

DRIVING SUSTAINABILITY



KNORR-BREMSE

Profile



For over 115 years, Knorr-Bremse has been shaping the future of mobility as a major innovator of sustainable system solutions. We are the global market leader in braking and other systems for rail and commercial vehicles and play a major role in improving safety, efficiency and reliability on road and rail.

Divisions

As the global market leader in braking and other systems for rail and commercial vehicles, Knorr-Bremse is a supportive partner to vehicle manufacturers and operators. The company also holds leading positions in the markets for other systems, including entrance and HVAC systems for rail vehicles and driver assistance systems for commercial vehicles.

About This Report

Since 2011, our Sustainability Report has provided our stakeholders with information about Knorr-Bremse's activities in the area of sustainability. As well as providing details of the company's impact on the environment and society, this report presents key indicators, targets and measures used by Knorr-Bremse to manage its sustainability activities. The reporting period is the 2021 fiscal year. Comparison figures from the previous year are presented wherever available. The report includes the subsidiaries fully consolidated in the consolidated financial statements. If content relates only to individual parts of the company, this is indicated. Reporting is carried out annually; the next sustainability report is expected to be published in spring 2023.

As a supplement to this report, the non-financial statement pursuant to the CSR-RUG can be found in the Knorr-Bremse Annual Report starting on page 40. The explanation covers the information material for the Group due to its relevance to business activities with regard to the required aspects of environmental, employee and social matters, as well as respect for human rights and combating corruption and bribery. The content of the non-financial statement was reviewed by KPMG Wirtschaftsprüfungsgesellschaft AG within the context of a limited assurance engagement pursuant to the ISAE 3000 (revised) auditing standard.

Editorial Note

To enable better readability, the masculine form is used for gender-specific titles throughout the report. All personal titles apply to all genders. The editorial deadline was April 15, 2022. The Sustainability Report is available in German and English.

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Foreword

Dear Readers,

Knorr-Bremse once again faced formative health-related, political and economic challenges due to the Covid-19 pandemic in 2021 – challenges that we were able to counter with our stable processes. I wish a full recovery to all of those close to us who have been affected by the disease, and our thoughts go out to our colleagues who passed away from the virus.

Before I address our sustainability activities, let me briefly talk about a second defining issue: we on the Executive Board are appalled by the Russian war in Ukraine and we strongly condemn the attacks carried out by Russia. In the Knorr-Bremse 2021 Annual Report, we describe our stance on the war, our adjusted business policies and the aid we have provided in greater detail.

Let us now take a look at important sustainability activities in 2021: with the newly implemented Knorr-Bremse Human Rights Policy, we have made a clear commitment to due diligence with regard to human rights – within the company, in the supply chain and in society. With this basic stance, we will align our structure and processes with the requirements of the future German Supply Chain Due Diligence Act. Other interim goals that we have achieved include improving our external ESG ratings and coupling our sustainability performance to financial obligations. Starting in 2022, ESG targets will be included in the short-term incentives for management remuneration.

The heart of our ecological efforts is protecting the climate, because taking a leading role in protecting the environment and continuing decarbonization are crucial for the long-term strategy of Knorr-Bremse. We are expanding our reporting accordingly. In this Sustainability Report, we present selected Scope 3 figures for the first time and provide a qualitative representation of the TCFD risk assessment. We were able to advance our Climate Strategy 2030 as planned. We achieved the planned carbon neutrality of our Knorr-Bremse locations in 2021. We are also headed in the right direction regarding our second central climate goal of halving our CO₂ emissions by the year 2030. This was made possible by our own climate protection measures, the purchase of renewable energies and offsetting residual emissions using high-quality climate protection certificates.

Our ambitious environmental protection measures also include an innovative product portfolio, of course. The EcoDesign approach, for instance, accounts for significant environmental aspects of our products throughout their entire life cycle. When the technologies and solutions are in use, they support our customers in actively shaping their sustainable mobility concepts.

The CVS division of Knorr-Bremse is taking on the challenges presented by the second generation of electromobility. To this end, we established the eCUBATOR, the company's own development unit, where the system solutions required for the zero-emission commercial vehicles of the future are developed. Today, with the further development of the commercial vehicle steering business with electric power steering (EPS), we already offer a key technology for advanced driver assistance systems (ADAS), highly autonomous driving (HAD) and electromobility.



Development activities in the RVS division are focused on solutions for automated train operation, such as reproducible braking distance, which increases transport capacities due to increased train frequencies. Digital Automatic Couplers (DACs) for freight transportation will simplify train formation and dispatching. We are therefore making additional strong arguments for transitioning freight transport to rail. Further developing our digital services supports an improved life cycle management.

We are following a clear path in our sustainability activities and would like to present it to you in a transparent manner, which is why this 2021 Sustainability Report summarizes central measures, targets and key figures. At the same time, we underscore our continued commitment to the Ten Principles of the UN Global Compact for responsible corporate governance.

We are pleased that you would like to get to know Knorr-Bremse inside and out, and we wish you a fascinating read.

Yours
Frank Weber

Frank Markus Weber
Executive Board Spokesman, CFO

About Knorr-Bremse

Knorr-Bremse is the world market leader in braking systems and other rail and commercial vehicle systems. Knorr-Bremse's products make a decisive contribution to greater safety and energy efficiency on railways and roads around the world.

Global megatrends including urbanization, sustainability, digitalization and mobility offer the promise of long-term, sustainable growth for both the rail and commercial vehicle markets. To its customers, Knorr-Bremse is a byword for quality and reliability. The company is focused on meeting all local regulations and standards in both of these sectors, acting as a global partner for vehicle manufacturers and operators alike.

As the leading partner for braking, entry and HVAC systems, as well as a range of other subsystems, the Rail Vehicle Systems division provides equipment for passenger and freight trains, light rail vehicles, metro trains and other vehicles. Knorr-Bremse is constantly driving connectivity both within and between the various subsystems. This is also true of our Commercial Vehicle Systems division, which supplies braking systems and vehicle dynamics solutions. These include driver assistance and automated driving systems for trucks, buses, trailers and agricultural vehicles.

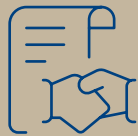
We are a partner to all key customers worldwide. They place their trust in our local market expertise and presence combined with the excellence of the products and systems we offer globally.

With a history dating back over 115 years, Knorr-Bremse is one of Germany's most successful industrial companies. In 2021, Knorr-Bremse's global sales totaled EUR 6.7 billion. Some 30,500 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services.

You can find additional information on Knorr-Bremse in the "About the Group" chapter of the Combined Management Report in the 2021 Annual Report.

1.01 Knorr-Bremse in figures

**As of
December 31, 2021,
orders received
amounted to
EUR 5,558 million**



billion EUR revenue generated
by the two divisions in 2021



Number of employees in Group worldwide
as of December 31, 2021

**In 2021 we
invested 6.4%
of revenues in
research and
development
activities**



Strategy and Management

- 09 Principles and Processes for Strategy and Management
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-

Human Rights Policy

The new Human Rights Policy rolled out for the entire Group concretizes our basic stance on human rights issues.

Remuneration System according to ESG Criteria

The achievement of sustainability goals will be taken into account for the variable remuneration of top management starting in 2022.

Financing and Sustainability

A new credit line of € 750 million is coupled to the sustainability rating of ISS Corporate Solutions, with changes to the rating having an impact on the credit margin.

97.5%

of the approximately 17,000 employees with access to e-learning platforms received compliance training.

Knorr-Bremse SDG Initiatives

Each member of the Executive Board of Knorr-Bremse AG and the Chair of the Board of Knorr-Bremse Global Care e. V. is responsible for steering the content of one of the five SDG initiatives.

Strategy and Management

Knorr-Bremse is a successful global player in the mobility sector and, with its many product and system solutions, is already driving development of the mobility of the future. As part of a continuous process, we incorporate topics that impact employees, the environment and society into our Group-wide sustainability strategy.

Knorr-Bremse strives to be a global driving force for innovative and sustainable system solutions that make mobility and transportation safer, more reliable and more efficient. In doing so, the company endeavors to create added value for its customers and, at the same time, make a positive contribution to society. Along the way to achieving this company vision, the Knorr-Bremse Corporate Responsibility (CR) strategy plays a fundamental role with its planned and realized measures.

For this reason, the company's management anchored a focus on sustainability in the organization and its processes. This focus is in complete harmony with the five Knorr-Bremse company values: entrepreneurship, technological excellence, reliability, passion and responsibility.

The CR strategy supports Knorr-Bremse in translating its focus on sustainability into success in society and in living up to its ecological and societal responsibility. The CR strategy impacts both creating value in a resource-conserving way as well as our actions as a fair business partner and employer who always undertakes to fulfill its responsibility of due diligence with regard to human rights. Our goal is to constantly improve and develop our sustainability performance further in all areas of value creation. In doing so, we are guided by our company values, the Code of Conduct, the Human Rights Policy implemented in 2021 and other company-specific guidelines.

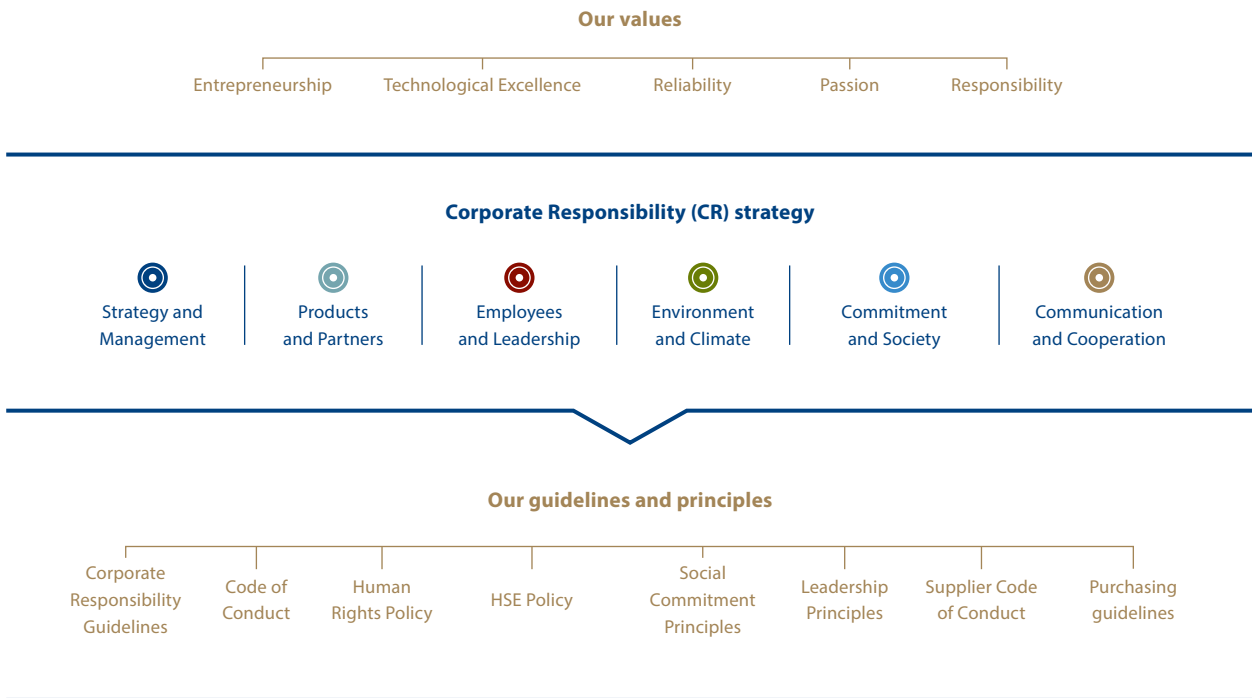
Figure → 2.01

Principles and Processes for Strategy and Management

The concrete structure of our CR management is based on statutory frameworks and internal rules such as policies and guidelines. They provide our employees, customers, suppliers and other business partners with the knowledge necessary for them to act in accordance with our requirements related to sustainable corporate governance.

- Our **Corporate Responsibility Guidelines** define the principles and strategic targets of responsible corporate governance at Knorr-Bremse.
- Our **Code of Conduct** defines our understanding of responsible behavior for all employees around the world.
- The **Human Rights Policy** bundles all aspects related to human rights that are currently set out in various Knorr-Bremse guidelines.
- Our **Code of Conduct for Suppliers** shows our obligation to fair and sustainable business practices within our supply chain.
- The **Procurement Quality Standards** outline the requirements of our suppliers, also with regard to aspects of sustainability.
- The **Conflict Minerals Policy** governs the handling of conflict materials and thus guides procurement at Knorr-Bremse as well as our suppliers.
- In our **Health, Safety and Environmental Policy**, we undertake to maintain high standards of performance.

2.01 Values and Guidelines of Corporate Responsibility



- Our **Leadership Principles** serve as orientation for our executives in successfully leading our employees and show what responsibility for the workforce should look like at Knorr-Bremse.
- The **Local Care Principles** define the framework for our social programs at the level of individual locations.

Additionally, international guidelines and conventions provide us with guidance on sustainable business. The Global Compact of the United Nations (UN) is an important external initiative that Knorr-Bremse signed in 2010. The Guiding Principles on Business and Human Rights of the UN Human Rights Council, the principles of the conventions of the International Labour Organization (ILO) and the ISO standards such as ISO 14001, ISO 50001 and ISO 45001 are also important in guiding our actions. On a sector level, the actions of Knorr-Bremse are steered by the Sustainability Charter of the International Association of Public Transport (UITP) and the Code of Conduct of the Association of the Railway Industry in Germany (VDB). We are also a signatory of the Dublin Declaration of the European Rail Supply Industry on promoting rail market growth as well as the European Railway Safety Culture Declaration as a commitment to safe mobility.

Corporate Responsibility Strategy

Like all large corporations, Knorr-Bremse bears great responsibility with regard to the economy, society and the environment. In addition, as a market leader in brakes and other systems for rail and commercial vehicles, we serve as a role model for the mobility sector. We strive to meet this responsibility with our products and our operations. We are convinced that sustainability and competitiveness are inextricably linked and an important factor in the success of the company over the long term, which is why we have clearly dedicated ourselves to the United Nations Sustainable Development Goals and to observing human rights around the world. To meet these requirements, we define clear guidelines, establish management systems and consistently implement corresponding measures.

On the basis of this position, it was decided that – beginning with the 2022 fiscal year – a new remuneration system would take effect for the management levels 0–2 (Executive Board, senior management, regional managing directors, heads of division). Of the short-term variable remuneration (short-term incentive), 20% will be based on the achievement of targets related to environmental, social and governance (ESG¹⁾ matters. The targets will concern energy savings and occupational health and safety, as well as the company ratings given by external rating agencies. As a result, the resolved new remuneration component is to be cascaded to other management levels. This link between remuneration and ESG criteria will even more firmly anchor the concept of sustainability in management as a whole, therefore also in the daily actions of managers and all employees.

Corporate Responsibility: Areas of Activity

Knorr-Bremse structures its work on corporate responsibility in terms of six distinct areas of activity. They are the pillars of our strategic CR management. The areas of “Strategy and Management” and “Communication and Cooperation” provide the framework for the four content-focused areas of activity:

- Strategy and Management
- Products and Partners
- Employees and Leadership
- Environment and Climate
- Commitment and Society
- Communication and Cooperation

Within these areas of activity, we deal with strategic topics we derive from our materiality analysis (see “Materiality Analysis,” page 14), external ratings and rankings (see “Corporate Responsibility: External Ratings,” page 13) and the United Nations Sustainable Development Goals (SDGs; see “Knorr-Bremse and the Sustainable Development Goals,” page 18). With our due diligence processes for human rights, we align ourselves with the UN Universal Declaration of Human Rights and the UN Guiding Principles on Business and Human Rights (see “Due Diligence Processes for Human Rights,” page 23).

Knorr-Bremse strives to continuously improve in all six CR areas of activity. In the year under review, we focused in particular on our Climate Strategy 2030 and the integration of EcoDesign aspects in the development of our products. Additional focus was on the development of our SDG initiatives and our processes for ensuring due diligence with regard to human rights.

As part of our strategic sustainability project launched in 2021, we plan to account for relevant trends in sustainability and to establish a mutual understanding of sustainability among top-level management. We analyzed our areas of activity and focus topics as part of a comprehensive strategy review. In addition, we reflected on our previous strategy with regard to the ESG approach¹⁾ guided by the capital market, which enables us to actively account for the rising interest in topics of sustainability on the capital market. With the involvement of the entire Executive Board, the divisional managing directors and the departments, we reviewed – on the basis of capital market ratings, peer group benchmarking and statutory requirements – our existing material sustainability topics (see “Materiality Analysis,” page 14) regarding whether they were up to date and defined a profile of strengths and weaknesses for our activities. As a result, we were able to confirm the focus issues for our sustainability strategy and have set ambitious, yet realistic, target levels for them. We will determine the measures required to achieve the desired target state and will implement them within the sustainability strategy, which has been restructured in accordance with the ESG approach.

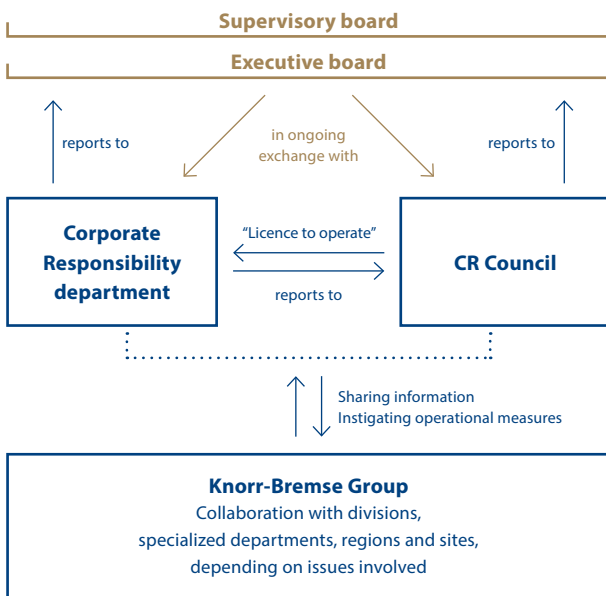
Corporate Responsibility: Organization

With a clear organizational structure, we want to ensure that the field of sustainability is implemented in the Group’s highest decision-making bodies. The Executive Board has joint responsibility for sustainability. The Corporate Responsibility department handles the topic of sustainability and reports directly to the CFO and the Knorr-Bremse Corporate Responsibility Council. The CR Council, which meets twice a year, comprises a member of the Executive Board, a representative of the European management board from each of the two divisions, the Chair of Knorr-Bremse Global Care e.V. and the Head of CR. The council makes decisions on the CR program with its projects and is centrally responsible for developing, managing, implementing and monitoring these projects together with the CR department. In addition, committees and the departments supplement the implementation and development of the CR program. Established bodies – e.g., for sustainable purchasing, climate protection or EcoDesign – communicate individual specialist topics and monitor operational implementation. The departments continuously exchange information with the CR department and, if necessary, report directly to the CR Council on their respective CR projects.

¹⁾ The abbreviation “ESG” stands for “environment,” “social” and “governance” and is a term that refers to the guiding principles of sustainability, in particular on the capital market. Players on the financial market use ESG criteria to measure the performance of companies with regard to sustainability and to guide their investment decision-making.

The Executive Board and the Supervisory Board are informed about sustainability topics and involved in important decisions. In the reporting period, the focus of the work of the Supervisory Board was the critical appraisal of the new Knorr-Bremse sustainability strategy, including the newly defined Group-wide ESG targets. As part of Executive Board and CR reviews, the Supervisory Board is also regularly informed about current sustainability activities such as the status of Climate Strategy 2030, current ESG ratings of Knorr-Bremse and the internal procedural preparation for upcoming statutory regulations such as the German Supply Chain Due Diligence Act. Furthermore, the Supervisory Board actively addressed the introduction of a syndicated loan that is linked to a sustainability rating, the variable remuneration for top management based on new ESG criteria and sustainability reporting. [Figure → 2.02](#)

2.02 The CR Organization at Knorr-Bremse



Financing and Sustainability

A new syndicated loan that has been linked to a sustainability rating shows Knorr-Bremse's intensified focus on the ESG approach. Since January 2022, we have had a credit line of € 750 million available to us, whose interest rate is linked to our sustainability rating by ISS Corporate Solutions.

Sustainability Audits Conducted by Customers

Knorr-Bremse appreciates the high sustainability requirements of its customers and supports them in achieving their objectives. At the request of its customer Deutsche Bahn, sustainability audits were carried out at five Knorr-Bremse Rail Vehicle Systems (RVS) locations: Munich and Berlin, Germany; Mödling, Austria; Pamplona, Spain; and Budapest, Hungary. An independent auditing firm assessed compliance with environmental, safety, social and human rights standards. The result was a consistently very high overall assessment, with performance rates ranging from 93% to 99%.

Corporate Responsibility: External Ratings

External ratings are extremely important to Knorr-Bremse. They highlight areas of potential improvement so that we can live up to the expectations of external stakeholders. We use sustainability ratings and rankings to analyze and evaluate our CR performance, because they offer a comparison with other market players and the early recognition of trends, which support the further development of our company in turn.

As a player in the capital market, Knorr-Bremse ascribes an increasing level of importance to ESG criteria, which is why it is important for Knorr-Bremse to provide non-financial information for business-related decisions. Numerous conversations with investors and rating agencies in 2021 made the capital market's growing interest in sustainability issues at Knorr-Bremse clear. Knorr-Bremse is often given an above-average rating for its sustainability measures as part of sustainability ratings and rankings. [Table → 2.03](#)

2.03 ESG Ratings and Rankings of the Capital Market and Customers

Index, Rating and Ranking	Current Knorr-Bremse Rating	Rating Content
Index DAX 50 ESG	Knorr-Bremse has been listed in the index since its beginning.	The index represents the top 50 German companies on the basis of their ESG performance, market capitalization and revenue. https://qontigo.com/products/dax-50-esg-en/
S&P Global Corporate Sustainability Assessment	Knorr-Bremse achieved 52 of 100 points (2020: 50) and thus is among the best 17% in the comparison group.	The S&P Global Corporate Sustainability Assessment accounts for economic as well as environmental and social criteria according to the best-in-class principle. The most sustainable companies in the industry are included in the index. www.spglobal.com/esg
MSCI	In 2021, Knorr-Bremse was once again given the rating of "A," the third best of seven categories. Knorr-Bremse is thus among the best 24% to 41% in the comparison group.	MSCI ESG Ratings assess companies on a scale ranging from "AAA" to "CCC" with regard to their industry-specific ESG risks and how well they manage these risks. www.msci.com/esg-ratings
ISS ESG	ISS once again gave Knorr-Bremse the prime status of "C+," thus putting Knorr-Bremse among the best 12% in the industry comparison.	ISS ESG – the responsible investment division of Institutional Shareholder Services Inc. – assesses the sustainability performance of companies using a scale ranging from "A+" to "D-." http://www.issgovernance.com/
Sustainalytics	In 2021, Knorr-Bremse was evaluated with 18.9 out of a total of 100 risk points (2020: 19.0) and is thus classified as having low risk. In the industry comparison, Knorr-Bremse is among the best 3% of performers.	Sustainalytics assesses the ESG risks using five risk categories (negligible, low, medium, high, severe). www.sustainalytics.com
CDP	The CDP has given Knorr-Bremse a "B" rating for transparency and climate protection performance (2020: A-). This score puts Knorr-Bremse in the management level of the CDP, meaning the company is among the best 39% within the comparison group.	The CDP evaluates companies with regard to climate protection using a scale ranging from the top grade of "A" to "D-." www.cdp.net
EcoVadis	Knorr-Bremse was awarded Gold Status for 2021 (2020: Silver Status). This puts us in the top 5% of companies in the comparison group.	EcoVadis evaluates suppliers from 150 countries in the categories of environment, social, ethics and sustainable sourcing and awards the companies with Platinum, Gold, Silver or Bronze Status. https://ecovadis.com/
SAQ	A total of 17 Knorr-Bremse locations have been evaluated in the range from 80% to 93%.	The Self-Assessment Questionnaire (SAQ) is a supplier questionnaire for the automotive (supplier) industry. It evaluates the sustainability management of individual company locations on a scale from 0% to 100%. https://drivesustainability.org/

Materiality Analysis

We determined the focal points of our CR management and the content of our report as part of a materiality analysis. The results of the analysis show us the issues we need to prioritize in order to take responsibility for ecological and societal challenges. Proactively working through these topics within the framework of our areas of activity is just as important for the long-term success of Knorr-Bremse as it is for the potential impact of our business operations on the environment and society.

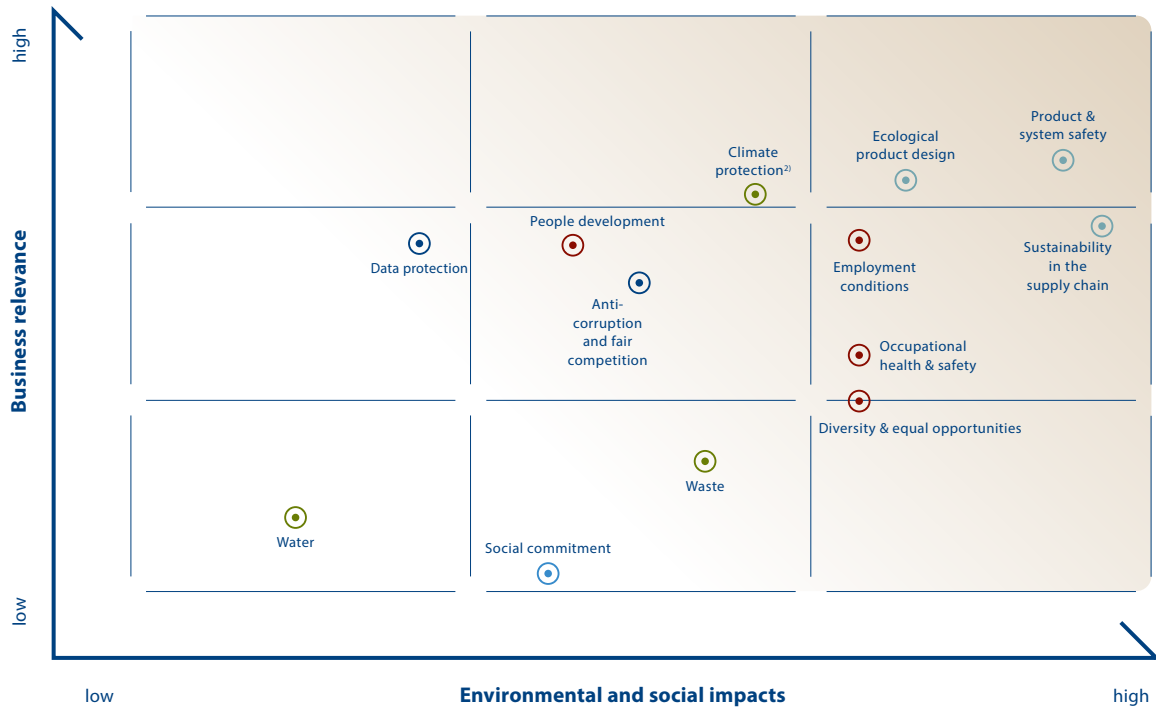
The current Knorr-Bremse materiality analysis is based on a comprehensive analysis from 2018 that has since been reviewed and confirmed as part of various processes (cf. sustainability reports). In particular the requirements of the German CSR Directive Implementation Act (CSR-Richtlinie-Umsetzungsgesetz – CSR-RUG), under which Knorr-Bremse has been obligated to report since 2018, were considered and integrated. The material facts were reviewed within our sustainability strategy project in the reporting period (see “Corporate Responsibility: Areas of Activity,” page 11). In the course of this review, the Executive Board and Supervisory Board have confirmed the existing definition and categorization of the topics.

Reporting in accordance with the CSR-RUG was integrated into the Knorr-Bremse annual report as a separate non-financial statement for the first time in 2021 and is no longer a part of this sustainability report. Including key sustainability performance indicators, the non-financial statement was subjected to a review to obtain limited assurance by an independent auditor.

