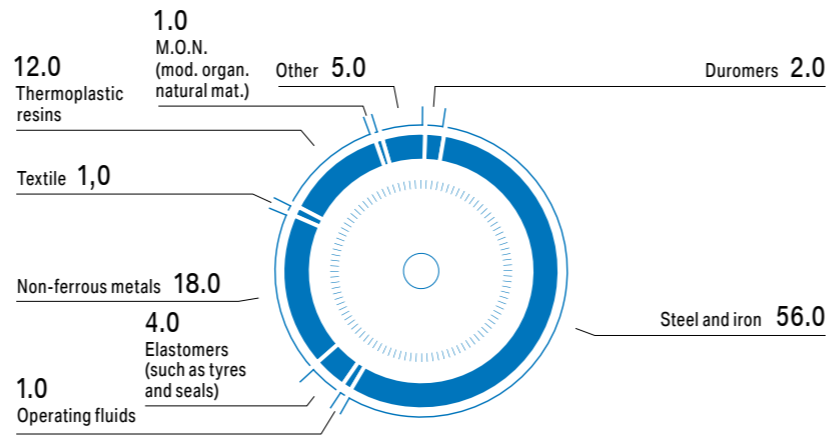
<sup>1</sup> Fulfilment of legal requirements.

Environmental management systems are in place at almost all BMW Group production facilities worldwide as well as in the central planning departments. With the exception of the Manaus/BR plant and Hosur/IN, these systems are certified in accordance with ISO 14001. External auditors confirmed that the German and Austrian sites additionally meet the EMAS European environmental management standard. The Araquari/BR plant was certified in accordance with ISO14001 in November 2016.

Average distribution of materials in BMW Group vehicles<sup>1</sup>

→ T3.13

in %

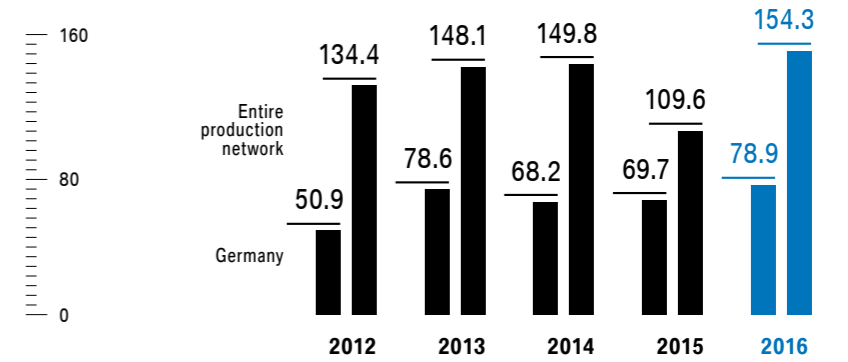


<sup>1</sup> Calculation of representative vehicles includes: BMW 1 Series, BMW 3 Series, BMW 5 Series, BMW 7 Series, BMW X1, BMW X5, MINI Hatchback, MINI Countryman, RR, i3, i8.

Investment in environmental protection<sup>1</sup>

→ T3.14

in € million



<sup>1</sup> Calculation of integrated environmental investments of BMW Group production locations according to VDA standard.

Total investment by the BMW Group in environmental protection increased considerably compared to 2015 (2015: €109 million), amounting to €154 million in the reporting period. This is mainly due to investment in new paintshops. In addition, our implementation of environmental management measures meant that there were no significant environmental incidences in the reporting period. In particular, no penalties had to be paid.



## BMW Group input/output assessment for 2016 vehicle production

→ T3.15

## INPUT

Raw materials<sup>1</sup>

Steel	2,298,838 t
Plastics <sup>2</sup>	555,589 t
Aluminium	627,982 t
Magnesium	6,790 t
Operating fluids <sup>3</sup>	68,718 t
Water <sup>4</sup>	5,017,816 m <sup>3</sup>
Energy <sup>4</sup>	5,328,856 MWh

## OUTPUT

## Vehicles

BMW Group vehicles produced <sup>5</sup>	2,186,363
Vehicles produced (partner plants and contracted)	173,393
Total waste <sup>4</sup>	762,924 t
of which recyclable	754,486 t
of which waste for disposal	7,951 t
Total waste water <sup>4</sup>	3,312,562 m <sup>3</sup>
CO <sub>2</sub> emissions <sup>4,6</sup>	1,254,961 t
Volatile organic compounds (VOC) <sup>4,5</sup>	2,522 t
NO <sub>x</sub> <sup>4,5</sup>	599 t
CO <sup>4,5</sup>	425 t
SO <sub>2</sub> <sup>4,5</sup>	8 t
Particulates, dust <sup>4,5</sup>	59 t

<sup>1</sup> Due to the fact that internal reporting has a different scope, this figure excludes BMW Brilliance (China) but includes Magna Steyr/AT.

<sup>2</sup> Component weight.

<sup>3</sup> Operating fluids for products (e.g. engine and gear oil, brake and cooling fluid, cooling agent, fuel for production refuelling). As the data is captured via the central purchasing system, this figure excludes BMW Brilliance (China) and Magna Steyr/AT.

<sup>4</sup> Incl. BMW Brilliance (China), excluding contract production.

<sup>5</sup> BMW Group measurements/capture as well as calculations based on energy consumption (primarily heating oil and gas) with the aid of the VDA emission factors.

<sup>6</sup> Calculated using updated emissions factors.

The number of vehicles produced again showed an increase in the reporting period (+3.5%). On the input side, the shift from steel to aluminium reported in 2015 continued due to the increase in lightweight construction. Aluminium grew by 7.7% (steel: -5%). In addition, the efficiency indicators energy/water consumption, process waste water, waste for disposal, VOC and CO<sub>2</sub> emissions per vehicle improved by an average of 4.9% compared to 2015.

→ GRI G4-EN1, GRI G4-EN3, GRI G4-EN8, GRI G4-EN15, GRI G4-EN21, GRI G4-EN22, GRI G4-EN23

**Water consumption<sup>1</sup>**

→ T3.16

	2012	2013	2014	2015	2016
Water consumption in m <sup>3</sup>	3,910,923	4,105,937	4,434,595	4,819,684	5,017,816
of which drinking water in %	88	86	87	86	87.1
of which groundwater in %	12	14	13	14	12.5
of which surface water in %	0	0	0	0	0.5
of which rainwater in %	0	0	0	0	0

<sup>1</sup> This figure refers to the production sites of the BMW Group incl. the BMW Brilliance Automotive Ltd. joint venture in Shenyang/CN.

In the period under report, no sensitive water sources were impacted by water removal (water from nature conservation areas), nor are there plans to do so in the future.

→ GRI G4-EN8

**Waste water<sup>1</sup>**

→ T3.17

	2012	2013	2014	2015	2016
Total waste water in m <sup>3</sup>	2,535,980	2,825,825	2,965,615	3,108,587	3,312,562
of which process waste water in m <sup>3</sup>	896,137	882,978	949,601	960,234	944,008
of which waste water from sanitary facilities in m <sup>3</sup>	1,639,843	1,942,847	2,016,015	2,148,353	2,368,554
Total heavy metals and heavy metal compounds in kg	474	465	492	502	742
CSB <sup>2</sup> in kg	1,617,183	1,770,577	2,081,473	2,152,073	2,085,398
AOX <sup>3</sup> in kg	77	79	74	87	131

<sup>1</sup> The key performance indicator "Process waste water" is measured after waste water treatment in BMW Group plants (incl. the BMW Brilliance Automotive Ltd. joint venture in Shenyang/CN) has taken place. Together with the waste water from sanitary facilities at the plants, this is the figure for total waste water. Due to factors such as evaporation, water input does not correspond to total waste water.

<sup>2</sup> COD = chemical oxygen demand.

<sup>3</sup> AOX = adsorbable organic halides in water.

In general, materials input into waste water should be limited to volumes that will not overtax natural decomposition processes. At all production facilities, BMW-specific waste water standards apply, some of which significantly exceed local regulations. The significant increase in AOX as well as the total of all heavy metals and heavy metal compounds in 2016 is due to intermittent process difficulties.

→ GRI G4-EN22

Waste<sup>1</sup>

→ T3.18

in t	2012	2013	2014	2015	2016
Total waste	664,752	680,299	727,079	754,747	762,924
Hazardous waste for recovery	19,979	21,884	28,503	31,099	30,855
Hazardous waste for disposal	8,127	7,668	7,439	5,483	4,219
Non-hazardous waste for recovery	633,394	647,725	688,237	714,887	723,632
Non-hazardous waste for disposal	3,252	3,022	2,900	3,278	3,732
Materials for recycling	653,373	669,609	716,740	745,986	754,486
Metals for recycling (scrap)	494,894	500,589	525,812	569,959	569,841
Waste for disposal	11,379	10,690	10,339	8,761	7,951

<sup>1</sup> The indicators refer to the production locations of the BMW Group incl. the BMW Brilliance Automotive Ltd. joint venture in Shenyang/CN.

In 2016, waste for removal was reduced to 7,951 t (2015: 8,761 t). This equates to an overall reduction of 9.2%, in spite of an increase in production of 3.7%. This reduction was mainly a result of the possibility of recycling liquid waste at several plants (e.g. Dadong/CN).

→ GRI G4-EN23

Modes of transport of BMW AG employees<sup>1</sup>

→ T3.19

	2013		2014		2015		2016 <sup>2</sup>	
	in %	in t CO <sub>2</sub>	in %	in t CO <sub>2</sub>	in %	in t CO <sub>2</sub>	in %	in t CO <sub>2</sub>
Cars	50	59,882	51	60,009	52	65,922	53	70,953
Public transport	17	3,914	16	3,461	16	3,750	16	4,169
Plant bus	27	13,432	26	14,244	25	14,552	24	12,950
Bicycle/on foot	6	0	7	0	7	0	7	0
<b>Total</b>	<b>100</b>	<b>77,228</b>	<b>100</b>	<b>77,714</b>	<b>100</b>	<b>84,225</b>	<b>100</b>	<b>88,072</b>

<sup>1</sup> Headquarters, including Research and Innovation Center Munich/DE, and the Munich/DE, Dingolfing/DE, Regensburg/DE, Landshut/DE, Leipzig/DE and Berlin/DE plants.

<sup>2</sup> 63% of BMW Group employees and 92% of employees in Germany captured.

Total emissions of CO<sub>2</sub> rose by just under 5% and the overall average of CO<sub>2</sub> emissions per employee and working day is slightly higher than in the previous year (4.63 kg/employee/d).

→ GRI G4-EN17



Logistics: carriers and CO<sub>2</sub> emissions<sup>1</sup>

→ T3.20

	2012		2013		2014		2015		2016	
<b>INBOUND (MATERIAL PROVISION OF THE PLANTS AND SPARE PARTS DELIVERY)</b>										
Transport volume in million tkm	10,703		11,560		12,682		13,822		15,202	
CO <sub>2</sub> emissions in t	547,049		580,616		630,215		467,023		506,604	
<b>OUTBOUND (DISTRIBUTION OF VEHICLES AND SPARE PARTS)</b>										
Transport volume in million tkm	20,195		22,226		24,537		25,584		25,006	
CO <sub>2</sub> emissions in t	700,051		803,158		888,089		935,059		920,795	
<b>TOTAL (INBOUND AND OUTBOUND)</b>										
Transport volume in million tkm	30,898		33,786		37,219		39,406		40,208	
CO <sub>2</sub> emissions in t	1,247,100		1,383,774		1,518,304		1,402,082		1,427,399	
<b>PERCENTAGE SHARE OF CARRIERS IN TOTAL (INBOUND AND OUTBOUND) IN TERMS OF TRANSPORT VOLUME AND CO<sub>2</sub> EMISSIONS</b>										
	<b>tkm</b>	<b>g CO<sub>2</sub></b>	<b>tkm</b>	<b>g CO<sub>2</sub></b>	<b>tkm</b>	<b>g CO<sub>2</sub></b>	<b>tkm</b>	<b>g CO<sub>2</sub></b>	<b>tkm</b>	<b>g CO<sub>2</sub></b>
Sea	79.2	53.1	78.9	51.6	77.8	50.1	78.9	57.0	77.7	55.0
Road	10.7	20.2	12.4	23.1	13.5	24.3	13.5	27.8	14.9	30.8
Rail	8.9	4.6	7.5	3.8	7.3	2.7	7.0	3.2	6.9	3.1
Air	1.2	22.1	1.2	21.5	1.4	22.9	0.6	12.0	0.5	11.1

<sup>1</sup> Figures refer to BMW and MINI, excluding Rolls-Royce automobiles. CO<sub>2</sub> emissions calculated in accordance with DIN EN 16258. Since the 2011 financial year, the scope has expanded significantly and currently comprises: inbound volumes (material supplies to plants and spare parts delivery) for BMW and MINI vehicles in Germany, UK, USA, South Africa, China, Thailand, India and CKD/SKD locations as well as for delivery of spare parts to the parts supply centre ZTA in Dingolfing/DE. Outbound volumes (vehicle distribution and spare parts) as far as the distribution centres in the worldwide markets and in certain markets as far as the dealership.

