Our Strategy

「Corporate Strategy」

At BASF, we are passionate about chemistry and our customers. Thanks to our expertise, our innovative and entrepreneurial spirit, and the power of our Verbund integration, our innovations have decisively contributed to changing the world we live in for the better for more than 150 years. To be the world’s leading chemical company for our customers, we will grow profitably and add value to society. This is how we create chemistry for a sustainable future.

Today, the world is changing more rapidly than ever before, driven by demographic change and new digital technologies. Our customers in different industries and regions face diverse social and environmental challenges due to limited natural resources and increasing consumer demands. Chemistry is key to solving many of these challenges. By combining our unique expertise with our customers’ competence, we will jointly develop profitable, innovative and responsible solutions for these global trends.

Our purpose reflects what we do and why we do it: We create chemistry for a sustainable future. We pursue this purpose with our corporate strategy, which was updated in 2018. We want to contribute to a world that provides a viable future with enhanced quality of life for everyone. This is why we offer products and solutions that make the best use of available resources.

Corporate purpose

We create chemistry for a sustainable future

Global trends provide opportunities for growth in the chemical industry

Demographic change:
Share of population aged 60 and over by 2050
+130%

Population growth:
Driven by the emerging markets by 2050
+32%

China the largest market:
Share of global chemical market by 2030
~50%

Digitalization:
Rapid growth in volume of data
50 zettabytes by 2020

Climate change:
Required reduction of greenhouse gas emissions to achieve the 2°C goal
−70% by 2050

Electromobility:
Growing demand for battery materials by 2025
+300%

Sources: U.N., IEA, UBS Foresight, BASF

Our aspiration is to be the world’s leading chemical company. With our updated corporate strategy, which was announced in November 2018, we are targeting profitable growth. We aim to grow organically and thus will strengthen our customer focus. The Asian market plays an important role in our growth strategy. With a share of more than 40%, China is already the largest chemical market and drives the growth of global chemical production. By 2030, China’s share will increase to nearly 50%, and we want to participate in this growth. To drive forward our growth in this dynamic market, we plan to build an integrated Verbund site in Zhanjiang in the southern Chinese province of Guangdong. We also want to expand our existing joint venture with Sinopec in Nanjing.

As part of our aspiration to be the world’s leading chemical company for our customers, we want to strengthen our passion for customers throughout the entire organization. We want to grow profitably and create value for society. To achieve this, we have set ourselves ambitious financial and nonfinancial targets.
New targets from 2019 onward

Business success tomorrow means creating value for the environment, society and business. We have set ourselves new financial and nonfinancial targets so that our customers, investors, employees and other stakeholders can track our progress.

We want to grow faster than the market and thus be economically successful and profitable. Furthermore, we want to provide answers to the most pressing challenges of our time. To combat climate change and global warming, we have committed ourselves to growing production volumes without adding further CO₂ emissions until 2030. This means we will decouple greenhouse gas emissions from organic growth. We have also defined targets for a sustainable product portfolio, responsible procurement and engaged employees. Safety for people and the environment, inclusion of diversity and water management will remain a top priority.

The new targets will apply from 2019 onward and will replace our previous goals. In this way, we want to steer our business into a sustainable future and, at the same time, contribute to the implementation of the United Nations’ Sustainable Development Goals (SDGs).

<table>
<thead>
<tr>
<th>Financial targets</th>
<th>Nonfinancial targets</th>
<th>Existing nonfinancial targets</th>
</tr>
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<tbody>
<tr>
<td>Grow sales volumes faster than global chemical production every year</td>
<td>Grow CO₂-neutrally until 2030</td>
<td>Reduce the worldwide lost-time injury rate per 200,000 working hours to ≤0.1 by 2025</td>
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<tr>
<td>Increase EBITDA before special items by 3% to 5% per year</td>
<td>Achieve €22 billion in Accelerator sales by 2025</td>
<td>Reduce worldwide process safety incidents per 200,000 working hours to ≤0.1 by 2025</td>
</tr>
<tr>
<td>Achieve a return on capital employed (ROCE)1 considerably above the cost of capital percentage every year</td>
<td>Cover 90% of our relevant spend2 with sustainability evaluations by 2025, and have 80% of our suppliers improve their sustainability performance upon re-evaluation</td>
<td>Introduce sustainable water management at all production sites in water stress areas and at all Verbund sites by 2030</td>
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<tr>
<td>Increase the dividend per share every year based on a strong free cash flow</td>
<td>More than 80% of our employees feel that at BASF, they can thrive and perform at their best</td>
<td>Increase the proportion of women in leadership positions with disciplinary responsibility to 22–24% by 2021</td>
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</table>

1 Return on capital employed (ROCE) is a measure of the profitability of our operations. We calculate this indicator as the EBIT generated by the segments as a percentage of the average cost of capital basis.
2 Accelerator products are products that make a substantial sustainability contribution in the value chain.
3 We understand relevant spend as procurement volumes with suppliers defined as relevant. For more information, see page 90.
Our strategic action areas

To reach our goals and be the leading company in the chemical industry for our customers, we want to strengthen our performance in innovation and in operations as the leading chemical producer and plant operator, leverage digital ways of working across the entire company, and integrate sustainability more deeply into our business decisions. We want to strengthen our passion for our customers in all employees. We aim to strengthen our portfolio and further develop our organization to better meet customer needs using the power of our Verbund integration. We have defined six strategic action areas through which we will sharpen our customer focus.1

Innovation
Our ambition is to be the most attractive partner for our customers whenever they are confronted with challenges that can be approached with chemistry. Our research and development competences are unique in the chemical industry. We aim to build on and leverage our position as a leading innovator to jointly develop innovations for our customers. We will design our innovation chain to be as seamless as possible so that we can bring products to the market more quickly. This means fostering a higher level of excellence throughout the entire innovation process, starting from the lab all the way to the customer.