The materiality matrix contains a total of 13 material topics. Nine topics were given priority in the materiality analysis and represent the focal points of the Knorr-Bremse areas of activity that create the framework structure for this report. Due to their significant impact on the operations and course of business of Knorr-Bremse, the subjects of product and system safety, environmental product design, sustainability in the supply chain, climate protection,²⁾ people development, anti-corruption and fair competition, employment conditions, occupational health and safety and diversity and equal opportunities are of great importance. As in previous years, the subject of anti-corruption and fair competition is dealt with as part of the Compliance and Risk Management chapter. The four topics of data protection, waste, water and social commitment were defined along with both the positive and negative effects of Knorr-Bremse’s business operations in the materiality analysis. [Figure → 2.04](#)

2.04 Materiality Matrix 2021

Material issues within Knorr-Bremse areas of activity 2021



CR areas of activity

- 
 Strategy and Management
- 
 Products and Partners
- 
 Employees and Leadership
- 
 Environment and Climate
- 
 Commitment and Society
- 
 Communication and Cooperation

²⁾ This topic was renamed from “energy and CO₂ emissions” to “climate protection.”

Involvement of Stakeholders

The trust of the stakeholders is the foundation for sustainable company success. Knorr-Bremse would like to live up to, strengthen and further develop the trust it has already earned, which is why we engage in active dialogue with people, society and markets. This provides us with rapid access to knowledge regarding future trends, global developments and market demands. We give stakeholder dialogue plenty of space, with fixtures such as direct conversations with customers, trade fairs around the world, active work in associations, talks with investors, the Annual General Meeting and communication with employees.

Employees, young talents, customers and suppliers, shareholders and investors, business partners, government agencies, trade unions, associations, media, politicians, non-government organizations (NGOs), residents around our locations and representatives of local initiatives are the stakeholder groups of particular importance for us. For communication with customers, Knorr-Bremse is represented at numerous trade fairs and events of commercial vehicle manufacturers. In September 2021, Knorr-Bremse was at IAA Mobility in Munich as well as Automechanika in Frankfurt. We took part in business reviews and events for suppliers of major OE customers, for example DAF, MAN and Daimler in Europe. In the United States, we attended a PACCAR professional meeting

2.05 Involvement of Stakeholders

Stakeholder Groups	Format	2021 Examples	Most Important Topics
Customers	<ul style="list-style-type: none"> Meetings and visits with customers Workshops Trade fairs Conventions Customer events Customer satisfaction survey Audits 	<p>Trade fairs:</p> <ul style="list-style-type: none"> IAA Mobility, Munich APTA, Orlando <p>Customer events:</p> <ul style="list-style-type: none"> Hitachi, supplier conference for COP26 DAF Trucks Business Review 2021 MAN Grand Supplier Opening PACCAR professional meeting Daimler Executive Meeting <p>Events for customers:</p> <ul style="list-style-type: none"> Bendix virtual live product demonstrations for trucks and school buses 	<ul style="list-style-type: none"> Product safety Traffic safety Delivery safety Quality, prices <p>Innovations:</p> <ul style="list-style-type: none"> Mobility revolution, energy efficiency Governance and compliance Sustainability
Employees	<ul style="list-style-type: none"> Feedback meetings with supervisors Intranet, employee magazine Company health care Employee survey Volunteering Employee events 	<ul style="list-style-type: none"> Employee share program Town hall meetings Zero Waste Challenge 2021 Digital Week 2021 	<ul style="list-style-type: none"> Wages and salaries Occupational safety Working conditions Current business development New products Customer projects SDGs
Suppliers and business partners	<ul style="list-style-type: none"> Conferences Training courses Guidelines Discussions with suppliers Supplier assessment Audits 	<ul style="list-style-type: none"> Follow-up meetings after audits and comparison of planned corrective measures Training materials on conflict materials 	<ul style="list-style-type: none"> Price, quality Governance and compliance Safety Climate Protection Human rights due diligence
Financial market players (shareholders, investors and creditors)	<ul style="list-style-type: none"> Annual General Meeting Road shows/conferences Individual conversations, financial information, reports 	<ul style="list-style-type: none"> 2021 Annual General Meeting 2021 Annual Report: "Driving Digitalization" (Virtual) road shows Meetings with investors and creditors ESG ratings Capital Markets Day 	<ul style="list-style-type: none"> Dividends Business development and outlook Sustainability/ESG
Politics/government agencies/local initiatives	<ul style="list-style-type: none"> Local interest groups Reception of politicians and diplomats 	<ul style="list-style-type: none"> Automotive industry dialogue on the NAP of the German government's Federal Ministry of Labor and Social Affairs. <p>Local economic initiatives:</p> <ul style="list-style-type: none"> Second climate pact of the Munich business community Environmental and energy committee of the Munich and Upper Bavaria Chamber of Commerce 	<ul style="list-style-type: none"> Safety Climate Protection Governance and compliance

on the current market challenges. As part of the sector's commitment to environmental issues, a Knorr-Bremse expert on EcoDesign from the Rail Vehicle Systems (RVS) division takes part in the environmental specialist group of the VDB in Berlin several times a year. Additionally, a specialist from Knorr-Bremse represents the Group in two working groups on sustainability and environment at the UNIFE. The Commercial Vehicle Systems (CVS) division is involved in the work of, among others, the German Association of the Automotive Industry (VDA) in the working group for environmental products. [Table → 2.05](#)

Stakeholder Groups	Format	2021 Examples	Most Important Topics
Local residents	<ul style="list-style-type: none"> Local Care initiatives Personal contact 	<p>Local Care initiatives at locations:</p> <ul style="list-style-type: none"> See list on page 69 	<ul style="list-style-type: none"> Safety Attractive employer Local Care Operational changes
Industry/ associations/ trade unions	<ul style="list-style-type: none"> Lobbying work Association and project work Conventions, workshops Publications Public relations work 	<p>Knorr-Bremse memberships in international associations (selection):</p> <ul style="list-style-type: none"> Rail and commercial vehicles: American Public Transportation Association (APTA), USA Rail: Association of American Railroads (AAR), USA; European Rail Supply Industry (UNIFE), Belgium Commercial vehicles: Motor & Equipment Manufacturers Association (MEMA), USA <p>Active project work:</p> <ul style="list-style-type: none"> Europe's Rail Joint Undertaking (ERJU): Founding member in 2021 Railsponsible: Head of Responsible Procurement Working Group UNIFE: Working groups on sustainability/environment, Knorr-Bremse represented on the steering committee VDA meetings of the working groups for environmental products and sustainability in the supply chain 	<ul style="list-style-type: none"> Lobbying work in the industry Traffic safety Mobility transition Climate Protection Product innovations
Young talents	<ul style="list-style-type: none"> Career fairs Partnerships and projects with schools and educational institutions Assistance in career choice Promotion of women in STEM fields 	<p>Partnerships:</p> <ul style="list-style-type: none"> With universities such as the Technical University of Munich, RWTH Aachen University, Budapest University of Technology and Economics <p>Recruiting young talents:</p> <ul style="list-style-type: none"> "Wissenschaftstage 2021" science event, Munich Webinar for students of Pimpri Chinchwad College of Engineering, Pune, India RTWH Aachen University and FH Aachen University of Applied Sciences: "bonding" university fair, Aachen Scholarship program in mechanical engineering, Budapest, Hungary <p>Promoting women:</p> <ul style="list-style-type: none"> mentorING – Promoting Female Talents, TU Munich Her Career, Munich Girls for Technology Camp, Munich 	<ul style="list-style-type: none"> Working conditions Development opportunities Work-life balance Corporate values Current business development New products Diversity
Media	<ul style="list-style-type: none"> Press conferences Factory visits Press releases 	<ul style="list-style-type: none"> Annual press conference Press events Financial, technical and corporate press releases 	<ul style="list-style-type: none"> Product innovations Business situation HR topics such as training
NGOs	<ul style="list-style-type: none"> Local Care initiatives Knorr-Bremse Global Care projects 	<p>Local Care initiatives at locations:</p> <ul style="list-style-type: none"> See list on page 69 <p>Aid projects:</p> <ul style="list-style-type: none"> Educational program in Weishan County, Yunnan, China Water, sanitation and hygiene (WASH) programs in India 	<ul style="list-style-type: none"> Education Social cohesion Health Water, sanitation and hygiene Environment

SDG 12: Employee Awareness with the Zero Waste Challenge

The Zero Waste program is a global waste avoidance initiative that Knorr-Bremse established within the framework of SDG 12 (Responsible Consumption and Production). To raise the awareness of employees for environmental issues, Knorr-Bremse launched the "Zero Waste Challenge" global country competition in 2021 under the motto of "Small action can make a big difference!" For the employees in 15 location countries, their objective was to collect as much waste as possible from September 1 to October 31, 2021. The results were documented using the Litterati app: find waste, take a picture and automatically geotag it, as well as manually enter the type of waste. This enabled the volume of waste collected in the different countries to be quantified: 836 participants collected 102,696 pieces of waste, with the original goal being 50,000 pieces. The winners? The employees in India, Mexico and South Africa distinguished themselves in particular with their dedication and collection results.

The Zero Waste Challenge thus has a practical benefit and, at the same time, raises the awareness of employees for the Zero Waste program. The three focus areas of the program are sustainable packaging, the elimination of single-use plastics and avoiding waste. The best practices platform is an important tool in these efforts, as it provides a place for locations to exchange ideas and information on projects related to food and packaging waste, wastewater and recycling, as well as metal upcycling and awareness campaigns.

Knorr-Bremse and the Sustainable Development Goals (SDGs)

The 17 Sustainable Development Goals of the United Nations provide guidance for companies in aligning their business activities with sustainable development. This enables industrial businesses to use their economic and innovative power to counteract the economic, social and ecological challenges that were addressed by the SDGs, which took effect in 2015. Knorr-Bremse already made an important contribution to the SDGs in the past with its products, services and activities in the field of mobility. We have now reinforced and focused this dedication. For us, the spotlight is on five significant SDGs whose achievement we can have a decisive influence on through our business model and our operational processes. These five SDGs, which were chosen in collaboration with management and employees, are:

- **SDG 5:** Gender Equality (see "Diversity and Equal Opportunities," page 48)
- **SDG 8:** Decent Work and Economic Growth (see "Due Diligence Processes for Human Rights," page 23; "Employment Conditions," page 42)
- **SDG 9:** Industry, Innovation and Infrastructure (see "Environmental Product Design," page 30)
- **SDG 12:** Responsible Consumption and Production (see "Resource Conservation," page 62)
- **SDG 13:** Climate Action (see "Climate Protection," page 56)

In addition, via the activities of Knorr-Bremse Global Care e.V., Knorr-Bremse makes a key contribution to SDG 4 "Quality Education" and SDG 6 "Clean Water and Sanitation" (see "Global Care: Worldwide Commitment," page 66).

Knorr-Bremse has global initiatives for the five SDGs that have been given priority. These initiatives are intended to increase the contribution of Knorr-Bremse to the SDGs with concrete improvement measures and targets. Started in 2019, each of these five initiatives is overseen in terms of content by a member of the Executive Board and the Chair of the Board of Knorr-Bremse Global Care e.V. The project manager is responsible for the topics across the divisions, departments and locations. Focus topics were elaborated within the individual initiatives and advanced during the reporting period.

[Table → 2.06](#)

2.06 SDG Initiatives at Knorr-Bremse

Each member of the Executive Board of Knorr-Bremse AG and the Chair of the Board of Knorr-Bremse Global Care e.V. is responsible for steering the content of one of the five SDG initiatives.

SDG Initiative	Commitment	2021 Measures
 SDG 5: Gender Equality	<ul style="list-style-type: none"> Promote careers of women Increase recruiting of qualified women Increase proportion of women in management 	<ul style="list-style-type: none"> Exchange and planning measures of the internal network of women Approved proportion of women in job applications and hires at the management level in Germany Approved proportion of women in filling internal promotion programs Participation in the Target Gender Equality program of the UN Global Compact
 SDG 8: Decent Work and Economic Growth	<ul style="list-style-type: none"> Expand personnel development measures Design working environment to be innovative Implement ethical recruiting standards 	<ul style="list-style-type: none"> Introduce LinkedIn Learning worldwide Roll out Human Rights Policy Start gap analysis pursuant to the German Supply Chain Due Diligence Act
 SDG 9: Industry, Innovation and Infrastructure Knorr-Bremse "Sustainable Products" initiative	<ul style="list-style-type: none"> Expand portfolio of sustainable products Account for EcoDesign aspects in development and innovation processes Use new methods of innovation 	<ul style="list-style-type: none"> Start analysis for the reduction of packaging materials in the RVS division Conclusion and partial rollout of recycling projects in various Centers of Competence (CoC) of the RVS and CVS divisions Sustainability start-up search by means of a Techfounders Accelerator program – expanded project with start-up in the field of energy supply for sensors
 SDG 12: Responsible Consumption and Production Knorr-Bremse "Zero Waste" initiative	<ul style="list-style-type: none"> Reduce generation of waste by avoiding, reducing, recycling and reusing materials Improve waste management across the entire product life cycle Increasingly align sourcing measures with waste reduction Raise awareness for individual sustainable behaviors 	<ul style="list-style-type: none"> Pilot projects at the most waste-intensive Knorr-Bremse locations on sustainable packaging, reduction of single-use plastics and dealing with special types of waste Development of an internal Group best practices platform for professional exchange Rollout of the waste challenge via worldwide HSE departments Awareness programs for employees at Group locations
 SDG 13: Climate Action	<ul style="list-style-type: none"> Contribute to the Paris Climate Agreement with Group-wide climate strategy Report on the status of target achievement for direct and indirect (Scope 1 and Scope 2) CO₂ emissions Implement climate protection measures on a location level 	<ul style="list-style-type: none"> Achieved carbon neutrality of the locations First report on climate risks and opportunities in accordance with the requirements of the Task Force on Climate-Related Financial Disclosures (TCFD) Continuation of compensation projects with atmosfair gGmbH Piloting of CO₂ compensation process for flights First-time calculation of Scope 3 emissions

Compliance and Risk Management

Compliance: Targets and Guidelines

Compliance is the foundation of the sustainable business success of Knorr-Bremse as well as for trusting and long-lasting relationships with our stakeholders. The core element of compliance is our aspiration to always comply with laws, internal regulations and voluntary commitments. This is because only as a reliable business partner will we gain and keep the trust of employees, customers and business partners needed for sustainable corporate growth and thus share-

holder value. We therefore place great emphasis on dealing with our business partners and employees with integrity and responsibility. Combating corruption and bribery is an important part of corporate responsibility and one of the key topics in compliance management at Knorr-Bremse. We do not tolerate any form of corruption or other unfair business practices and expect the same of our business partners. Any conflicts of interest, including and especially in dealing with our business partners, must be avoided. To ensure that this is the case, we have established corresponding compliance guidelines and taken necessary measures.

Our compliance requirements across the entire supply chain are set out in a global code of conduct. On the basis of the Knorr-Bremse corporate values and the Principles of the UN Global Compact, this code of conduct defines the basic principles for Group-wide responsible business practices and – in addition to combating corruption – also addresses fair competition, topics related to human rights, such as the prohibition of child labor and discrimination, protection of employee codetermination and product safety. These principles of action and rules are binding for all the Group's employees and have been a component of new employees' written employment contracts since 2021. Our mandatory Group-wide Code of Conduct for Suppliers also includes the aspect of combating corruption.

We have given concrete expression to these principles through additional Group-wide compliance guidelines in the following areas:

- Dealing with gifts and invitations
- Anti-corruption
- Conflicts of interest
- Fair competition
- Reporting compliance violations to the compliance organization as well as requirements for protecting whistleblowers

These Group-wide guidelines define and explain the terms (e.g., corruption and conflicts of interest) for the entire organization and contain clear behavioral guidelines, such as how to deal with conflicts of interest.

Compliance: Organization

The compliance management system (CMS) at Knorr-Bremse rests upon the pillars of identification, reaction and prevention and follows the criteria of the IDW 980 audit standard.

The focal points of the Knorr-Bremse CMS are the identified risk areas of corruption, conflicts of interest, gifts and invitations and fraud/embezzlement. The basis of this decision is a compliance risk analysis, which was carried out with the involvement of selected business units and markets and was renewed in 2021. As part of a worldwide compliance risk assessment, possible compliance risks were compiled and assessed on the basis of risk scenarios. The compliance processes were also reviewed and the manner of their implementation was recorded regionally. Around 50 Knorr-Bremse companies, which cover more than 80% of Knorr-Bremse AG's revenue, were assessed. We have derived concrete risk minimization measures from this analysis and will gradually implement them from 2022.

The Chief Compliance Officer (CCO) is responsible for implementing the CMS and reports to the member of the Executive Board responsible for integrity and legal affairs. Along with the global heads of Knorr-Bremse's Controlling, Human Resources, Accounting, Legal and Internal Audit departments, the CCO is a member of the Compliance Committee. The Compliance Committee advises on initiatives and strategies for developing the CMS, on current compliance topics and on the focuses of compliance activities. In the Knorr-Bremse regions, regional compliance officers take on the role of advising and training employees, processing compliance cases and identifying local risks. In 2021, the recruitment of additional full-time compliance officers in large Knorr-Bremse markets and Knorr-Bremse markets that are high risk according to the Corruption Perception Index (CPI), such as China, India, Russia, Brazil and the USA, was expedited. Local compliance officers are also involved in the local implementation of the compliance management system at almost all Knorr-Bremse sites.

The internal Group audit department supports the Executive Board in its monitoring function through independent and objective audit procedures. These are geared to improving business processes and uncovering any breaches of laws or internal rules or guidelines. The internal control system (ICS) additionally serves to verify compliance with compliance guidelines. Knorr-Bremse sites have to use spot checks to prove that they effectively implement the guideline requirements.

Compliance: Reporting and Investigating Potential Violations

Employees, business partners and external individuals can report information on any possible compliance breach to the compliance organization via email, directly through the compliance officers or online through an independent and anonymous whistleblower system. This globally accessible portal operated by an external service provider allows information on any compliance breaches to be reported in 31 different countries and in 20 languages. Reference is made to the system at internal information and training events and in the Group-wide intranet. Our guideline for using the whistleblower system sets out the legal framework for any report made. Confidentiality and data protection are maintained at all times in this process. In the 2021 reporting year, 45 reports made via the whistleblower system were recorded across the Group (2020: 21). With this figure, we have exceeded the pre-pandemic level, which we ascribe to the increased awareness for our whistleblower system. In the medium term, we expect a continued increase in the number of reported violations in consideration of our approximately 30,500 employees around the world. We follow up on every suspicious activity report

or forward it on to the competent departments for further investigation. Where the initial suspicion is substantiated, investigations have been or will be carried out and any misconduct found is penalized. In addition, the Incident Notification and Alarm Services (INAS) system is used for non-anonymous reporting of time- and safety-critical events from the areas of compliance, data protection, information security and Group security. Events classifiable as critical reach the responsible area of the Group directly via the system.

Compliance: Prevention through Training and Communication

To prevent compliance breaches, Knorr-Bremse relies on transparent communication and employee training. A video address by the CEO on the topic, among other measures, was made available on the intranet and social media channels to raise awareness in 2021. Information about the compliance organization, the responsible contact persons, the compliance guidelines and supplementary information are available on the Group-wide intranet. A global e-learning module on our Code of Conduct is available in 13 languages and needs to be completed online every two years. In December 2021, more than 97.5% (2020: more than 95%) of the 17,000 employees with access to e-learning platforms (approximately 55% of the entire workforce) had a valid certificate. Knorr-Bremse also regularly audits managers' knowledge on the Code of Conduct and its active communication. The e-learning is supplemented by in-person events that are appropriate for the target group. In 2021, we ran 25 training modules that taught employees specific compliance content and our policies around the world. Due to the pandemic, these were largely run in online formats.

Risk Management: Organization and Processes

Taking advantage of opportunities and minimizing risks: these are the central tasks of the risk management system to sustainably grow the value of Knorr-Bremse as a company. As a globally active corporation and manufacturer of safety-relevant products, Knorr-Bremse is constantly confronted with risks. We want to identify potential risks early on and proactively make use of opportunities to give ourselves sufficient scope to manage them effectively. The risk management system is anchored in a Group guideline that comprehensively defines the responsibilities and reporting structures. Risk management processes follow the workflow of the Knorr-Bremse Group organization. A global risk inventory that includes all Group companies is carried out on a quarterly basis. Knorr-Bremse encourages all employees to proactively report risks and requires them to deal with risks in a responsible manner. In addition to regular reporting periods, an

TCFD Reporting

In order to transparently represent our corporate climate risks and opportunities, we report for the first time in this 2021 Sustainability Report in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). You will find a reference table corresponding to the status of our climate-related reporting by the areas of governance, strategy, risk management, key performance indicators and targets in the notes on page 75.

internal ad hoc reporting process enables risks of major significance to be identified at an early juncture. The Executive Board of the Knorr-Bremse Group receives quarterly reports on the development status of opportunities and risks, and accompanying details are discussed in the respective Executive Board meetings.

The risk management system established in the Group is subject to continuous further development, including adjustments to internal and external requirements. Due to the changes to Auditing Standard 340 of the Institut der Deutschen Wirtschaftsprüfer (IDW AuS 340 new version), which applied from the 2021 fiscal year, process changes have been made in the risk management system compared to 2020. As part of this, the additional risk category of "sustainability" was added, among others. This category encompasses risks in connection with environmental and climate protection and with the protection of human rights. The risks relating to environmental and climate protection concern, for example, rising energy costs as a result of increased environmental regulations and price increases for energy-intensive production materials in a decarbonized economy. In addition, climate change may disrupt supply chains and impact material properties that are relevant to product quality. We deal with these risks at an early stage in order to be able to react to them adequately and with appropriate measures in all areas. Details on climate risks are described in the TCFD reference table (see "Notes," page 75).

A detailed presentation of the risk management system, including the description of material risks, can be found in the "Report on Risks, Opportunities and Expected Developments" chapter of the management report within the 2021 Annual Report.

The Knorr-Bremse Rail Cybersecurity Competence Center

In addition to transportation solutions, digitalization also enables predictive maintenance and assistance systems for automated train operation. The Knorr-Bremse Rail Cybersecurity Competence Center develops solutions that make current and future digitalized products and systems resistant to, and protects them from, attacks. The competence center is incorporated in Selectron, the Swiss Knorr-Bremse subsidiary that develops and produces primarily train control and management systems (TCMS). Practically all Knorr-Bremse vehicle subsystems are controlled via these TCMSs. In this regard, security experts focus in particular on security by design – that is, protective measures integrated in devices (defense-in-depth concept) – because securing the outer defenses of the network is no longer close to sufficient. End-point protection of the systems is an additional option: permanently installed computer chips cipher important data and verify the identity and integrity of software. Knorr-Bremse plans to use these forgery-proof identity cards in many of its devices in the foreseeable future. The public key infrastructure (PKI) necessary to manage these security certificates has been created. Furthermore, the competence center is driving the development of a modern and agile platform for identifying and eliminating weak points in cybersecurity.

Data Protection and Information Security for Stable Infrastructure

The growing number of digital processes and data-based business models is increasing the importance of data protection. Only the strict implementation of data protection guidelines can justify the trust in Knorr-Bremse and its products. The Executive Board and the managing directors of the divisions are responsible for the data protection team of Knorr-Bremse. We published an updated data protection policy at the end of 2020 that governs data protection within the Group and is aligned with the requirements of the EU General Data Protection Regulation (GDPR). The data protection organization develops the Group-wide data protection management system on a continuous basis. It is headed by the Group data protection officer, who is supported by data protection managers in the divisions and at the locations around the world. Additionally, data protection coordinators have been named for the central departments who act as points of contact for matters related to data protection. Information security is headed by the corporate information security officer and controlled by a corporate security board. In addition to the responsible member of the Executive Board, this board also includes the managing directors of the two divisions as well as the Chief Information Officer. The maturity level of control processes was significantly improved in recent years, with a revised guideline for information security and a newly introduced process for audits and risk management. For projects in operations, the primary focus is on the preventive protection of the IT infrastructure of Knorr-Bremse via IT security solutions implemented throughout the Group.

Data Protection and Information Security for Future-Oriented Products

Knorr-Bremse products and services support customers in the digital age and create new fields of business for us. As part of this portfolio development, both data protection and information security (often referred to as “cybersecurity” in this context) are important. Both divisions support the trust of customers and society in future-oriented applications and products, such as those of highly automated or autonomous driving. For these products, measures in consideration of privacy-by-design aspects are implemented in accordance with the statutory requirements and on the basis of data protection impact assessments. With regard to information security, Knorr-Bremse has therefore established dedicated organizational units and teams within both divisions. These units and teams are meant to ensure that cybersecurity aspects are integrated, and therefore accounted for, in the product development processes and/or customer projects.

Due Diligence Processes for Human Rights

Knorr-Bremse wants to fulfill its human rights due diligence duty along its value chain: to its own employees, contractors, employees in the supply chain, customers and society. To respect and protect human rights, we are expanding our processes and external guidelines in accordance with our internal obligations. Knorr-Bremse is a signatory of the UN Global Compact and is thus committed to respecting human rights. Moreover, we commit to respecting national legal frameworks, the International Labour Organization (ILO) conventions relating to human rights and the UN Universal Declaration of Human Rights. To uphold our obligations of human rights due diligence, we also align our processes with the UN Guiding Principles on Business and Human Rights and the German federal government's National Action Plan for Business and Human Rights (NAP).

By aligning itself with the UN Sustainable Development Goals (SDGs), Knorr-Bremse makes an additional contribution to upholding human rights due diligence, because more than 90% of the 169 SDG subgoals are based on international human rights and labor law standards (source: The Danish Institute for Human Rights). Our goal is to continuously develop our human rights due diligence processes in order to make a systematic contribution to the achievement of the SDGs by 2030.

Principles and Guidelines

The Knorr-Bremse Code of Conduct, which applies to all employees of the Group, defines central principles and rules for respecting human rights. The Human Rights Policy rolled out globally in 2021 concretizes the basic stance of the Code of Conduct with regard to human rights issues. It bundles all aspects relating to human rights that are set out in various internal guidelines and can be accessed externally on the Knorr-Bremse website. The following human rights topics are mentioned explicitly:

- Working times
- Wages and benefits
- Workplace health and safety
- Forced or compulsory labor, modern slavery or human trafficking
- Child labor
- Equal opportunities
- Physical or psychological harassment
- Freedom of association, freedom of assembly and the right to collective bargaining
- Freedom of opinion
- Employee privacy
- Corruption
- Security management

The Knorr-Bremse Human Rights Policy describes our desire to respect and protect the human rights of all people who work for us, either directly or indirectly. Along the way, examples and recommendations for action make our commitment and the implementation thereof tangible. We are always conscious of the fact that our activities and products can make an impact on society. For this reason, we explain in the Human Rights Policy how we aim to protect the rights of people in our own businesses, at our partners and in society by reducing the negative impact of our actions. The respect for human rights required on the part of suppliers and contractors by the Human Rights Policy supplement the requirements stipulated by the Knorr-Bremse Code of Conduct for Suppliers. Our Group-wide Knorr-Bremse Conflict Minerals Policy, which we introduced in 2020, also contributes to human rights due diligence (see "Sustainability in the Supply Chain," page 34).

Structures and Processes

In the Knorr-Bremse organization, the Executive Board has responsibility for taking remedial action in the event of possible human rights breaches. In 2021, the new position of human rights manager was filled in the Compliance department. The human rights manager develops and coordinates cross-functional measures to embed human rights more strongly in global corporate processes. In doing so, the human rights manager involves representatives of the Compliance, HR, CR, HSE, Purchasing and Legal Affairs departments in the decision-making processes on human rights issues. We plan to finalize the definition of the governance structure regarding human rights matters within the Knorr-Bremse Group in 2022. In doing so, we will take the measures of the German Supply Chain Due Diligence Act into account.

Our processes are guided by the UN Guiding Principles on Business and Human Rights and the German federal government's National Action Plan for Business and Human Rights (NAP). With our existing processes – for example in staff, purchasing and HSE management – we account for aspects of human rights due diligence. The operational implementation and monitoring of these activities lie in the purview of the corresponding functions in the company's departments and the local business units (see "Products and Partners," "Employees and Leadership" and "Environment and Climate"). At the same time, we are working on integrating human rights due diligence even more into our operating processes to minimize human rights risks and prevent negative effects.