The increase in transport volume (+2%) and CO<sub>2</sub> emissions (+2.1%) was less than proportional to the year-on-year increase in the number of BMW and MINI vehicles produced (+3.5%). CO<sub>2</sub> emissions fell by around 2.3% per unit based on the number of vehicles. This is mainly due to the rise in the share of vehicles produced in Europe for the European market and the resulting decrease in export volume. It also led to slight shifts in shares of modes of transport in transport volume and CO<sub>2</sub> emissions figures.

→ GRI G4-EN17

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## Further key indicators: Employees and society

## Occupational health and safety management systems at BMW Group sites

→ T4.13

Plant occupational health and safety certification	Occupational health and safety management system	Most recent year of certification
Berlin plant, DE	OHSAS 18001	December 2014
Dingolfing plant, DE	OHRIS	May 2015
Eisenach plant, DE	OHSAS 18001	September 2015
Goodwood plant, UK	OHSAS 18001	September 2015
Hams Hall plant, UK	HS(G) 65	October 2016 <sup>1</sup>
Landshut plant, DE	OHRIS	October 2015
Leipzig plant, DE	OHRIS	March 2013
Munich plant, DE	OHRIS	August 2015
Oxford plant, UK	OHSAS 18001	December 2015
Regensburg plant, DE	OHRIS	July 2015
Rossllyn plant, ZA	OHSAS 18001	December 2014
Spartanburg plant, US	OHSAS 18001	April 2016
Steyr plant, AT	OHSAS 18001	December 2015 <sup>2</sup>
Swindon plant, UK	OHSAS 18001	December 2015
Wackersdorf plant, DE	OHRIS	July 2015
CKD production Araquari, BR	OHSAS 18001	December 2016
CKD production Chennai, IN	OHSAS 18001	January 2016
CKD production Jakarta, ID (external production)	OHSAS 18001	January 2014
CKD production Cairo, EG (external production)	OHSAS 18001	October 2014
CKD production Kaliningrad, RU (external production)	National standard <sup>3</sup>	Implemented
CKD production Kulim, MY (external production)	OHSAS 18001	December 2015
CKD production Manaus, BR (external production)	National standard <sup>3</sup>	Implemented
CKD production Rayong, TH	OHSAS 18001	January 2016
BMW Brilliance Automotive, Shenyang, CN (joint venture)	OHSAS 18001	December 2013
SGL Automotive Moses Lake, US (joint venture)	OHSAS 18001	December 2015
SGL Automotive Wackersdorf, DE (joint venture)	OHSAS 18001	December 2015
Magna Steyr Fahrzeugtechnik Graz, AT (contract production)	OHSAS 18001	July 2015
TVS Motor Company, Hosur, IN (contract production)	OHSAS 18001	January 2014
VDL Nedcar, Born, NL (contract production)	National standard <sup>3</sup>	Implemented

<sup>1</sup> Date of issue of certificates January 2017.<sup>2</sup> Date of issue of certificates January 2016.<sup>3</sup> Legal requirements complied with.

The BMW Group currently has certified occupational health and safety management systems in accordance with OHRIS and OHSAS in place at 28 of its 31 production locations. Hams Hall/UK and Araquari/BR received OHSAS-certification in 2016.

## Occupational safety at BMW Group

→ T4.14

Rate/number of participants/number	2012	2013	2014	2015	2016
Accident frequency rate <sup>1</sup> BMW Group	5.8	4.8	5.1 <sup>3</sup>	4.4 <sup>4</sup>	4.0 <sup>5</sup>
Safety training by BMWAG occupational safety association	4,315	2,387	2,750	1,809	1,327
Web-based training in occupational safety at BMW Group <sup>7</sup>	11,935	15,902	17,180	23,548	25,811
Other training courses in occupational safety at BMW Group	16,513	10,892	10,984	17,536	31,212
Employees at BMW Group (number) <sup>7</sup>	10,626	9,611	6,941	13,635	22,607
Employees of third-party companies (number)	5,887	1,281	4,043	3,901	8,605
BMW Group risk assessments <sup>2</sup>	26,040	26,462	27,300	69,887 <sup>6</sup>	78,201 <sup>6</sup>

<sup>1</sup> Number of occupational accidents with at least one day absent per one million hours worked.<sup>2</sup> Number of safety assessments of workplaces, including with regard to possible ergonomic and health strains. Figures are cumulative and refer to the BMW Group.<sup>3</sup> Figure not directly comparable to previous years' figures due to addition of German dealerships to Scope. Around 88% of BMW Group employees captured.<sup>4</sup> Figure not directly comparable to previous years' figures due to addition of plants in Brazil, Thailand and India to scope. Around 90% of BMW Group employees represented.<sup>5</sup> Figure not directly comparable to previous year due to expansion of scope to include all BMW Group employees for which accidents can be recorded under current data privacy regulations.<sup>6</sup> Figures not directly comparable to previous years' figures. The figure shown is the sum of the safety assessments of workplaces in the tariff-bound production area carried out so far in accordance with the ABATech method (31,520) and the hazard assessments in the non-tariff areas, which were captured for the first time (46,681). The figures are cumulative and refer to the BMW Group.<sup>7</sup> Including staff from temporary employment agencies.

In 2016, the accident frequency rate at the BMW Group fell by just under 5% compared to 2015. This is due to continuous improvement processes as well as dedicated safety training courses and ongoing improvement of technical safety conditions at workstations. In addition to training by the occupational safety association, a large number of internal training courses are carried out, data on which has been represented since 2011. A total of 8,605 employees of the BMW Group as well as employees of third-party companies took part in internal safety training courses in 2016. In addition 5,525 people underwent training in first aid in Germany alone.

→ GRI G4-LA6

## BMW Group employees

→ T4.15

	2012	2013	2014	2015	2016
Workforce according to segment					
Automotive	96,518	100,682	106,064	111,410	112,869
Motorcycles	2,939	2,726	2,894	3,021	3,351
Financial Services	6,295	6,823	7,245	7,697	8,394
Other	124	120	121	116	115
Share of employees with fixed-term contracts <sup>1</sup> in %	3.8	3.9	4.2	4.7	3.7

<sup>1</sup> Excluding vocational trainees, interns and students.

→ GRI G4-10



Accident frequency rate at BMW Group by country<sup>1</sup>

→ T4.16

Per one million hours worked	Accident frequency
Australia	1.3
Austria	5.3
Belgium	3.7
Brazil	0.8
Canada	0.0
China	0.0
Denmark	0.0
Finland	0.0
France	3.2
Germany	4.9
UK and Ireland	2.3
Greece	0.0
India	1.4
Indonesia	0.0
Ireland	0.0
Italy	6.9
Japan	1.7
Malaysia	0.0
Mexico	0.0
Netherlands	0.0
New Zealand	0.0
Norway	0.0
Poland	0.0
Portugal	0.0
Russia	0.0
Singapore	0.0
South Africa	1.5
South Korea	0.0
Spain	8.2
Sweden	0.0
Switzerland	6.0
Thailand	0.0
United Arab Emirates	0.0
USA	3.1

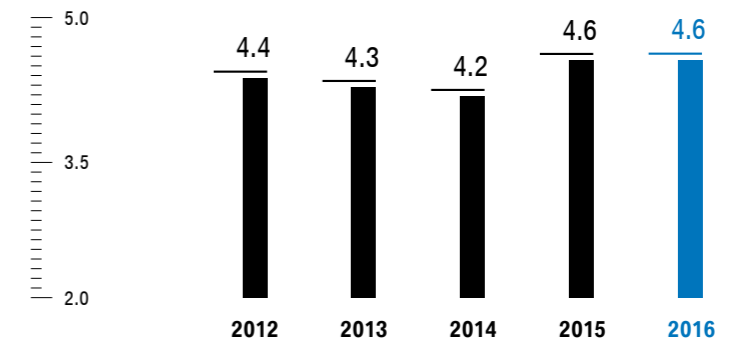
<sup>1</sup> Occupational accidents with at least one day of absence from work per one million hours worked.

→ GRI G4-LA6

## Sickness rate at BMW AG

→ T4.17

in %



→ GRI G4-LA6

Target share of performance-related compensation in BMW AG salaries, by employee category<sup>1</sup>

→ T4.18

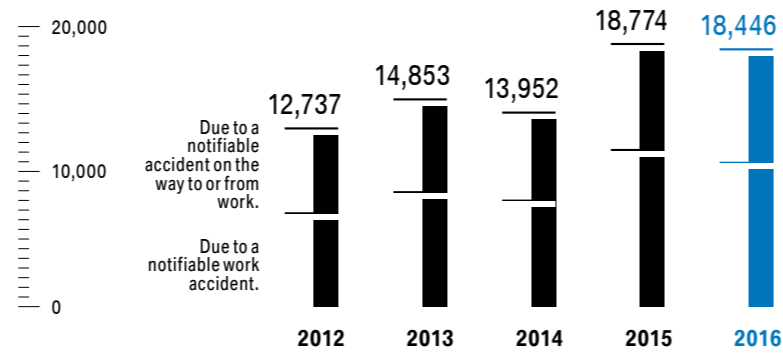
in % of salary group	2014	2015	2016
Upper management	53–72	52–71	52–72
Middle management	37–41	37–41	37–40
Lower management	10	9	9

<sup>1</sup> Performance-based remuneration comprises a personal bonus and a corporate earnings-related bonus. The amount of the personal bonus depends on personal performance as well as achievement of the individual's targets. The amount of the corporate bonus depends on the company's performance. The variable part of remuneration increases as more responsibility is taken within the company.

**Total days of work missed at BMW AG<sup>1</sup>**

→ T 4.19

Number



<sup>1</sup> Figures for BMW AG, including dealerships. Days of absence from work due to occupational accidents and/or accidents on the way to or from work with at least one day of absence from work.

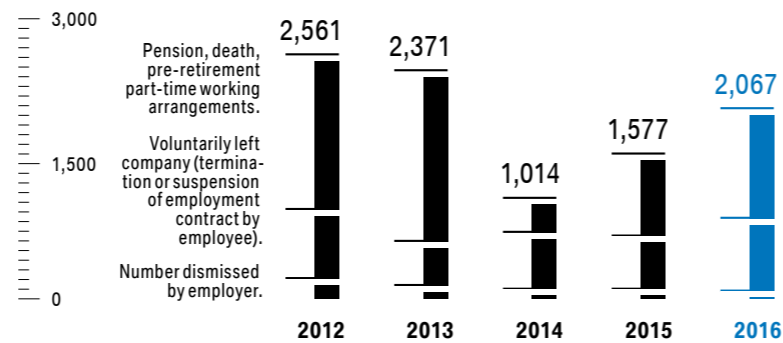
The number of occupational accidents with days absent from work dropped by 3.03% in 2016 compared to the previous year.