For more information on innovation, see page 31 onward

Sustainability
We are successful in the long term when our products, solutions and technologies add value to the environment, society and the economy. We want to be a thought leader in sustainability and increase the relevance of sustainability in our decision-making processes and business models. This secures the long-term success of our company, creates business opportunities and establishes us as a key partner supporting our customers.

For more information on the integration of sustainability, see page 36 onward

Operations
We are committed to running our production safely, efficiently and reliably so that we can deliver products to our customers on spec and on time. We aim to further improve the reliability and availability of our plants, as well as our agility. Above and beyond this, continuous process improvements and effective debottlenecking of our existing asset base are paramount to ensure our competitiveness.

For more information on operations, see page 96 onward

Digitalization
We want to make digitalization an integral part of BASF’s business. This will create additional value for our customers, grow our business and improve efficiency. By promoting comprehensive digital skills among our future leaders and our entire workforce, we will ensure that the necessary resources are available.

For more information on digitalization, see pages 33 and 111

Portfolio
We will sharpen our portfolio and focus our capital allocation more towards growing business areas. We will focus primarily on organic growth through capital expenditures and innovation, but also make targeted acquisitions where this makes strategic sense and creates value. The new segment structure will create a higher transparency regarding the steering of our businesses, the importance of value chains and the role of our Verbund. The physical, technological, market and digital integration of the Verbund continues to be at the core of our portfolio and our unique strength.

For more information on our organization and the Verbund, see page 18 onward

Employees
We aim to clearly position each business against its relevant competitors and establish a high-performance organization to enable us to be successful in an increasingly competitive market environment. We will adapt our business models and organizational structures so that each business unit can optimally serve its market segment. Our people are what will make the implementation of our updated strategy successful. We rely on the engagement of our employees and give them the tools and skills necessary to be able to offer our customers differentiated and customized products and services.

For more information on employees, see page 110 onward

1 We defined six strategic action areas in our updated corporate strategy, which was announced in November 2018. They build on the four strategic principles of the “We create chemistry” strategy – we add value as one company; we innovate to make our customers more successful; we drive sustainable solutions; we form the best team – according to global trends and challenges as well as their implications for BASF.
How we act is critical for the successful implementation of our strategy: This is what our values represent. They guide our actions and define how we want to work together – as a team, with our customers and our partners. Our updated strategy affirms our four core values – creative, open, responsible, entrepreneurial – and adjusts the descriptions slightly.

Creative: We make great products and solutions for our customers. This is why we embrace bold ideas and give them space to grow. We act with optimism and inspire one another.

Open: We value diversity, in people, opinions and experience. This is why we foster feedback based on honesty, respect and mutual trust. We learn from our setbacks.

Responsible: We value the health and safety of people above all else. We make sustainability part of every decision. We are committed to strict compliance and environmental standards.

Entrepreneurial: We focus on our customers, as individuals and as a company. We seize opportunities and think ahead. We take ownership and embrace personal accountability.

Global standards

- We act according to our values and internationally recognized standards of conduct and review our performance with audits

Our standards fulfill or exceed existing laws and regulations and take internationally recognized principles into account. We respect and promote:
- The 10 principles of the U.N. Global Compact
- The Universal Declaration of Human Rights and the two U.N. Human Rights Covenants
- The core labor standards of the ILO and the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy (ILO Declaration)
- The OECD Guidelines for Multinational Enterprises
- The Responsible Care® Global Charter
- The German Corporate Governance Code

We stipulate rules for our employees with standards that apply throughout the Group. We set ourselves ambitious goals with voluntary commitments and monitor our performance in terms of environmental protection, health and safety using our Responsible Care Management System. In terms of labor and social standards, this takes place using three elements: the Compliance Program (including the compliance hotlines, which can be used for internal and external questions or complaints), close dialog with our stakeholders (such as with employee representatives or international organizations), and the global management process to respect international labor norms.

Our business partners are expected to comply with prevailing laws and regulations and to align their actions with internationally recognized principles. We have established appropriate monitoring systems to ensure this.

The BASF brand

BASF’s success as an integrated global chemical company relies on having a strong brand. Our brand and mission are manifested in our strategy and our corporate purpose – “We create chemistry for a sustainable future” – as well as our values. “Connected” describes the essence of the BASF brand. Connectedness is one of BASF’s great strengths. Our Verbund concept – realized in production, technologies, the market and digitalization – enables innovative solutions for a sustainable future. The claim that “We create chemistry,” as stated in the BASF logo, helps us embed this solution-oriented strategy in the public perception. Our brand creates value by helping communicate its benefits for our stakeholders as well as our values.

Wherever our stakeholders encounter our brand, we want to convince them that BASF stands for connectedness, intelligent solutions, value-adding partnerships, an attractive working environment and sustainability. This contributes to our customers’ confidence and to our company value.