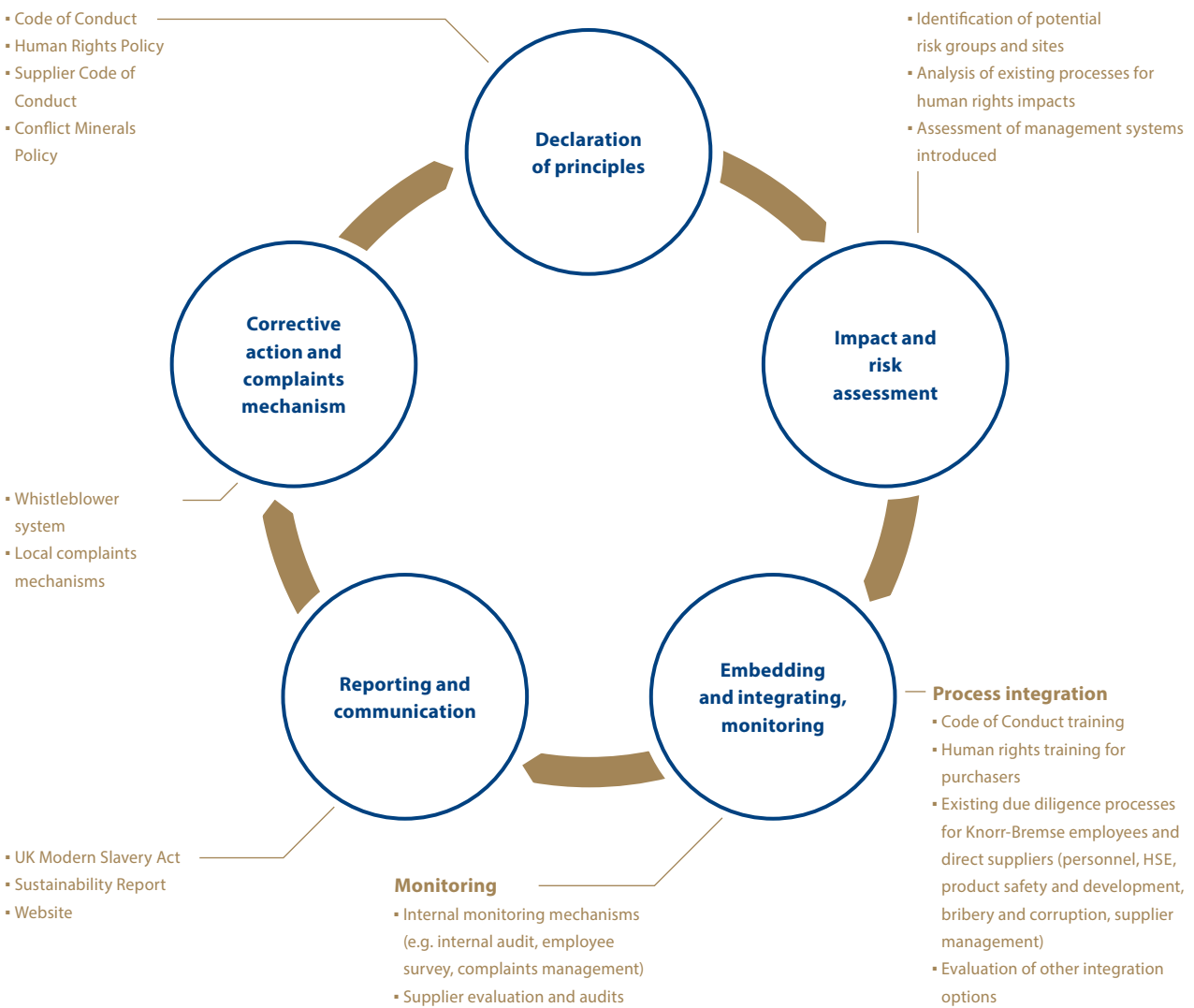
Building upon a human rights risk and gap analysis from 2018, we once again carried out an analysis of our management approach to human rights due diligence in the reporting period. The target was to evaluate the existing structures and processes regarding the German Supply Chain Due Diligence

Act, which will apply beginning in 2023. The result is a time line and action plan along with the implementation thereof beginning in 2022 in order to fulfill the statutory requirements in a timely manner. In a first step, we will, in particular, deal with adapting the risk management process to cover all the legal requirements mentioned. [Figure → 2.07](#)

Determining Human Rights Risks

The starting point for ensuring we fulfill our duty of human rights due diligence is our gap and risk analysis conducted in 2018 at country and site level regarding possible human rights risks along the value chain. The results of the analysis show that Knorr-Bremse should focus in particular on due diligence with regard to labor law for potential risk groups. Temporary agency workers, service providers at our sites and employees in the supply chain were identified as key risk groups here. In our annual risk analysis planned from 2022,

2.07 Human Rights Due Diligence at Knorr-Bremse



we will therefore be putting the focus on these risk groups and also want to be able to report potential risks on the topic of ethical recruitment as part of this.

Since 2019, our site-based human rights risk analysis has been included as a criterion in the selection of internal auditors to conduct audits. Selected human rights are audited on site within this regular audit and, in the event of complaints, remedial actions are determined.

We identify potential human rights risks in the supply chain by conducting sustainability assessments and audits. We then evaluate the risks of the suppliers based on these sustainability assessments. Beginning in 2022, we will use the supplier on-site sustainability risk checklist as part of regular audits to also identify and evaluate risk profiles of the direct suppliers regarding human rights. To protect human rights in the field of conflict materials, we use the key instruments of the Conflict Minerals Policy and supplier surveys (see "Sustainability in the Supply Chain," page 34).

Complaint Management

Knorr-Bremse employees and external stakeholders can report information on suspected human rights breaches anonymously or choose to provide their contact details (see "Compliance and Risk Management," page 19). All complaints received are reviewed and passed on to the relevant bodies for thorough investigation. In every substantiated case, appropriate measures are taken to remedy the situation. Employees can also submit complaints in the Incident Notification and Alarm Services (INAS) reporting system. The new human rights manager and the compliance organization are also available as direct contacts.

Raising Awareness and Training

Knorr-Bremse promotes awareness for and competence relating to human rights due diligence within the Group and along the supply chain. We engage in constant dialogue on the topic with the departments. In top management, the Chief Compliance Officer regularly provides information on realized and planned Group-wide activities related to human rights due diligence in close communication with the Head of Corporate Responsibility. The Supervisory Board is also informed about current developments on the protection of human rights and corresponding measures by Knorr-Bremse.

Knorr-Bremse employees are informed about the obligation to respect human rights by the Code of Conduct and by the Human Rights Policy, which was rolled out and internally communicated in 2021. The compliance management system supports mandatory training on the Code of Conduct and will, in the future, support target-group-oriented mandatory

training on the Human Rights Policy. For new Knorr-Bremse employees, the Code of Conduct has been a part of the employment contract and thus part of the onboarding process since 2021. We maintain a dialogue on a wide range of topics with suppliers and offer them training on various sustainability issues.

In addition, we are actively involved in the automotive industry dialogue on the NAP of the German federal government's Federal Ministry of Labor and Social Affairs. Together with other companies, politicians, civil society and NGOs, we want to develop solutions to be able to live up to increasing requirements for protecting human rights. For example, in the reporting period, we were able to finalize an action guideline on fulfilling human rights due diligence in the supply chains.

Transparent Communication

We strive to continuously expand our reporting on human rights due diligence, thereby fulfilling a significant requirement of the UN Guiding Principles and the German National Action Plan for Business and Human Rights (NAP). We explain our activities and planned measures in our annual sustainability report. Furthermore, since 2016, Knorr-Bremse has been publishing a separate declaration on the Group's website setting out our guidelines on preventing modern slavery and people trafficking, thus fulfilling the requirements of the UK Modern Slavery Act. As of 2021, we are also committed to complying with the Australian Modern Slavery Act and publish the corresponding report on our website.

Products and Partners

27 Product and System Safety

30 Ecological Product Design

34 Sustainability in the Supply Chain

Quality Management

A total of 101 Knorr-Bremse locations have a certified quality management system.

EcoDesign Training Courses

In 2021, 145 engineers – primarily from the Technology Center India (TCI) – took part in the cross-divisional virtual EcoDesign training course.

Recyclability Analysis

The recyclability of the 31 projects investigated in 2021 in the RVS division is more than 90%.

61%

of the global purchasing volume of our suppliers is assessed according to sustainability criteria.

Industrial Reprocessing of products

In the CVS division, 1,855 tons of CO₂, 641 tons of material and 7,486 MWh of energy were saved.

Products and Partners

Knorr-Bremse makes its important contribution to safe, efficient and networked transportation with braking systems and other rail and commercial vehicle systems. In doing so, we want to create added value for our customers, business partners and society. Many of our innovative technologies are geared toward the goal of sustainable mobility. In this regard, Knorr-Bremse's EcoDesign ensures that our products' significant environmental aspects are taken into account across the entire life cycle. We view our suppliers as partners with whom we share the social and ecological responsibility in equal measure.

The megatrends of urbanization, sustainability, digitalization and mobility will shape society – and therefore also the products and services offered by Knorr-Bremse – for years to come. As a technological leader in braking and other systems for rail and commercial vehicles, many of our products are critical to safety. Their high level of availability, reliability and quality are crucial reasons for customers to choose to buy from us. Both divisions therefore implement integrated management systems whose processes satisfy the requirements for quality assurance. Our ecological product design – the EcoDesign approach – meets the high demands with regard to sustainability.

Currently nearly 12,700 patents granted or applied for are an example of our innovative strength. At Group level, we invested € 431.4 million in our research and development activities in fiscal 2021. At 6.4%, the ratio of research and development expenses to Group revenue in 2021 was at the same level as the previous year (2020: 6.4%; 2019: 5.7%). At the end of the fiscal year, the company employed 3,980 employees in research and development. [Figure → 3.01](#)

3.01 Costs for Research and Development



Product and System Safety

We aim to contribute to improved traffic safety by supplying reliable, high-quality products, systems and services. Our products and systems are therefore subject to high safety requirements resulting from customer requirements and statutory provisions and standards, and we carefully monitor compliance with these. We have to be particularly diligent in the monitoring of risks arising from the relevance of the application for safety. To this end, Knorr-Bremse makes routine use of extensive quality-planning, quality-assurance and

testing procedures. We also set high quality standards in all areas and processes. To achieve these standards, numerous Knorr-Bremse locations are certified in accordance with international quality management systems (ISO 9001, ISO/TS 22163, IATF 16949). The Group's Rail Vehicle Systems (RVS) and Commercial Vehicle Systems (CVS) divisions are continuously working hard to advance the high level of safety and quality. This applies to business processes and the product portfolio in equal measure: using the knowledge we have acquired over decades, we continuously make advances in product innovations and development.

Digital Automatic Couplers for Rail Freight

Knorr-Bremse consider Digital Automatic Couplers (DACs) a key lever for upgrading rail freight into the digital age. Today, freight cars and locomotives are only coupled with each other manually – but the DAC automates this process. Moreover, in addition to the air hose, the DAC will enable the entire freight train to be supplied with electricity and data. Beyond the DAC for freight cars and the hybrid DAC for locomotives, Knorr-Bremse will thus also be able to offer a package of innovative automated functions for the digital freight train. This package will include an electropneumatic (EP) braking system, automatic brake testing, data and communication services and an intelligent energy management system. The first DACs are scheduled to be ready for series production by the middle of this decade. The interplay between the automated train and the European Train Control System (ETCS) installed on the locomotive and the railway infrastructure will contribute to an increase in the capacity of the network. This, in turn, will enable even more goods to be transported. The combination of all these efficiency measures will create the foundation for achieving the EU's goal of transporting 30% of goods by rail by 2030.

- **Products of the RVS and CVS divisions:** Collision avoidance systems help to avoid accidents in rail and road transport as emergency braking assist systems, and as turning assist systems for trucks. These systems are developed further for autonomous driving in commercial vehicles to enable operation without drivers in the future. Light rail vehicles – which operate in a complex environment of dense, inner-city traffic – can similarly benefit from corresponding assistance systems, which is why Knorr-Bremse supplies collision avoidance systems with sensors for recognizing surroundings and conditions that can be used in similar ways on the rails and on the road. ProFleet Assist+ Gen 2, the turning assistant from Knorr-Bremse TruckServices and Mobileye that can be retrofitted for commercial vehicles, is one example in this regard.
- **Products of the CVS division:** The AI solution for commercial vehicles of the start-up Autobrains, which Knorr-Bremse has a shareholding in, offers video-based object recognition to enable system solutions for driver assistance systems and autonomous driving. In a partnership, Knorr-Bremse and Continental are developing the next-generation ADAS system, which features a fusion of camera and radar (AEBS, ACC, LDWS, TSR, among others) as well as warning functions for the side (turning assistant, lane change assistant).
- **Products of the RVS division:** The use of induction brakes based on the principle of electromagnetic induction enables high-speed trains to brake without noise and without wear and tear. For freight cars, Knorr-Bremse offers the latest generation of organic brake pads ("whisper brakes") to reduce noise pollution.
- **Products of the CVS division:** The new Global Scalable Brake Control (GSBC) system offers a future-proof foundation for the coming driver assistance functions and highly autonomous driving.
- **Development of the RVS division:** The innovative approach of reproducible braking distance (RBD) pursues the objective of increased transport capacity through greater train frequencies as well as improved schedule stability and punctuality. A team of engineers is integrating three technologies to this end: the novel deceleration control (DCC), adaptive wheel slide protection WheelGrip Adapt and a sanding system for adhesion management (ADM) designed along the entire train.
- **Development of the CVS division:** Electric power steering (EPS) systems are a key technology for advanced driver assistance systems (ADAS), for highly autonomous driving and for electromobility. As part of this, the power-on-demand principle will enable a significant reduction in fuel consumption as well as CO₂ emissions.

Principles and Guidelines

Knorr-Bremse acknowledges product safety and quality in its vision, corporate values and Code of Conduct. Moreover, there are separate safety and quality policies for the two divisions that the sites have to introduce. The permanent improvement of our product and system quality is a core topic here, along with the safe production and work processes that must be implemented by employees. The zero-defect philosophy is intended to help us achieve our objectives with all our products and services: increasing efficiency, maximum flexibility and productivity throughout every stage from the vehicle's manufacture to when it is in service, maximum delivery reliability, accident prevention and better utilization of infrastructure. We integrated our principles into management systems to meet external requirements.

Structures and Processes

Knorr-Bremse has integrated its product and system safety management into the Group's organization. Responsibility for implementing product and systems safety measures lies with senior management, divisional quality management departments and the departments responsible for the products in question. In both Knorr-Bremse divisions, the international quality managers regularly meet in a global committee for overarching targets and strategies to improve product and system quality.

We describe and manage the product and system safety management processes using the management systems Rail Excellence (REX) and Truck Excellence (TEX). The process manuals and work instructions set out all the basic rules for the processes. Various methods are employed to ensure that the relevant quality and safety standards are observed at every stage of the value chain that Knorr-Bremse is in a position to influence. That covers the development and testing phase through careful supplier selection and production to how the product is used by customers. In addition to failure mode and effects analyses (FMEA), this also includes production safety audits and product safety reviews, supplier monitoring, separate auditing of production lines and product safety training for employees, as well as product and field testing and close monitoring of the relevant markets. Regular internal audits and assessments serve to verify and optimize the implementation of our process management system. On the one hand, the global locations report monthly to the divisional quality organization responsible for monitoring the quality performance indicators. On the other hand, Knorr-Bremse carries out regular regional, global and product-specific quality reviews. The reviews and strict escalation processes ensure that potential safety-critical incidents are assessed and resolved at an early stage.

Knorr-Bremse Shapes Electromobility

Electromobility will bring about fundamental changes in the architecture of commercial vehicles and the requirements placed upon their systems. From traction, braking and steering, all the way to suspension, damping and energy supply, this opens up multiple opportunities for efficient and scalable technologies, which is why, in February 2020, Knorr-Bremse bundled the collective expertise of the Group in a special innovation unit for electromobility: the eCUBATOR®. As many as 60 internal and external experts are working with unconventional approaches to identify innovative, intelligent solutions for electric commercial vehicles and to develop them in close collaboration with customers, technology partners and start-ups. In doing so, Knorr-Bremse adapts its existing product portfolio and defines new product fields, with more than 50 patent registrations stemming from the eCUBATOR to date. Electric compressors such as the electric screw compressor and the Rotary Vane electric vane compressor – which entered series production in 2022 and was designed for scalable use in various air requirements of electric trucks – are two examples of products for electric trucks that have already been successfully launched. With a view to second-generation electric vehicles, which will enter the market beginning around the year 2025, Knorr-Bremse is working on future energy management systems, electro-mechanical actuators, enhanced functionalities related to drive integration and braking resistors and wheel brakes.

New Platform Concept for Battery-Electric Buses

Charging battery-electric buses in minutes – that is what the new modular eBus HPC platform concept from Kiepe Electric stands for. The manufacturer-independent system solution for electrifying new buses enables bus manufacturers to quickly and cost-effectively enter the world of electromobility. HPC stands for “high-power charging” and means that the charging capability of the buses – with power of up to 750 kilowatts – is among the most powerful on the market. This reduces the charging time to reach 80% to between four and eight minutes (depending on the installed battery capacity). Kiepe Electric integrates the complete electric-drive concept, including traction batteries, in buses with vessel sizes that are standard in public transportation (10, 12, 18 and 24 meters). The offer also includes AI-based software for fleet management. An 18-meter prototype bus was completed in 2021.

Artificial Intelligence for Condition-Based Maintenance

Digitalization offers the railway industry intelligent and practical solutions for many of its challenges. Knorr-Bremse relies primarily on data-driven system approaches. For example, condition-based maintenance means data can be generated for braking systems, entrance systems, HVAC systems and other subsystems and immediately subjected to smart, algorithmic analysis. This enables high-precision monitoring of the condition of safety- and function-critical subsystems. For example, the early warning system is capable of informing operators that a door still has a guaranteed number of opening and closing cycles left before potential failure so they can schedule component replacement in advance. Overall, the technology helps train manufacturers and operators to optimize the life cycle costs of their fleet and to offer passengers more vehicles on the routes – a crucial factor in making rail travel more available, more reliable and more attractive as a green means of transportation.

Quality Management Systems according to International Standards

We strive to continuously improve our processes and products. To this end, we use Knorr-Bremse quality management systems based on international standards. In the RVS division, these are the quality standards ISO 9001 and ISO/TS 22163 (formerly IRIS, International Railway Industry Standard). The rail-specific requirements included in ISO/TS 22163 are firmly anchored in the division’s processes and manuals and the Knorr-Bremse production system. For the CVS division, the IATF (International Automotive Task Force) 16949 quality standard applies.

So that our colleagues at the locations and in the business divisions can comply with all applicable provisions and processes, we provide them with guidance in the form of regular audits, reviews and training courses. Additionally, the measures reveal potential for improvement with regard to the safety and quality standards. In 2021, a total of 101 Knorr-Bremse sites around the world (2020: 96; 2019: 90) had a certified quality management system (ISO 9001, ISO/TS 22163 or IATF 16949). To date, no Knorr-Bremse site has had a certificate revoked.

In order to meet supplier management quality standards, both divisions monitor and audit their supplier base. In addition to a process audit for suppliers, the RVS division uses prior information suppliers have provided about themselves, including on quality certificates such as ISO/TS 22163. The standard is a requirement for achieving preferred supplier status at Knorr-Bremse. In the CVS division, every supplier goes through the product safety audit and a Sourcing Board assessment.

Ecological Product Design

Knorr-Bremse can make a contribution to climate and environmental protection with systematic environmentally oriented product development, while also achieving a medium- and long-term competitive edge using the resulting solutions. Knorr-Bremse EcoDesign – environmental product design – can improve the total environmental impact of a product, process or service across the complete product life cycle. The overriding priority remains ensuring product safety at all times. [Figure → 3.02](#)

Principles and Guidelines

Products made according to ecological product design set and meet our environmental targets and follow our corporate vision and HSE policy. In addition, we hope to make a contribution to achieving SDG 9 (Industry, Innovation and Infrastructure) with our EcoDesign. Knorr-Bremse can ensure the future viability of the product portfolio we are striving for

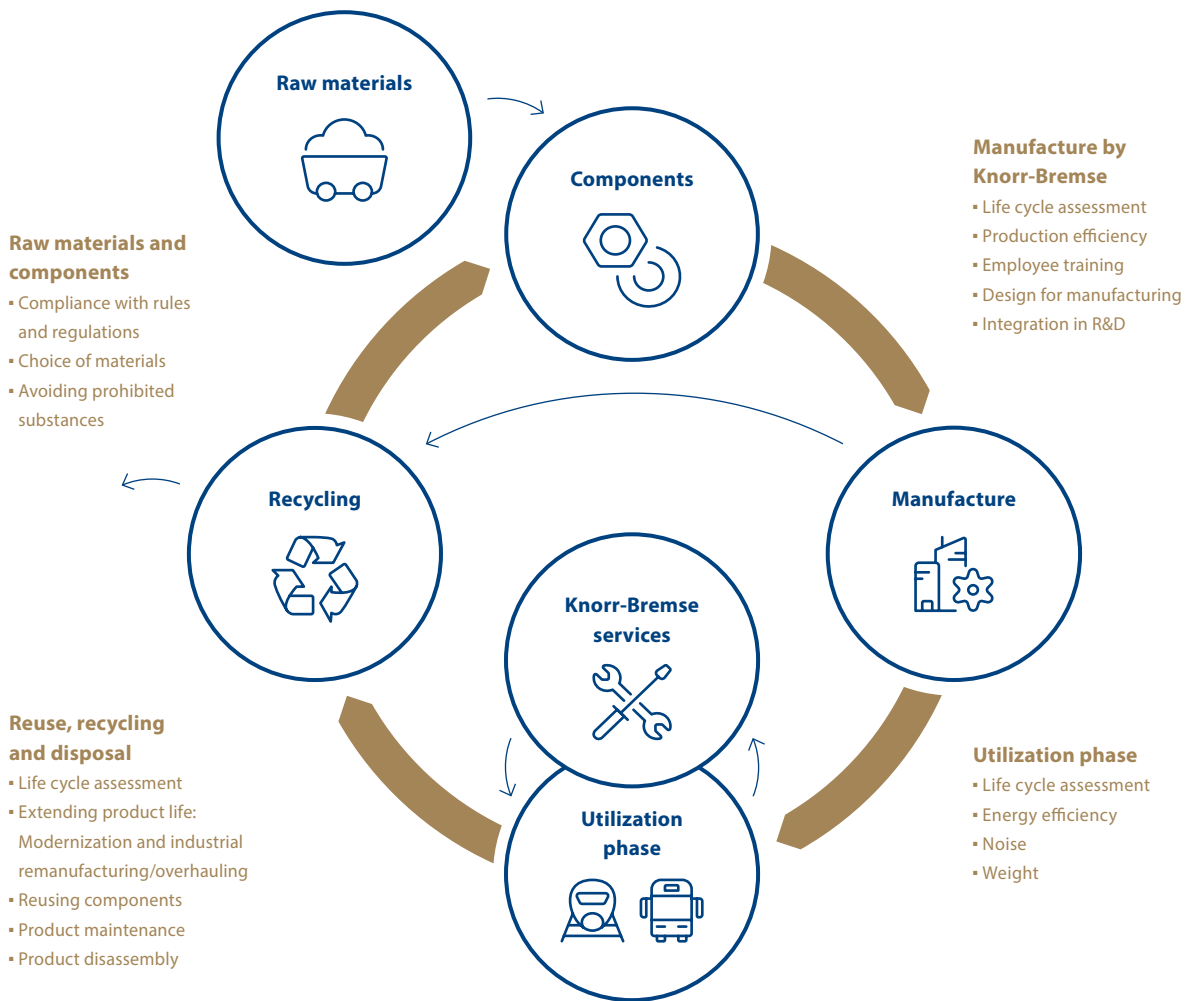
because we have integrated health, energy and environmental matters into our development processes. In addition to our own technical and environmental standards in EcoDesign, the requirements of regulatory stipulations, standards and customer expectations also influence product development. These include sustainability aspects such as long service life, weight reduction, resource conservation, increasing energy efficiency and avoiding pollutants and waste. To this end, both divisions have determined binding EcoDesign requirements in the product development process in the reporting period (see “Structures and Processes”). The RVS division also developed and released an EcoDesign Standard on Hazardous Substances in Products in 2021, which is intended for Knorr-Bremse developers as well as suppliers and which will be rolled out in 2022.

Our successful rail services and truck services business is another driver of sustainable product design. Among other things, Knorr-Bremse refurbishes products industrially, extending their useful life. In the CVS division of Knorr-Bremse, we are accelerating this development with the Product Design Remanufacturing Guideline. This design guideline stipulates requirements on the use of materials and easy product disassembly so that the product can be industrially reprocessed later.

Structures and Processes

EcoDesign is organizationally incorporated into both divisions in such a way that it supports strategic R&D planning and creates synergies and standardized processes between the Group divisions. The EcoDesign experts of the RVS and CVS

3.02 EcoDesign in the Value Chain



divisions have one central function here. Integrated into the development departments, they take part in the evaluation of product developments and raise awareness for the reduction of environmental impact. The EcoDesign experts also form the cross-divisional working group EcoDesign with representatives of the CR department and, where required, the Remanufacturing department. In monthly dialogue, they develop, among other things, standards in product development and processes for the product life cycle. The goal of an expanded sustainable product portfolio is supported by an SDG 9 initiative implemented on the Executive Board level. Within the framework of the initiative, the heads of innovation of both divisions and the CR department regularly coordinate to drive cross-divisional product development approaches and to create synergies.

SDG 9 Initiatives: Using New Innovation Formats

Knorr-Bremse makes use of its access to start-ups within the framework of the SDG 9 initiatives. The company has been in partnership with the Munich-based Techfounders accelerator program since 2018, where the technology search field of energy harvesting for wireless sensors was introduced in 2021. Knorr-Bremse initiated a tendering process and selected the start-up Viezo, which is developing a technology to harvest energy from vibrations to supply wireless IoT sensors with electricity. To this end, Viezo is making use of the piezoelectricity effect with very small and compact special plastic films. During the Techfounder phase, Knorr-Bremse launched a proof-of-concept (POC) project with Viezo, which involved the recording of real vibration data from a swiveling freight car truck as part of a laboratory experiment. This vibration data was used to test a wireless sensor with harvester module on a vibration test bench. The result was promising: the sensor had produced electricity. The decision was made to continue the collaboration with Viezo going beyond the Techfounder program in order to test the technology on freight cars in the field.

We see training, in particular of engineers and developers, as a key prerequisite to the successful implementation of EcoDesign in our processes. We want to give them a shared understanding of EcoDesign standards for evaluating product development. In 2021, a cross-divisional virtual EcoDesign training course with this focus took place as part of the Nirman program – a week of internal events on development work – in India. A total of 145 engineers, primarily from the Knorr-Bremse Technology Center India (TCI), took part. For 139 Knorr-Bremse EcoDesign contacts from EU member states, the RVS division carried out training courses on the implementation of statutory requirements of the REACH Regulation of the EU. The CVS division strengthened its EcoDesign organization in 2021 through central EcoDesign training with selected participants. More than 120 managers were given basic knowledge on the topic. 20 key contacts were taught the detailed methodology of the EcoDesign process for better integration of the requirements. As the newly appointed Truck EcoDesign contacts, they are the interface to the central EcoDesign team and are intended to pass on knowledge on the EcoDesign approach within the center of competence (CoC).

EcoDesign in Development Processes

Knorr-Bremse wants to proactively integrate EcoDesign aspects into product development and is working on systematically anchoring sustainability criteria in the processes – from strategic planning through innovation to product development. [Figure → 3.03](#)

Strategic Planning: In strategic planning, the business units determine their goals on a product and system level for the next five years. In addition to many other aspects, product sustainability is an integral part of this process. As such, EcoDesign criteria such as selection of materials, energy efficiency, reduction of emissions and life cycle are taken into consideration.