→ GRI G4-LA6

**Total number of employees leaving BMW AG, by reason for leaving<sup>1</sup>**

→ T 4.21

Number



<sup>1</sup> Figures refer to employees with permanent contracts.

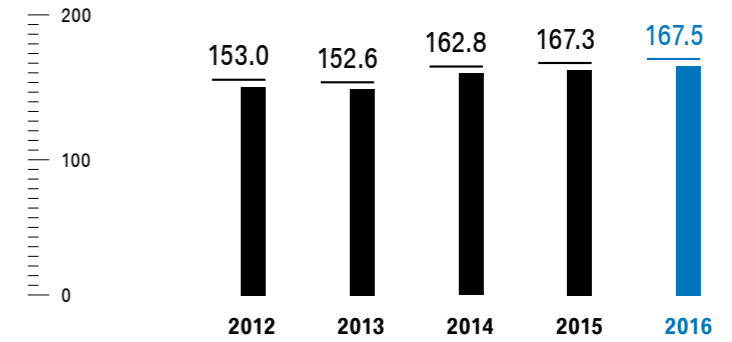
The rise in the number of people leaving the company for age-related reasons (retirement, pre-retirement part-time working arrangements) compared to 2015 led to an increase in the overall figure. The share of women in the total number of people leaving the company (2,067) was 12.8% in 2016. The share of women among newly recruited employees was 26.0%.

→ GRI G4-LA1

**Profit-sharing scheme at BMW AG by year of payment<sup>1</sup>**

→ T 4.20

in % of monthly salary/in % of personal base value

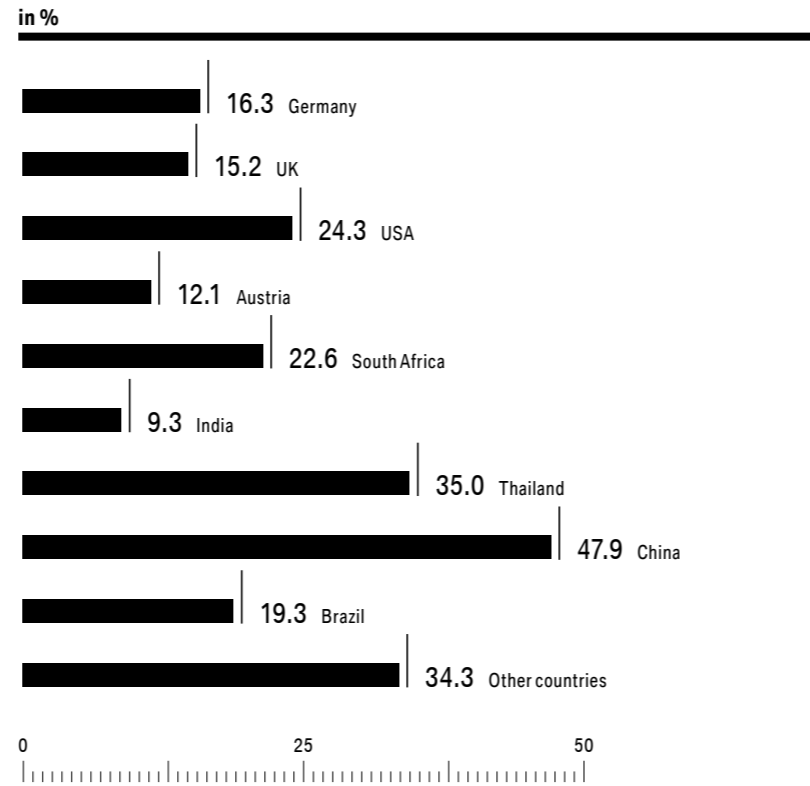


<sup>1</sup> New employees receive full bonuses after four years of employment.

Since the 2010 financial year (payout in 2011), bonuses at BMW AG have been determined according to a uniform system across all hierarchical levels. Starting in the 2011 financial year (payout in 2012), this system was also introduced for employees worldwide as a standardised corporate success component in nearly all BMW Group companies. The consistency of this component is thus ensured both hierarchically (from production worker to board member) and geographically (worldwide). This portion of the bonus depends on the earnings performance of the BMW Group and is calculated according to these three parameters: Group's earnings after tax, after-tax return on sales, and dividends. Including the post-tax return on sales in the calculation of bonuses (also for the Board of Management and the upper executives) in particular ensures an orientation towards the profitable, and hence sustainable, growth of the BMW Group.

Share of women in the workforce per country with production site(s) in 2016

→ T4.22



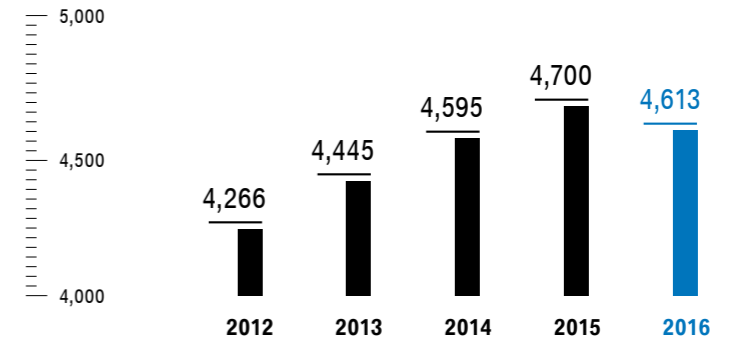
The share of women in the workforce varies strongly in the different functional areas: the share of women in production-related activities is less than 10%, while it is over 20% in sales-related activities. The employee share and share of women is therefore lower in production-intensive countries.

→ GRI G4-LA12

BMW Group apprentices as at 31 December

→ T4.23

Number



In 2016, the BMW Group further expanded its international training activities by increasing the number of apprentices in training at plants in the USA and Thailand. The number of people starting their careers at the company's German training centres remained constant, at 1,200. On the reporting date, 4,613 young people had vocational training contracts or were employed in young talent promotion programmes (2015: 4,700).



Share of local employees in management positions at major company locations<sup>1</sup>

→ T4.24

in %	2012	2013	2014	2015	2016
Munich plant, DE	98.8	98.8	98.9	99.0	99.1
Dingolfing plant, DE	99.7	99.7	99.7	99.7	99.7
Berlin plant, DE	100.0	100.0	100.0	100.0	100.0
Landshut plant, DE	100.0	99.2	100.0	100.0	100.0
Leipzig plant, DE	100.0	98.2	99.2	99.2	100.0
Regensburg plant, DE	100.0	100.0	100.0	100.0	99.5
UK	92.5	89.3	85.2	85.2	87.5
USA	91.2	89.0	86.8	86.1	89.4
Austria	83.0	84.7	86.2	75.1	84.8
South Africa	89.2	89.0	89.9	85.4	85.4
China <sup>2</sup> (incl. joint venture)	28.4	63.0	50.6	65.2	65.8
India	54.8	59.5	61.8	71.1	66.7
Thailand	68.0	75.0	61.3	72.4	65.6

<sup>1</sup> "Local" refers to managers with local contracts. Persons deployed to work at the location who do not have a local employment contract are not included. Such persons are reflected in the difference from 100% in each case.

<sup>2</sup> Including employees of the joint venture BMW Brilliance Automotive, which is not consolidated in the BMW Group.

→ GRI G4-LA12

## Share of employees represented by a trade union or falling under collective agreements

→ T4.25

in %	2012	2013	2014	2015	2016
Germany <sup>2</sup>	100	100	100	100	100
UK <sup>1</sup>	86	86	86	86	85
China (plant)	100	100	100	100	100
Austria <sup>2</sup>	100	100	100	100	100
South Africa	61	61	60	59	58
USA (no collective agreements exist)	0	0	0	0	0

<sup>1</sup> From 2012 onwards, all employees in corporate functions as well as the employees at the Goodwood/UK plant were included in this figure.

<sup>2</sup> Excluding executives.

At the BMW Group, institutionalised co-determination is implemented Group-wide according to the applicable national regulations. At all BMW AG plants and dealerships as well as in Austria and the UK, elected works councils observe co-determination for the employees. In China and South Africa, employees are represented by local workers' representatives, while at the company locations in the USA no collective agreements exist in general.

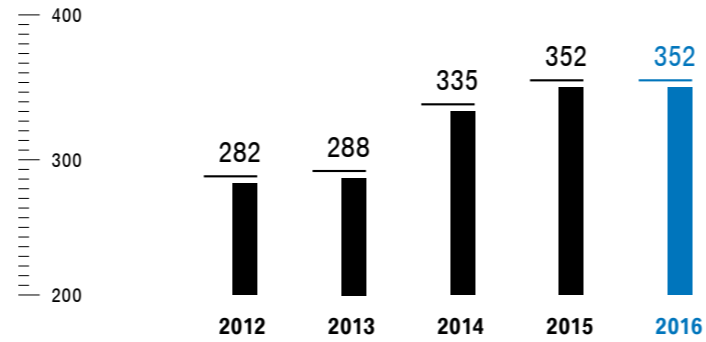
The BMW Group complies with the ILO Conventions 87 and 98, which guarantee employees the right of association as well as the right to conclude collective bargaining agreements. In addition to the right to found and become members of independent C93 unions or other organisations that represent interests, this also includes protection against discrimination due to participation in employee representation. Freedom of association thus forms one of the focal points of the → **BMW Group Joint Declaration on Human Rights and Working Conditions**. Timely and comprehensive inclusion of employee representatives is guaranteed at the BMW Group both through the parity of membership of the BMW AG Supervisory Board as well as through works' council representatives and local employee representatives.

→ GRI G4-11

### Investment in further education and training at the BMW Group<sup>1</sup>

→ T 4.26

in € million



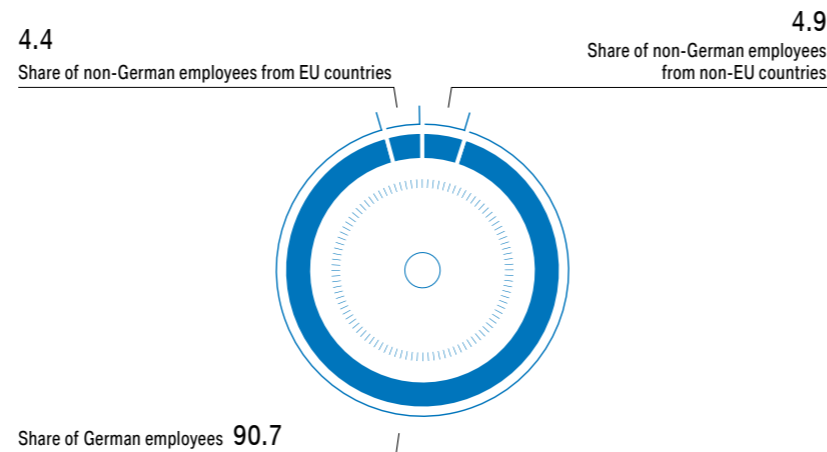
<sup>1</sup> BMW Group investments are dependent on current further education and training requirements, which may lead to year-on-year fluctuations.

The BMW Group sees targeted employee training as an investment in the future. For this reason, investment in education and further training remained at the same level as in the previous year. Building up and maintaining skills expertise within the Group's workforce are key aspects of strategic corporate governance.