We are constantly developing our brand image. We regularly measure awareness of and trust in our brand, and therefore in our company. A global study conducted by an independent market research institution every two years again showed in 2018 that, in terms of awareness and trust, BASF is above the industry average in numerous countries. Our goal is to continue increasing awareness of BASF in all of our relevant markets.
Value-Based Management

A company can only create value in the long term if it generates earnings that exceed the cost of the capital employed. This is why we encourage and support all employees in thinking and acting entrepreneurially in line with our value-based management concept. From the 2019 business year onward, the return on capital employed (ROCE) will replace EBIT after cost of capital as the most important key performance indicator for steering the BASF Group. ROCE already replaced the return on assets as the metric for variable compensation in 2018.

The BASF Group’s steering concept

We follow a value-oriented steering concept with our financial targets. We previously used income from operations (EBIT) after cost of capital for operational steering as a key target and management indicator for the BASF Group, its operating divisions and business units. This figure combines the company’s economic performance as summarized in EBIT with the costs for the capital made available to us by shareholders and creditors. When EBIT exceeds cost of capital, we earn a premium on our cost of capital and exceed the return expected by our shareholders.

From the 2019 business year onward, EBIT after cost of capital will be replaced by the return on capital employed (ROCE). This is calculated as the EBIT generated by the segments as a percentage of the average cost of capital basis. As stated in our strategic goals, we aim to achieve a ROCE considerably above the cost of capital percentage every year.

The change to ROCE means that the same logic and data will be used for internal management, external communication with the capital markets and variable compensation. This improves the consistency of the indicators used for BASF’s value-based management with variable compensation and pension systems, and our shareholders’ objectives.

Calculating EBIT after cost of capital and ROCE

To calculate EBIT after cost of capital, we take the BASF Group’s EBIT and deduct the EBIT of activities recognized under Other – not allocated to the divisions – and subtract the cost of capital of the BASF Group from the resulting figure. Cost of capital is determined by applying the cost of capital percentage before taxes to the value of the capital at the beginning of each month-end. The cost of capital percentage is then added up over the course of the year.

The cost of capital percentage is determined using the weighted cost of capital from equity and borrowing costs (weighted average cost of capital, WACC). To calculate a pre-tax figure similar to EBIT, it is adjusted using the projected tax rate for the BASF Group for the business year. In addition, the projected net expense of Other is already provided for by an adjustment to the cost of capital percentage. The cost of equity is ascertained using the capital asset pricing model. Borrowing costs are determined based on the financing costs of the BASF Group. As in 2017 and 2018, we anticipate a cost of capital percentage of 10% in 2019.

The cost of capital basis consists of the operating assets of the segments and is calculated using the month-end figures. Operating assets comprise the current and noncurrent asset items of the segments. These include tangible and intangible fixed assets, investments accounted for using the equity method, inventories, trade accounts receivable, other receivables and other assets generated by core business activities and, where appropriate, the assets of disposal groups. The cost of capital basis also includes customer and supplier financing.

ROCE is calculated as the EBIT of the segments as a percentage of the average cost of capital basis at each month-end.

Value-based management throughout the company

An important part of our value management is the target agreement process, which aligns individual employee targets with BASF’s targets. Until the end of the 2018 business year, the most important financial performance indicator in the operating units was EBIT after cost of capital. This will be replaced by ROCE from 2019 onward. By contrast, the functional units’ contribution to value is assessed according to effectiveness and efficiency on the basis of quality and cost targets.

Until the end of the 2018 business year, the most important key performance indicators for measuring economic success as well as for steering the BASF Group and its operating units were EBIT after cost of capital, EBIT and EBIT before special items.

From 2019 onward, we will use ROCE as the most important key performance indicator for steering the BASF Group. EBIT before special items and capex (capital expenditure) are key performance indicators for BASF that have a direct impact on ROCE and as such, support its management.

- EBIT before special items is used to steer profitability at Group and segment level. As in the past, this is calculated by adjusting the EBIT reported in the Consolidated Financial Statements for special items, making it especially suitable for assessing economic development over time. Special items arise from the integration of acquired businesses, restructuring measures, certain impairments, gains or losses resulting from divestitures and sales of shareholdings, and other expenses and income that arise outside of ordinary business activities.

- Capital expenditures (capex) comprises additions to property, plant and equipment excluding additions from acquisitions, IT investments, capitalized exploration, restoration obligations and right-of-use assets arising from leases. It is used to manage capital employed in the BASF Group. Capex is not just relevant to ROCE management, but also supports our long-term goal to increase our dividend each year based on a strong free cash flow.
Furthermore, we will continue to comment on and forecast sales at Group and segment level in our financial reporting as a significant driver for EBIT before special items and thus ROCE.

BASF’s nonfinancial targets are focused more on the long term. As part of the implementation of our strategy, we are investigating the possibility of establishing short-term steering mechanisms for our nonfinancial targets as well.

For more information on the development of these indicators, see Results of Operations from page 46 onward.
Innovation

A growing need for food, energy and clean water for a booming world population, limited resources and protecting the climate – reconciling all these factors is the greatest challenge of our time. Innovations based on chemistry play a key role here, as they contribute decisively to new solutions. Effective and efficient research and development is a prerequisite for innovation as well as an important growth engine for BASF. We develop innovative processes, technologies and products for a sustainable future and drive forward digitalization in research worldwide. This is how we ensure our long-term business success with chemistry-based solutions for our customers in almost all industry sectors.

Innovation has made BASF the leading chemical company worldwide. This has always been the key to BASF’s success, especially in a challenging market environment. Our innovative strength is based on a global team of highly qualified employees with various specializations. We had more than 11,000 employees involved in research and development in 2018. Our team grew by around 1,600 research and development employees at 17 sites around the world in 2018 as a result of the acquisition of a range of businesses and assets from Bayer. The businesses acquired include research and development activities for soybean, cotton, canola and vegetable seeds, which optimally complement our crop protection and biotechnology activities.