Innovation: In our innovation process, we assess projects' and product ideas' potential for development and implementation. Orientation toward the megatrends that are strategically relevant for Knorr-Bremse plays an important role here. As part of our SDG 9 initiative, we conducted a portfolio analysis that examined innovation ideas with regard to EcoDesign aspects. In 2020, this resulted in pilot projects focused on recycling, for example on the development of environmentally friendly alternatives to Styrofoam packaging. The success encouraged us to carry out a global analysis in the RVS division to identify nearly all products in terms of their packaging content. Along the way, more than 80 products from 13 organizational units were reviewed in detail.

Moreover, we made efforts in innovation management to accelerate collaboration with start-ups, which led to a proof-of-concept project within the framework of a technology project aimed at producing energy for wireless sensors.

In the RVS division, new innovation projects are assessed and prioritized using EcoDesign criteria in addition to other criteria. This is because EcoDesign is one of five different assessment criteria in the planning process. In the reporting period, around 100 projects were classified in respect of EcoDesign criteria. The projects are given a development budget to bring them to market maturity in accordance with the prioritization ranking. Our objective with this process-based implementation of EcoDesign is to ensure a future-proof product portfolio to the benefit of our customers.

Product Development: When developing new products and solutions for customers, we want to take account of and minimize environmental impact from the start. This is why we assess product developments along the product life cycle in accordance with EcoDesign criteria and derive improvements from this. To this end, we established a binding process in the two divisions in 2021, in which the following EcoDesign criteria are taken into account:

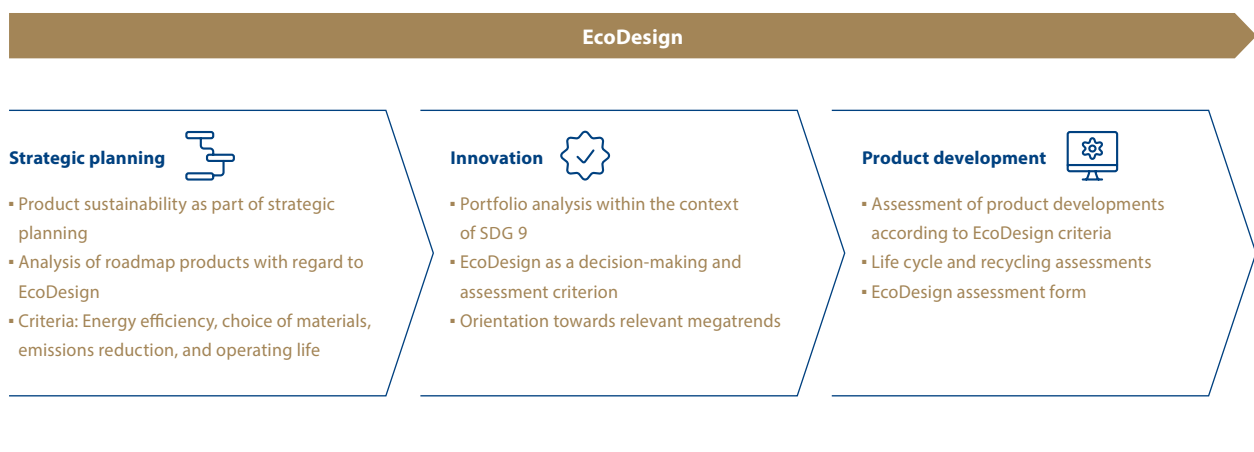
- Material extraction and production phase: hazardous substances, weight (CVS division), choice of materials, origin of materials (conflict minerals)
- Use phase: weight (RVS division), energy efficiency, longevity, direct emissions
- End of product life: recyclability

Train Doors: Environmentally Friendly through the Reduction of Materials and Weight

The optimization of the aluminum profile of framed door leaves in trains: Austria-based IFE – a company that specializes in entry systems for rail vehicles – is pursuing this goal. The tried-and-true profiles were analyzed at the beginning of 2021, also with regard to EcoDesign criteria such as selection of materials and weight.

With the help of the EcoDesign assessment method, IFE developed a resource-friendly solution for framed door leaves, thereby improving the sustainability of the product. The original and the optimized versions of the aluminum profiles differ primarily in profile geometry and wall thickness. The new generation of profiles generates material savings of 15%. This not only reduces costs, but every kilogram saved on the vehicle increases the energy efficiency of the train in daily operations. Additionally, it also improves the carbon footprint of the entry system, both in the manufacture as well as over the product life cycle. Considering the annual production of framed door leaves, this reduces emissions of CO₂ equivalents by the amount of 1,245 long-haul flights over the 30-year life cycle of a train. IFE has been using the new profiles in all new projects with framed door leaves since the third quarter of 2021.

3.03 Integrating EcoDesign in Development Processes



In the RVS division, the EcoDesign assessment form is provided to the development teams for the mandatory assessment of innovation projects and complex customer projects. It defines requirements for product design and makes assessment tools available. For example, the new EcoDesign Standard on Hazardous Substances in Products must be taken into account. This standard sets requirements for the use of hazardous substances, as well as for the documentation thereof for designs of Knorr-Bremse or suppliers. The EcoDesign assessment form also offers supporting standards and methods for evaluating environmental impacts. For example, the recyclability analysis of the materials used helps us to reduce the environmental impact across the life cycle. In 2021, a total of 31 projects in the RVS division were reviewed on the basis of a recyclability analysis in accordance with ISO 22628 and/or ISO 21106. Here, the result of the rail vehicle business area's products is more than 90% recyclability for Knorr-Bremse products.

The CVS division has defined concrete EcoDesign requirements in the product development and commercialization (PDC) process for new products and products with material changes. These need to be implemented in the phases of project planning through to product and process development. The specification of objectives ensures that the requirements can be measured and fulfilled. Specific policies and concrete tools and methods, such as the EcoDesign assessment form, support the process of defining objectives and assessment.

Saving Resources through Remanufacturing

We want to extend the life cycle of a product, thereby increasing the ecological and economic sustainability for our customers and at our company. Knorr-Bremse products are designed for remanufacturing and the possibility of reconditioning – i.e., future refurbishment – right from the research and development stage. The goal is to reuse the products later with identical functions. The reduced use of materials as a result and the energy saved make a positive impact on the overall ecological balance. Today, remanufacturing in the CVS division and overhaul in the RVS division are major lines of business for Knorr-Bremse. One reason in the RVS division why this RailServices offering is well accepted is the close proximity to customers internationally: around 50 Service Centers in all Knorr-Bremse regions around the world handle overhauling and repair work. In these Service Centers, numerous delivered components are regularly overhauled and, following a successful check, installed back in the respective fleet or vehicle. The goal is to use the functionality of these components through to the end of the life cycle of the corre-

3.04 Revenue with Refurbished Products Relative to Group Revenue



sponding train. Compressors, which are overhauled after defined intervals or set hours of operation, are a noteworthy example in this regard. Additionally, modernizations can extend the useful life of a train as a whole. Should a component be replaced due to obsolescence or performance problems, or should additional functionalities be installed, the RVS division can also carry out a complete upgrade or make the replacement within the framework of a modernization project. In 2021, at the Service Center in Berlin, Knorr-Bremse refurbished around 68,000 products of various kinds. In 2021 in China, braking equipment for more than 4,800 high-speed train cars, 1,800 locomotives and nearly 3,000 product units for metro trains were refurbished. Additionally, around 1,800 entry systems and HVAC systems, respectively, were refurbished as well. The CVS division portfolio includes refurbished products with approximately 1,000 item numbers that are available under the EconX® brand. Thanks to industrial refurbishment, 1,855 tons of CO₂, 641 tons of materials and 7,486 MWh of energy were saved in the reporting period. [Figure → 3.04](#)

Sustainability in the Supply Chain

Taking responsibility along the value chain is part of our self-image as a sustainable business, and strategic procurement plays an important role in this regard. By carefully selecting suppliers and materials, it lays the foundation for sustainable, reliable and safe products.

As a global business, Knorr-Bremse works with a large number of mainly local suppliers. They are firmly anchored in our value creation process and make a crucial contribution to the success of the company. We currently purchase products and services from approximately 30,000 suppliers from over 60 countries. Of procurement spending, 72% is accounted for by more than 6,000 manufacturing and/or production partners for parts, components and materials that are incorporated in our products. The ordered materials are primarily metals, friction components, electronic components and plastics,

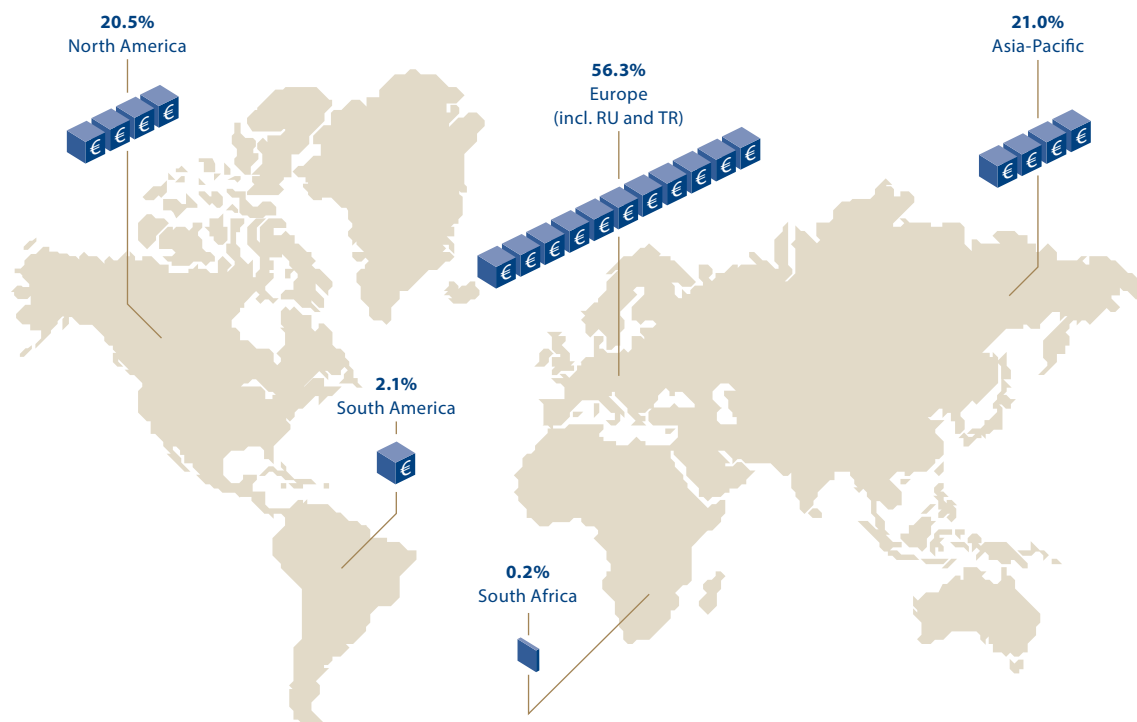
with the proportion of raw materials purchased by us being low. Of procurement spending, 28% is accounted for by indirect suppliers of supporting goods and services for our operations. [Figure → 3.05](#)

We are aware that Knorr-Bremse’s selection of suppliers has a significant impact on the environment and society in production countries. That is why we require our suppliers to comply with our high sustainability standards, for example with regard to the environment and human rights. Breaches by suppliers could also entail reputational and business risks for Knorr-Bremse, its customers and its investors. One example of this would be increased costs due to failed deliveries.

Principles and Guidelines

We have set out Knorr-Bremse’s commitment to sustainability in the supply chain in our Code of Conduct and our CR guidelines. We want to integrate sustainability aspects into our own processes to an even greater extent and improve sustainability performance in the supply chain. Using our sustainable supplier management practices, our intention is to make a contribution to the Sustainable Development Goals (SDGs), in particular with regard to Responsible Consumption and Production (SDG 12) as well as Decent Work and Economic Growth (SDG 8). We expect our suppliers to adhere to international environmental and human rights guidelines and standards. These include the principles of the UN Global

3.05 Knorr-Bremse Supply Chain: Share of Procurement Volume by Region



>30,000
suppliers

>60
countries

>€ 3.8 billion
global purchasing volume

Compact, the International Labour Organization (ILO) conventions and the UN Universal Declaration of Human Rights. We have specified and defined our sustainability requirements for suppliers in our Code of Conduct for Suppliers, our Human Rights Policy, the Conflict Minerals Policy and in the Procurement Quality Standards.

Additionally, internal guidelines specify the extent to which sustainability aspects are to be taken into account in purchasing decisions for various categories, including renewable energy, business travel or energy-efficient products, equipment and services. As part of our EcoDesign approach, we are working on implementing sustainability requirements in the materials specifications of the products and components we acquire. In 2021, the EcoDesign Standard on Hazardous Substances in Products was adopted in the RVS division. Following its rollout, it will be a prerequisite for the environmental product design process of Knorr-Bremse (see "Environmental Product Design," page 30).

Structures and Processes

The procurement organization at Knorr-Bremse is subdivided into direct procurement, which is controlled by the respective division, and the cross-divisional indirect procurement with global responsibility. Direct procurement acquires production materials (direct materials). This includes all externally sourced raw materials, items and components that are directly or indirectly delivered to our customers as part of our products. Indirect procurement handles the sourcing of non-production materials (indirect materials) and services that are not an integral part of Knorr-Bremse products but that serve to support the internal organization indirectly.

On a Group level, an independent function in the procurement organization is responsible for compliance with and optimization of sustainability standards in the supply chain. This function reports to the Sustainable Procurement Com-

mittee – which includes the heads of the global procurement departments and the CR department – several times a year. The committee discusses and makes decisions on strategic and current topics related to sustainability in procurement. In 2021, the topics included calculating CO₂ emissions under Scope 3.1 (see "Climate Protection," page 56) and training measures for our colleagues in procurement. Another focus was the procedural preparation for the German Supply Chain Due Diligence Act, which takes effect in 2023. We derived measures from a gap analysis carried out during the reporting period that we will implement step-by-step (see "Due Diligence Processes for Human Rights," page 23).

We rely on three pillars for the implementation and realization of sustainability standards in the supply chain: determination of our sustainability requirements, evaluation and assessment, and qualification of our suppliers and procurement specialists. [Figure → 3.06](#)

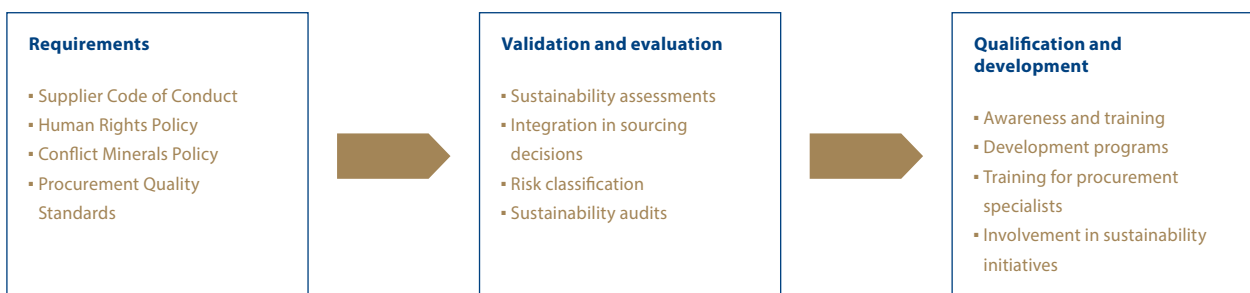
Sustainability Requirements for Suppliers

We expect our partners to act in accordance with our values, which are presented in the following guidelines:

Code of Conduct for Suppliers: Our Group-wide Code of Conduct for Suppliers, currently available in 14 languages, is intended to promote and require the systematic inclusion of sustainability aspects in the production methods and conduct of our suppliers. The code sets out the standards our suppliers are required to meet with respect to working conditions, human rights, environmental protection, safety, business ethics and compliance. We expect our suppliers to comply with the code and implement it in their upstream supply chain.

The Code of Conduct for Suppliers is an integral component of all supplier contracts and binding for all our suppliers. While the supplier code has already been rolled out for direct

3.06 Sustainability in Supplier Relationships



suppliers, this process started in 2020 for indirect suppliers. At the end of 2021, the Code of Conduct was integrated into supply contracts and orders representing 80% (2020: 37%) of Knorr-Bremse’s indirect purchasing volume.

Human Rights Policy: The Human Rights Policy published in 2021 describes what Knorr-Bremse requires and expects when it comes to preserving and respecting human rights. We expect our suppliers and subcontractors of goods and services to respect human rights and to pass on this expectation to their suppliers and contractors. Through our procurement and supplier management, we strive to support suppliers in improving their human rights due diligence processes (see “Due Diligence Processes for Human Rights,” page 23).

Conflict Minerals Policy: Since 2020, the Conflict Minerals Policy has governed the handling of conflict minerals and thus serves as a guide for Knorr-Bremse procurement and Knorr-Bremse suppliers (see “Handling of Conflict Minerals,” page 38).

Procurement Quality Standards: In accordance with our quality management guidelines, we require our suppliers to, among other things, observe the Principles of the UN Global Compact as well as our Code of Conduct for Suppliers.

Review and Assessment of Suppliers

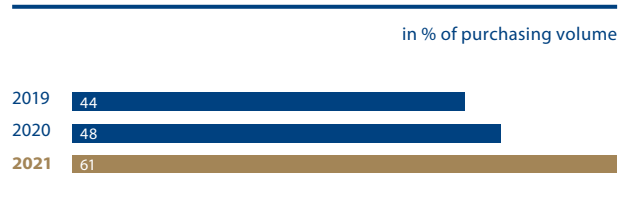
We use targeted instruments to review and assess compliance with our requirements and also include them in our procurement decision-making.

Sustainability Assessments: Surveying and assessing suppliers regarding their sustainability management are ongoing activities in both divisions. Supported by external service providers, we call upon our business partners to fill out questionnaires on their social and ecological performance. The self-assessments and evidentiary documents of the suppliers are validated and evaluated by the external service providers. Currently, 1,983 suppliers have been assessed. The coverage rate is thus 61% of the global purchasing volume – an encouraging improvement compared to the previous year in view of the global positioning of a complex product range and diversified supply chains. We have thus reached our annual target of 60%, and the proportion of our global purchasing volume covered should further increase by 2025.

Figure. → 3.07

Integration in Sourcing Decisions: We take account of suppliers’ sustainability assessments in our contract award process. In the CVS division, sustainability assessment is integrated into the so-called Sourcing Board, the review and decision-making body for supplier orders. In the RVS division, preference is given to suppliers who have been granted

3.07 Sustainability Assessment Coverage Rate for Suppliers¹⁾



¹⁾ The figure was expanded to include indirect suppliers. For better comparability of the data, the previous year’s figures have been adjusted accordingly.

“Preferred” or “Potential Preferred” supplier status. To be able to reach this high supplier status, Knorr-Bremse requires a valid supplier sustainability assessment or proof that such assessment is in progress. Moreover, the suppliers should be able to present a certified environmental management system that is in line with the international standard ISO 14001. Currently, a number of suppliers covering 61% of the direct production volume meets this requirement.

Risk Classification: We use the insights gained as part of the sustainability assessment to evaluate the risks associated with the suppliers. Based on the individual assessment results, we classify our suppliers into the categories A, B and C, where C represents the level with the potentially highest sustainability risks. Going forward, we want to reduce the proportion of suppliers evaluated in the C category. To this end, we draw up action plans for improving sustainability performance with the suppliers in question. We also have the option of reducing the volume of purchases we make from the suppliers.

In addition to supplier-specific evaluation of the management instruments and processes, we also use external sources such as country and sector risk analyses, as well as media reports, to identify potential risks. The risk is monitored until it has been refuted by objective evidence.

Sustainability Audits: By means of internal and external audits, we review and assess the sustainability performance of our suppliers. In addition, we integrate sustainability aspects into standard supplier visits, during which we use the supplier on-site sustainability risk checklist. It contains questions and practical tips for Knorr-Bremse employees in the area of supplier development so that they can identify and assess these sustainability risks on-site at suppliers. The results of the completed checklists are used as a decision-making criterion regarding additional sustainability audits on-site or other in-depth investigations. In 2021, 56 colleagues completed the online webinars offered on the use of these internal checklists.

Independent experts assess compliance with the applicable social and environmental standards on-site in independent external sustainability audits. Additionally, the management approaches of the suppliers and the implementation thereof are assessed in the following areas: compliance, environment, occupational health and safety, human and labor rights, and supplier management. In 2021, 18 on-site audits were conducted, eight of which were follow-up audits (2020: zero audits due to the pandemic; 2019: 24 audits).

Qualification and Professional Development

To meet our sustainability requirements over the long term, we offer training programs to support our suppliers in the further development of their sustainable business practices. At the same time, we provide our employees with qualification and training on the topics as well.

Awareness and Training: We continuously work to raise the awareness and develop the skills of our employees in the area of sustainability. In coordination with a few service providers responsible for the sustainability assessments, we also offer corresponding webinars and additional support on the subject. For example, we provide training materials on the subject of conflict minerals. In 2022, we will continue to advance our approach to training and developing suppliers in the field of sustainability.

Supplier Development Programs: If an audit or a sustainability assessment reveals breaches or improvement potential, Knorr-Bremse develops and implements action plans for improvement with the suppliers. In 2021, we reviewed and refined this process and also set up follow-up audits. In addition, the audit results help us to identify potential risk fields, which we will pay particular attention to in the future as part of our supplier management. For example, we have identified the topics of waste management and the assurance of human rights due diligence as potential risk factors from our external sustainability audits and incorporated them into our supplier on-site sustainability risk checklist.

Training for Procurement Specialists: In addition, training Knorr-Bremse employees is a key prerequisite for sustainable purchasing management. Around the world, they should develop the know-how to be able to assess, advise and audit suppliers. We therefore held webinars on the topic of sustainability in sourcing for procurement specialists in 2021. The webinars focused on Knorr-Bremse's expectations of suppliers, teaching background information about conflict materials and interactive question-and-answer sessions. In addition, a binding e-learning module was developed for all global purchasing employees, which is also part of the Knorr-Bremse onboarding training course and was rolled out in December 2021.

Involvement in Sustainability Initiatives: As a leading and global actor in the industry, Knorr-Bremse actively participates in industrial sustainability initiatives. We are an engaged founding member of the Railsponsible initiative in the rail industry and an active member of the German Association of the Automotive Industry (VDA) in the automotive industry. This means we can improve sustainability standards in the supply chain together with customers, competitors and other stakeholders.

Handling of Conflict Minerals

In order to protect human rights in the area of conflict materials, we have introduced a due diligence process. Key instruments for managing and reporting conflict materials include the Group-wide binding Conflict Minerals Policy and supplier surveys.

The Knorr-Bremse Conflict Minerals Policy, which was introduced in 2020, describes the way in which we handle conflict minerals. As recommended by the Responsible Minerals Initiative, we ensure transparency in the sourcing process for, and in the use of, minerals from conflict or high-risk areas, including tin, tantalum, tungsten and gold ("3TG"). In an annual survey, we ask direct suppliers with 3TG relevance for information on the origin of the minerals used by means of the Conflict Minerals Reporting Template (CMRT). Our last survey identified six smelting plants classifiable as critical, and corresponding processes to minimize risk were introduced. [Table → 3.08](#)

Moreover, we held a supplier seminar on conflict minerals in September 2021. The training materials provided include our new data collection on cobalt, which will be used beginning in the 2022 reporting period.

3.08 Reporting of Conflict Minerals²⁾

	2021	2020	2019
Number of suppliers invited to take the CMRT survey	2,449	1,517	1,335
Response rate of the suppliers surveyed in %	45	62	60

²⁾ The key figure on conflict minerals was introduced in 2021. It relates to the number of suppliers who have provided us with information on the origin of conflict minerals in the June 2020 – April 2021 reporting period.

Environmentally Friendly Logistics along the Value Chain

Knorr-Bremse strives for environmentally friendly logistics along the entire value chain, which is why, on an ongoing basis, we optimize the operational transport management with the help of external service providers. These service providers take over the planning, consolidation and operational execution of deliveries from our external suppliers to Knorr-Bremse, the transport between the Knorr-Bremse locations and the deliveries to our customers.

We constantly optimize the coordinated use of rail, road and shipping routes in order to minimize environmental impact and costs in the transport of products. We achieve this through the use of standardized processes and methods that, at the same time, increase our service quality across all distribution channels with regard to delivery reliability, delivery quality and delivery deadlines. In 2021, we primarily carried out intercontinental product transport via rail or by ship. During the coronavirus crisis, we transferred goods shipments that would have normally been transported by ship to rail routes to secure our supply chains. We avoid air freight transport whenever possible.

We are currently working on determining the carbon footprint of our global transport network and identifying emissions drivers, thus enabling us to promote innovations that reduce the consumption of fossil fuels. Going forward, CO₂ emissions caused by transport will increasingly play a role in decision-making for optimizations in logistics. The newly established distribution centers near our RVS division locations in Spain and Hungary will make transport flows more efficient and help reduce emissions, as will the future distribution center in Berlin. In the CVS division, CO₂ emissions caused by transport are already quantitatively evaluated as part of the supplier selection process. Along with the transparency with regard to CO₂ emissions it creates, the additional monetary evaluation of CO₂ emissions will also incentivize the reduction of CO₂ emissions.

Moreover, we regularly review and analyze the transport flows in collaboration with our logistics service providers in order to consolidate shipments and thereby reduce CO₂ emissions. Examples of measures in the RVS division in the reporting period:

- Bundling of multiple shipments in one transport
- Restructuring of the supply chain network: new distribution centers close to the locations bundle the flows of goods

Examples of measures in the CVS division in the reporting period:

- Efficient and low-emission transport in the Knorr-Bremse network: direct collection by customers at the production plant
- Optimization of packaging to reduce the necessary transports, in particular by ship
- Long-term planning of delivery capacities to avoid high-emission special or air freight shipments

Railsponsible – Sustainability Standards in the Supply Chain

The Railsponsible initiative was founded by its 15 members – a series of renowned European rail companies, including the RVS division of Knorr-Bremse – at the beginning of 2015 with the goal of establishing sustainable procurement practices in the rail industry. Railsponsible honors good performance, and Schaeffler AG was presented with the Railsponsible Supplier Award in 2021. The company, which is also a Preferred Supplier of Knorr-Bremse, was distinguished as a tier-one supplier who established and implemented efficient instruments and processes for improving its sustainability performance in the supply chain.

This excellent and distinguished performance corresponds to the general aim of Railsponsible, which is to motivate customers and suppliers in the rail industry to demonstrate ethical and socially responsible actions as well as responsible business and environmental practices. In a position paper on climate change, Railsponsible commits to the conditions of the Paris Climate Agreement. Knorr-Bremse currently chairs the working group for responsible procurement. Their work focuses on conveying well-founded knowledge to members and suppliers regarding sustainable procurement practices, transparent business processes and the further development of suppliers. The measures and instruments they use include corresponding procurement guidelines, the introduction of sustainability audits and supplier training courses.

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HR Connect

On the basis of a new IT infrastructure and a globally adapted data set, it was possible to implement the employee platform HR Connect in autumn 2021.

Top Employer

In 2021, Knorr-Bremse AG was honored for the eighth time in a row as the "Top Employer of Engineers in Germany."

Share Program

The new Heinz Hermann Thiele share program enables employees of Knorr-Bremse AG to receive subsidized shares. In 2021, the first year of the program, the participation rate was 25% among eligible employees.

6,663

employees used the LinkedIn tool for a total of 17,931 hours in 2021.

Gender Equality

Since 2021, Knorr-Bremse has been an active member of the Target Gender Equality initiative of the UN Global Compact.

Employees and Leadership

Knorr-Bremse has approximately 30,500 employees around the world. Every one of these colleagues should carry out their tasks with motivation and the highest level of expertise. This is the only way to ensure that we are a successful, sustainable company over the long term – with secure jobs, challenging tasks and offers for personal and professional development. The key in this regard is forward-looking and transparent personnel management, which involves strategic personnel development, training employees and the utmost in high-quality occupational health and safety at all locations. The foundation for the success of all activities is the Knorr-Bremse corporate culture, which is characterized by diversity and equal opportunities, appreciation and transparency.