### Share of BMW AG employees in Europe outside Germany as well as from non-EU countries

→ T 4.28

in %



→ GRI G4-LA12

### Average training hours at the BMW AG Academy, by employee category

→ T 4.27

Number of employees	2014	2015	2016
Non-tariff employees	30.5	26.6	30.0
“Meister” (master craftsmen)	35.0	36.8	27.8
Tariff	17.5	18.2	17.3
Days of further training for managers in the BMW Group			
Number	18,920	18,775	9,000

The training academy founded in 2009 coordinates vocational training at Munich/DE as well as training and further education for all company locations in Germany and the UK under one umbrella. This facilitates the coordination of training courses and generates synergies through the use of shared resources. In 2016, the BMW Group's training offensive provided similar results to the previous year. Both the average amount of time spent on training as well as expenditure were at a similar level to the previous year. This trend can be observed throughout the entire company. In addition to classical training courses and e-learning, brand new education programmes were launched, such as Bachelor's and master's degrees in cooperation with universities. In the year under report, the “Sustainable Leadership” programme for established junior and middle managers (programme with largest number of participants) did not take place, due among other things to the fact that in the first half of 2016 the new strategy of the BMW Group was announced, making it necessary to modify the leadership programmes, too. Every manager will therefore participate in the one-day dialogue event “Strategy NUMBER ONE Next. Next Experience”.

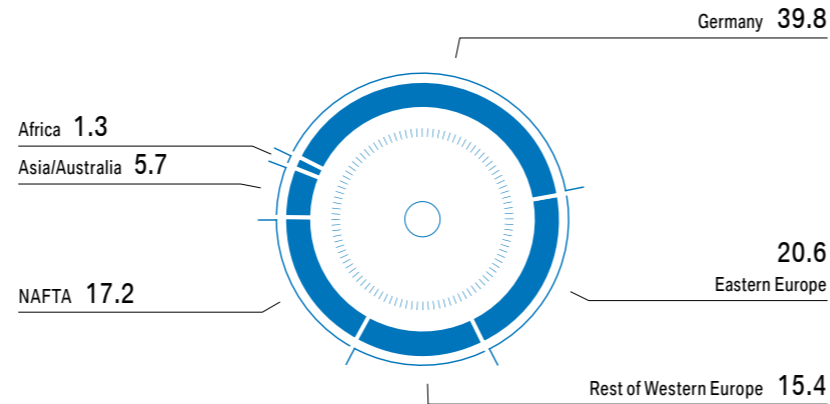
→ GRI G4-LA9

## Further key indicators: Fundamentals

### Regional distribution of purchasing volume of the BMW Group in 2015

→ T 5.03

in %, basis: production material

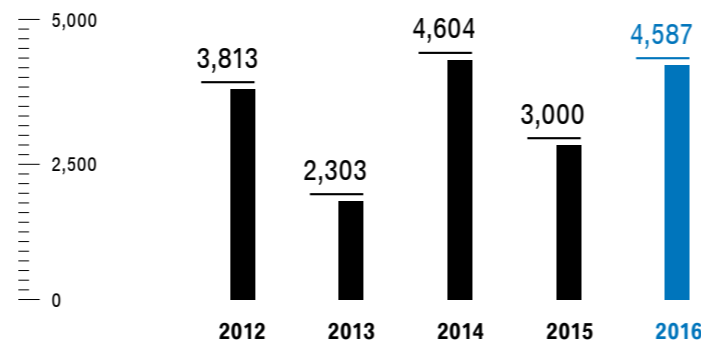


→ GRI G4-12

### Pension provisions

→ T 5.05

in € million



The bulk of the agreed pension benefits are covered in full by fund-based pension systems as well as accounting provisions. Fund assets amounted to €18,315 million in 2016 (2015: €16,930 million). Pension provisions have risen to €4,587 million (2015: €3,000 million); this is primarily due to decreased discount rates in Germany and Great Britain.

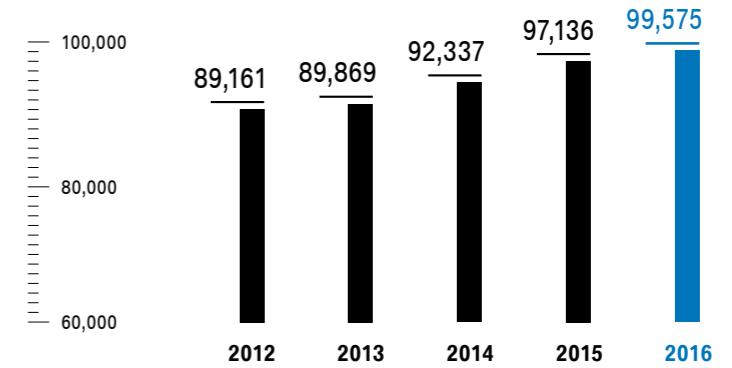
From a legal perspective, the BMW Group's fund assets are managed in trusts, separately from its corporate assets.

→ GRI G4-EC1, GRI G4-EC3

### BMW Group personnel costs per employee<sup>1</sup>

→ T 5.04

in €



<sup>1</sup> Figures exclude suspended employment contracts, employees in non-work phases of pre-retirement part-time arrangements, trainees, students and low income earners.

Maintaining a competitive level of expenditure on personnel plays a major role in the success of the BMW Group. In addition to focusing on cost, the aim is also to increase efficiency at all levels of the business. The high degree of motivation amongst employees and the positive approach taken by the company towards the workforce are underscored by rewards that are determined individually on the basis of performance and success.

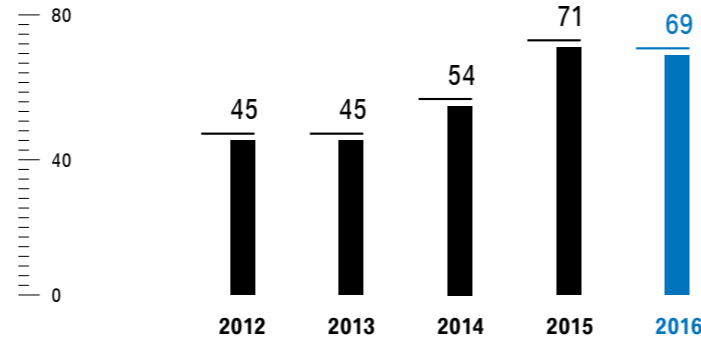
→ GRI G4-EC1



**Public sector grants: public subsidies in the form of reduced taxes on assets and consumption-based taxes**

→ T 5.06

in € million



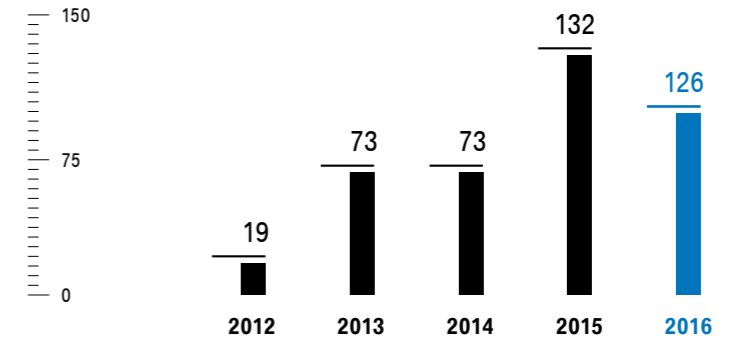
As in the previous years, public sector grants consisted of two parts in 2016. First, production costs were reduced due to public subsidies in the form of reduced taxes on assets and consumption-based taxes amounting to €69 million (2015: €71 million). Second, other operating income at the BMW Group also includes performance-based public sector grants totalling €126 million (2015: €132 million).

→ GRI G4-EC4

**Public sector grants: performance-based grants from the public sector**

→ T 5.07

in € million



→ GRI G4-EC4

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## → Fundamentals

## BMW Group vehicle production by plant

→ T 5.08

	2015	2016	Change in %	Share of production in %
Munich, DE	221,998	216,769	-2.4	9.2
Dingolfing, DE	360,804	339,769	-5.8	14.4
Regensburg, DE	304,509	346,291	13.7	14.7
Leipzig, DE	233,656	246,550	5.5	10.4
Rosslyn, ZA	71,353	63,117	-11.5	2.7
Spartanburg, US	400,904	411,171	2.6	17.4
Dadong <sup>1</sup> , CN	142,767	143,825	0.7	6.1
Tiexi <sup>1</sup> , CN	144,988	161,901	11.7	6.9
Rayong, TH	8,928	17,844	99.9	0.7
Araquari, BR	9,936	15,408	55.1	0.6
Chennai, IN	7,716	8,568	11.0	0.4
Oxford, UK	201,206	210,971	4.9	8.9
Graz (Magna Steyr) <sup>2</sup> , AT	82,655	53,528	-35.2	2.3
Born (VDL Nedcar bv) <sup>2</sup> , NL	57,019	87,609	53.6	3.7
Goodwood, UK	3,848	4,179	8.6	0.2
Partner plants	27,216	32,256	18.5	1.4

<sup>1</sup> Joint venture BMW Brilliance Automotive Ltd., Shenyang/CN<sup>2</sup> Contract production

→ GRI G4-9

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Code	Topics and page references	Omissions and comments	External verification
	<b>Strategy and analysis</b>		
<b>G4-1</b>	<b>Statement from the most senior decision-maker</b> → see Introduction, pages 3–4		✓
<b>G4-2</b>	<b>Key impacts, risks and opportunities concerning sustainability</b> Impacts, risks and opportunities regarding Products and services, → page 20 Production and value creation, → page 53 Employees and society, → page 82 Fundamentals, → page 108 Business case for sustainability, → page 15		✓
	<b>Organisational profile</b>		
<b>G4-3</b>	<b>Name of the organisation</b> → see Imprint, page 189		✓
<b>G4-4</b>	<b>Primary brands, products and services</b> → see Introduction, page 5		✓
<b>G4-5</b>	<b>Location of the organisation's headquarters</b> → see Imprint, page 189		✓

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Code	Topics and page references	Omissions and comments	External verification
G4-6	<p><b>Countries with significant operations</b> → BMW Group 2016 Annual Report BMW Group vehicle sales by region and market, → page 42 Vehicle production of BMW Group by plant, → page 45 Company locations, → pages 24–25</p>		✓*
G4-7	<p><b>Nature of ownership and legal form</b> → BMW Group 2016 Annual Report Business model, → page 22 Disclosures relevant for takeovers and explanatory comments, → page 103 Consolidated financial statements, → page 112</p>		✓*
G4-8	<p><b>Markets served</b> → BMW Group 2016 Annual Report BMW Group vehicle sales by region and market, → page 42 Vehicle production of BMW Group by plant, → page 45 Sales subsidiaries, → pages 24–25</p>		✓*
G4-9	<p><b>Scale of the organisation</b> → see Introduction, Further key indicators, page 5, 148</p>		✓
G4-10	<p><b>Employees by employment type, gender and region</b> → see chapter 4.2, Further key indicators, pages 91, 93, 99, 140</p>	The number of non-managerial staff is subject to very strong short-term fluctuations particularly in the summer during the main holiday period of the core workforce. Statements about the number of non-managerial staff as well as their composition by gender are therefore valid only for a very short time. Freelance staff are not relevant for most of the work in the BMW Group. (UNGC 6) <sup>1</sup>	✓
G4-11	<p><b>Ratio of employees under collective agreements</b> → see Further key indicators, page 144</p>	(UNGC 3) <sup>1</sup>	✓

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Code	Topics and page references	Omissions and comments	External verification
G4-12	<b>Description of the supply chain</b> → see Introduction, Further key indicators, page 6, 146		✓
G4-13	<b>Significant changes during the reporting period</b> → see About this report, page 184 → see Annual Report, Group reporting entity, page 121		✓
G4-14	<b>Implementation of the precautionary principle</b> Observing the precautionary principle through our comprehensive and integrated strategy, → page 14 Observing the precautionary principle through a comprehensive understanding of product responsibility, → page 24 Environmental protection within the organisation and Clean Production approach, → pages 51–69 Precautions through supplier selection and management, → pages 70–79 Safeguarding employees through a healthy work environment, → pages 84–89 Fostering understanding between different nations, religions and ethnic groups, → pages 101–106 → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207 Risk management, → page 88	(UNGC 7) <sup>1</sup>	✓
G4-15	<b>External initiatives that the organisation endorses</b> → see chapter 5.3, page 116		✓