Our three global research divisions are run from our key regions – Europe, Asia Pacific and North America: Process Research & Chemical Engineering (Ludwigshafen, Germany), Advanced Materials & Systems Research (Shanghai, China) and Bioscience Research (Research Triangle Park, North Carolina). Together with the development units in our operating divisions, they form the core of our global Know-How Verbund. BASF New Business GmbH and BASF Venture Capital GmbH supplement this network with the task of using new technologies to tap into attractive markets and new business models for BASF.

In 2018, we generated sales of around €9 billion with products launched on the market in the past five years that stemmed from research and development activities. In the long term, we aim to continue significantly increasing sales and earnings with new and improved products.

Global network

- Close cooperation with universities, research institutes and companies
- Academic Research Alliances bundle partnerships by topic and region

Our global network of outstanding universities, research institutes and companies forms an important part of our Know-How Verbund. It gives us direct access to external scientific expertise, talented minds from various disciplines as well as new technologies, and helps us to quickly and efficiently develop marketable innovations.
In 2018, our research pipeline comprised around 3,000 projects.

Expenses for research and development amounted to €2,028 million, above the prior-year level (€1,888 million). The increase was primarily attributable to the acquisition of the seed business from Bayer in August 2018. The operating divisions accounted for 80% of total research and development expenses in 2018. The remaining 20% related to cross-divisional corporate research focusing on long-term topics of strategic importance to the BASF Group. In the coming year, we anticipate significantly higher research and development expenses due to the acquisition of the research-intensive seed business.

We will continue to focus on developing attractive innovations for our customers. Under our updated strategy, research and development will be more closely connected organizationally in the future and thus more focused on customer needs. Our aim is to shorten the time to market and accelerate the company’s organic growth. Creativity, efficiency and collaboration with external partners are among the most important success factors here. In order to bring promising ideas to market as quickly as possible, we regularly assess our research projects using a multistep process and align our focus areas accordingly.

The aim of our innovation approach is to increase our company’s power of innovation and to secure our long-term competitiveness. We aim to achieve this by concentrating our research focus on topics that are strategically relevant for our business, strengthening our existing scientific processes as well as increasingly using new scientific methods and digital tools, as well as optimizing our organizational structures.

Our cross-divisional corporate research will remain closely aligned with the requirements of our operating divisions and allows space to quickly review creative research approaches. We strengthen existing and continually develop new key technologies that are of central significance for our operating divisions, such as polymer technologies, catalyst processes or biotechnological methods.

We are fine-tuning our innovation strategies in all of our business areas to ensure a balanced portfolio of incremental and breakthrough innovation, as well as of process, product and business model innovation. One of the steps taken in 2018 to further promote breakthrough innovation was the establishment of BASF-Inkubator Chemovator GmbH, based in Mannheim, Germany. This actively nurtures promising business ideas with the help of external experts, who act as consultants, coaches, mentors or intermediaries, and quickly bring these to market readiness. We have also identified additional, far-sighted topics that go above and beyond the current focus areas of our divisions. The aim is to use these to exploit new business opportunities within the next few years. Above and beyond this, we are working on overarching projects with a high technological, social or regulatory relevance. For instance, one global research and development program is focusing on the energy-intensive underlying opportunities within the next few years. Above and beyond this, we are working on overarching projects with a high technological, social or regulatory relevance. For instance, one global research and development program is focusing on the energy-intensive underlying production processes for basic chemicals. These basic chemicals account for more than half of the CO₂ emissions produced by the European chemical industry. The program covers topics such as the development of new catalysts for methane pyrolysis and the direct conversion of syngas, as well as research into materials and safety for the electrification of steam cracker heating.

We believe that the businesses acquired from Bayer offer tremendous innovation potential. The research and breeding capabilities of the new seed businesses, for instance, provide the opportunity to further develop and market high-yielding wheat hybrids. In addition, a breeding project improving the oil quality of Brassica juncea (Indian mustard) to canola grade and certain non-selective herbicide and nematicide research projects perfectly complement our existing R&D activities.
We continued to work on harnessing the enormous opportunities of digitalization for research and development in 2018. In the years ahead, we will continue to consistently expand our expertise in fields like scientific modeling and simulation and to develop new digital applications.

Our global research and development presence is vital to our success. We want to continue advancing our research and development activities, particularly in Asia as well as in North America, and are adapting this to growth in regional markets. A stronger presence outside Europe creates new opportunities for developing and expanding customer relationships and scientific collaborations as well as for gaining access to talented employees. This strengthens our Research and Development Verbund and makes BASF an even more attractive partner and employer.

The number and quality of our patents also attest to our power of innovation and long-term competitiveness. We filed around 900 new patents worldwide in 2018. In 2018, we once again ranked among the leading companies in the Patent Asset Index, a method that compares patent portfolios industry-wide.

Research focus areas – examples

- **Increased use of digital technologies**
- **Innovative battery materials for electromobility**
- **Expansion of business activities in 3D printing**

Our focus areas in research are derived from the three major areas in which chemistry-based innovations will play a key role in the future:
- Resources, environment and climate
- Food and nutrition
- Quality of life

Our supercomputer Quriosity in Ludwigshafen, Germany, was started up in the fall of 2017. It is mainly used in product development and enables us to calculate much more complex models with significantly greater variation in parameters. Previously unknown correlations can also be identified and used to advance new research approaches. In 2018, for example, we simulated detergent formulations to determine how existing and potential new BASF products work at a molecular level. Such simulations enable us to better identify and exploit correlations in formulations. Another application is a large database calculated by Quriosity with over 8,000 molecular properties such as solubility or compatibility with metal surfaces. Machine learning can be used to establish the link between these properties and the mode of action of BASF products. This enables us to identify promising molecules for innovative, customer-centric products.