At 30,544, the number of Knorr-Bremse employees increased by 2.8% compared to the previous year (2020: 29,714). The international focus of the Group is evidenced by the fact that 82% of employees at locations work outside of Germany. Wherever our colleagues carry out their work, they are a crucial part of our company's success. To ensure this continues, we need to be an attractive employer so as to be able to attract and retain the best specialist staff and managers because Knorr-Bremse, as a driver of innovation, depends on highly qualified employees, professionals and junior staff. We counter the shortage of specialist professionals with a clear personnel strategy, attractive employment conditions, a commitment to offering a wide range of opportunities and holistic personnel development. In numerous

industrialized nations with Knorr-Bremse sites, this also means finding solutions to the demographic shift toward an aging society. [Figure → 4.01](#)

4.01 Number of Employees in the Group as of December 31, 2021



HR Connect: All HR Topics in One Place

With HR Strategy 2025, the HR department creates a structural environment that can offer all Knorr-Bremse employees outstanding services. An important milestone in this was the launch of the HR Connect module, which went live for companies in 25 countries in autumn 2021 and was available worldwide by the end of the year. The platform bundles all HR topics and contains, for instance, all employee master data and a module for recruiting. On the one hand, HR Connect simplifies handling for employees and offers authorized staff members access to personal data and other self-service options. On the other hand, managers benefit from transparent information such as rapidly available reports on their teams and selected performance indicators. The capabilities of HR Connect are meant to make a positive impact on employment conditions, among other areas. The aim is to reduce the workload while also increasing added value and to establish global best practices while reducing redundant work. Additionally, the Group-wide central platform should raise awareness among individuals for the global community of Knorr-Bremse employees.

The global HR Strategy 2025 guides us in our responsibility for employees. The mission of the personnel policy and the following strategic direction were determined on the basis of the corporate strategy:

- We support the overall strategy of the company by making important contributions with optimized and globally uniform HR processes.
- We want to be an attractive employer around the world. We achieve this through fair employment conditions, systematic employer branding and an internationally oriented personnel and management development program.
- We consider ourselves a learning organization that develops through agile processes and is open to new ways of working.
- We take the initiative to continuously develop our corporate culture, which is characterized by maximum performance, mutual trust and responsibility.

The global HR transformation project titled "ONEHR" aims to create comprehensive transparency in the HR department with a new HR organizational structure with uniform and more efficient processes. The implementation of the HR Connect module during the reporting period was a milestone in this respect. HR Connect features an employee platform launched worldwide in autumn 2021 based on a new IT infrastructure and a globally adapted database. Further modules, including for entering personal data and Group-wide recruitment, are gradually being rolled out internationally.

In terms of personnel development, Knorr-Bremse created a manager development program, with implementation scheduled for 2022 (see "Managers and Young Talents," page 47). A culture change program guided by changing economic and societal conditions was developed in the year under review and will be continued in 2022 with the involvement of international management (see "Assessing Employment Conditions," page 43).

Employment Conditions

We want satisfied employees who judge their employment conditions to be good and value an open and supportive corporate culture. It is Knorr-Bremse's aspiration to protect employees' rights and ensure fair and appropriate pay. Furthermore, Knorr-Bremse offers its employees support in individual life situations, for example in the event of illnesses that require special organizational arrangements or measures. In 2021, the global fluctuation rate of the Knorr-Bremse Group was 14.1%, with differences from region to region. Speaking strictly in terms of employee resignations, the rate amounts to 8.7%. [Table → 4.02](#)

4.02 Fluctuation Rate¹⁾

in %	2021	2020	2019
Staff turnover worldwide	14.1	14.0	13.1
Staff turnover limited to employee resignations ²⁾	8.7	5.1	6.8

¹⁾ Definition: Number of employees leaving as a proportion of the average total workforce; does not take account of fixed-term employees, trainees or temporary staff.

²⁾ The higher fluctuation rate in the Group compared to the previous year is due to an increased self-termination rate in North America ("Big Quit").

Two exemplary focus projects promote good employment conditions at Knorr-Bremse over the long term and contribute to achieving SDG 8 (Decent Work and Economic Growth). Firstly, we expanded our processes regarding respect for human rights. We are working to integrate human rights due diligence even more strongly into our operating processes in order to minimize risks related to human rights and to prevent negative impacts (see “Due Diligence Processes for Human Rights,” page 23). Secondly, we established Knorr-Bremse Learning Culture 4.0, which underscores the importance of virtual learning as well as individual knowledge transfer tailored to a person’s tasks and personality. As part of the SDG 8 initiative, we arranged for an accelerated introduction of the LinkedIn Learning self-study tool during the pandemic year 2020. By the beginning of 2021, we had rolled it out for around 13,700 employees worldwide (see “Qualification and Professional Development,” page 46).

Principles and Guidelines

Knorr-Bremse wants to offer all employees the best possible opportunities and conditions for developing their personal capabilities in their professional environment. We are guided by the principles of the UN Global Compact, the UN Universal Declaration of Human Rights and the International Labour Organization (ILO) conventions relating to human rights (see “Due Diligence Processes for Human Rights,” page 23). The standards we set ourselves are defined in the Knorr-Bremse Code of Conduct and in our new Human Rights Policy. Within the Knorr-Bremse organization, these form the basis for daily interaction among employees. Compliance with these principles is a prerequisite for a safe and healthy working environment according to high standards, respectful interaction with one another, fair working conditions (with regard to working hours and remuneration among other aspects), freedom of association and the promotion of equal opportunities and equal treatment of our employees around the world. The goal of HR Strategy 2025 is to continuously improve employment conditions and to increase Knorr-Bremse’s attractiveness as an employer. The focus in this respect is on the efficient structure and uniformity of global HR processes and services. At the same time, we promote a respectful and trusting corporate culture.

Structures and Processes

The Group-wide HR department plans, manages and monitors all strategic tasks related to employee matters at Knorr-Bremse. In doing so, the Head of Human Resources bears overall responsibility for employees and regularly reports to the Chair of the Executive Board. Regional heads of HR are responsible

for the implementation of HR measures in their regions – Asia/Australia, Europe/Africa, the Americas – as well as for compliance with our Code of Conduct in particular. Local heads of HR implement HR measures at individual locations and monitor them. We strive to maintain a continuous flow of information across the entire organization. If information is needed on the Code of Conduct, or in the event of violations thereof, employees and external partners can rely on established processes. If they have questions, they can turn to their direct supervisors, the compliance organization, the HR department or – if applicable – their works council. Violations of the principles of the Code of Conduct can be reported anonymously via a global whistleblower system (see “Compliance and Risk Management,” page 19).

Assessing Employment Conditions

One important indicator of good employment conditions is employee satisfaction. In order to analyze and manage this, we conduct employee surveys. The next employee survey – the seventh overall – is scheduled for 2022. This will give Knorr-Bremse employees worldwide the opportunity to give their opinion about their employer. An independent institute will carry out the survey, thereby ensuring the confidentiality of the information. The goal of the survey is to measure employee satisfaction and to gather suggestions for improving working conditions as well as how to implement these suggestions. As part of a clearly defined process, the results are communicated to the employees and dealt with in workshops. The individual measures derived in this process are implemented by the individual locations. Additionally, the Executive Board has identified leadership and collaboration as focus points throughout the Group. The objective is to make use of the areas of potential improvement collected from the employee responses and include these aspects in the evolutionary development of the corporate culture. Along the way, we are guided by certain questions: How should the corporate culture develop further with regard to changed framework conditions, both internally and externally? Where do we see our added value as Knorr-Bremse and what is our vision? What does that mean for our culture of collaboration and leadership? In 2021, we devised a plan for the implementation of a culture change program with the involvement of the Executive Board and international managing directors. Additionally, the current participants of the international IMPG talent program are dealing with a preliminary analysis on this topic and deriving their initial recommendations. Comprehensive rollout of the change management process that includes all divisions and a broad public within the company will be carried out gradually.

Work-Life Balance

As different as the individual lifestyles of people may be, every employee considers the employment conditions attractive when they are able to balance their professional and private lives. One of the primary matters to achieve this employee satisfaction, which can have a beneficial effect on their performance, is flexibility in terms of when and where they work. Knorr-Bremse has increasingly aligned its organization with this concept in recent years and, as part of the New Work program, continuously pursues this approach.

Knorr-Bremse offers the majority of its employees a wide range of options for structuring their individual working conditions:

- Flexible working hours and working time accounts
- Part-time employment
- Multi-month leave (sabbaticals)
- Mobile work
- Care services for family (e.g., help finding childcare and nursing services for family members, vacation programs)

Distinction as Top Employer

“We want to be an attractive employer for our colleagues – even potential ones – in Germany and around the world: with secure jobs, challenging tasks and opportunities for personal and professional development. Our corporate culture, characterized by diversity and equal opportunities, appreciation and transparency, forms the foundation for this. Our strategic personnel management is designed to achieve these goals,” explains Klaus Remmler, Head of HR for the Knorr-Bremse Group.

Knorr-Bremse lives up to this expectation, as evidenced by the company being named “Top Employer of Engineers in Germany.” Knorr-Bremse received this certification for the eighth time in a row. The honor certifies that Knorr-Bremse places the focus on the professional and personal development of its employees in its personnel strategy. For the award, the Top Employers Institute examines six overarching HR criteria and 20 HR areas, such as personnel strategy, working environment, talent acquisition, education, well-being, diversity and integration.

- Family support programs such as contribution to preventive health care and health insurance, special financial assistance, time off in the event of illness of children or family members, maternity and paternity leave even in countries without corresponding statutory regulations
- Offers such as health programs and facilities

We have continuously added to our offers for a better work-life balance in recent years. Knorr-Bremse employees have been heavily using mobile work for years for this reason. The existing stable IT infrastructure was further expanded as part of the Covid-19 protection measures to roll out mobile work across the board, which was obligatory beginning in 2020. In addition, flexible working hours and relief models – for example due to closures of day-care facilities and schools or other care responsibilities – support employees in taking on the challenges in their personal lives brought on by the pandemic.

Our commitment to an HR policy that is conscious of both family and life stage and promotes individuality and diversity is evidenced by our certificate from *berufundfamilie*. Following the Munich site, the other six German Knorr-Bremse sites were also awarded certification for the first time in 2021. The three-month audit process of *berufundfamilie* concludes with a binding agreement on goals for the following certification after three years.

Remuneration, Additional Benefits and Codetermination

Knorr-Bremse wants to be a fair employer that ensures its employees receive rates of pay in line with the market worldwide. Minimum wages are not relevant for a majority of our workforce, because the required level of qualification for Knorr-Bremse employees is predominantly high. Salaries at Knorr-Bremse should only differ on the basis of employees’ qualifications and performance. Other criteria such as gender should not play a role.

With the objectives of achieving fair pay and ensuring international comparability of pay, we intend to assess all job profiles in accordance with a globally uniform system and compare them with reference values. This has currently been implemented for 68% of all employees (2020: 59%). The more responsibility comes with a position, the higher the proportion of variable remuneration, which is based on the current success of the company and individually agreed-upon goals. These goals are determined between employees and their respective managers within the framework of the globally uniform Staff Dialogue process (see “People Development,” page 45). The integration of sustainability aspects in the goals depends on the role of the employee. Beginning in fiscal year 2022, a remuneration system will take effect for management levels 0–2 (Executive Board, senior management,

regional managing directors, heads of division). In this system, short-term variable remuneration will factor in achievement of sustainability goals (see “Strategy and Management,” page 10).

Knorr-Bremse as an employer offers its workforce voluntary location-dependent additional benefits in the form of a wide variety of grants, ranging from food and mobility allowances to sport, exercise and health services. Depending on the local circumstances, this could also include voluntary contributions from Knorr-Bremse into a company pension, in accordance with the statutory requirements as well as the framework conditions regarding tax and social security legislation. In September 2021, Knorr-Bremse launched the Heinz Hermann Thiele share program. It enables eligible Knorr-Bremse employees to purchase subsidized shares in Knorr-Bremse AG each year. At the launch of the program, all the employees in ten selected countries who had been employed by the Group for at least six months were eligible (around 20,500 employees). The participation rate among these eligible employees was 25%. In the United States, nearly one-third of the workforce is a shareholder in Knorr-Bremse; in Germany, this figure amounts to around half.

For codetermination by employees and their representatives, Knorr-Bremse relies on cooperation in a spirit of trust with all employees across all levels of the hierarchy. This collaboration includes factual communication with employee representatives as well as the Group Works Council. In doing so, we respect employees’ right to freedom of association and assembly as well as their right to collective bargaining, to the extent that this is legally permissible and possible in the respective country. The members of bodies representing employees and trade unions are treated equally in the Group and neither disadvantaged nor favored.

People Development

Highly qualified employees are a competitive advantage as well as the foundation for the business success of the Group. The People Development department is guided in this regard by the requirements of the market and from our company goals. We can initiate necessary change processes within the company through the systematic collection of strengths and potential areas of improvement. This results in the necessity for targeted development of people with needs-based professional and personal qualification of the employees. Due to protective measures as part of the Covid-19 pandemic in 2020, the People Development department responsible for qualification converted many in-person training courses into virtual formats, which was continued in 2021.

Principles and Guidelines

The global HR Strategy 2025 emphasizes the importance of the development of our employees. In addition to ongoing training programs and promoting specialist careers, we also focus on developing managers, because good leadership is essential when it comes to maximizing the Group’s performance, creativity and long-term success. The Knorr-Bremse Leadership Principles set out what leadership should look like in practice. They support our colleagues in creating a working environment where employees can fully tap their potential. The Leadership Principles contain five core themes: reflect, step forward, engage, develop and execute.

Structures and Processes

The HR process model provides the content framework for our personnel development, with two performance areas in the foreground:

- Source: recruiting of new employees and talents, long-term establishment of effective employer branding and collaborative partnerships with universities and training providers
- Develop: assessment and promotion of our employees/managers, offering training programs specific to target groups and further development of leadership culture and leadership principles

People Development at Knorr-Bremse offers employees qualification and training measures tailored to their specific profile. The focus in this regard is on building up the knowledge and expertise the employees will need to take on the challenges ahead. The measures include seminars and workshops on social and intercultural competence, languages, project management, (braking) technology, quality, law and IT and CAD training.

Since the beginning of the Covid-19 pandemic in March 2020, Knorr-Bremse has offered virtual training courses on topics related to mobile working for employees in Europe via a training platform. In addition to IT topics such as working with SharePoint, the focus continued to be on collaboration and leadership. The topics in this regard ranged from leading remote teams to managing critical conversations. In 2021, the educational portfolio available to Knorr-Bremse employees also underwent enormous expansion with the addition of the LinkedIn Learning self-study tool (see “Qualification and Professional Development,” page 46).

Knorr-Bremse wants to improve the quality of its leadership and, if possible, fill open leadership positions with talents from within the company. To promote leadership development and succession planning, Knorr-Bremse employs potential analysis procedures (Development Center) and Group-wide management development programs (Management Potential Groups).

Promoting New Management Strategies

With products like its highly autonomous driving portfolio, Knorr-Bremse is helping to shape the digitalization of mobility. The opportunities provided by digitalization change our way of thinking and certain processes, for example in discovering innovations or the development of new business models.

The market environment requires an agile corporate and leadership culture in this regard, and we promote this culture within the Group, for example with the Knorr-Bremse Digital Days event held virtually in 2021, where Knorr-Bremse management and high-caliber external experts discussed topics related to digitalization with the aim of raising awareness and communicating the full range of potential digital applications throughout the Knorr-Bremse Group.

Agile leadership can be a preferred management method for determining the best solution. In addition to training in and the application of various agile methods such as SCRUM, design thinking and the canvas business model, the focus lies on conveying an agile way of thinking, the so-called agile mindset. Events like the Digital Days, training courses and internal initiatives are drivers of the transformation process. Along the way, the long-term and targeted use of new management methods is just as important to Knorr-Bremse as reflecting upon those management approaches that have shaped the company's success to date. Our goal is to meaningfully combine classic and new approaches.

Apprenticeship and Education

We train people in the careers that are in demand at Knorr-Bremse, meaning that our apprentices have a good chance of being retained when their training is complete. At our international sites, we offer vocational training in a variety of technical and commercial occupations. The fields of industrial mechanics, machining technology, electronics, mechatronics and informatics are in particular demand in recruiting. As of the reporting date December 31, 2021, 219 young people were completing an apprenticeship at Knorr-Bremse (2020: 254; 2019: 207).

We work closely with universities when it comes to academic education. Since 2008, Knorr-Bremse has been a partner company of Baden-Wuerttemberg Cooperative State University (DHBW) Ravensburg and its satellite campus in Friedrichshafen. As part of this partnership, Knorr-Bremse offers a three-year cooperative degree program for students majoring in industrial, electrical and mechanical engineering, as well as business informatics.

4.03 Staff Dialogue Coverage and Completion Rates

in %	2021	2020	2019
Coverage rate	78.2	82.1	76.2
Completion rate ³⁾	90.7	89.7	94.7

³⁾ The decreased coverage rate compared to 2020 is due to the partially outstanding implementation of the Staff Dialogue at new Group companies and at Knorr-Bremse Rail Systems (UK).

Education and Qualification

At Knorr-Bremse, we want our employees to be able to develop themselves both professionally as well as personally. As part of Staff Dialogue, managers speak with employees once a year about their performance and their areas of potential development. This format consists of Group-wide standardized annual employee appraisals with assessment criteria as well as management of potential, which is undergoing continuous expansion. This results in an evaluation of performance and potential capabilities and individual written agreements on targets that form the basis for Knorr-Bremse to develop an educational and training plan tailored to that employee. In 2021, annual employee appraisals were held with 78.2% of the workforce. Of those employees, 90.7% completed the Staff Dialogue process. [Table → 4.03](#)

Our culture of open dialogue is also reflected in the Leadership Feedback, which managers are required to carry out with at least three employees within a period of two years. In this process, the employees provide feedback on the leadership behaviors of their respective direct supervisor. On the basis of these results, the participants create measures together with the aim of further improving the collaboration. Managers at Knorr-Bremse achieved an average score of 4.9 out of 6 points in the assessment. This result was determined on the basis of all feedback discussions completed during the execution period. For the period of 2019/2020, the completion rate of Leadership Feedback was around 92% of all mandatory instances. The next Leadership Feedback process starts in 2022.

In addition to existing in-person and virtual training courses, the self-study tool LinkedIn Learning has supplemented the training of employees since the beginning of 2021. With its more than 16,000 courses on various work-related topics, this virtual learning platform has been available to around 13,700 employees since the beginning of 2021, following its launch in Germany at the start of 2020. This was also communicated to the relevant locations via the intranet. In 2021, 6,663 employees used the LinkedIn tool for a total of 17,931 hours. The courses on computer applications such as Excel were in particular demand around the world.

Managers and Young Talents

The success of the company is borne by strong management – which is why we want to recruit the best managers across all age groups. Our HR Strategy 2025 and our current management development program are aligned with this goal. In the year under review, Knorr-Bremse created a management development concept with the objective of improved strategic guidance. Using benchmarking and interviews, we defined a fundamental understanding of leadership. A transparent and long-term development path is intended to show managers where there may be potential for their professional development. Implementation of the concept is planned for 2022.

Knorr-Bremse has relied local managers at the global locations since its early days. In combination with needs-based training and development, their familiarity with the markets and customers and their knowledge of the languages and cultures can be important factors in our success. Due to the circumstances of the Covid-19 pandemic, in-person training courses were largely canceled in 2021. For this reason, the People Development team created virtual management training courses and offered them in Germany and Europe on a voluntary basis. The topics initially focused on the effects of the pandemic, for example a seminar on leading remotely. Traditional management topics such as high-performing teams and coaching were then gradually added to the portfolio. These measures helped us close the needs gap created by not holding in-person training courses.

Knorr-Bremse offers its own development program to train managers and young talents in-house and to retain them. The most important component of this program is direct discourse with upper management at Knorr-Bremse.

Global Development Programs:

- Management Evolution Program (MEP): As part of this 18-month program, trainees get to know three different departments, gain experience in international projects and work at a location abroad for at least six months. The personal and professional development is additionally supported by training courses, events and a mentor.
- International Management Potential Group (IMPG): Each year, this support program offers managers around the world with the potential for middle management the opportunity to develop their talents within the framework of training courses and projects, to strengthen their leadership skills and to expand their personal international network. After the program took a break in 2020 due to the coronavirus pandemic, it was continued in 2021 with virtual as well as in-person events.

Knorr-Bremse Learning Culture 4.0

Knorr-Bremse has recognized and is shaping the evolving and heavily digitalized learning culture – a development that was accelerated by the pandemic with its significant proportion of virtual communication. Around 16,000 courses are currently available to Knorr-Bremse employees on LinkedIn Learning. They supplement Knorr-Bremse's own in-person training courses and the Click & Learn e-learning platform. E-learning courses from the LinkedIn portfolio can be particularly useful for training on short notice, independent of time and location. An example in this regard could be a development team with special processes such as agile project management. For the onboarding process, the new employee can complete basic courses on the required creative technologies. Additionally, LinkedIn Learning is also available to the employees for personal development. Be it for learning to play the piano or how to use Photoshop: the comprehensive portfolio of courses is free and voluntary for Knorr-Bremse employees. In contrast, the Knorr-Bremse Click & Learn tool also contains mandatory courses for employees. With the commitment of the Executive Board and HR management, the Knorr-Bremse specialists from the Global People Development team want to promote the shift in thinking to a culture of lifelong learning throughout the whole company. Using digital tools, we want employees to more easily find their way in an altered working world. Managers – who should be seeing to the development of their employees in a more targeted manner – need to offer stronger guidance in this regard. The LinkedIn Learning curators in the respective departments also play an important role in this regard. They are particularly familiar with the content of the training courses and curate an adequate selection of courses for the respective employee. Traditional in-person courses are also still attractive options. With its benefits such as the group dynamic, in-person training will remain an important component of the Knorr-Bremse educational program.

Regional Development Programs:

- Junior Management Potential Group (JMPG): This is a support program for employees whose performance indicates that they are well suited for a (future) team leadership position.
- Engineering Development Program (EDP): This program enables college graduates of technical degree programs from the United States to continue their education for two years in the field of mechatronics – for example through exchange programs with cross-divisional departments or with locations abroad in Mexico.

Knorr-Bremse Digital Days 2021

Continuing down the path toward a digital company: the fifth Knorr-Bremse Digital Days event took place entirely virtually in 2021, as in the previous year. At the three-day symposium in mid November 2021, international managers and experts from Knorr-Bremse, along with external speakers via webcast, discussed the importance of digitalization for the development of the company. Digital transformation, artificial intelligence and new work are among the challenges and trends that are changing our society. To what extent do these trends drive our target sectors of rail and commercial vehicles? And how does Knorr-Bremse account for the trends in its strategic direction? Various Knorr-Bremse departments and subsidiaries presented innovative applications in these areas, including the AI-supported condition-based maintenance in the RVS division. In the production segment of the CVS division, a networking- and AI-based reworking process aids quality assurance. As part of a high-caliber panel, the CEO, CIO and others took an in-depth look at the topics of new work and digitalization as well as process digitalization. Technical lectures by external speakers from globally leading companies such as Google, Siemens, Digital Industries and Microsoft, as well as representatives from academia, also offered inspiring insights.

Diversity and Equal Opportunities

Knorr-Bremse has around 30,500 employees who work at more than 100 locations in over 30 countries. This cultural and individual diversity is a significant opportunity for Knorr-Bremse if we ensure equality of opportunities. Diversity is a driver of creativity, innovative strength and cultural competence in working with customers and suppliers. In turn, these factors are building blocks of the economic strength of Knorr-Bremse that underscore our leading position in technology and in the market.

Principles and Guidelines

We have set out the requirements for diversity and equal opportunities in our Code of Conduct and in our new Human Rights Policy. A fundamental principle is the equal treatment of all our employees – irrespective of gender, age, country of origin, sexual identity, state of health, religion or beliefs. We confirmed this in 2020 by signing the Diversity Charter in Germany. By participating in this initiative, Knorr-Bremse has committed to making diversity an integral part of its organizational culture, thereby creating a working environment that is free from prejudice.

We also want to gradually integrate diversity management into the HR and sustainability strategy in the next few years. To this end, Knorr-Bremse relies on four topics of focus:

- Cultural diversity
- Gender equality
- Age diversity
- People with disabilities

Structures and Processes

As part of its overall responsibility for the business, customers and employees, the Executive Board of Knorr-Bremse AG bears responsibility for diversity and equal opportunities. Within the context of the decentralized company concept, the respective managing directors of the Knorr-Bremse subsidiaries handle local governance with regard to this topic. The global, regional and local HR departments support the Executive Board and the managing directors in the goal of achieving diversity and equal opportunities in the workforce. As part of the global HR strategy, Knorr-Bremse aims to use the following levers to drive diversity and equal opportunities:

- Creation of a reliable database as the foundation for setting targets
- Employee awareness via internal communication
- Training for current and future managers
- Identification of risks and opportunities

Procedures for the possible detection of risks and breaches of our requirement for diversity and equal opportunities have already been established in the Group. In the event of potential discrimination regarding a fact or an action, each Knorr-Bremse subsidiary has a direct contact person who is responsible for the matter. If an employee feels discriminated against because of a fact or an action, or if they have a complaint of any kind, they can contact their respective HR department at the German locations (pursuant to the German General Equal Treatment Act – AGG). In addition, the works councils of the locations are available for reporting complaints.

The Compliance team's general whistleblower system (see "Compliance and Risk Management," page 19) can also be used to submit complaints. We consider training courses to be an important instrument in raising awareness among employees. For example, a training course for uncovering unconscious bias was offered to employees at our locations in Germany.

Cultural Diversity

As a global group, cultural diversity is an important success factor for Knorr-Bremse. At Knorr-Bremse's German sites, our non-German colleagues represent 9.5% of the workforce and come from 63 different countries. So as to take local and cultural circumstances into account, top management roles in the regions are mainly filled with local people (2021: 84.9%; 2020: 83.6%; 2019: 86%). Our goal is to actively promote an attitude of appreciation for the various lifestyles of our employees throughout the company. We support international communication with intercultural training, language courses, cross-site projects and stays abroad. With locations in more than 30 countries, sending Knorr-Bremse employees abroad is a common practice. These expatriates can work abroad for a period ranging from six months to five years in the process. Knorr-Bremse provides them with support via the International Transfers department – from initial preparations for the exchange and their return through to their reintegration at their former workplace. In 2021, 47 employees were sent to other Knorr-Bremse locations around the world (2020: 60; 2019: 80).

Gender Equality

Knorr-Bremse advocates for gender equality and, in doing so, is guided by SDG 5 (Gender Equality). Since 2021, Knorr-Bremse has been an active member of the Target Gender Equality initiative of the UN Global Compact. In particular, the program makes a contribution to achieving SDG 5.5, ensuring women's full and effective participation and equal opportunities for leadership at all levels of decision-making in economic life by 2030. At Knorr-Bremse, the Executive Board department

Integrity and Legal Affairs is responsible for SDG 5. Knorr-Bremse has defined the following focal points for its objectives:

- Increase proportion of women in management
- Promote careers of women
- Recruit qualified women

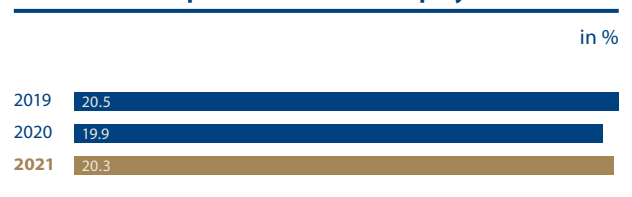
A quota concept was adopted in 2020 to increase the proportion of women at Knorr-Bremse. This concept is geared toward positions in middle management as well as the talent promotion programs. The recruiting teams have a fixed minimum proportion of women for applications in the management levels 2–4 in the German Knorr-Bremse companies. The final short list of candidates should include at least one woman. At least one-third of the spots in support programs should be occupied by women. The trainee program MEP currently nearly meets this target with women currently representing 30% of its participants.