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Code	Topics and page references	Omissions and comments	External verification
G4-16	<b>Significant memberships in industry and business associations</b>	<p><b>Membership in national associations:</b></p> <ul style="list-style-type: none"> <li>— The German Association of the Automotive Industry (VDA) and indirectly through the VDA the Federation of German Industries (BDI) and the Association for the Promotion of German Industry</li> <li>— Bavarian Employers' Associations for the Metalworking and Electrical Industries (bayme vbm)</li> <li>— Confederation of German Employers' Associations (BDA)</li> </ul> <p><b>International industry associations:</b></p> <ul style="list-style-type: none"> <li>— European Automobile Manufacturers' Association (ACEA)</li> <li>— Alliance of Automobile Manufacturers (Auto Alliance)</li> </ul>	✓
<b>Identified material aspects and boundaries</b>			
G4-17	<p><b>Entities included in the consolidated financial statements</b></p> <p>→ see About this report, page 184</p> <p>→ see Annual Report, Group reporting entity, page 121</p>		✓
G4-18	<p><b>Process for defining the report content</b></p> <p>→ see chapter 1, page 11</p>		✓
G4-19	<p><b>Material aspects identified</b></p> <p>→ see chapter 1, GRI Index, pages 11, 181–182</p>		✓
G4-20	<p><b>Aspect boundaries within the organisation</b></p> <p>→ see GRI Index, pages 181–182</p>		✓
G4-21	<p><b>Aspect boundaries outside the organisation</b></p> <p>→ see GRI Index, pages 181–182</p>		✓



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Code	Topics and page references	Omissions and comments	External verification
G4-22	<b>Restatements of information provided in previous reports</b>	Where necessary and possible, restatements are explained in footnotes to the respective graphics.	✓
G4-23	<b>Significant changes in the scope and aspect boundaries</b> → see About this report, page 184		✓
<b>Stakeholder engagement</b>			
G4-24	<b>Stakeholder groups engaged</b> → see chapter 5.5, page 121		✓
G4-25	<b>Identification and selection of stakeholders</b> → see chapter 5.5, page 120		✓
G4-26	<b>Approach to stakeholder engagement and frequency</b> → see chapter 1, chapter 5.5, pages 11, 121	Continuous worldwide in all locations and markets with a variety of different stakeholder groups. Specific stakeholder dialogues are listed as part of the definition of the report content.	✓
G4-27	<b>Key topics and concerns raised through stakeholder engagement and response</b> → see chapter 1, chapter 5.5, pages 11, 122	The Materiality Matrix is illustrated in chapter 1. The topics therein and their relevance were determined in a stakeholder survey.	✓
<b>Report profile</b>			
G4-28	<b>Reporting period</b> → see About this report, page 184		✓
G4-29	<b>Date of most recent previous report</b> → see About this report, page 184		✓
G4-30	<b>Reporting cycle</b> → see About this report, page 184		✓

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Code	Topics and page references	Omissions and comments	External verification
G4-31	<b>Contact point for questions regarding the report</b> → see Imprint, page 189		✓
G4-32	<b>“In accordance” option with GRI and context index chosen</b> → see About this report, GRI Index, pages 184, 149–182		✓
G4-33	<b>External verification of the report</b> → see Independent Practitioner's Limited Assurance Report, pages 186–187		✓
<b>Governance</b>			
G4-34	<b>Governance structure, including committees of the highest governance body</b> → see chapter 5.6, page 126 → BMW Group 2016 Annual Report Overview of Supervisory Board Committees, → page 198	The BMW Group governance principles are set down in the → <b>Corporate Governance Code</b> .	✓*
G4-35	<b>Process for delegating authority for economic, environmental and social topics</b> → see chapter 5.6, page 126	The Supervisory Board does not delegate any authority.	✓
G4-36	<b>Executive-level position with responsibility for economic, environmental and social topics</b> → see chapter 5.6, page 126		✓
G4-37	<b>Processes for consultation between stakeholders and the highest governance body</b> → BMW Group 2016 Annual Report <b>Statement on Corporate Governance:</b> Employee representatives (company employees) on the Supervisory Board, → pages 193–195 Employee representatives (union representatives) on the Supervisory Board, → pages 193–195 Annual General Meeting, → page 190		✓*

Code	Topics and page references	Omissions and comments	External verification
<b>G4-38</b>	<p><b>Composition of the highest governance body and its committees</b> → <b>BMW Group Company Profile</b> Term Stakeholder representation</p> <p>→ <b>BMW Group 2016 Annual Report</b> <b>Management:</b> Members of the Board of Management/Members of the Supervisory Board, → <b>pages 193ff.</b> Composition and Work Procedures of the Supervisory Board of BMW AG and its Committees, → <b>page 198</b></p> <p><b>Independence:</b> Composition objectives of the Supervisory Board, → <b>pages 202ff.</b></p> <p><b>Mandates:</b> Members of the Board of Management/Members of the Supervisory Board, → <b>pages 192, 193</b></p> <p><b>Gender:</b> Members of the Board of Management/Members of the Supervisory Board, → <b>pages 192, 193</b></p> <p><b>Social groups:</b> Composition objectives of the Supervisory Board, → <b>pages 202ff.</b></p> <p><b>Stakeholder representation:</b> Members of the Supervisory Board, → <b>page 193</b></p> <p><b>Competencies:</b> Composition objectives of the Supervisory Board, → <b>pages 202ff.</b></p>		✓*
<b>G4-39</b>	<p><b>Independence of the Chair of the highest governance body</b> → <b>see chapter 5.6, page 126</b> → <b>BMW Group 2016 Annual Report</b> → <b>page 198</b></p>	The Chairman of the Supervisory Board has no executive function.	✓*

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Code	Topics and page references	Omissions and comments	External verification
G4-40	<p><b>Nomination and selection process for the highest governance body</b></p> <p>→ BMW Group 2016 Annual Report</p> <p>Composition and Work Procedures of the Board of Management of BMW AG and its Committees, → page 196</p> <p>Composition and Work Procedures of the Supervisory Board of BMW AG and its Committees, → page 198</p>		✓*
G4-41	<p><b>Process for avoiding conflicts of interest</b></p> <p>→ BMW Group Legal Compliance Code</p> <p>→ BMW Group 2016 Annual Report</p> <p>Shareholdings of members of the Board of Management and Supervisory Board, → pages 174, 210</p>	<p>There are already upper limits for mandates as well as a legal prohibition on certain ties pursuant to § 100 of the German Stock Corporation Act (AktG). Mandates in Supervisory Board committees and comparable governance bodies of commercial enterprises are published in the Annual Report.</p> <p>The Board of Management and Supervisory Board have pledged to observe the provisions for conflicts of interest in Section 5.5 of the German Corporate Governance Code, in particular to disclose conflicts of interest and report on how they are dealt with.</p> <p>Business done with related parties or entities is reported in the financial reports in accordance with the IAS 24 standard (Related Party Disclosures). A quarterly survey of the members of the Board of Management and Supervisory Board is conducted for this purpose.</p>	✓*
G4-42	<p><b>Highest governance body's role concerning strategy and goals</b></p> <p>→ see chapter 5.6, page 126</p>		✓
G4-43	<p><b>Measures taken concerning the highest governance body's knowledge in sustainability issues</b></p> <p>→ see chapter 5.6, pages 126–127</p>		✓



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Code	Topics and page references	Omissions and comments	External verification
G4-44	<b>Evaluation of the highest governance body's performance concerning sustainability</b> → see chapter 5.6, page 127		✓
G4-45	<b>Highest governance body's role concerning sustainability impacts, risks and opportunities</b> → BMW Group 2016 Annual Report Risk management system, → pages 88ff.	The Board of Management informs the Supervisory Board by way of the Audit Committee on risk management and the risk situation.	✓*
G4-46	<b>Highest governance body's role concerning the effectiveness of risk management</b> → BMW Group 2016 Annual Report Report of the Supervisory Board, → pages 8ff. Risk management system, → pages 88ff.		✓*
G4-47	<b>Frequency of the highest governance body's review of sustainability impacts, risks and opportunities</b> → see chapter 5.6, page 126 → BMW Group 2016 Annual Report Risk management system, → pages 88ff.		✓*
G4-48	<b>Highest committee that formally reviews and approves the Sustainability Report</b> → see About this report, page 185		✓
G4-49	<b>Process for communicating critical concerns to the highest governance body</b> → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207	The Chair of the BMW Group Compliance Committee and the heads of Group Reporting, Corporate Audit and Group Controlling report directly to the Audit Committee of the Supervisory Board on a regular basis. Shareholders have the opportunity to voice their concerns to the BMW Group at the Annual General Meeting. Employees can use their Compliance Contact or the BMW SpeakUP line for this purpose. Our regular stakeholder dialogues ensure that we proactively address the concerns of our various stakeholder groups.	✓*
G4-50	<b>Critical concerns that were communicated to the highest governance body</b>	This information is confidential and is not communicated externally by the BMW Group.	

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Code	Topics and page references	Omissions and comments	External verification
G4-51	<b>Remuneration policies for the highest governance body and senior executives</b> → see chapter 5.6, page 127 → BMW Group 2016 Annual Report Compensation Report, → pages 212 ff.		✓*
G4-52	<b>Process for determining remuneration</b> → BMW Group 2016 Annual Report Compensation Report, → pages 212 ff. Overview of compensation system and compensation components, → pages 212 ff. External compensation consultant: Report of the Supervisory Board, → pages 212 ff.		✓*
G4-53	<b>Stakeholders' views regarding remuneration</b> → BMW Group 2016 Annual Report Employee representatives on the Supervisory Board, → pages 193–195 Information on the Company's Governing Constitution, → page 190 Supervisory Board compensation, responsibilities, regulation pursuant to Articles of Incorporation, → pages 220 ff.		✓*

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Code	Topics and page references	Omissions and comments	External verification
G4-54	<b>Ratio of the highest annual total compensation to the median annual total compensation</b>	<p>The BMW Group policies for remuneration and additional benefits apply for all of our companies, regardless of gender, religion, origin, age, disability, sexual orientation or country-specific characteristics. We follow the guiding principle that the total remuneration package must be above the average for the respective labour market. We conduct annual compensation studies worldwide to determine our current market positioning so that we can continue to align overall compensation with the market. This ensures that every employee receives compensation commensurate with the relevant labour market.</p> <p>The ratio of the annual compensation of the highest-paid employee to the median level of all employees is also in keeping with the market thanks to our globally applied approach; it can however vary greatly depending on the market spread between countries. For this reason, no definitive statement can be made. The percentage increase in annual compensation is decided based on various factors such as the inflation rate and in principle follows the market trend.</p>	✓
G4-55	<b>Ratio of percentage increase in the highest annual total compensation</b>	Cf. G4-54	✓

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Code	Topics and page references	Omissions and comments	External verification
	<b>Ethics and integrity</b>		
<b>G4-56</b>	<b>Values, principles, standards and norms of behaviour</b> → see chapter 5.3, page 116 → BMW Group Legal Compliance Code → BMW Group values-oriented human resources policies → Joint Declaration on Human Rights and Working Conditions at the BMW Group → BMW Group environmental guidelines → BMW Group sustainability standard for the supplier network	(UNGC 10) <sup>1</sup>	✓
<b>G4-57</b>	<b>Mechanisms for seeking advice on ethical and lawful behaviour</b> → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207	(UNGC 10) <sup>1</sup>	✓*
<b>G4-58</b>	<b>Mechanisms for reporting concerns about unethical and unlawful behaviour</b> → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207	(UNGC 10) <sup>1</sup>	✓*