Around the world, experts in the research area Process Research & Chemical Engineering are working on innovative cathode materials for lithium-ion batteries to meet the growing demand for powerful, reliable and low-cost electric vehicles. They aim to create the highest-density cathode materials on the market by making selective changes to the chemical composition, structure and the manufacturing process. The ultimate goal is to double the on-road range of a mid-size vehicle from 300 to 600 kilometers on a single battery charge, halve battery size and reduce charging time to 15 minutes by 2025. In 2018, the focus was on creating pilot-scale customer models as well as research into materials with a nickel content of over 80%, which is needed to reach our range and cost targets.

For more information on research and development, see basf.com/innovations

3D printing

BASF is developing new, innovative materials for 3D printing. In the chemical industry, BASF already has a broad portfolio with materials, system solutions, components and services. Focus areas in new materials development are polyamide-based polymers, thermoplastic polyurethanes and polypropylene, as well as new photopolymers and filaments with custom attributes. At our laboratories – in Heidelberg and Ludwigshafen, Germany; Basel, Switzerland; Shanghai, China; and Wyandotte, Michigan – we refine and enhance products such as our thermoplastic and light-curing plastics, optimize processes and develop customer applications. In 2018, BASF New Business GmbH acquired shares in Advanc3D Materials GmbH, Hamburg, Germany, and in Setup Performance SAS, Lyon, France, to continue the targeted expansion of the business.
Innovations in the segments – examples

Research and development expenses by segment 2018

<table>
<thead>
<tr>
<th>Segment</th>
<th>Percentage</th>
<th>Expenses (€ million)</th>
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<tbody>
<tr>
<td>Corporate research</td>
<td>20%</td>
<td>671</td>
</tr>
<tr>
<td>Other</td>
<td>20%</td>
<td>563</td>
</tr>
<tr>
<td>Performance Products</td>
<td>20%</td>
<td>563</td>
</tr>
<tr>
<td>Functional Materials &amp; Solutions</td>
<td>20%</td>
<td>2,028</td>
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<tr>
<td>Agricultural Solutions</td>
<td>34%</td>
<td>702</td>
</tr>
<tr>
<td>Total</td>
<td>6%</td>
<td>2,028</td>
</tr>
</tbody>
</table>

**Chemicals:** BASF’s ChemCycling project focuses on reusing plastic waste in chemical production rather than disposing of it. Thermochemical processes are used to transform plastic waste into new raw materials, which are then fed into the BASF Verbund instead of fossil resources. In October 2018, the first pyrolysis oil derived from plastic waste by our partners was used in Ludwigshafen, Germany. The new chemical products resulting from this pyrolysis oil have the same quality as products made from fossil feedstock. The Eco-Efficiency Analysis developed by BASF ensures that the innovative approach also creates value for the environment. Many of our customers already aim to increase the proportion of recycled materials in their products. We are currently working with customers to produce the first prototypes for customer products with chemically recycled material. (1) For more information on our ChemCycling project, see Raw Materials on page 52

In 2016, we consolidated marketing activities for our established binders for the woodworking industry – amino resins (such as Kaurit®) and isocyanates (such as Lupranat®). With Kauranat® MS 1001, a modified isocyanate, BASF has now developed a new product that enables the optimal combination of both binder types. When Kauranat® MS 1001 is used in a hybrid binder system together with an amino resin to produce chipboard, for example, the binder system starts to cure in the press at lower temperatures than usual. This increases production speed by up to 20%, saving process energy and significantly increasing total production capacity.

We constantly renew our specialty chemicals portfolio, also for the pharmaceutical industry. Based on its own technology, BASF has developed optically active key components that are used by our customers in advanced active ingredients. Optically active substances comprise mirror-image molecules with different physiological properties and thus different effects. Thanks to our expertise, we can selectively produce either the “left-handed” or “right-handed” forms of these molecules. By isolating these chemical building blocks for our customers, we help them to significantly improve the quality of life of people living with HIV, for example, with innovative medications that reduce the number of HIV viruses in the body and keep this at a low level.

**Performance Products:** Designers in the furniture industry now have access to innovative wood fiberboards based on BASF’s new binder technology, acForm®. Unlike standard wood fiberboards, those novel panels can be 3D-molded and their surfaces can be structured on standard furniture molding equipment. This opens up new, cost-efficient design options for large-scale production. Since acForm® works without formaldehyde, this technology also enables the woodworking industry to set new standards in workplace health and safety.

Euperlan® OP White is a wax-based opacifier that gives personal care products such as shampoos or shower gels a creamy milky-white appearance. It is readily biodegradable and cold processable. These unique properties make Euperlan® OP White particularly suitable for eco-label conforming skin and hair cleansing formulations. As an alternative to conventional opacifiers, the product meets the growing demand for environmentally friendly ingredients.