Additionally, Knorr-Bremse makes use of and supports targeted promotion programs for young girls and women in training. As part of a partnership with the Technical University of Munich, we support female college students in scientific and technical degree programs. As part of the mentorING program, mentors are available to advise the students and support them in establishing their initial professional and academic networks. The offer is rounded off with target-group-specific seminars and training courses. Internally, the newly founded women's network Women@Knorr-Bremse defines additional measures and projects for the advancement of women. [Figure → 4.04, 4.05](#)

4.04 Global Proportion of Women in Leadership Positions across all Departments⁴⁾



4.05 Global Proportion of Female Employees⁴⁾



⁴⁾ Proportion of workforce included in the calculation of the proportion of women: around 99.6% of the total workforce.

Generation Management

In Germany and in other industrialized nations, the demographic shift is leading to an increasing average age of employees. The average age in 2021 at Knorr-Bremse was 41.3 (2020: 40.4; 2019: 39.9).

Our aim is to offer every employee the best working conditions in every phase of their life. Our generation management measures are intended to help us do so. These result in jobs with low physical requirements that are designed for older employees from an ergonomic perspective. We continuously integrate robotics as working aids for our employees in production in particular.

Understanding and collaboration among the generations are promoted through the involvement of former employees, who, following their retirement, pass on their experiences to younger employees. This usually takes the form of specialists and managers who carry out project and consulting tasks.

[Table → 4.06](#)

4.06 Age Structure in the Group⁵⁾

in %	2021	2020
Up to 20	1.4	1.2
21 – 25	5.5	4.0
26 – 30	11.4	12.7
31 – 35	17.2	20.3
36 – 40	15.6	17.2
41 – 45	13.3	13.0
46 – 50	11.4	11.2
51 – 55	10.1	9.6
56 – 60	9.5	7.3
over 60	4.6	3.5

⁵⁾ The proportion of the workforce included in the age calculation was significantly improved from a level of around 56% in 2020 to almost 100% in 2021. The comparability of the data with the previous year's data is therefore only limited.

People with Disabilities

People with disabilities and health-related limitations are an important part of the diverse Knorr-Bremse workforce. Various inclusion measures are just as important as the special protection and promotion of colleagues with disabilities. These measures include working conditions and tasks that account for the needs of people in wheelchairs, as well as

relationships with social institutions and the activities as part of the existing partnerships with them. The disabled persons' delegation helps people with disabilities to find the right workplace for them within the Group. The aggregate ratio of people with severe disabilities at the German sites was 4.4% in 2021 (2020: 4.5%).

Occupational Health and Safety

Over the long term, Knorr-Bremse wants healthy and thus high-performing employees. To create the framework for this, we have firmly anchored occupational health and safety in our business processes. This results in numerous measures for preventive health management, medical care, ergonomic workstations and emergency plans with regard to work safety.

Principles and Guidelines

The Group-wide Health, Safety and Environment (HSE) Policy defines obligations and material guidelines for strategic planning and measure planning in the areas of health and safety.

Structures and Processes

The HSE professionals at the sites are tasked with bringing together all occupational health and safety measures and supporting the respective managers in implementing them. One of the main tasks is the assessment of injury and accident risks for employees and temporary workers from production equipment, workstations and work processes. Additionally, they are expected to promote awareness among the workforce by means of training courses and informational campaigns. They also analyze accidents in order to then develop measures aimed at accident avoidance.

We take a comprehensive view of significant aspects that could have an effect on occupational health and safety, thereby fulfilling our responsibility regarding all employees. In the Rail Vehicle Systems (RVS) division, 44 production and service sites around the world are certified in accordance with ISO 45001 (2020: 43; 2019: 39). In 2020, we converted the last Knorr-Bremse locations certified under Occupational Health and Safety Audit Scheme (OHSAS) 18001 to the new international ISO 45001 standard on occupational health and safety. Furthermore, our own HSE processes concretize Knorr-Bremse's occupational health and safety management. We support compliance with the processes through regular audits and training.

For HSE reporting, we collect and analyze the key work safety indicators using uniform processes and derive corresponding measures from this data to improve our performance. Professional development and training enhance the content quality of HSE management at Knorr-Bremse. In 2021, due to the pandemic, the offering of regular internal continuing education courses for department heads was just as limited as the participation in international symposia, conferences and projects. Additionally, we use internal work safety campaigns to raise awareness and to help employees better recognize and avoid dangers. This contributes to the effective prevention of workplace accidents and dangers to the health of employees.

Avoiding Workplace Accidents

The goal of Knorr-Bremse is to avoid workplace accidents as much as possible and to continue to reduce the number of workplace accidents per 200,000 contractually agreed hours of work. [Figure → 4.07, 4.08](#)

The following measures are intended to achieve this:

- Standardized preventive occupational safety management
- Information campaigns and regular meetings on occupational safety
- Regular system and process audits, HSE audits, equipment acceptance audits and tours and inspections at the sites
- Regular internal reporting and follow-up

4.07 Number of Workplace Accidents per 200,000 Contractually Agreed Hours of Work⁶⁾



4.08 Number of Workplace Accidents Resulting in Lost Days per 200,000 Contractually Agreed Hours of Work⁶⁾



⁶⁾ In 2021, a change was made in the method of determining the key figures. For this reason, the figures are no longer directly comparable with the prior-year figures. The figure relates to all sites under operational control excluding sites with fewer than 50 employees other than production sites or service workshops. This covers around 93% of Knorr-Bremse's employees.

meinEAP: Crisis Counseling for Employees

The "Me-Meine Gesundheit" health program bundles the occupational health management offers at the Knorr-Bremse site in Munich. The program involves a comprehensive range of services – supported by internal and external stakeholders – to ensure the health and work satisfaction of employees over the long term. The "mein EAP" employee assistance program offers employees and managers at the German locations, along with their family members, psychosocial support in times of crisis, regardless of whether this is related to health or work. Those in search of help can turn to an external counseling service, 24-7 and free of charge. The need for professional help became clear during the pandemic, with its practical, psychological and health-related challenges. Core counseling responsibilities relate to critical life situations, professional and private overload and supporting managers in taking care of their health. Furthermore, the spotlight is also on health care management with help finding specialist doctors and therapists as well as information on self-care. Over the medium term, Knorr-Bremse wants to work with the service provider to seek out needs in health management and include measures for these needs in the offering.

RoSPA Award 2021 for HSE Achievements

For the tenth time in a row, Knorr-Bremse Rail Systems (UK) Ltd, Melksham, Great Britain, was presented with the RoSPA Gold Medal Award in 2021 for its achievements in the area of health and safety. The gold medal is in recognition of Melksham's outstanding management, efficient implementation measures and a consistently safe working environment for all employees. The continuously successful performance of the Melksham location was also honored with the RoSPA President's Award. RoSPA is an internationally recognized organization whose proven experts evaluate the submitted documentation regarding health and safety management.

Covid-19: Protection Plan and Vaccination Campaign for Employees

The importance of functioning occupational health protection was also demonstrated in the second year of the pandemic when it came to protecting employees from Covid-19 infection. The Knorr-Bremse crisis unit had already rapidly introduced a coherent protection plan in 2020, which included implementing strict travel guidelines, hygiene measures and the infrastructure requirements for mobile working and multi-shift operation in production. The implementation of the key measures was primarily coordinated and planned among Corporate Security, Human Resources and the divisions. Transparent communication was important to Knorr-Bremse, including information campaigns on protective measures as well as the consistent instruction of employees on occupational health and safety and consultation hours. The entire Group was informed about pandemic protective measures and they were adapted at the sites in accordance with the local requirements. Beginning in mid 2021, a vaccination campaign to protect against Covid-19 was carried out at all German locations, among others.

Preserving Health

In addition to occupational safety, Knorr-Bremse supports disease prevention and preventive health care, because maintaining the health of employees is a matter of central importance to the company. For this reason, the Knorr-Bremse occupational health management team analyzed workstations with regard to their health risks and ergonomics. Improving the design of workstations includes, for example, low-vibration electronic devices and forward-looking planning of assembly in consideration of ergonomic aspects.

We support the healthy lifestyles of our employees with offers related to nutrition, special deals for sport and exercise activities, company sports, financing bicycles as part of the Job Rad program and expert lectures on health-related topics. Joint employee activities aimed at health promotion only took place sporadically in 2021, because there continued to be contact restrictions as part of the protective measures against Covid-19.

We account for the needs of our employees in the development of needs-based health promotion programs.

Environment and Climate

55 Environmental Management

56 Climate Protection

62 Resource Conservation

Environmental Management

A total of 70 locations are certified in accordance with the ISO 14001 international environmental management standard.

Zero Waste Initiative

As a contribution to achieving SDG 12, the Knorr-Bremse locations around the world initiate various projects to avoid generating waste.

Purchase of Renewable Energies

Renewable energy sources account for 98% of the electricity delivered to Knorr-Bremse.

73.8%

reduction of CO₂ emissions in 2021 compared to the base year 2018.

Climate-Neutral Locations

We are operating our Knorr-Bremse locations to be carbon neutral for the first time. To achieve this, any remaining emissions are offset through climate projects of atmosfair gGmbH.

Environment and Climate

Environmental management at Knorr-Bremse includes clear processes and effective measures aimed at the responsible handling of resources. An important lever for reducing our carbon footprint is the environmental impact of our production processes through using energy and materials in an efficient manner. We want to make a clear contribution to the goals of the UN Paris Agreement with our Climate Strategy 2030.

Climate change – in particular reducing CO₂ emissions – and avoiding waste are global and long-term challenges, which is why Knorr-Bremse continued to drive its environmental and climate protection measures in 2021 as well. With our efforts with regard to sustainability, we hope to live up to our own expectations as well as those of our customers and society. In doing so, we help to stabilize the permanent position of strength of our company vis-à-vis the competition – also in the eyes of investors. We align our actions in this regard with SDG 9 for Industry, Innovation and Infrastructure, with SDG 12 for Responsible Consumption and Production and with SDG 13 for Climate Action.

Knorr-Bremse wants to reduce its environmental impact with innovative products and services, optimized production processes and reductions of emissions along the value chain. Knorr-Bremse's EcoDesign ensures that our products' material sustainability aspects are taken into account across the entire life cycle (see "Environmental Product Design," page 30). In our internal production, we have established environmental management with uniform environmental protection processes on the Group and location level. Our new Climate Strategy 2030 sets clear carbon reduction targets as well as measures to achieve them. Furthermore, raising awareness of our employees for environmental topics is important to us, for example via the Zero Waste employee campaign as a contribution to SDG 12 in the reporting period. We accompanied the 2021 UN Climate Change Conference (COP26) in Glasgow with internal and external reporting.

Environmental Management

The central Health, Safety and Environment (HSE) departments of the Rail Vehicle Systems (RVS) division and the Commercial Vehicle Systems (CVS) division are responsible for the implementation of environmental management. They develop strategic guidelines and bring together all cross-site management and coordination tasks.

Knorr-Bremse's senior management is involved in strategic and operational environmental management through regular meetings, ad hoc reporting or via the CR Council. Effective involvement of the locations is important for achieving the goals, because this is where the HSE managers implement the strategic requirements, goals and programs with the local managers. Local environmental protection and energy officers, regional coordinators and experts from the strategic departments provide this team with additional needs-based support. We lay the groundwork for Group-wide environmental management with regular exchange among the HSE officers. It is important to us for HSE work to be largely uniform across both divisions and for it to make use of synergies between the business lines. We communicate regularly to ensure exchange – both within the divisions as well as between the divisions – regarding aspects relevant to HSE, best practices and legal requirements, as well as the corresponding reporting.

Principles and Processes

The Health, Safety and Environment (HSE) Policy sets out the principles of environmental and climate protection and energy management in the Knorr-Bremse Group. We want to avoid or minimize any potential impairments for people and the environment that arise from our processes, services and products. To this end, we make use of uniform management systems comprised of statutory provisions, customer requirements and internal guidelines and procedures. They form the basis for collecting the local environmental and energy data at the sites. Once evaluated, this data then serves the planning, evaluation and management of the environmental measures. In addition, our processes are guided by national and international standards such as ISO 9001, ISO/TS 22163, IATF 16949 (quality management), ISO 14001 (environmental management), ISO 45001 (occupational safety) and ISO 50001 (energy management). Knorr-Bremse uses regular internal and external audits to monitor its environmental management, auditing compliance with the standards in the Group and the implementation of defined improvement measures. In addition to these audits, which were largely carried out virtually in 2021 due to the pandemic, the divisions regularly compile reports throughout the year with data related to safety and the environment. Since 2001, we have required relevant locations to be certified in accordance with the international environmental management standard ISO 14001. At the end of 2021, 70 production sites held corresponding certification (2020: 67; 2019: 66). In addition to the results of the audits and reporting, our environmental management priorities for the coming years are heavily defined by the CR materiality analysis, responses from ESG ratings and the SDGs. The focal points are climate protection and waste management.

Climate Protection¹⁾

As a manufacturing company, Knorr-Bremse primarily consumes energy through the use of buildings, the operation of facilities and through manufacturing processes. This is associated with corresponding carbon emissions, which Knorr-Bremse wants to minimize with its environmental management and its climate strategy. At the same time, Knorr-Bremse is exposed to potential risks from the consequences of both climate change and global decarbonization to limit climate change. These include, for example, extreme weather events and regulatory requirements entailing costs. We therefore analyze our corporate climate risks and opportunities, supported by Group-wide risk management.

In order to assess our corporate climate risks and opportunities, we have started to take the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) into consideration. To this end, we carried out a gap analysis in the year under review and identified relevant risks and opportunities that have an effect on the business of Knorr-Bremse. Using a qualitative scenario analysis, we were able to identify potential risks for the two divisions of the company in production, the supply chain and in the markets. The years 2030 and 2050, as well as future scenarios, were included in the risk calculation: A 1.5°C scenario – based on the assumption of net-zero emissions of the International Energy Agency – corresponds to the ambition of the Knorr-Bremse climate strategy. This scenario primarily results in increased transitory risks for Knorr-Bremse. The second selected climate scenario – based on RCP6.0 of the Intergovernmental Panel on Climate Change (IPCC) – assumes a higher level of emissions with global warming of 2.7°C. This scenario leads primarily to physical climate risks for Knorr-Bremse. You can find additional information in the TCFD Reference Table on page 75 of the notes.

Principles and Processes

Environmental and energy management has the task of evaluating and improving processes in the Knorr-Bremse Group on an ongoing basis with respect to energy requirements. For example, consumption data can be monitored, savings potential can be found and the efficiency of any measures implemented can be audited. Climate Strategy 2030 is implemented with the divisional HSE managers and with representatives of the Americas and Asia regions, the CR department and Energy Purchasing. The Knorr-Bremse climate protection officer coordinates the approach with the departments.

An important goal within the framework of Knorr-Bremse's environmental and energy management is the reduction of direct and indirect carbon emissions. The reliable functioning of production technology can offer a solid foundation for promising measures aimed at minimizing CO₂ emissions in this regard. Regular inspection and maintenance of our machines and equipment, along with preventive maintenance, reduce the environmental impact of our operations. Each year, we seek out and identify optimized and modernized technologies and production processes with the aid of tools, specifically in collecting operational and energy data. This includes energy measurement devices and systems at selected locations that provide detailed information energy consumption. Additionally, Knorr-Bremse utilizes waste heat from test rigs and realizes potential savings through digitalization. The exchange of local best practice examples between the sites and divisions creates synergies in energy management.

¹⁾ Called "Energy and CO₂ emissions" until the 2020 reporting period.

As a component of HSE management, Knorr-Bremse implements an energy management system in accordance with the international ISO 50001 standard, primarily at its energy-intensive production sites. At the end of 2021, 38 legal business units (2020: 36; 2019: 35) have this certification or are subjected to an external energy audit in accordance with EN 16247. Goals are defined within the framework of the energy management system and, each year, action plans are developed to increase energy efficiency. Local energy officers analyze the processes and monitor the implementation of measures.

Climate Strategy 2030

Knorr-Bremse set itself specific targets with its Climate Strategy 2030, which was developed as part of Knorr-Bremse's contribution to achieving SDG 13 (Climate Action) and which aims to make a contribution to achieving the goal of the UN Paris Climate Agreement of 2015 of limiting global warming to a maximum of 1.5°C.

The climate strategy relates to the direct carbon emissions (Scope 1) and the market-based indirect carbon emissions (Scope 2) accounted for pursuant to the Greenhouse Gas Protocol. Scope 1 comprises emissions that are generated by our company, for example from burning fossil fuels. Scope 2 related to emissions caused by purchased energy, for example electricity or district heating. Additionally, we intend to identify potential ways to reduce Scope 3 emissions – that is, those emissions that are caused by our business activities up- or downstream in the value chain. To this end, our first step involved collecting and reporting selected Scope 3 emissions (see page 61).

Knorr-Bremse is pursuing two goals with the climate strategy: reducing carbon emissions and carbon neutrality for the sites. Firstly, Knorr-Bremse plans to cut carbon emissions of its locations in half by 2030. Carbon emissions that arise from energy consumption of the global plant buildings and the vehicle fleet are to be reduced by 50.4% by 2030, equating an average CO₂ reduction of 4.2% per year compared with 2018. We aim to achieve this with the following three levers:

- Energy efficiency measures and the use of low-carbon fuels in heating systems and in the fleet
- Investments in measures to increase the proportion of our own renewable energy produced at Knorr-Bremse sites
- Increase in the proportion of renewable energy purchased via long-term power purchase agreements, green electricity products and certificates

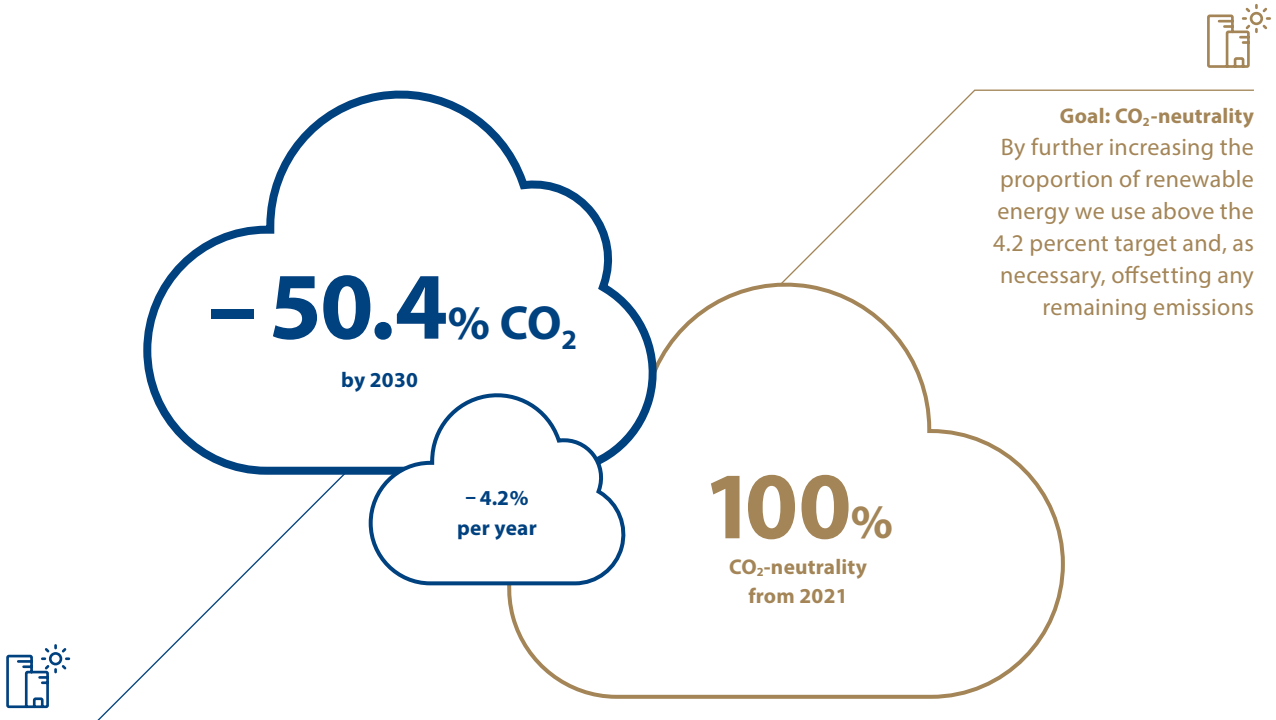
Flight Compensation for Climate Protection Projects

As a further contribution to protecting the climate, Knorr-Bremse has decided to introduce an automatic process for compensating for flight delays in a partnership with Flightright GmbH. Employees at German locations can transfer their claims to compensation payments for flight delays, overbookings or flight cancellations. To this end, we installed an automatic claims process and the affected individuals can transfer their compensation payments to Knorr-Bremse. The money from the compensation payments flows to two selected climate protection projects: the first is the blending of synthetic fuels for business air travel. The goal is to cover up to one percent of Knorr-Bremse employees' air travel with synthetic fuel. Knorr-Bremse is thus also supporting the world's first e-kerosene production facility of its partner atmosfair gGmbH, which began operations in 2021 in Werlte, Germany. For the second project, we financially support the carbon offset project for efficient wood gasifier ovens in India. Knorr-Bremse is realizing this project in collaboration with atmosfair (see text box "Tailored Carbon Offset Projects in Kenya, Tanzania and India," page 60). Initially, retroactively transferred claims from 2018 for German locations were processed, amounting to around 7,000 euros to date.

The majority of Knorr-Bremse's environmental investments in this respect is designated for energy efficiency and the generation of its own renewable energy.

As a second contribution to climate protection, Knorr-Bremse has committed to the carbon neutrality of its sites beginning in 2021. To realize these plans, we reduce any emissions remaining beyond the 4.2% target through the additional purchase of renewable energies as well as through offsetting residual emissions by means of high-quality climate protection certificates. [Figure → 5.01](#)

5.01 Knorr-Bremse Climate Strategy 2030



Goal: To halve our CO₂ emissions by 2030
 Average reduction of Scope 1 and Scope 2 emissions by 4.2 percent per annum in relation to the reference year 2018

Three levers to achieve a reduction:



Energy efficiency
 Improve energy efficiency and switch to low-carbon fuels



Renewables generation
 Gradually increase share of renewable energy generated on our own



Renewables purchase
 Expand renewable energy purchasing, making use of power purchase agreements, green energy products and certificates

5.02 Achievement of the Climate Protection Goal of CO₂ Reduction by 50.4% by 2030



Status of Climate Strategy 2030

We have achieved our climate protection goals. By means of the three levers, we have been able to reduce carbon emissions by 73.8% compared with the base year and 34.2% compared with 2020. We have therefore once again exceeded the annual target CO₂ reduction figure of 4.2%. Mainly the increased purchase of green electricity certificates contributed to this status. Going forward, we would like to continuously increase the role that energy efficiency and generating our own renewable energies plays in achieving our climate protection goals. [Figure → 5.02](#)

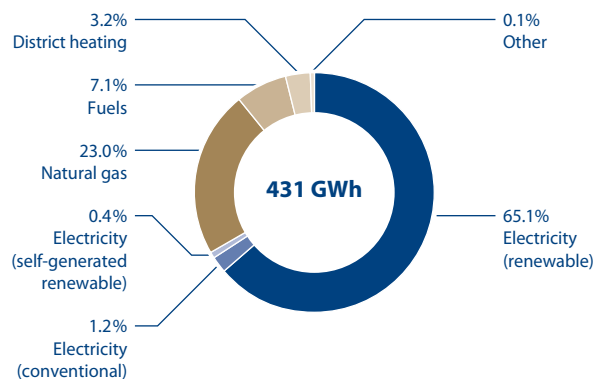
The remaining emissions, amounting to approximately 35,000 tons of CO₂, are offset by climate protection projects with high standards of quality. This means we are operating our Knorr-Bremse sites in a carbon-neutral way for the first time in 2021. To this end, Knorr-Bremse concluded a cooperation agreement in 2020 with the Berlin-based climate protection organization atmosfair gGmbH. Since 2021, annual carbon offsetting has been carried out via two projects that are realized in collaboration with Knorr-Bremse Global Care: one project for clean drinking water in Kenya and Tanzania, and another for efficient wood gasifier ovens in India. Both offsetting projects are certified under the independent and internationally recognized Gold Standard.

Knorr-Bremse Energy and Carbon Balance

The majority of Scope 1 and Scope 2 carbon emissions at Knorr-Bremse stems from energy consumption during production. Around 66% of the total energy need is attributable to electricity and 23% to gas. The proportion of electricity from renewable sources in 2021 was 98% (2020: 86%), of which 0.6% was self-generated electricity (2020: 0.5%). Our total energy consumption increased by 6% in the year under review to 431 GWh. This increase is primarily due to increased economic activity and the corresponding increase in energy use.

[Figure → 5.03](#), [Table → 5.04](#)

5.03 Energy Consumption by Energy Source in %



Tailored Carbon Offset Projects in Kenya, Tanzania and India

To offset residual carbon emissions of the Group, Knorr-Bremse and Knorr-Bremse Global Care e.V. work together with atmosfair GmbH, Berlin, Germany. Knorr-Bremse carries out two offsetting projects that are certified in accordance with the independent Gold Standard. In 2021, the project for efficient wood gasifier ovens in India offset Knorr-Bremse's residual emissions of 35,000 tons. In collaboration with the local project partner, Calcutta-based Sapien, poor households in the rural region of western Bengal are provided with efficient wood gasifier ovens, which can reduce firewood consumption by 50% to 60%. The ovens enable people to cook without smoke, and the wood gasification process generates charcoal that they can then sell. At the same time, the lower wood consumption helps conserve the mangrove forests in western Bengal. The goal is to distribute a total of 30,000 new ovens subsidized by Knorr-Bremse by 2030. The volume offset amounts to a total of 140,000 tons of CO₂. The project for clean drinking water of the local partners Boreal Light GmbH and Waterkiosk Ltd supports access to clean drinking water for rural households in Kenya and, in the future, Tanzania as well. These efforts help to avoid transmission of water-borne diseases. The first solar-powered water treatment plant in Burani, Kenya, desalinates and purifies up to 20,000 liters of water per day, resulting in clean drinking water for 6,000 people. The plant also provides industrial water. In 2021, owing to the restrictions of the pandemic, project expansion did not progress as planned; however, an additional 22 plants have begun operations in the meantime. Beginning in 2022, this project should increasingly contribute to carbon offsetting at Knorr-Bremse.

5.04 Energy Consumption²⁾

in GWh	2021	2020	2019	2018
Primary energy consumption³⁾	130	119	127	120
Natural gas	99	91	92	88
Fuels	31	26	35	32
Secondary energy consumption	301	287	295	292
Electricity	286	273	281	278
Of which from renewable energy in %	98	86	37	12
District heating	14	13	12	13
Self-generated renewable energy	2	1	1	1
Total energy consumption	431	406	425	412
Energy efficiency in MWh/€ million of revenue	64.3	65.9	61.3	62.3

²⁾ The figure for 2021 relates to all sites under operating control, excluding sites with fewer than 50 employees other than production sites or service workshops. This covers around 93% of Knorr-Bremse's employees.

³⁾ The difference in the total amount in 2020 results from one-time oil consumption at a high level.

Absolute (location-based) carbon emissions increased slightly in 2021 by approximately 4% to 180,000 tons of CO₂. The increased production volume at Knorr-Bremse in 2021 compared to the same period in the previous year led to an increase in CO₂ emissions in operational processes. CO₂ emission intensity (Scope 1 and 2) amounted to 5.2 tons of CO₂ emissions per million euros of revenue during the reporting period. In recent years, our emissions have decreased significantly in proportion to our revenue. In 2021, Scope 1 emissions amounted to 28,000 tons at Knorr-Bremse and stem largely from the burning of natural gas. Indirect carbon emissions (Scope 2 location-based) amounted to 152,000 tons of CO₂ and are comprised in particular of purchased electricity.