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Code	Management approach and indicators	Omissions and comments	External verification
<b>Economic performance</b>			
	<b>Management approach</b> → see chapter 5.4, pages 118–119	(UNGC 7) <sup>1</sup>	✓
<b>G4-EC1</b>	<b>Direct economic value created and distributed</b> → see chapter 4.4, chapter 5.4, Further key indicators, pages 106, 118–119, 146	Indicator is not reported by market.	✓
<b>G4-EC2</b>	<b>Financial implications and other risks and opportunities due to climate change</b> → see chapter 1, chapter 2, chapter 3, pages 15, 23, 56, 67		✓
<b>G4-EC3</b>	<b>Coverage of benefit plan obligations</b> → see Further key indicators, page 146 → BMW Group 2016 Annual Report Provisions for pensions, → pages 151 ff.		✓*
<b>G4-EC4</b>	<b>Financial assistance received from government</b> → see Further key indicators, page 147	Indicator is not reported by market.	✓*
<b>Indirect economic impacts</b>			
	<b>Management approach</b> → see chapter 4.4, chapter 5.4, pages 101–106, 118–119		✓
<b>G4-EC7</b>	<b>Infrastructure investments and services provided</b> → see chapter 5.4, page 119		✓
<b>G4-EC8</b>	<b>Indirect economic impacts</b> → see chapter 5.4, Further key indicators, pages 118–119, 146		✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Materials</b>		
	<b>Management approach</b> → see chapter 2.1, chapters 3.1 and 3.3, pages 24–25, 56, 61–62, 77–78	(UNGC 7, 8) <sup>1</sup>	✓
G4-EN1	<b>Materials used by weight or volume</b> → see Further key indicators, page 135		✓
G4-EN2	<b>Percentage of materials used that are recycled input materials</b> → see chapter 3.1, page 61		✓
	<b>Energy</b>		
	<b>Management approach</b> → see chapters 2.1 and 2.2, chapters 3.1 and 3.2, pages 23–25, 33–34, 56–61, 67–69	(UNGC 7, 8, 9) <sup>1</sup>	✓
G4-EN3	<b>Energy consumption within the organisation</b> → see Further key indicators, page 132		✓
G4-EN4	<b>Energy consumption outside of the organisation</b> → see chapter 3.1, page 60	Primary energy consumption in the utilisation phase is not reported as this is managed based on the CO <sub>2</sub> emissions per kilometre.	✓
G4-EN5	<b>Energy intensity</b> → see chapter 3.1, page 57		✓
G4-EN6	<b>Reduction of energy consumption</b> → see chapter 3.1, page 57		✓
G4-EN7	<b>Reductions in energy requirements of products and services</b> → see chapter 2.1, page 26		✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Emissions</b>		
	<b>Management approach</b> → see chapters 2.1 and 3.1, pages 23–25, 56–61	(UNGC 7, 8, 9) <sup>1</sup>	✓
<b>G4-EN15</b>	<b>Direct greenhouse gas (GHG) emissions (Scope 1)</b> → see climate footprint, chapter 3.1, Further key indicators, pages 60, 135		✓
<b>G4-EN16</b>	<b>Energy-related indirect greenhouse gas (GHG) emissions (Scope 2)</b> → see climate footprint, chapter 3.1, page 60		✓
<b>G4-EN17</b>	<b>Other indirect greenhouse gas (GHG) emissions (Scope 3)</b> → see climate footprint, chapter 3.1, Further key indicators, pages 60, 137 Fleet values in g CO <sub>2</sub> /km: → see chapter 2.1, page 27		✓
<b>G4-EN18</b>	<b>Intensity of greenhouse gas (GHG) emissions</b> → see chapter 3.1, page 59		✓
<b>G4-EN19</b>	<b>Reduction of greenhouse gas (GHG) emissions</b> → see chapters 2.1 and 3.1, pages 27, 59		✓
<b>G4-EN20</b>	<b>Emissions of ozone-depleting substances</b>	According to a BMW Group internal standard, substances with ozone-depleting potential as listed in the legal provisions are not allowed. The BMW standard “Prohibited and declarable substances” contains a ban on chlorofluorocarbons and thus substances that have a strong ozone-depleting potential. The BMW Group thus not only regulates emissions of these substances but prevents them from being used at all.	✓
<b>G4-EN21</b>	<b>NO<sub>x</sub>, SO<sub>x</sub> and other significant air emissions</b> → see Further key indicators, page 135		✓

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	<b>Products and services</b>		
	<b>Management approach</b> → see chapter 2, pages 23–25, 34–35	(UNGC 9) <sup>1</sup>	✓
<b>G4-EN27</b>	<b>Mitigation of environmental impacts of products and services</b> Complete life cycle assessments: → see chapters 2.1 and 2.2, pages 24, 26, 35 Efficient Dynamics: → see chapter 2.1, page 25 Design for Recycling: → see chapters 1 and 3.1, pages 24, 62 Further key indicators: → page 130		✓
<b>G4-EN28</b>	<b>Reclaimed products and packaging</b> → see chapter 3.1, page 62	<b>Products:</b> The BMW Group does not take back any products. Established systems for the recovery of end-of-life vehicles, components and materials ensure that they are reintegrated into the raw materials cycle.  <b>Packaging:</b> Vehicles are delivered to the end customer without packaging. We use covered rail wagons or protective film for transporting vehicles to the dealership. All protective film is recycled after use. When parts are shipped to regional distribution centres, any packaging materials (packaging materials for transport and parts protection for separate parts) are professionally disposed of there. In the further supply chain from the regional distribution centres to the BMW Group dealerships, responsibility for disposal of packaging materials lies with the dealership. Customers who purchase spare parts or lifestyle articles can return the packaging material to the BMW Group dealership.	✓



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	<b>Supplier environmental assessment</b>		
	<b>Management approach</b> → see chapter 3.3, pages 69–79		✓
<b>G4-EN32</b>	<b>Percentage of new suppliers who were reviewed according to environmental criteria</b> → see chapter 3.3, pages 73–74	(UNGC 1, 2) <sup>1</sup>	✓
<b>G4-EN33</b>	<b>Significant environmental impacts in the supply chain</b> → see chapter 3.3, pages 75–76	We are not aware of any significant negative impacts in our supplier network. No percentage figures can be given based on the number of suppliers as this number cannot be reliably recorded at this time.	✓
	<b>Employment</b>		
	<b>Management approach</b> → see chapter 4, pages 80–106 → Joint Declaration on Human Rights and Working Conditions at the BMW Group		✓
<b>G4-LA1</b>	<b>New employee hires and employee turnover</b> → see chapter 4.2, Further key indicators, pages 95, 142	The turnover rate for BMW AG and hence for 70% of all employees is recorded centrally. The turnover rate at individual international locations is also recorded, but not consolidated at the BMW Group level. This is because it is not possible with the current system to break down the absolute and percentage values for employee hires and resignations by region and gender. We plan to integrate this indicator in our data collection process by 2018.	✓

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Code	Management approach and indicators	Omissions and comments	External verification
G4-LA2	<b>Benefits provided to full-time employees</b> → see chapter 4.2, page 92	Our principles apply to all employees. There is no distinction made between full-time employees and those with fixed-term contracts or part-time employees. For part-time employees, the principle of proportionate remuneration is applied, with some additional benefits being granted on a full-time basis.	✓
G4-LA3	<b>Return to work and retention rates after parental leave</b> → see chapter 4.2, page 93	The current system records only the number of BMW AG employees (approximately 70% of the employees of the BMW Group) on parental leave. We plan to integrate detailed data for the entire BMW Group into our data collection process by 2018. Nearly 100% of the returnees stay in their jobs for longer than twelve months.	✓
<b>Occupational health and safety</b>			
	<b>Management approach</b> → see chapter 4.1, pages 84–89 → Joint Declaration on Human Rights and Working Conditions at the BMW Group		✓
G4-LA5	<b>Percentage of total workforce represented in health and safety committees</b> → see chapter 4.1, page 86	Special committees on occupational health and safety with representatives from both the employer and employee side are active at all BMW Group locations. They are structured in various ways, in some cases with union participation, and they adopt so-called company agreements that often go well beyond the statutory requirements.	✓

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External  
verification**G4-LA6****Injuries, occupational diseases, lost days  
and work-related fatalities**

→ see chapter 4.1 and Further key indicators, pages 87, 140–142

Occupational diseases are defined differently in different regions, so that an aggregate statement for the BMW Group on the frequency and type of diseases and injuries is not possible. Work-related diseases are recorded in the English-speaking countries. In Germany, this is not permitted for data privacy reasons. Instead, German figures for occupational diseases are based on the precise definition in the German Social Insurance Code. According to this definition, BMW AG has a rate of occupational diseases in the range of 0.1 per thousand (cases per employee). Thanks to central planning based in Germany, the working conditions for handling hazardous substances and the ergonomic design of workplaces are identical in all BMW Group plants worldwide. In analogy, it can be assumed that the rate of occupational diseases abroad is the same as in Germany.

With regard to working conditions (occupational safety), there are no gender-specific differences. Therefore, no gender-specific analysis is currently published and none is planned for the future.

The BMW Group does not collect data from contractors active at our locations, as this information is subject to confidentiality clauses in our contracts. On-site contractors are instructed in occupational health and safety precautions before taking up their work.

The accident statistics take into account work accidents that lead to at least one day of absence from work.



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Code	Management approach and indicators	Omissions and comments	External verification
G4-LA7	<b>Workers with high incidence or risk of diseases</b> → see chapter 4.1, page 87	Employees of the BMW Group are not subject to an increased risk.	✓
G4-LA8	<b>Health and safety topics covered in formal agreements with trade unions</b> → see chapter 4.1, page 86	Occupational health and safety are regulated by law through the German Occupational Safety and Health Act. There are no formal agreements with trade unions on occupational health and safety issues at any of our worldwide locations. In the BMW Group, occupational health and safety topics are regulated in cooperation with the works councils. For example, company agreements have been concluded on the following topics: <ul style="list-style-type: none"> <li>— Company agreement stipulating medical screenings for occupational fitness for jobs involving driving, technical control or monitoring activities</li> <li>— Occupational integration management for employees</li> <li>— Step by step occupational reintegration of employees</li> <li>— Help for employees at risk of or suffering from drug addiction</li> </ul>	✓
<b>Training and education</b>			
	<b>Management approach</b> → see chapter 4.2, pages 90–95 → <b>Joint Declaration on Human Rights and Working Conditions at the BMW Group</b>		✓



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Code	Management approach and indicators	Omissions and comments	External verification
G4-LA9	<b>Average hours of training</b> → see chapter 4.2, Further key indicators, pages 93–94, 145	<p>We report on the average days of training and education for employees of the BMW Group. However, our current system allows us to break down this training by employee category only for the BMW AG Academy (over 50% of training). There are no gender-specific differences in training volumes.</p> <p>Due to the current prioritisation of other topics, a suitable tool add-on for collecting this data can be defined at the earliest in 2018 and then implemented step by step throughout the BMW Group.</p>	✓
G4-LA10	<b>Programmes that support the continued employability of employees</b> → see chapter 4.2, page 94	<p>Through our yearly skills analysis process, which also serves as the basis for planning Group-wide and individual training, we assist our employees in building and maintaining skills throughout their career. We also offer seminars helping employees prepare for retirement from active working life.</p>	✓
G4-LA11	<b>Percentage of employees receiving regular performance and career development reviews</b> → see chapter 4.2, page 93		✓
<b>Diversity and equal opportunity</b>			
	<b>Management approach</b> → see chapter 4.3, pages 96–100 → Joint Declaration on Human Rights and Working Conditions at the BMW Group	(UNGC 6) <sup>1</sup>	✓
G4-LA12	<b>Composition of governance bodies and breakdown of employees by aspects of diversity</b> → see chapter 4.3, Further key indicators, pages 97–99, 143–145		✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Equal remuneration for women and men</b>		
	<b>Management approach</b> → see chapter 4.2, pages 90–95 → Joint Declaration on Human Rights and Working Conditions at the BMW Group	(UNGC 6) <sup>1</sup>	✓
<b>G4-LA13</b>	<b>Ratio of basic salary and remuneration of women to men</b> → see chapter 4.2, pages 91–92		✓
	<b>Supplier assessment for labour practices</b>		
	<b>Management approach</b> → see chapter 3.3, pages 70–79	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-LA14</b>	<b>Percentage of new suppliers that were screened using labour practices criteria</b> → see chapter 3.3, pages 73–74		✓
<b>G4-LA15</b>	<b>Significant impacts for labour practices in the supply chain</b> → see chapter 3.3, pages 75–76	We are not aware of any significant negative impacts in our supplier network.  No percentage figures can be given based on the number of suppliers because this number cannot be reliably recorded at this time.	✓