BASF launched Lucantin® NXT, the next generation of carotenoid formulations, which are nature-identical color pigments used as feed additives. The new formulations provide markedly improved product stability to meet various requirements for feed production, along with excellent bioavailability, enabling the carotenoids to be efficiently absorbed by the animal. Extensive trials have shown that Lucantin® NXT delivers high homogeneity and a long shelf life while maintaining egg yolk and broiler skin coloring efficacy. The new formulations replace the previously used stabilizer ethoxyquin (EQ) with antioxidants such as propyl gallate, butylhydroxytoluene or tocopherol. Lucantin® NXT complies with the latest E.U. regulation, which requires the suspension of EQ as a feed additive.

The water that accumulates in aircraft fuel tanks leads to high costs for airlines, who have to regularly extract this water and address the potential dangers of ice formation and corrosion in wing tanks. The performance additive Kerojet® Aquarius disperses the water contained in jet fuel, removing it during the normal combustion process in the turbine. In this way, BASF’s water scavenger makes a significant contribution to improving safety and maintenance parameters by reducing the frequency of cost-intensive water extraction measures and inhibiting ice formation in wing tanks.

**Functional Materials & Solutions:** O4-115 Quattro is a new sulfuric acid catalyst from BASF with a unique quatro-shaped geometry – a combination of four strands. It was developed digitally using fluid dynamics and strength simulations. The catalyst not only offers excellent mechanical properties, but also provides a 30% greater active surface area than previous catalysts based on its geometry. For sulfuric acid producers, this translates into increased capacity and improved performance in plants with limited catalyst volumes. SO2 off-gas emissions are also reduced, resulting in a significant decrease in SO2 emissions per metric ton of sulfuric acid produced and providing our customers with a comparative advantage in a very competitive market.
MasterTop TC 941 is a non-solvent-based, UV-stable topcoat with low emissions that offers exceptional cleanability and scratch resistance properties for resin floor systems. Targeted for use in retail and light industry spaces, MasterTop TC 941 has excellent aesthetic durability, which reduces cleaning and maintenance bills and leads to a lower cost of ownership for the customer over the life of the floor.

BASF created the Auroom® online platform to visualize automotive paints virtually. The colors available in the database can be mapped onto any 3D surface online, showing the characteristics and effects of the automotive coating in photographic quality. Painted samples are photographed from different angles and under different lighting, and processed using a special mathematical model. Digitalization speeds up the design process for original equipment manufacturers (OEMs), as they no longer have to wait for all samples to be painted and shipped. The effect of the color on the entire car body can be simulated in real time and projected onto manufacturers’ own models.

BASF’s Ultrasim® simulation tool has long been used to determine the direction of fibers in injection-molded plastics components after manufacturing (anisotropic mechanical behavior). The new Ultrasim® thermomechanics module also enables thermal deformation to be detected at an early stage of development of components like these. It takes into account the complex thermomechanical material behavior, the impact of the anisotropic fiber orientation as well as temperature distribution and temperature changes in the component. The tool can be used to simulate the typical temperature load from minus 40°C to 150°C for various applications. This saves our customers time and money in the development process as they are able to identify and avoid component faults at an early stage before going into serial production. This is crucial for electrical and electronic equipment used in the automotive industry.

Agricultural Solutions: We are working with farmers around the globe to improve the quality and yield of their agricultural production while taking societal expectations and requirements into consideration. To achieve this, we invest continually in developing our pipeline in order to expand our portfolio in conventional crop protection, seeds, traits and beyond – such as in biological solutions. In 2018, we invested €679 million in research and development in the Agricultural Solutions division, representing around 11% of sales for the segment.

Our well-stocked innovation pipeline comprises products with a launch date between 2018 and 2028. With a peak sales potential of more than €6 billion, the pipeline includes innovations from all business areas. This positive development is the result of continual investment and early consideration of sustainability criteria as part of our research and development strategy. The first market launches of Revyso®, our new fungicide, are scheduled for the 2019 growing season following registration with the relevant authorities. Luximo® and Trexor®, our new herbicides to manage a broad range of difficult-to-control grasses and broadleaf weeds, are expected to enter the market from 2020 onward. We launched the new insecticide Inscalis® in 2018. Another new insecticide, Broflanilide, to help farmers protect specialty and field crops from insects such as potato beetles and caterpillars, is planned to be on the market from 2020. In 2018, the Functional Crop Care business launched Velondis®, for example, a biological fungicide for seed treatment.

For seeds and traits, the acquired businesses open up new opportunities that contribute to our innovation pipeline. The market launch of the herbicide-tolerant soybean seed with the LibertyLink® GT27™ trait platform2 is planned for 2020. This new soybean technology will be available to growers under the Credenz® brand as well as licensee’s brands, and will allow farmers to apply Liberty® herbicide and two other herbicide active ingredients. Registration for one of these active ingredients is expected for the 2020 growing season. New cotton technology with herbicide tolerance will also be launched under our Fibermax® and Stoneville® brands with a new mode of action. We want to expand the acquired InVigor® canola seed business with yellow seed canola, which can be grown under more challenging conditions such as and environments. Our vegetable seeds business, mainly marketed under the Nunhems® brand, develops vegetable and hybrid varieties adapted to different growing conditions and that meet the needs of consumers and the global food value chain for novel vegetable varieties.