[Table → 5.05](#)

5.05 Direct and Indirect CO₂ Emissions⁴⁾

in thousand metric tons of CO ₂	2021	2020	2019	2018
Scope 1 direct carbon emissions	28	26	28	26
Scope 2 indirect market-based carbon emissions	7	27	100	107
Scope 2 indirect location-based carbon emissions	152	147	150	157
Total market-based carbon emissions	35	53	128	133
Total location-based carbon emissions	180	173	178	183
Carbon intensity in tons of CO₂/€ million	5.2	8.6	18.4	20.2

⁴⁾ The recording of carbon emissions is aligned with the recognized requirements of the Corporate Accounting and Reporting Standard (Scopes 1 and 2) of the Greenhouse Gas Protocol. A detailed description of the calculation method can be found in the notes, page 80.

Going forward, Knorr-Bremse would like to expand its climate protection activities to those indirect emissions that arise in the value chain of the company (Scope 3), which is why, in 2021, we analyzed Scope 3 emissions by means of a materiality analysis pursuant to the GHG protocol and began calculating selected emissions. Using qualitative estimates and extrapolations, we evaluated Scope 3 emissions according to their potential CO₂ emission amounts and the extent to which Knorr-Bremse has an influence on them. The result shows the particular relevance of the categories Scope 3.1 (purchase of products and services) and Scope 3.4 (transport and distribution) upstream in the value chain, as well as Scope 3.11 (use) downstream. We will gradually expand the reporting process started for Scope 3 emissions, which should include a better quality of data going forward. As part of a first step, we report on selected CO₂ emissions upstream in the value chain for the first time in 2021. [Table → 5.06](#)

5.06 CO₂ Emissions in the Value Chain (Scope 3)

in thousand tons of CO ₂ ⁵⁾	2021
3.1 Purchased goods and services	1,990
3.3 Fuel- and energy-related emissions	22
3.6 Business trips	4
3.7 Employee commuting	20

⁵⁾ A detailed description of the calculation method can be found in the notes, page 80.

Climate Protection Measures

To achieve the climate goal, we made use of all three levers of the climate strategy in the reporting period and implemented corresponding measures.

The increase in energy efficiency is supported by a systematic potential analysis. To this end, we continued the energy audits we had external energy consultants conduct at energy-intensive sites in 2020 through our own analyses of sites in the reporting period. Energy-efficiency measures resulting from the analyses can be realized using a Group-wide climate strategy budget set by the Executive Board. In the reporting period, the Group realized projects including the renewal of lighting systems and the optimization of heating, ventilation and air-conditioning, as well as insulation measures at the Bendix locations Acuña, Mexico, and Bowling Green, USA. With the measures realized through the climate budget since 2019, we expect energy savings of 5,500 MWh/year. In 2021, new energy saving projects with potential savings of 2,100 MWh/year were also approved.

Self-Generated Energy: Photovoltaic Installation in Huntington

A higher proportion of self-generated electricity contributes to an improved carbon balance and therefore also to the goals of the Knorr-Bremse Climate Strategy 2030. The new solar installation at the site in Huntington, USA, has been paying dividends toward this goal since 2021. Bendix completed the 1,168-megawatt solar installation there and commenced its operation in August 2021. This first Bendix solar installation covers about 30% of the energy need of Huntington Plant 1, a large production facility on the campus. With 2,612 450-watt solar panels, the installation produces 1.5 million kilowatt-hours of electricity at full capacity, thereby saving an estimated 140,000 US dollars in electricity costs annually. The solar installation in Huntington should reduce the carbon balance of the campus by 19% and the carbon balance of Bendix in North America by 3%. During normal operating hours, the site uses all of the electricity generated; outside of operating hours, for instance on weekends and holidays, Bendix can feed excess energy into the electricity grid, thus increasing the share of green energy and decreasing electricity costs for Bendix. The next milestone for Bendix in terms of sustainability is a project that was approved in 2021: two solar installations on the production grounds in Acuña, Mexico, which each should produce 1,000 megawatt-hours of electricity per year.

We are improving our carbon footprint by generating our electricity from renewable energy at sites including Suzhou (RVS division), China, Pune (CVS division) and Faridabad (RVS division), both in India, Huntington (CVS division), USA, and Munich (headquarters), Germany. In 2021, the proportion of self-generated electricity from renewable energy increased slightly. The photovoltaic system put into service in autumn 2021 in Huntington increases the proportion of self-generated renewable energy at Knorr-Bremse by around 1,900 MWh/year to around 3,300 MWh/year. Corresponding photovoltaic systems were approved for Granville and Darra, Australia (RVS division), Getafe, Spain (RVS division), and Acuña, Mexico (CVS division). They should be put into operation in 2022 and will generate 3,100 MWh/year in the future.

As part of its Climate Strategy, Knorr-Bremse wants to maximize the proportion of its overall energy consumption covered by purchased renewable energy. In 2021, 98% of the electricity supplied to Knorr-Bremse came from renewable energy sources, obtained via green electricity contracts or green electricity certificates. Renewable electricity is purchased via a green electricity contract for our sites in Austria, Sweden and France and via a power purchase agreement in Brazil. And we obtain green energy certificates for additional global Knorr-Bremse sites: In Europe, it is European proofs of origin with the exception of specific local proofs of origin in Poland and the United Kingdom. Renewable Energy Certificates (RECs) are used in the US and Canada, and International Renewable Energy Certificates (I-RECs) are used in China, India, Mexico, Russia, South Africa and Turkey.

Resource Conservation

Knorr-Bremse wants to reduce the use of raw materials and supplies and, as far as possible, recycle them. This concept of reducing use and the circular economy applies to all waste as well as water. In principle, our waste management practices are designed to avoid waste – be it raw materials generated during production, packaging or other waste on-site. At the same time, we strive toward the sustainable use of water and, in doing so, account for the different requirements and needs of our locations around the world.

Waste Management

For its waste management, Knorr-Bremse is guided by the principle of a sustainable circular economy, with the primary objective being to avoid waste. If this is not possible in a particular case, we endeavor to ensure environmentally friendly reuse. Overall, Knorr-Bremse focuses on three points in its global waste management:

- Avoiding waste through the targeted and optimized use of resources
- Substituting materials with environmentally friendly input materials, for example avoiding the use of single-use plastics
- Promoting the circular economy for the environmentally friendly recycling or reuse of materials

Waste at Knorr-Bremse consists largely of scrap metal, paper and residual waste. As a company in the production sector, we generate steel and iron materials, light metals, polymers, consumables and packaging materials. For this reason, we increasingly investigate the possible use of environmentally and resource-friendly materials in the product development process (see “Environmental Product Design,” page 30). Additionally, we generate electroplating sludge during the surface treatment of metallic materials. We primarily utilize reusable materials and containers in our product packaging.

The Knorr-Bremse production system (KPS) helps us minimize waste generated during production: using value stream analyses, we identify and eliminate various types of waste such as overproduction and avoidable reject products. Moreover, our quality management guidelines require our suppliers to avoid or reduce packaging as much as possible and to use reusable materials.

Water Management

We strive to use water as efficiently as possible and, if possible, to use it more than once as part of a closed-loop system. Knorr-Bremse uses water in particular for surface treatment and cleaning its products, for test applications and as drinking and plumbing water. In 2021, we consumed a total of 533,000 cubic meters⁶⁾ of water across all locations around the world. Production and drinking/plumbing water each make up one-third of total water consumption. One-third of water consumption is unspecific. The application area of the water consumed varies greatly depending on the location. Our water is supplied by municipal providers. To reduce our consumption of drinking water, at some locations we use rainwater for cleaning, for sanitary facilities and for watering green areas. We get rid of wastewater via public wastewater systems. [Figure → 5.07](#)

5.07 Water Consumption⁶⁾

in thousands of cubic meters



⁶⁾ The figure for 2021 covers more than 80% of Knorr-Bremse employees.

Focus on the Zero Waste SDG Initiative: Global Waste Programs

The worldwide Knorr-Bremse locations realize various measures to avoid waste throughout the entire value chain. In doing so, we hope to contribute to achieving SDG 12 (Responsible Consumption and Production).

Reusing Cardboard

From old cardboard to packaging material: this reprocessing is done by a cardboard shredder that Knorr-Bremse España, Getafe, Spain, acquired. The machine cuts used boxes and cardboard packaging materials so that they can then be used as a filler material for shipment packaging. We expect this to generate considerable material savings, with a reduction of cardboard waste at Knorr-Bremse España by 40%. This should result in a reduction to the same extent of the amount of cardboard that previously had to be transported to the waste disposal facility. Furthermore, due to the use of cardboard as a filler material, we can reduce the use of plastic bubble wrap for packaging by 10%.

Replacing Wooden Crates with Cardboard Boxes

Each year, Knorr-Bremse Rail Vehicle Systems China in Suzhou uses more than 35,000 wooden crates. The objective was to reduce wood waste and lower purchasing costs for packaging products. The shipment of brake calipers alone consumed more than 500 cubic meters of wood in the form of crates annually. Converting these shipments to cardboard boxes will initially save 216 cubic meters of wood, with a significant reduction in costs as well. Following a successful test phase, the decision was made on August 1, 2021, to use high-performance cardboard boxes to send calipers rather than wooden crates.

Less Single-Use Plastic

Not only does Knorr-Bremse Rail Vehicle Systems China in Suzhou want to use less wood, but they also want to use less plastic. This goes, on the one hand, for the production line, where we limited the utilization of single-use plastic. On the other hand, we clean plastic containers and pallets and they can then be reused. This can reduce plastic waste by some 700 kilograms annually. Another approach being used is doing away with plastic water containers. Previously, drinking water was provided in five-liter plastic bottles for the 1,450 employees and in 330-milliliter plastic bottles for visitors. A treatment system for tap water was installed and drinking water can now be provided at a water bar, with ceramic or glass cups provided for guests. The result was that nearly 3,000 plastic water bottles were saved in the first two months alone.

Zero Landfill Program Avoids Waste in Landfills

In 2021, Bendix once again achieved the goal of disposing of no waste in landfills at eight Bendix production sites as well as at the headquarters in Elyria. In April 2021, the company's Zero Waste to Landfill certification program was honored with the Better Practice Award of the US Department of Energy. The sites achieve self-certification by consistently diverting 100% of their industrial and non-industrial waste away from landfills – by reusing, recycling, composting or another method of avoiding waste, including in the energy supply. The sites make use of a wide range of measures to this end, including the Sustainable Food Service Policy for eliminating plastic bottles and Styrofoam products, as well as newly introduced processes such as centralized waste collection. The advanced technologies that Bendix uses include waste-to-energy (WTE) technology for composting and anaerobic digestion equipment for food waste.

Commitment and Society

66 Global Care: Worldwide Commitment

68 Local Care: Commitment at the Locations

Knorr-Bremse Global Care

In 2021, the 68 Knorr-Bremse Global Care projects reached some 36,000 people.

Foundation of Safe-Hub Global gGmbH

As a contribution to achieving SDG 4, Knorr-Bremse Global Care plans to take the safe hub concept to a global scale and founded Safe-Hub Global gGmbH together with the social business AMANDLA.

WASH Project in India Continued

Together with the NGO Work for Equality, Knorr-Bremse Global Care realizes a long-term WASH program in the Indian village of Methalwadi. The first students successfully completed the program in 2021.

€ 4.8 million

was donated by Knorr-Bremse Group for social causes via Local Care and Global Care in 2021.

Local Care Employee Participation

More than 1,000 Knorr-Bremse employees actively participated in Local Care projects in 2021.

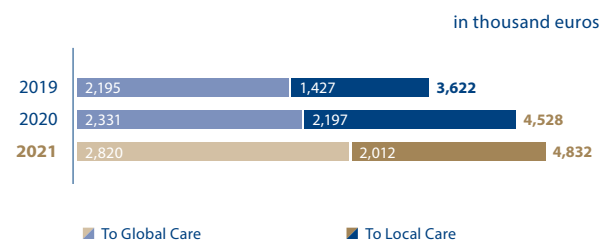
Commitment and Society

For Knorr-Bremse, business success and social responsibility belong together, because dedication to society is full of added value – for the members of that society as well as for the locations and the employees of Knorr-Bremse. In this context, we want to encourage our employees to take part in social projects.

Knorr-Bremse's social commitment is focused on global and local challenges – with the non-profit organization Knorr-Bremse Global Care and the Local Care initiative. The Local Care initiative bundles all the social activities of our locations, while Knorr-Bremse Global Care promotes longer-term and financially more comprehensive aid projects with its own non-profit organizations in Germany, Hong Kong and the United States. Closely integrating the sites – of which there are more than 100 in over 30 countries – is of the utmost importance to us. This is because, with every site, Knorr-Bremse has the possibility to have a direct and indirect economic impact on the respective region. As an employer, as a purchaser of materials and services and with its products, the company impacts local communities and economies in a myriad of ways. The long-term involvement of the sites and their corresponding close cultural relationships optimize the impact of the local support activities. At the same time, this increases employees' identification with Knorr-Bremse and its commitment to the community as well as the reputation of the company in the local community. This ultimately benefits the employer branding.

In 2021, the Knorr-Bremse Group donated EUR 4.8 million for social causes via Local Care and Global Care. Of this amount, the proportion of the overall donation from Knorr-Bremse Global Care is 58%. This amount also contains the grants from the two regional organizations Knorr-Bremse Global Care North America Inc. (USA) and Knorr-Bremse Global Care Asia Pacific Ltd. (Hong Kong). They are funded via the respective Knorr-Bremse holdings in the United States and in Asia. [Figure → 6.01](#)

6.01 Volume of Donations



Global Care: Worldwide Commitment

Knorr-Bremse Global Care is a globally active non-profit organization that offers new prospects to people who, through no fault of their own, are in need of support. It promotes projects of partner organizations primarily in the two areas of education and water, sanitation and hygiene (WASH). Knorr-Bremse Global Care offers immediate aid on a needs basis.

The origin of Knorr-Bremse Global Care lies in the founding of the non-profit organization in Germany: Knorr-Bremse Global Care e.V. was created by Knorr-Bremse Group employees in Munich to provide fast help to those impacted by the tsunami catastrophe in December 2004 in Southeast Asia. The organization's work was subsequently continued, expanded and professionalized. Since its founding in 2005, Knorr-Bremse Global Care – in collaboration with partner organizations and the recently founded regional units – has helped improved the lives of around 896,000 people as part of 423 projects. In total, more than € 25 million in funding was made available for this purpose. In 2021, Knorr-Bremse Global Care supported 68 projects with approximately EUR 2.8 million in funding. In doing so, Knorr-Bremse Global Care reached out to more than 36,000 people.

A majority of Knorr-Bremse Global Care projects are realized in countries with Group locations, enabling us to maintain as direct contact as possible with the funded projects. In doing so, we aim to raise the awareness of employees of our commitment to society and to motivate them to take action themselves. Additionally, the organization funds development projects in ten further countries: Ethiopia, Ghana, Cambodia, Kenya, Colombia, Myanmar, Peru, Sri Lanka, Tanzania and Ukraine.

Principles and Guidelines

Supporting the independence and personal responsibility of people in need and the effective structuring of projects and programs are matters of central importance to Knorr-Bremse Global Care. Through its work as part of targeted long-term project partnerships, the organization hopes to contribute to structurally relevant and far-reaching changes in society. The involvement of the local communities in the project is essential to ensure the benefit and the sustainability of the activities. Knorr-Bremse Global Care has identified education and water, sanitation and hygiene (WASH) as focal points for its support and aligned its specific targets with the subgoals of SDG 4 and 6 of the United Nations.

SDG 4 (Quality Education) and its subgoals aim to enable quality education and lifelong learning for everyone as a prerequisite for decent work and balanced economic growth. Knorr-Bremse Global Care contributes to SDG 4 through its involvement in medium- and long-term educational projects. In doing so, the company-funded organization focuses on vocational training and qualification, because we consider this to be the greatest lever for offering disadvantaged people the prospect of a self-determined life. Knorr-Bremse Global Care has defined providing access to tertiary education, including vocational training, to disadvantaged adolescents and young adults as its educational objective. Guided by SDG 4.3 and 4.4 and to help reduce unemployment among young people, we initiated projects to help them find vocational training opportunities and learn job-related skills, as well as to offer career counseling.

The goals of SDG 6 (Clean Water and Sanitation) place the spotlight on access to clean and safe drinking water for all people. Additionally, they call for suitable sanitary facilities, hygiene education and proper disposal of wastewater. This can protect communities from disease and create a better foundation for prospects regarding life, education and development. This is where the WASH projects of Knorr-Bremse Global Care come in: they aim to contribute to the reduction of morbidity and mortality rates due to water-borne illnesses. The specific goal of Knorr-Bremse Global Care is to reduce the mortality rate due to water-borne illnesses of children under five years of age in particular. Activities in the WASH field include access to safe drinking water as well as improvements to sanitation and hygiene, thereby making a contribution to achieving SDG 6.1 and SDG 6.2. Furthermore, the organization strives to involve the local population themselves in the measures and strengthen their sense of personal responsibility via training courses and employment relationships.

Structures and Processes

Knorr-Bremse is made up of a non-profit association in Munich, Germany, and the two independent regional organizations Knorr-Bremse Global Care North America Inc. in the United States and Knorr-Bremse Global Care Asia Pacific Ltd. with its headquarters in Hong Kong. The association in Munich is supported by the European Knorr-Bremse companies and individual employee donations and is driven by the efforts of association members and employees of the Group. The company holdings in Hong Kong and the United States provide financial support to the respective Global Care organizations. All three organizations are made up of volunteer members as well as management boards who meet regularly to discuss ongoing projects and project proposals and to clarify current matters. The association in Munich ensures coherence and

coordination of the global strategic direction. In addition, a small team at Knorr-Bremse Global Care e.V. sees to the operational needs of the association and to the global coordination of the three organizations. In the context of its work, Knorr-Bremse Global Care relies on entrepreneurial thinking, impact-oriented project planning and courageous action. With these characteristics, Knorr-Bremse Global Care has found its role as a professional partner in the financing of collaborative development projects. Knorr-Bremse Global Care works closely with local partner organizations that are responsible for project management on-site as well as for the efficient and effective realization and documentation of the projects. We work together to establish and pursue effective goals for every project. In some cases, members of the association or employees of the Group act as a mentor to the project and, in addition to their personal support, also offer their professional expertise. These structures allow us to support partner organizations and projects even beyond funding. To make the work even more impactful, Knorr-Bremse Global Care decided in 2020 to intensify strategic collaborations with selected and trusted partners and to rely more heavily on accompanying evaluation studies.

On the one hand, the project partners benefit from the targeted strategic partnerships because this allows them to plan and work over the long term. On the other hand, the projects we fund create a higher degree of identification – among Knorr-Bremse employees as well as in the communities in which the company operates. In this context, Knorr-Bremse Global Care founded Safe-Hub Global gGmbH in July 2021 together with the non-profit organization AMANDLA. The non-profit organization Safe-Hub gGmbH pursues the goal of shaping the safe hub approach – one of the world's most effective youth and community development projects – together and scaling it up for a broader scope. Developed and implemented by AMANDLA in South Africa, safe hubs offer children and adolescents a safe place where they can gain an understanding of education and culture and tap their individual potential in a number of different ways.

Additionally, with long-term commitments, Knorr-Bremse Global Care hopes to make use of improved opportunities for reporting and impact analysis. These are an important basis for sustaining the impact of Knorr-Bremse Global Care activities. Using the accompanying evaluation studies, we can continuously measure the results of our activities, derive new insights and adapt the targeted use of resources accordingly. This gives us an even greater lever for improving the lives of disadvantaged people over the long term with the more efficient use of resources.

Foundation of Safe-Hub Global gGmbH

The campus of a safe hub serves as a retreat for socially disadvantaged children and adolescents. Safe hubs offer the infrastructure for educational, cultural and athletic activities to promote the individual abilities of young people. As a contribution to SDG 4 (Quality Education), Knorr-Bremse Global Care plans to take this safe hub concept to a global scale and, for this reason, founded Safe-Hub Global gGmbH together with the non-profit organization AMANDLA in July 2021.

AMANDLA developed the safe hub concept and piloted the first campuses in South Africa. Their infrastructure generally consists of sports facilities, a café for young people and training, an educational academy, a digital lab, cultural workshops, an activity room, a psychosocial counseling center and offices. The holistic approach is crucial – safe hubs want to reach out to the youth as well as their families and the surrounding community. AMANDLA has been recognized by the UN Office for Sport for Development and Peace as a global best-practice model for youth development, because the safe hubs have been proven to have a positive impact on their communities.

With the new non-profit organization, Knorr-Bremse Global Care will now implement the first safe hub projects in Europe (Berlin-Wedding), Asia (Delhi) and the United States (Philadelphia). The three Global Care organizations will support the respective upscaling of the safe hubs both financially as well as with their expertise. This includes project management tasks as well as the community involvement of employees.



India: Continuous Implementation of the WASH Program

The WASH project near the Knorr-Bremse site in Pune, India, is evidence of how the continuous commitment of Knorr-Bremse Global Care pays off. It contributes to the achievement of SDG 4 (Quality Education) and SDG 6 (Clean Water and Sanitation). Since 2020, Knorr-Bremse Global Care has partnered with the NGO Work for Equality to implement a WASH program at the Sahyadri School in the Indian village of Methalwadi, reaching some 125 children and teachers. New bathrooms were built for the school and the supply of clean drinking water was ensured. In 2021, the first group of students successfully completed the WASH-Aarogya Mitra training program. To celebrate completion, the children performed a street play on the topic of hygiene and organized health rallies for their community, because village elders and families who live near the school should also benefit from the installed sanitary facilities and the increased awareness for hygiene.



More examples of projects and information on the activities of Knorr-Bremse Global Care around the world can be found at global-care.knorr-bremse.com/en/ as well as in the Knorr-Bremse Global Care Annual Report 2021.

Local Care: Commitment at the Locations

Knorr-Bremse Global Care activities are complemented by local social projects at the company's locations – the so-called Local Care Commitment. This ranges from financial support of non-profit organizations to corporate volunteering projects with the personal involvement of employees. In 2021, more than 400 Local Care projects were realized on all continents around the world, focusing on education, health and social cohesion. Over 1,000 employees actively participated in social projects in 2021. Table 6.02 provides an exemplary overview of Local Care activities. [Table → 6.02](#)

Principles and Guidelines

The principles of Knorr-Bremse's social commitment serve as a guideline for Local Care work and create transparency for the implementation of measures. They define targets and benchmarks and determine funding areas and criteria. Additionally, the Local Care donation guidelines describe the uniform principles according to which the donations are given to the locations.

Primary funding areas of the Local Care Commitment are projects in the fields of the environment, health, education and social cohesion. The implementation instruments for Local Care measures include the following:

- Voluntary donations of money and time for charitable causes
- Corporate volunteering work for which the company exempts employees from working time to support non-profit organizations
- The Get Involved initiative that supports the volunteering work of employees at non-profit organizations and projects with financial donations
- Financial donation programs for which Knorr-Bremse increases the donations of its employees; when employees make a donation, the company matches it or increases it several times over

6.02 Selected Local Care Projects by Funding Area (2021)

	 Environment	 Health
Asia/ Australia	<ul style="list-style-type: none"> Provided tree seedlings for reforestation projects (Palwal, India) Waste collection campaign as part of Zero Waste Initiative (Pune, India) Zero Waste Challenge (Faridabad, India) 	<ul style="list-style-type: none"> Helped finance expansion of a hospital and medical dialysis machines (Faridabad, India) Financial support for a foundation for reducing deaths, injuries and near accidents on the rail network (Granville, Australia) Donated ergonomic school furniture for geographically secluded schools to promote children's health (Shanghai, China)
Europe/ Africa	<ul style="list-style-type: none"> Financial support for a foundation for the preservation of a surrounding forest (Stráž nad Nisou, Czech Republic) Bee colonies settled on company grounds and cared for by Knorr-Bremse employees (Munich, Germany) Renovated nature trail with the help of employees (Budapest, Hungary) 	<ul style="list-style-type: none"> Financial support for organizations for combating cancer (Aldersbach, Germany; Arcore, Italy; Bristol, England; Modřice, Czech Republic; Stráž nad Nisou, Czech Republic; Kraków, Poland) Financial support for emergency outpatient clinic (Budapest, Hungary) Financial support for organizations for autistic children (Buccinasco, Italy; Kraków, Poland; Tinquex, France)
Americas	<ul style="list-style-type: none"> Donated recycling bins to an elementary school (Westminster, USA) Financial support for local environmental initiatives (Elyria, USA; Huntington, USA) Waste collection campaigns (Elyria, USA; Hanover, USA; Westminster, USA) 	<ul style="list-style-type: none"> Financial support for various health organizations (Acuña, Mexico; Huntington, USA; Watertown, USA; Westminster, USA) Financial support for the expansion of a community center with a focus on health (Watertown, USA) Blood drives (Bowling Green, USA; Elyria, USA)
	 Education	 Social Cohesion
Asia/ Australia	<ul style="list-style-type: none"> Tuition fees for students from low-income families (Faridabad, India) Financial support for an organization that offers mentoring and tutoring programs for socially disadvantaged girls from the indigenous population (Welshpool, Australia) Child safety and self-help training at an elementary school by Knorr-Bremse employees (Suzhou, China) 	<ul style="list-style-type: none"> Financial support for an organization that advocates for children at risk of poverty (Sakado, Japan) Food donations to families affected by floods (Pune, India) Financial support for a food bank for needy people (Hong Kong, China)
Europe/ Africa	<ul style="list-style-type: none"> Financial support and handicraft tasks for a children's circus with a focus on education (Berlin, Germany) Financed scholarships at the local university in the field of robot vehicle development and tool sourcing (Kecskemét, Hungary) Financed rail technology courses for students in engineering (Melksham, England) 	<ul style="list-style-type: none"> Financial support for an organization that advocates for unaccompanied underage refugees (Mödling, Austria) Financed meals for children at an orphanage (Kempton Park, South Africa) Financial support for traffic safety programs with a focus on electro-mobility (Kecskemét, Hungary)
Americas	<ul style="list-style-type: none"> Financed scholarships for students from low-income families (Watertown, USA) Financial support for a technical vocational school (Acuña, Mexico) Special purchases for local schools as well as financial aid for needy students (Quebec, Canada) 	<ul style="list-style-type: none"> Financial support for food banks for needy people (Quebec, Canada; Watertown, USA; Westminster, USA; Elyria, USA) Handmade fleece blankets for hospitalized children made by Knorr-Bremse employees (Elyria, USA) Food donations by Knorr-Bremse employees to needy families (Itupeva, Brazil)

Structures and Processes

Many Knorr-Bremse locations have appointed a Local Care officer who is responsible for the activities. They document the respective local social commitment activities – including time and money spent – and report to headquarters towards the end of each fiscal year, because each location is responsible for its own respective annual charitable budget. The Local Care officer is responsible for planning the selection, financing and monitoring of their Local Care projects in accordance with the general budgeting process. We hope to achieve efficient, sustainable and successful project management through this localized structure.

Local Care – Commitment at Locations around the World

Around the world, Knorr-Bremse locations are committed to helping, both with financial support as well as volunteering work. The focus of the Local Care projects was on nature conservation activities, raising awareness for health-related topics, funding educational initiatives and social cohesion.

Get Involved Initiative

We want to use various global and local communication measures to motivate employees to take part in Local Care projects. To raise awareness for our Get Involved initiative, we launched a social media campaign featuring best practices during the year under review. For years, Sabina Belisarii from the location in Mödling, Austria, has been doing volunteer work for the “Chance für das Kind” association in Eschenau, where homeless children can spend their weekends and school breaks and enjoy the animals and exciting activities on the farm. Sabina Belisarii is not only responsible for various projects – she also spends a lot of time with the children, in particular while cooking with them. For this project close to her heart, our Knorr-Bremse colleague applies for financial support from Knorr-Bremse Local Care, which has been making annual donations to one of the association’s projects since 2018.



Munich Location Hosts Three Bee Colonies

What can we do about insects dying off and the corresponding decrease in biodiversity? Knorr-Bremse is making a difference as part of its Local Care Commitment and, in spring 2021, three bee colonies were settled on the grounds of the Munich location. Four employees take care of the bees as part of their corporate volunteering work. The bees are thriving in their new surroundings and we have already collected our first honey harvest.