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	<b>Investment</b>		
	<b>Management approach</b> → see chapter 5.3, pages 114–115, 117	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-HR1</b>	<b>Significant investment agreements and contracts that include human rights clauses or screening</b> → see chapter 5.3, page 117	Significant investment volumes are investments that account for at least 95% of the total investment in tangible assets reported in the 2016 Annual Report.	✓
<b>G4-HR2</b>	<b>Employee training on human rights issues</b> → see chapter 5.3, page 115	After the adoption of the UN Guiding Principles on Business and Human Rights, we informed our employees via the hierarchy cascade of the BMW Group's position and the requirements with regard to human rights. Employees in purchasing in particular have since then been required to take part in ongoing compulsory training. Human rights are also part of the training for managers in their capacity as multipliers as well as being addressed in the introductory seminars for new employees, in training courses for trainees and in Web-based training on sustainability. In 2016, the issue of human rights was also a focus in our classroom training in compliance, for example at our plant in Thailand and at the APAC Compliance Conference in February 2016 in Kuala Lumpur.  As human rights are an integral part of the above training, the actual hours of training are not recorded at present.	✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Non-discrimination</b>		
	<b>Management approach</b> → see chapter 4.3, pages 96–100 → <b>Joint Declaration on Human Rights and Working Conditions at the BMW Group</b>	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-HR3</b>	<b>Incidents of discrimination and corrective actions taken</b> → see chapter 4.3, page 97 → <b>BMW Group 2016 Annual Report</b> Report of the Supervisory Board, → pages 8 ff. Compliance in the BMW Group, → page 207	The BMW Group is not currently involved in any court or arbitration proceedings that in the company's estimation might have a significant impact on its financial condition. Further information on cases of discrimination is subject to internal confidentiality regulations.	✓*



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	<b>Assessment</b>		
	<b>Management approach</b> → see chapter 5.3, pages 114–115	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-HR9</b>	<b>Operations that have been subject to human rights reviews</b> → see chapter 5.3, page 115	Following publication of the UN Guiding Principles on Business and Human Rights, we performed a systematic analysis of the rights cited in the Universal Declaration of Human Rights with regard to their relevance and implications for different business units. Based on the results, we reviewed our strategic alignment and used what we learned to continuously develop our due diligence process for the company and in relation to our business partners. The international value creation processes in the automotive industry and the division of labour they entail lead to risks above all in the supply chain. For this reason, one of the focuses of our ongoing risk assessments is on human rights in this area. Our three-step risk management process for the supply chain includes a risk filter, self-disclosure by suppliers and audits. In 2016, a total of 5,616 nominated, active and potential suppliers were assessed using our OEM questionnaire. This comprised 89% of BMW AG's new suppliers of production-related materials with a contract value of over € 2 million and 96% of new suppliers of non-production-related materials with a contract value of over €5 million. (→ chapter 3.3, section on the risk management process). Human rights are moreover an integral part of the assessment process for new operation sites.	✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Supplier human rights assessment</b>		
	<b>Management approach</b> → see chapter 3.3, pages 70–79	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-HR10</b>	<b>Percentage of new suppliers that were screened</b> → see chapter 3.3, pages 73–74		✓
<b>G4-HR11</b>	<b>Significant human rights impacts in the supply chain</b> → see chapter 3.3, pages 75–76	We are not aware of any significant negative impacts in our supplier network.  No percentage figures can be given based on the number of suppliers as this number cannot be reliably recorded at this time.	✓
	<b>Human rights grievance mechanisms</b>		
	<b>Management approach</b> → see chapter 5.3, pages 114, 116	(UNGC 1, 2, 3, 4, 5, 6) <sup>1</sup>	✓
<b>G4-HR12</b>	<b>Grievances about human rights impacts</b> → see chapter 5.3, page 116		✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Anti-corruption</b>		
	<b>Management approach</b> → see chapter 5.3, pages 114–115 → BMW Group 2016 Annual Report	(UNGC 10) <sup>1</sup>	✓*
<b>G4-S03</b>	<b>Percentage of operations assessed for risks related to corruption and risks identified</b> → see chapter 5.3, pages 114–115 → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207		✓*
<b>G4-S04</b>	<b>Communication and training on anti-corruption</b> → see chapter 5.3, pages 115 → BMW Group 2016 Annual Report Compliance in the BMW Group, → page 207	The BMW Group achieves full training coverage for its managers in compliance matters. Managers are responsible for selecting tariff-based employees for training and ensuring its implementation.	✓*

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<b>G4-S05</b>	<p><b>Confirmed incidents of corruption and actions taken</b></p> <p>→ <b>BMW Group 2016 Annual Report</b> Report of the Supervisory Board, → <b>pages 8ff.</b> Compliance in the BMW Group, → <b>page 207</b></p>	<p>Major violations of the BMW Group Legal Compliance Code or the BMW Group Policy “Corruption Prevention” (according to the anti-corruption directive) are reported in the BMW AG Annual Report in the compliance section, including their legal investigation.</p> <p>In 2016, no such legal violations or infringements against the rules came to light. Nor were any legal proceedings concerning corrupt practices concluded during the reporting period. Currently, the BMW Group does not have Group-wide information about employment-contract sanctions as a result of breaches of the law. For this reason, this aspect of the indicator is not fully reported. Detailed data on the total number of cases in which contracts with business partners were not renewed due to violations related to corruption are not currently available. We plan to incorporate this data into our data collection system by 2018 if possible.</p>	<p style="text-align: right;">✓*</p>



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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Anti-competitive behaviour</b>		
	<b>Management approach</b> → see chapter 5.3, pages 114–115	(UNGC 10) <sup>1</sup>	✓*
<b>G4-S07</b>	<b>Legal actions for anti-competitive behaviour, anti-trust and monopoly practices</b> → BMW Group 2016 Annual Report Report of the Supervisory Board, → pages 8 ff. Compliance in the BMW Group, → page 207	Apart from the proceedings against BMW Australia Finance Ltd., the reports received and breaches identified in individual cases gave no indication of systemically caused breaches of compliance. In general, the areas of sales and financial services, in particular in Europe, are at increased risk for possible violations of anti-trust law, which resulted in individual cases in regulatory investigations and fines.	✓*
	<b>Supplier assessment for impacts on society</b>		
	<b>Management approach</b> → see chapter 3.3, pages 70–79	(UNGC 10) <sup>1</sup>	✓
<b>G4-S09</b>	<b>Percentage of new suppliers that were screened using criteria for impacts on society</b> → see chapter 3.3, pages 73–74		✓
<b>G4-S010</b>	<b>Negative impacts on society in the supply chain and actions taken</b> → see chapter 3.3, pages 75–76	We are not aware of any significant negative impacts in our supplier network.  No percentage figures can be given based on the number of suppliers as this number cannot be reliably recorded at this time.	✓

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Code	Management approach and indicators	Omissions and comments	External verification
	<b>Customer health and safety</b>		
	<b>Management approach</b> → see chapter 5.2, page 111 → <b>BMW Group 2016 Annual Report</b> Report of the Supervisory Board, → pages 8 ff. Compliance in the BMW Group, → page 207		✓
<b>G4-PR1</b>	<b>Percentage of significant product and service categories for which health and safety impacts are assessed</b> → see chapter 5.2, page 111	All BMW Group products are developed in strict compliance with quality management systems. Vehicle safety is tested extensively to determine potential for improvement.	✓
<b>G4-PR2</b>	<b>Incidents of non-compliance with regulations and voluntary codes concerning product and service information and labelling</b> → <b>BMW Group 2016 Annual Report</b> Report of the Supervisory Board, → pages 8 ff. Compliance in the BMW Group, → page 207	For all compliance-relevant matters, the following applies in general: the reports received and breaches identified in individual cases in 2016 gave no indication of serious or systemically caused breaches of compliance.	✓*
	<b>Product and service labelling</b>		
	<b>Management approach</b> → see chapters 5.1 and 5.2, pages 109–112		✓
<b>G4-PR3</b>	<b>Principles and procedures for product and service labelling and percentage of products and services subject to such labelling</b> → see chapter 5.2, page 112		✓
<b>G4-PR4</b>	<b>Incidents of non-compliance with regulations and voluntary codes concerning product and service information and labelling</b> → <b>BMW Group 2016 Annual Report</b> Report of the Supervisory Board, → pages 8 ff. Compliance in the BMW Group, → page 207	For all compliance-relevant matters, the following applies in general: the reports received and breaches identified in individual cases in 2016 gave no indication of serious or systemically caused breaches of compliance.	✓*

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G4-PR5	<b>Results of surveys measuring customer satisfaction</b> → see chapter 5.1, pages 109–110		✓
	<b>Customer privacy</b> <b>Management approach</b> → see chapter 2.3, page 48		✓
G4-PR8	<b>Substantiated complaints regarding breaches of customer privacy</b>	The number of cases is subject to internal confidentiality regulations.	

<sup>1</sup> UNGC: References to the Global Compact Principles of the United Nations

\*Aligned with the audited section of the BMW Group 2016 Annual Report

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Material GRI aspects for the BMW Group (G4-19)	within the BMW Group G4-20	outside the BMW Group G4-21
<b>Socio-economic impacts on society</b>		
Economic performance	significant	Supply chain
Indirect economic impacts	significant	Supply chain
<b>Design for Recycling</b>		
Materials	significant	Supply chain, Disposal firms
Products and services	significant	Supply chain, Disposal firms
<b>Energy efficiency and CO<sub>2</sub> emissions in the value chain</b>		
Energy	significant	Supply chain
Emissions	significant	Supply chain
<b>Fuel efficiency and vehicle CO<sub>2</sub> emissions</b>		
Energy	significant	Dealerships, Customers
Emissions	significant	Dealerships, Customers
<b>Vehicle pollutant emissions</b>		
Emissions	significant	Supply chain, Dealerships, Customers
<b>Pollutant emissions in the value chain</b>		
Emissions	significant	Supply chain
<b>Alternative drivetrain technologies</b>		
Products and services	significant	Supply chain, Dealerships, Customers
<b>Attractive workplace, talent identification and retention</b>		
Employment	significant	
Equal remuneration for women and men	significant	
<b>Occupational safety and health</b>		
Work safety and safeguarding health	significant	Supply chain, Dealerships
<b>Employee development, training and education</b>		
Training and education	significant	



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G4-21**Diversity and equal opportunity**

Diversity and equal opportunity  
Equal remuneration for women and men  
Non-discrimination

significant  
significant  
significant

Supply chain  
Supply chain

**Human rights**

Investments  
Product testing  
Supplier human rights assessment  
Human rights grievance mechanism

significant  
significant  
significant  
significant

Supply chain  
Supply chain  
Supply chain  
Supply chain

**Combatting corruption and anti-competitive behaviour**

Combatting corruption  
Anti-competitive behaviour

significant  
significant

Supply chain, Dealerships  
Supply chain, Dealerships

**Product safety**

Customer health and safety

significant

Customers

**Customer satisfaction**

Product and service information and labelling

significant

Dealerships

**Data protection**

Customer privacy

significant

Dealerships

**Environmental and social standards in the supply chain**

Supplier environmental assessment  
Supplier assessment for labour practices  
Supplier human rights assessment  
Supplier assessment for impacts on society

significant  
significant  
significant  
significant

Supply chain  
Supply chain  
Supply chain  
Supply chain

**Networked and autonomous driving**

significant

**Mobility products and services**

significant

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# APPENDIX

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# ABOUT THIS REPORT

The BMW Group Sustainable Value Report (SVR) 2016 has been published to provide stakeholders with comprehensive information about the company's sustainability strategy and the progress made in integrating sustainability into its corporate processes. The BMW Group's Sustainable Value Report 2016 has been compiled in accordance with the "Comprehensive" option of the Global Reporting Initiative (→ GRI G4) guidelines. This is the highest → GRI G4 transparency level.