Digital innovation will also contribute to the profitable growth of the Agricultural Solutions segment. The digital farming activities and associated pipeline developments under the varvio® brand complement our existing portfolio with additional products and functionalities as well as access to the latest technologies. This additional expertise to optimize yields, including scientific data, predictive modeling for seasonal planning and needs-based recommendations on the application of crop inputs, will accelerate our digital plans and improve our overall digital offer. This enables us to offer our customers even better agronomic support and assistance in optimizing the cultivation of their crops.
Integration of Sustainability

Business success tomorrow means creating value for the environment, society and business. This is why sustainability has been reinforced as a cornerstone of our updated corporate strategy. Using the various tools of our sustainability management, we carry out our company purpose: “We create chemistry for a sustainable future.” We systematically incorporate sustainability into our business. We understand future sustainability trends and derive appropriate measures for our business to seize business opportunities and minimize risks along the value chain.

Strategy

- Ensuring business success tomorrow by creating value for the environment, society and business
- Taking advantage of business opportunities and minimizing risks

We achieve long-term business success by creating value for the economy, the environment and society. Sustainability is at the core of what we do, a driver for growth as well as an element of our risk management. That is why sustainability is firmly anchored into the organization, governance and our business models. We support our customers in being more sustainable and create new business opportunities that grow our customer relationships. Conducting our business in a responsible, safe, efficient and respectful way promotes societal acceptance of our business activities.

Our products, solutions and technologies contribute to achieving the United Nations’ Sustainable Development Goals (SDGs), for example, on sustainable consumption and production, climate action or fighting hunger. In this way, we want to make a lasting contribution to a viable future.

We have defined sustainability focus areas in our corporate strategy to position ourselves in the market and at the same time, meet the growing challenges along the value chain:

- We source responsibly
- We produce safely for people and the environment
- We produce efficiently
- We value people and treat them with respect
- We drive sustainable products and solutions

Relevant topics resulting from these commitments – such as energy and climate protection, portfolio management, supply chain responsibility, employee engagement, resource efficiency, responsible production and water – form the focal points of our reporting. We integrate these topics into our long-term steering processes to increase societal acceptance and take advantage of business opportunities. Here, we consider three dimensions of materiality: The relevance of sustainability topics to our business, the impacts of our business activities along the value chain on sustainability topics, and how important these topics are to our stakeholders.

We identify relevant topics and trends as well as potential opportunities and risks along our value chain through dialog with stakeholders, supported by continuous, worldwide big data analysis. In 2018, we also co-published a study identifying long-term sustainability trends between now and 2030, based on an analysis of more than 900 studies from academia, think tanks and market analyses.

Business success tomorrow means creating value for the environment and society, not just making a profit. This is why, in addition to our new financial targets, we have also set ourselves new nonfinancial targets on climate protection, a sustainable product portfolio, responsible procurement and engaged employees to steer our business into a sustainable future.

The Corporate Sustainability Board is BASF’s central steering committee for sustainable development. It is composed of the heads of our business, corporate and functional units, and regions. A member of the Board of Executive Directors serves as chair. We have also established an external, independent Stakeholder Advisory Council. Here, international experts from academia and society contribute their perspectives to discussions with BASF’s Board of Executive Directors, helping us expand our strengths and identify potential for improvement.

Our sustainability management helps to minimize risks and opens up new opportunities to market more sustainable products. We reduce potential risks in the areas of environmental protection, safety and security, health protection, product stewardship, compliance, and labor and social standards by setting ourselves globally uniform requirements. These often go beyond local legal requirements. Internal monitoring systems and grievance mechanisms enable us to check compliance with these standards: they include, for example, global surveys, audits and compliance hotlines. All employees, managers and Board members are required to adhere to our global Code of Conduct, which defines a binding framework for our business activities.

We systematically evaluate sustainability criteria as an integral part of our assessment processes when deciding whether to acquire or invest in property, plant and equipment or financial assets. These assess the economic implications and potential impacts on areas such as the environment, human rights or local communities.
Measuring value added by sustainability and harnessing business opportunities

- **Value to Society: Method for assessing economic, environmental and social impact of business activities along the value chain**

We take advantage of business opportunities by offering customers innovative products and solutions that contribute to sustainable development. We ensure that sustainability criteria are automatically integrated into our business units’ development and implementation of strategies, research projects and innovation processes. For example, we analyze sustainability-related market trends in customer industries to systematically seize new business opportunities.

We want to measure the value proposition of our actions along the entire value chain, aware that our business activities are connected to both positive and negative impacts on the environment and society. We strive to increase our positive contribution to society and minimize the negative impacts of our business activities.

To achieve this, we need to even better understand how our actions impact society and the environment. We already have many years of experience from this evaluation of our products and processes using methods such as Eco-Efficiency Analysis, the Sustainable Solution Steering portfolio analysis, or BASF’s corporate carbon footprint. We have completely revised our SEEbalance® method with respect to how social aspects are assessed. In a new, qualitative assessment, we analyze and evaluate relevant social issues along the value chain. Our assessment is guided by standards such as those issued by the World Business Council for Sustainable Development (WBCSD) or the Roundtable for Product Social Metrics. BASF has also developed a method with external experts to perform a monetary assessment of the economic, ecological, and social impacts of its business activities along the value chain – the Value to Society approach. It enables a direct comparison between financial and nonfinancial effects of our business activities on society and illustrates interdependencies.

We also evaluate the usefulness of this method as a basis for strategic assessments and decisions in various projects, for example, by analyzing the impacts of alternative sites, business units, plants or forecasts. The results of these assessments are also helpful in our discussions with stakeholders.

We contribute our approach and expertise to current debates on the monetary value of the economic, environmental and social impact of business decisions. We share our experiences in networks and initiatives such as the Impact Valuation Roundtable or the Embankment Project for Inclusive Capitalism. As part of this project to promote sustainable governance, financial market participants, companies and other stakeholders developed metrics and methods to measure the long-term value created by companies more comprehensively. A reporting framework was published in late 2018. We are also involved in the corresponding standardization processes within the International Organization for Standardization (ISO).