Christmas Donation for JOBLINGE

In 2021, Knorr-Bremse was forced to cancel the Christmas parties for employees to protect against the spread of Covid-19. Instead, the company decided to donate the planned budget of € 75,000 to the JOBLINGE initiative. JOBLINGE strives to combat unemployment among young people and advocates for greater equality of opportunities in finding apprenticeships and jobs. The initiative, which was founded in 2007, aims to promote job opportunities and the integration of socially disadvantaged young people in the job market and in society. Their placement rate is 75%. Among other purposes, JOBLINGE is using the Knorr-Bremse donation for a digital week that is intended to get young people living near the Knorr-Bremse locations in Munich, Berlin, Düsseldorf, Dresden and Schwieberdingen excited for the STEM fields. Additionally, the funds are being used to develop the digital program further and to promote the work of JOBLINGE throughout Germany.

Food Donations in Brazil

The coronavirus pandemic deepened the societal divide in Brazil as well. Many people lost their jobs in addition to loved ones and are therefore less able to buy high-quality food, which in turn leads to malnourishment in many cases. For this reason, Knorr-Bremse Brazil decided to donate 1,100 food packages to seven non-government organizations (NGOs) from the São Paulo region in 2021 as part of its Local Care measures. The aid packages were distributed to needy families.

Environmental Education for Kindergartners in Florence

In collaboration with the municipality of Florence and as part of its Local Care Commitment in 2021, the Italian subsidiary Knorr-Bremse Rail Systems Italia S.r.l. assumed the costs for redesigning the garden of a local kindergarten. The kindergarten is located in a part of the city with particular need for funding and it has not yet been made accessible for people with disabilities. The financial aid is intended to redesign the yard into an outdoor classroom, where the children can discover and develop their abilities as well as explore topics related to the environment. To this end, the yard will feature sensory areas, mazes and educational gardens, for instance an herb garden. The hope is that children will feel that they are a part of nature. In addition to financial support, Knorr-Bremse employees at the Florence location will also maintain the green areas of the kindergarten.

Bendix Employees Build Beds for Kids

Children who grow up in weak socioeconomic conditions often have to sleep without a bed or a pillow – and the United States is no exception. The children spend their nights on couches, blankets or the floor, which has a negative impact on their health, their development and their well-being. This is where the organization Sleep in Heavenly Peace wants to make a difference. In 2021, Bendix Local Care provided support in the form of a financial donation, materials and labor. The group of volunteers dedicated their efforts to building, assembling and then delivering top-quality bunk beds to needy children and families. A total of 82 Bendix employees helped to build 31 beds over 325 volunteering hours.



Notes

Implementation of the Ten Principles of the UN Global Compact

Knorr-Bremse has been a signatory to the UN Global Compact since 2010. Each year, we report on how we implement the ten principles of the Global Compact in our company. The following table provides an overview of the voluntary commitments, guidelines and management systems that help us integrate the principles of the Global Compact into our business processes. The index also provides references to the relevant content regarding the Global Compact and its implementation in 2021.



7.01 UN Global Compact Index

Human rights

Principle	Page	Section	Knorr-Bremse guidelines, regulations and management systems
Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights.	08	Strategy and Management	Code of Conduct
	19	Compliance and Risk Management	Corporate Responsibility Guideline
	23	Due Diligence Processes for Human Rights	Human Rights Policy
Principle 2 Businesses should make sure they are not complicit in human rights abuses.	26	Products and Partners	Health, Safety and Environmental Policy
	34	Sustainability in the Supply Chain	UN Sustainable Development Goals
	40	Employees and Leadership	UN Guiding Principles on Business and Human Rights, NAP
	42	Employment Conditions	Compliance management and organization
	45	People Development	Supplier Code of Conduct
	50	Occupational Health and Safety	Conflict Minerals Policy

Labor standards

Principle	Page	Section	Knorr-Bremse guidelines, regulations and management systems
Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining,	08	Strategy and Management	Code of Conduct
	19	Compliance and Risk Management	Corporate Responsibility Guideline
	23	Due Diligence Processes for Human Rights	Human Rights Policy
Principle 4 and furthermore uphold the elimination of all forms of forced and compulsory labor,	26	Products and Partners	Compliance management and organization
	34	Sustainability in the Supply Chain	Leadership Principles
Principle 5 the effective abolition of child labor,	40	Employee and Leadership	UN Sustainable Development Goals
	42	Employment Conditions	
Principle 6 and the elimination of discrimination in respect of employment and occupation.	48	Diversity and Equal Opportunities	

7.01 UN Global Compact Index

Environmental protection

Principle	Page	Section	Knorr-Bremse guidelines, regulations and management systems
Principle 7 Businesses should support a precautionary approach to environmental challenges,	08	Strategy and Management	Code of Conduct
	26	Products and Partners	Human Rights Policy
	27	Product and System Safety	Supplier Code of Conduct
Principle 8 undertake initiatives to promote greater environmental responsibility and	30	Ecological Product Design	Climate protection strategy with Group-wide targets
	34	Sustainability in the Supply Chain	
	40	Employees and Leadership	UN Sustainable Development Goals
Principle 9 encourage the development and diffusion of environmentally friendly technologies.	50	Occupational Health and Safety	Health, Safety and Environmental Policy
	54	Environment and Climate	Environmental Management System
	55	Environmental Management	Energy Management System
	56	Climate Protection	
	62	Resource Conservation	
	64	Commitment and Society	

Corruption prevention

Principle	Page	Section	Knorr-Bremse guidelines, regulations and management systems
Principle 10 Businesses should work against corruption in all its forms, including extortion and bribery.	08	Strategy and Management	Code of Conduct
	19	Compliance and Risk Management	Human Rights Policy
	23	Due Diligence Processes for Human Rights	Compliance management and organization
	26	Products and Partners	Anti-corruption guideline
	34	Sustainability in the Supply Chain	Supplier Code of Conduct

TCFD Reference Table

Knorr-Bremse follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the amendments to established reporting standards regarding the publication of climate-related risks and opportunities. In the CDP Climate Change Request 2021, Knorr-Bremse reports key indicators, risks and opportunities, as well as strategies for managing climate-related topics. Additionally, a cross-functional working group was established in 2021 to develop measures for the implementation of the TCFD recommendations. The focus in this regard was on identifying relevant risks and opportunities along the value chain and on integrating these topics into risk management. The following table describes the results according to the TCFD recommendations.

Climate-Related Information by Category	Reference to Additional Information
Governance	
Board's Oversight	
<p>Sustainable Development Goal (SDG) 13 of the United Nations is ascribed a high level of priority at Knorr-Bremse and is operationalized by the Knorr-Bremse Climate Strategy 2030, which was approved in 2019 by the Executive Board. The Executive Board monitors implementation of the climate strategy and approves comprehensive investments to this end. Climate-related topics were on the agenda of the Executive Board five times in 2021.</p> <p>The Knorr-Bremse Supervisory Board serves in a monitoring capacity for the sustainability and climate strategy as well as the implementation thereof. In 2021, the work of the Supervisory Board focused on the critical appraisal of the new Knorr-Bremse sustainability strategy, including climate-related aspects. Furthermore, the Supervisory Board regularly dealt with the Knorr-Bremse Risk Report in detail, at least once a year as well as on an ad hoc basis.</p> <p>To further reinforce the idea of sustainability throughout management, a new remuneration system was approved by the Supervisory Board. This system was developed by the Executive Board and, starting in the 2022 fiscal year, will be applied to the management levels 0 – 2 (Executive Board, senior management, regional managing directors, heads of division). The building blocks of the short-term variable remuneration (short-term incentive – STI) comprise the achievement of sustainability goals, including performance indicators from the context of the climate strategy.</p>	<p>“Strategy and Management”, page 08 2021 Annual Report, “Sustainability Strategy and Organization”, page 40 2021 CDP Climate Change response: “Governance” (C1)</p>
Management's Role	
<p>The company's senior management is involved in the system for managing risks and opportunities. An essential component of regular risk reporting is a summary Group risk report. This is discussed and adopted in the Risk Committee. The participants in the Risk Committee are the heads of finance with regional responsibility, the heads of other governance functions and the global quality managers. The Group risk report is then presented to the Knorr-Bremse Group's Executive Board at quarterly intervals and explained and discussed at the relevant Executive Board meeting.</p> <p>The Corporate Responsibility (CR) department is responsible for defining and implementing the climate strategy, as well as for integrating climate-related risk and opportunity management into the existing risk processes. The CR department regularly reports directly to the CEO, who is also the sponsor of the Knorr-Bremse initiatives for SDG 13 and is informed on a monthly basis about climate-related topics.</p> <p>The CR Council is the key body that discusses and defines the sustainability and climate strategy at Knorr-Bremse. The CR Council is made up of the CFO, one representative of each of the European management boards in the Rail Vehicle Systems (RVS) and Commercial Vehicle Systems (CVS) divisions, the Chair of Knorr-Bremse Global Care e.V. and the head of the CR department.</p> <p>In autumn 2021, a cross-functional working group was established to implement the TCFD recommendations. The working group is made up of representatives from the Strategy, Risk Management, Procurement, Production and CR departments, as well as representatives of the America and Asia-Pacific regions. In particular, the working group dealt with a TCFD gap analysis and a qualitative scenario analysis.</p>	<p>“Strategy and Management”, page 08 2021 Annual Report, “Sustainability Strategy and Organization”, page 40 2021 CDP Climate Change response: “Governance” (C1)</p>

Climate-Related Information by Category

Reference to Additional Information

Strategy

Risks and Opportunities Identified over Different Time Horizons and Potential Business Impact

In its planning, Knorr-Bremse defines short-term (0 – 1 years), medium-term (1 – 3 years) and long-term (3 – 5 years) timelines. Additionally, in autumn 2021, Knorr-Bremse carried out a comprehensive qualitative scenario analysis for the years 2030 and 2050. The findings of the analysis supplement the regular risk management approach.

The analysis focused on climate-related risks and opportunities along the value chain, both upstream and downstream, on the basis of the two following scenarios:

The net-zero-emissions (NZE) scenario for 2050 of the International Energy Agency (IEA) was primarily chosen to represent the transition risks resulting from a 1.5°C global warming scenario. The RCP 6.0 scenario of the Intergovernmental Panel on Climate Change (IPCC) was primarily chosen to represent the physical risks resulting from a 2.7°C global warming scenario. Knorr-Bremse's selection of scenarios is therefore in accordance with the current and expected external requirements of the TCFD and the Corporate Sustainability Reporting Directive (CSRD). Additionally, the transition risk scenario is in accordance with Knorr-Bremse's ambition to contribute to the limitation of global warming to 1.5°C through its own climate strategy. As part of the analysis, a distinction is made between the RVS and CVS divisions. The analysis focuses on material business activities in the supply chain, in the company's own operations and in the customer markets in order to identify risks and opportunities that arise from the scenarios and that have the potential to have a significant financial effect for Knorr-Bremse.

The following tables summarize the relevant types of identified risks and opportunities as well as their financial effects for Knorr-Bremse:

1.5°C (Transition) Scenario

Relevant types of climate-related risks and opportunities for the RVS and CVS divisions of Knorr-Bremse	Potential financial impacts for the RVS and CVS divisions of Knorr-Bremse
<p>Risks</p> <p>Supply chain: Policy, technology and market risks (RVS and CVS divisions)</p> <p>Prices for energy-intensive materials such as steel and aluminum are expected to increase by 2030 due to carbon pricing and due to higher costs for the low-carbon production of technologies (e.g., "green steel" production using electric arc furnaces/direct reduction with hydrogen). Over the long term, the significance of this development will decrease by 2050 due to technological advances in material production. The procurement of critical resources – especially with regard to decarbonization of the global economy (e.g., copper in electric devices) – can lead to supply shortages and influence market prices.</p>	<p>Policy, technological and market risks could potentially have a negative effect on the EBITDA margin through increased procurement costs.</p>
<p>Operations: Policy, technology and market risks (RVS and CVS divisions)</p> <p>The drastically increasing carbon prices for fossil fuels and the transition to low-carbon logistics are expected to lead to increased expenses for the procurement of energy and logistics services. This effect is already noticeable in 2030 and will continue to increase through 2050.</p>	<p>Policy, technological and market risks could potentially have a negative effect on the EBITDA margin through increased operational costs.</p>
<p>Customer markets: Market risks (CVS division)</p> <p>In a 1.5°C scenario, measures to decarbonize the economy dampen growth forecasts for the truck business of customers compared to a scenario of "business as usual." These measures include avoiding transports and a shift toward low-carbon modes of transportation. In consideration of 2050 in particular, this risk will more heavily materialize compared to a moderate risk in 2030.</p>	<p>Market risks for the CVS division could have a negative effect on revenue.</p>

"Environment and Climate", page 54
2021 Annual Report, "Climate protection", page 43

2021 CDP Climate Change response:
"Risk and Opportunities" (C2),
"Business Strategy" (C3).

Opportunities

<p>Customer markets: Market opportunities (RVS division)</p> <p>Independent of the scenario, growth in GDP as well as population presents an opportunity for higher demand. However, in a 1.5°C scenario, the measures to decarbonize the economy – such as the avoidance of transports and modal shift – lead to stronger growth in the rail market compared to a scenario of “business as usual.” These market opportunities are already at a high level in 2030 and will remain high through 2050.</p>	<p>New market opportunities could increase revenue for the RVS division.</p>
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2.7°C (Physical) Scenario

Relevant types of climate-related risks and opportunities for the RVS and CVS divisions of Knorr-Bremse	Potential financial effects for the RVS and CVS divisions of Knorr-Bremse
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Risks

In general, the physical risks become more severe over time in a 2.7°C scenario, meaning that physical risks are exacerbated by 2050 compared to 2030. However, the severity and frequency may vary locally.

<p>Supply chain: Acute risks (RVS and CVS division)</p> <p>Acute physical risks arising from extreme weather events such as flooding, tropical cyclones and droughts are the most relevant for Knorr-Bremse. The increased probability of droughts puts the production of key raw materials especially in Germany and the United States at risk. The increased probability of flooding and tropical cyclones (India, China, Japan and the United States) poses a threat of business interruption if key local suppliers are affected.</p>	<p>Acute physical risks affecting local suppliers can have a negative effect on the EBITDA margin due to increased procurement costs.</p>
<p>Operations: Acute risks (RVS and CVS division)</p> <p>The material physical risks within the context of Knorr-Bremse production sites are flooding (China, India, Japan and Germany) and tropical cyclones (China, United States and Mexico), which could lead to damage to assets and interruptions in operations, for example through production downtimes and power outages.</p>	<p>Acute physical risks could lead to damage to production sites, which, in turn, could lead to production downtimes. Increased operating expenses and capital expenditure have an impact on the EBITDA margin and could cause losses in revenue.</p>
<p>Customer markets: Acute risks (RVS and CVS division)</p> <p>Flooding and tropical cyclones could cause significant damage to the rail network, which, in turn, could lead to operational downtimes and the endangerment of demand for the products of the RVS division. The CVS division is also impacted by acute risks such as flooding and tropical cyclones, but to a lesser extent.</p>	<p>Because the rail infrastructure is particularly vulnerable to extreme weather events, the revenue of the RVS division could be negatively impacted.</p>

Opportunities

<p>Sales markets: Acute risks (CVS division)</p> <p>Droughts could represent a climate-related opportunity for the CVS division, because domestic ship transport would be replaced by truck transport in case of disruptions.</p>	<p>By replacing inland waterways experiencing temporary droughts, the revenue of the CVS division could increase.</p>
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Climate-Related Information by Category

Reference to Additional Information

Resilience

Knorr-Bremse considers its climate strategy to be an essential contribution to limiting transition risks. The strategy was approved in 2019: it pursues the objective of halving Knorr-Bremse’s market-based Scope 1 and Scope 2 emissions by 2030 compared to the reference year 2018. The transformation plan is built upon three levers: energy efficiency, generation of its own renewable energy and purchasing renewable energy.

“Environment and Climate”, page 54
2021 Annual Report, “Climate protection”, page 43
2021 CDP Climate Change response: “Business Strategy” (C3).

Climate-Related Information by Category

Reference to Additional Information

Risk Management

Process for Identifying and Assessing Climate-Related Risks

Knorr-Bremse has defined 14 risk categories within the framework of its risk management. These categories have been mapped to the physical and transition risk types defined pursuant to the TCFD.

For example, in the "legal and regulatory" category, physical risks are allocated to force majeure and regulatory risks are allocated to environmental legislation, while technological risks are allocated to pricing in the "purchasing/procurement" category.

The so-called risk owner at the locations – the person responsible for the process of identifying risks and furthering mitigation measures – and the risk management teams of the divisional units of Knorr-Bremse classify risks as "low," "medium" or "high" according to their expected financial impact. Risks of € 0 – € 10 million are classified as "low," while risks of greater than € 50 million are classified as "high." In this context, all net risks evaluated at greater than € 5 million are classified as substantial and, accordingly, are forwarded to the central risk management department at Knorr-Bremse. Additionally, risks for the Group as a whole are reported directly to the central risk management team by the respective Group departments, including the CR department.

2021 Annual Report, "Report on Risks and Opportunities", page 70

2021 CDP Climate Change response: "Risks and Opportunities" (C2).

Process for Managing Climate-Related Risks

In all, the risk management process comprises six stages, from identification through evaluation, mitigation and aggregation to reporting and monitoring. When climate-related risks and opportunities are assessed, company management determines how to deal with them in consideration of the costs and benefits.

If risks are identified (including climate-related risks), operational measures are implemented to limit the risk to a tolerable level. By aggregating individual risks within the existing risk categories, Knorr-Bremse gains a comprehensive view of the risk situation of the organization as well as each divisional unit and local site. In addition to regular risk reporting, ad hoc risk reporting is part of Knorr-Bremse's risk management. Divisional risk reports are consolidated centrally and reported to the Executive Board on a quarterly basis. Knorr-Bremse ensures diligent risk monitoring by continuously assessing risks as well as external audits of the risk management system by the Risk Committee.

2021 Annual Report, "Report on Risks and Opportunities", page 70

2021 CDP Climate Change response: "Risks and Opportunities" (C2).

Integration into Overall Risk Management

The climate-related risks and opportunities identified from the climate scenarios were included in the Knorr-Bremse Risk Report.

2021 Annual Report, "Report on Risks and Opportunities", page 70

2021 CDP Climate Change response: "Risks and Opportunities" (C2).

Climate-Related Information by Category

Reference to Additional Information

Metrics and Targets

Metrics Used

Knorr-Bremse has published initial estimates of the potential financial effects of climate change as part of its 2021 CDP climate reporting.

CO₂ emissions are the central key figure in managing the decarbonization of Knorr-Bremse. Knorr-Bremse accounts for the emissions in scopes according to the Greenhouse Gas Protocol Standard.

"Environment and Climate", page 54

2021 Annual Report, "Climate Protection", page 43

2021 CDP Climate Change response: "Risk and Opportunities" (C2), "Business Strategy" (C3), "Targets and Performance" (C4), "Emission Methodology" (C5), "Emissions Data" (C6), "Emissions Breakdown" (C7)

Greenhouse Gas Emissions

In 2021, Knorr-Bremse's carbon footprint was as follows:

- Scope 1: 28,000 metric tons of CO₂
- Scope 2: 7,000 metric tons of CO₂ (market-based accounting) and 152,000 metric tons of CO₂ (location-based accounting)
- Scope 3: 2,036,000 metric tons of CO₂e (this includes purchased goods and services, fuel- and energy-related emissions, business trips and employee commuting)

Going forward, Knorr-Bremse plans to expand the extent of Scope 3 carbon accounting to ensure greater coverage of relevant emissions along the value chain.

"Environment and Climate", page 54

2021 Annual Report, "Climate Protection", page 43

2021 CDP Climate Change response: "Risk and Opportunities" (C2), "Business Strategy" (C3), "Targets and Performance" (C4), "Emission Methodology" (C5), "Emissions Data" (C6), "Emissions Breakdown" (C7)

Targets Used

To be in line with the current status of climate science with regard to limiting global warming to no more than 1.5 °C, Knorr-Bremse has set itself the target of reducing the absolute CO₂ emissions of the global locations and the fleet (Scope 1 and Scope 2) by 50% by the year 2030. This means an absolute reduction of CO₂ emissions of 4.2% per year compared to the reference year 2018. By 2021, Knorr-Bremse had achieved a reduction of 73.8%, primarily through the purchase of electricity from renewable energy sources as well as through increased energy efficiency.

"Environment and Climate", page 54

2021 Annual Report, "Climate Protection", page 43

2021 CDP Climate Change response: "Risk and Opportunities" (C2), "Business Strategy" (C3), "Targets and Performance" (C4), "Emission Methodology" (C5), "Emissions Data" (C6), "Emissions Breakdown" (C7)

Carbon Calculation Method

Knorr-Bremse calculates its carbon emissions – Scope 1, Scope 2 and selected categories from Scope 3 – in accordance with the revised edition of the Greenhouse Gas Protocol Accounting and Reporting Standard and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard. The balance sheet limits are applied on the basis of operational monitoring via business units. In the following, we describe the calculation methods for the CO₂ emission figures published by us for the three scopes of the Greenhouse Gas (GHG) Protocol.

Scope 1 and Scope 2 – Direct and Indirect CO₂ Emissions

The carbon balance of Knorr-Bremse accounts for direct CO₂ emissions from the company's own emission sources (Scope 1) and indirect emissions from the generation of purchased energy (Scope 2). As with the underlying energy consumption, we report on emissions in accordance with our HSE reporting guideline. As such, we account for locations with more than 50 employees or locations with an environmental management system, which primarily concerns production and service sites. This results in a coverage rate of around 93% of Knorr-Bremse employees.

Scope 1

For Scope 1, we calculate direct emissions that arise within the company from burning natural gas, oil, coal, petroleum-based fuels and liquefied petroleum gas, or from our own generation of electricity. Additionally, the calculation includes fuel consumption of the company's own vehicles.

Emissions are calculated using the emissions factors of the VDA¹⁾ for 2019.

Scope 2

For Scope 2, we calculate emissions from purchased energy in the form of electricity, district heating, steam and refrigeration and cooling. Since 2021, we have reported both market-based and location-based emissions.

To calculate location-based CO₂ emissions, we use the country-specific emissions factors of the VDA¹⁾ for 2019.

For the market-based balancing approach, we use the specific CO₂ emissions factors of the electricity providers, or we recognize the emissions factor as 0 kg of CO₂/kWh if green electricity certificates have been purchased. If the data for the electricity providers is not available, we use the European Residual Mix of the Association of Issuing Bodies (AIB). The average country-specific emissions factors of the VDA (see "Location-Based Approach") are used if neither the data of the suppliers nor the residual mix is available.

Scope 3 – Indirect CO₂e Emissions

In 2021, we are reporting indirect emissions from upstream company activities for the first time. These are recognized as CO₂ equivalents and are currently limited to the following categories:

Scope 3.1 – Purchase of Products and Services

The emissions from purchased goods and services are calculated using the secondary environmentally extended input/output (EEIO) method. This EEIO method uses expenditure for materials and services to calculate the corresponding CO₂e emissions of the activities ranging from production of raw materials through to tier-one suppliers.

Scope 3.3 – Fuel- and Energy-Related Emissions

This category includes upstream greenhouse gas emissions for energy generation prior to combustion that are not factored in under Scope 1 and Scope 2.

For calculation, we use the emissions factors of the VDA¹⁾ for 2019, as well as the conversion factors for greenhouse gas emissions of the Department for Business, Energy & Industrial Strategy (DBEIS) and the Department for Environment Food & Rural Affairs (DEFRA) of the UK government for 2021.

Scope 3.6 – Business Trips

Calculation of CO₂e emissions from business trips is carried out by our three travel agencies on the basis of flight distances: the travel agency for Europe and parts of the APAC²⁾ region calculates emissions in accordance with the Greenhouse Gas Protocol. The agencies for North and South America and China use emissions factors for short-, medium- and long-haul flights.

Scope 3.7 – Employee Commuting

Emissions arising from the commutes of our employees are calculated using average commute distances from Germany as well as the EMEA²⁾, North and South America and APAC²⁾ regions. The modes of transportation included are cars, public transportation, bicycles and walking. The number of working days and employees are also included in the calculation. The increase in working from home due to measures to prevent the spread of Covid-19 is accounted for at around 12%. The emissions factors for Scope 3.7 are taken from the DBEIS and DEFRA for 2021.

¹⁾ Verband der Automobilindustrie: German Association of the Automotive Industry.

²⁾ EMEA: Europe, Middle East and Africa; APAC: Asia and Pacific regions.

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Imprint

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Key Figures

Selected operational indicators year on year		2021	2020	2019
Financial indicators				
Revenues	in € million	6,706	6,157	6,937
EBITDA	in € million	1,207	1,107	1,329
Earnings per share	€	3.85	3.07	3.65
Equity ratio	%	33.7	26.0	27.8
Operating Cash flow	in € million	975.5	1,036.0	985.8
Capital expenditure	in € million	375.5	341.7	331.8
Revenue with refurbished products relative to total revenue	%	9.9	9.7	9.4
Donations	in € million	4.8	4.5	3.6
Innovation				
R&D costs	in € million	431.4	396.4	396.9
R&D employees		3,980	3,793	3,558
Compliance				
Number of reports filed via whistleblower system		45 ¹⁾	21	35
Employees				
Group		30,544	29,714	28,905
Employee appraisal (Staff Dialogue) coverage	%	78.2 ²⁾	82.1	76.2
Proportion of women in the total workforce	%	20.3 ³⁾	19.9	20.5
Proportion of women in managerial positions	%	14.1 ³⁾	13.2	13.3
Number of workplace accidents per 200,000 contractually agreed hours of work ⁴⁾		0.8 ⁵⁾	0.9	0.9
Number of workplace accidents resulting in lost days per 200,000 contractually agreed hours of work ⁴⁾		0.6 ⁵⁾	0.7	0.7
Certified sites				
Sites with certified quality management system (ISO 9001, ISO/TS 22163 or IATF 16949)		101	96	90
Sites with certified environmental management system (ISO 14001)		70	67	66
Sites with certified energy management system (ISO 50001 or EN 16247)		38	36	35
Sites with certified occupational health and safety management system (ISO 45001)		44	43	39
Environment and climate protection^{4),6)}				
Energy consumption	GWh	431	406	425
Energy efficiency	MWh/€ million	64.3	65.9	61.3
Direct and indirect CO ₂ emissions location-based	Thousand tons CO ₂	180	173	178
of which direct CO ₂ emissions (Scope 1)	Thousand tons CO ₂	28	26	28
of which indirect CO ₂ emissions (Scope 2)	Thousand tons CO ₂	152	147	150
Direct and indirect CO ₂ emissions market-based ⁷⁾	Thousand tons CO ₂	35	53	128
CO ₂ intensity	Tons CO ₂ /€ million	5.2	8.6	18.4
Suppliers				
Sustainability assessment coverage rate for suppliers ⁸⁾	% of purchase volume	61	48	44
Number of supplier audits		18	0 ⁹⁾	24

¹⁾ Increase due to increased awareness of the whistleblower system.

²⁾ The decreased coverage rate compared to 2020 is due to the partially outstanding implementation of the Staff Dialogue at new Group companies.

³⁾ Proportion of workforce included in calculation of the proportion of women in 2021: around 99.6% of total workforce.

⁴⁾ The figure relates to all sites under operational control excluding sites with fewer than 50 employees other than production sites or service workshops. This covers around 93% of Knorr-Bremse's employees. Sites not included in this definition are required to report their workplace accidents in line with the provisions of the corporate policy on compulsory reporting of damage and emergency incidents. This ensures that we are informed promptly of serious incidents by all our sites, so that the appropriate measures can be taken.

⁵⁾ In 2021, a change was made in the method of determining the key figures. For this reason, the figures are no longer directly comparable with the prior-year figures.

⁶⁾ The recording of carbon emissions is aligned with the recognized requirements of the Corporate Accounting and Reporting Standard of the Greenhouse Gas Protocol.

⁷⁾ Scope 2 emissions were significantly reduced in 2020 and 2021 due to the increased purchase of green electricity certificates.

⁸⁾ The figure was expanded to include indirect suppliers. For better comparability of the data, the previous year's figures have been adjusted accordingly.

⁹⁾ Because of protection measures related to the Covid-19 pandemic.