## Structure of report

The report is structured along the long-term sustainability goals of the BMW Group. The weighting of the topics in the report is based on the results of our systematic materiality process →. The scope of the report and the aspect boundaries are therefore based on those in the Sustainable Value Report 2015. → GRI G4-23

Each chapter starts with a one-page overview of the main facts. The sub-sections of each chapter are introduced by a statement of the long-term sustainability goal of the BMW Group. The report contains the key performance indicators that control and monitor the BMW Group's sustainability performance. Where appropriate, references are also provided to supplementary information in the Annual Report or on other BMW Group websites.

→ see  
chapter 1

In addition to the key indicators presented in the main text, the report contains further key indicators on sustainability.

The report is published in German and English. For reasons of clarity and to avoid double references, generic references to the masculine in this document should be understood as referring to both sexes.

## Reporting period

The reporting period is the 2016 calendar year. The effective date for all figures and facts is 31 December 2016. → GRI G4-28 The Sustainable Value Report is published annually. → GRI G4-30 The last report was published in March 2016 as an interactive pdf covering financial year 2015. → GRI G4-29

The statements made in the Sustainable Value Report 2016 about the BMW Group generally refer to the group of consolidated companies in the 2016 Annual Report. Any deviations from that are indicated and their scope specified in the footnotes of the respective tables and charts. → GRI G4-17 Calculation methods are explained in footnotes to the respective charts. The "Further key indicators" section generally maps the key indicators for 2012–2016 (with the exception of key figures that only became relevant after 2012). They refer to the entire BMW Group. There are, however, some exceptions concerning site-specific topics and local sustainability programmes. Wherever this is the case, the entity the figures apply to is specified accordingly, e.g.: BMW AG. Nothing significant has changed with regard to the structure of the supply chain and relationships with suppliers, including the selection and termination of contracts. → GRI G4-13

The BMW Group Sustainable Value Report 2016 will be published on the BMW Group website. The next Sustainable Value Report will be published in early 2018.

## UN Global Compact – communication on progress

The BMW Group committed to implement the principles of the United Nations → **Global Compact** in 2001, and in this report once again gives account on progress achieved in complying with these principles. References to the Global Compact principles have been integrated into the → **GRI G4 Content Index**.

### Third-party verification

The entire report (the texts of all chapters as well as further key indicators) was audited by PricewaterhouseCoopers GmbH, with limited assurance in accordance with ISAE 3000 (revised) → **see Assurance Report**. → GRI G4-33 Indicators from the areas of environmental protection and occupational health and safety were audited by external auditors and experts in accordance with ISO 14001, EMAS and OHSAS.

The Corporate Reporting, Corporate Communications and Policy as well as Corporate Planning and Product Strategy departments select the external auditors for the Sustainable Value Report. Ms Ursula Mathar, Head of Sustainability and Environmental Protection and Dr Thomas Becker, Vice President of Governmental and External Affairs are responsible for expert approval of the SVR. Overall responsibility lies with the Board of the BMW Group. Third-party auditing enables us to document for the public the reliability and trustworthiness of the information provided. In addition, we regularly receive impetus for improvement and innovation in the reporting process. → GRI G4-33, GRI G4-48

## Forward-looking statements

The BMW Group Sustainable Value Report 2016 contains various forward-looking statements about future developments which are based on the current status of the BMW Group's assumptions and forecasts. They are thus subject to a variety of predictable and unpredictable risks, uncertainties and other factors, so that the actual outcome, including the company's financial and assets position, its development or performance could differ considerably. The BMW Group makes no commitment to update such forward-looking statements or to adapt them to future events or developments.



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## Independent Practitioner's Limited Assurance Report

## To BMW AG, Munich

We have been engaged to perform a limited assurance engagement on the sustainability information in the Sustainable Value Report 2016 of BMW AG, Munich, (hereinafter the "Company"), for the period 1 January to 31 December 2016 (hereinafter the "Sustainable Value Report").<sup>1</sup>

## Management's responsibility

The Company's management is responsible for the preparation and presentation of the Sustainable Value Report in accordance with the criteria as set out in the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI) (hereinafter the "GRI Criteria").

This responsibility includes the selection and application of appropriate methods to prepare the Sustainable Value Report as well as the use of assumptions and estimates for individual sustainability disclosures which are reasonable in the circumstances. Furthermore, the responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Sustainable Value Report, which is free of material misstatements due to intentional or unintentional errors.

## Audit firm's independence and quality control

We have complied with the German professional provisions regarding independence as well as other ethical requirements.

The audit firm applies the national legal requirements and professional standards – in particular the Professional Code for German Public Auditors and German Chartered Auditors ("Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer": "BS WP/vBP") as well as the requirements to quality control for audit firms ("Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis": "IDW EQS 1") of the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany; IDW) – and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

<sup>1</sup> Our engagement applies to the German version of the Sustainable Value Report 2016.

## Practitioner's responsibility

Our responsibility is to express an opinion on the sustainability information in the Sustainable Value Report based on our work performed.

Within the scope of our engagement we did not perform an audit on external sources of information or expert opinions, as referred to in the Sustainable Value Report.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information" published by IAASB. This standard requires that we plan and perform the assurance engagement to obtain limited assurance whether any matters have come to our attention that cause us to believe that the sustainability information in the Sustainable Value Report has not been prepared, in all material respects, in accordance with the GRI Criteria. In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement and therefore significantly less assurance is obtained than in a reasonable assurance engagement. The procedures selected depend on the practitioner's judgement. This includes the assessment of the risks of material misstatements of the sustainability information in the Sustainable Value Report with regard to the GRI Criteria.

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Within the scope of our work we performed amongst others the following procedures:

- Obtaining an understanding of the structure of the sustainability organisation and of the stakeholder engagement;
- Inquiries of personnel involved in the preparation of the Sustainable Value Report regarding the preparation process, the underlying internal control system and selected sustainability information;
- Performance of site visits as part of the inspection of processes for collecting, analysing and aggregating selected data:
  - in the corporate headquarters in Munich (Germany),
  - in the production plant in Leipzig (Germany),
  - in the production plant in Landshut (Germany),
  - in the production plant in Oxford (UK),
  - in the production plant in Swindon (UK),
  - in the production plant in Hams Hall (UK),
- Analytical procedures on selected sustainability information of the Sustainable Value Report;
- Inquiries of personnel responsible for the reporting of fleet emissions and fuel consumption, as well as reconciliation of selected data points regarding fleet emissions and fuel consumptions with the official information available from the Federal Office for Motor Traffic of Germany;
- Comparison of selected sustainability information with corresponding data in the consolidated financial statements and in the group management report;
- Assessment of the presentation of selected sustainability information in the Sustainable Value Report regarding the sustainability performance.

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**Conclusion**

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the sustainability information in the Sustainable Value Report of the Company for the period 1 January to 31 December 2016 has not been prepared, in all material respects, in accordance with the GRI Criteria.

**Emphasis of matter – recommendations**

Without qualifying our conclusion above, we make the following recommendations for the further development of the Company's sustainability management and sustainability reporting:

- Stronger formalisation of the internal control system for sustainability data;
- Further harmonisation and automation of world-wide reporting processes for non-financial data.

**Restriction on use and distribution**

We issue this report on the basis of the engagement agreed with the Company. The review has been performed for purposes of the Company and the report is solely intended to inform the Company about the results of the review. The report is not intended for any third parties to base any (financial) decision thereon. We do not assume any responsibility towards third parties.

Munich, 20 March 2017

**PricewaterhouseCoopers GmbH**  
Wirtschaftsprüfungsgesellschaft

sgn. Andreas Fell  
Wirtschaftsprüfer  
(German Public Auditor)

sgn. Hendrik Fink  
Wirtschaftsprüfer  
(German Public Auditor)

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# FUEL CONSUMPTION AND CO<sub>2</sub> EMISSIONS RATINGS FOR THE VEHICLES REFERRED TO IN THIS REPORT

Model	Urban (l/100 km)	Extra-urban (l/100 km)	Combined (l/100 km)	CO <sub>2</sub> emissions combined (g/km)	Electricity con- sumption combined (in addition to fuel consumption) (kWh/100km)
BMW i3 (60 Ah) with Range Extender	not applicable	not applicable	0.6	13	13.5
BMW i3 (60 Ah)	not applicable	not applicable	0	0	12.9
BMW i3 (94 Ah) with Range Extender	not applicable	not applicable	0.6	13–12	11.9–11.3
BMW i3 (94 Ah)	not applicable	not applicable	0	0	13.1–12.6

Model	Urban (l/100 km)	Extra-urban (l/100 km)	Combined (l/100 km)	CO <sub>2</sub> emissions combined (g/km)	Electricity con- sumption combined (in addition to fuel consumption) (kWh/100km)
BMW i8	not applicable	not applicable	2.1	49	11.9
BMW 225xe iPerformance Active Tourer	not applicable	not applicable	2.1–2.0	49–46	11.9–11.8
BMW 330e iPerformance	not applicable	not applicable	2.1–1.9	49–44	11.9–11.0
BMW X5 xDrive40e iPerformance	not applicable	not applicable	3.4–3.3	78–77	15.4–15.3
BMW 740e iPerformance	not applicable	not applicable	2.2–2.1	50–49	13.3–13.1
BMW 740Le iPerformance	not applicable	not applicable	2.2–2.1	51–49	13.3–13.1
BMW 740Le xDrive iPerformance	not applicable	not applicable	2.5–2.4	56–54	13.9–13.7

Further information on the official fuel consumption, specific official CO<sub>2</sub> emissions and power consumption of new passenger vehicles can be found in the "Guidelines for fuel consumption, CO<sub>2</sub> emissions and electric power consumption of new passenger vehicles", available free of charge from all sales outlets, the DAT Deutsche Automobil Treuhand GmbH, Hellmuth-Hirth-Straße 1, 73760 Ostfildern, Germany and at → <http://www.dat.de/angebote/verlagsprodukte/leitfaden-kraftstoffverbrauch.html>.

Information regarding fuel consumption, CO<sub>2</sub> emissions and electricity consumption is subject to selected wheel and tyre size for range data.

As at March 2017: further, regularly updated information on the vehicles referred to in this publication can be found at → [www.bmw.com](http://www.bmw.com), → [www.mini.com](http://www.mini.com) and → [www.rolls-roycemotorcars.com](http://www.rolls-roycemotorcars.com).

# WE LOOK FORWARD TO HEARING FROM YOU

Numerous BMW Group employees participated in creating this Sustainable Value Report 2015. We will be happy to answer your questions and forward them to the relevant departments if needed.



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→ [www.bmwgroup.com](http://www.bmwgroup.com)

## More from the BMW Group

→ [www.bmwgroup-classic.com](http://www.bmwgroup-classic.com)

→ [www.bmw-welt.com](http://www.bmw-welt.com)

## Social media

Facebook → [www.facebook.com/BMWGroup](http://www.facebook.com/BMWGroup)

Twitter → [www.twitter.com/BMWGroup](http://www.twitter.com/BMWGroup)

YouTube → [www.youtube.com/BMWGroupview](http://www.youtube.com/BMWGroupview)

Google+ → [www.google.com/+BMWGroup](http://www.google.com/+BMWGroup)

## The BMW Group brands on the Internet

→ [www.bmw.com](http://www.bmw.com)

→ [www.mini.com](http://www.mini.com)

→ [www.rolls-roycemotorcars.com](http://www.rolls-roycemotorcars.com)

→ [www.bmw-motorrad.com](http://www.bmw-motorrad.com)