For more information on our sustainability instruments, see basf.com/en/measurement-methods.

**Portfolio management based on sustainability performance**

- **New goal to manage our product portfolio with the Sustainable Solution Steering method from 2019 onward**

A significant steering tool for our product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering method (see box on page 38).

By the end of the 2018 business year, BASF had conducted sustainability assessments and ratings for 96.5% of its entire relevant portfolio. A significant steering tool for our product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering method (see box on page 38).

A significant steering tool for our product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering method (see box on page 38).

Accelerator products make a substantial sustainability contribution in the value chain. This is why we will pursue a new, ambitious goal from 2019 onward: We aim to make sustainability an even greater part of our innovation power and achieve €22 billion in Accelerator sales by 2025.

To achieve this goal, we will deeply integrate Sustainable Solution Steering into the research and development pipeline, in business strategies as well as in merger and acquisition projects.

We also evaluate the usefulness of this method as a basis for strategic assessments and decisions in various projects, for example, by analyzing the impacts of alternative sites, business units, plants or forecasts. The results of these assessments are also helpful in our discussions with stakeholders.

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For more information on this method and the results of Value to Society, see basf.com/en/value-to-society.

For more information on our sustainability instruments, see basf.com/en/sustainable-solution-steering.

For more information on Sustainable Solution Steering, see basf.com/en/sustainable-solution-steering.
Stakeholder dialog

- Continuous dialog with our stakeholders
- Circular economy: chemical recycling of plastic waste

Our stakeholders include customers, employees, suppliers and shareholders, as well as representatives from academia, industry, politics and society. Parts of our business activities, such as the use of new technologies, are often viewed by some stakeholders with a critical eye. In order to increase societal acceptance for our business activities, we address our stakeholders' questions, assess our business activities in terms of sustainability aspects, and communicate transparently. Such dialogs help us to even better understand what society expects of us and which measures we need to pursue in order to establish and maintain trust and build partnerships.

We use a custom model to identify key stakeholders and involve them more effectively. When selecting our stakeholders, we assess factors such as their topic-specific expertise and willingness to engage in constructive dialog, for instance. We draw on the competence of global initiatives and networks, and contribute our own expertise.

That is why we are active in worldwide initiatives with various stakeholder groups. We have been a member of the U.N. Global Compact since 2000. As a recognized LEAD company, we also support the implementation of the Agenda 2030 and its Sustainable Development Goals. We are involved in projects such as the U.N. Global Compact’s Action Platforms on Decent Work in Global Supply Chains (SDG 8) and on Good Health and Well-being (SDG 3), and are a member of the U.N. Global Compact Expert Network. BASF is also active in 14 local Global Compact networks, including – for the first time – the United States and Tanzania since 2018.
Responsibility for human rights

Human rights criteria integrated into existing due diligence processes

BASF acknowledges its responsibility to respect human rights. We have embedded this into our Code of Conduct and our human rights position. In our own business activities, our aim is to prevent human rights abuses. As a participant in numerous global value chains, we are dependent on partners and demand that they likewise respect human rights and the associated standards. We offer to help our partners in their efforts to meet their human rights responsibilities.

Criteria for monitoring and complying with human rights standards are integrated into processes at our Group companies around the world: in supplier evaluation processes, in evaluating investment, acquisition and divestiture projects, in product assessments along the product lifecycle, in training for security personnel at our sites, for example, on response appropriateness, as well as in systems to monitor labor and social standards.

Employees and third parties can report potential violations of laws or company guidelines to our complaint hotlines. 231 human rights-related complaints were received by the hotline as well as by post and e-mail in 2018. All complaints received are reviewed and forwarded to the relevant departments for in-depth investigation. If justified, suitable measures are taken to address the issue.

BASF is part of the Global Business Initiative on Human Rights (GBI). This group of globally operating companies from various sectors aims to ensure implementation of the U.N. Guiding Principles on Business and Human Rights. In 2018, we again consulted with representatives of civil society at an international and national level on an ongoing basis, which provided valuable input for our measures.

BASF has been actively involved in the U.N. Global Compact’s Action Platform on Decent Work in Global Supply Chains since 2018. This cross-industry working group aims to improve working conditions in global supply chains as these relate to labor and human rights. The companies involved have developed a voluntary commitment to more effectively implement the main international standards – the ILO core labor standards, the 10 principles of the U.N. Global Compact and the U.N. Guiding Principles on Business and Human Rights – in their respective supply chains through specific measures such as supplier training, collaboration with partners or greater transparency. BASF was one of the first companies worldwide to adopt this voluntary commitment in late 2018.

For more information on standards in our supply chain, see page 90 onward
For more information on labor and social standards, see page 115 onward
For more information on our production standards, see page 96 onward
For more information on our fundamental principles, see our human rights position at basf.com/humanrights
For more information on compliance, see page 140 onward
For more information on our guidelines for responsible lobbying, see basf.com/guidelines_political_communication
For more information on the Stakeholder Advisory Council, see basf.com/en/stakeholder-advisory-council
For more information on the ChemCycling project, see pages 34 and 92
For more information on stakeholder dialog, see basf.com/en/dialog
Social commitment

BASF as a responsible neighbor

We support the implementation of the United Nations’ Sustainable Development Goals with our social commitment around the world. We promote social, educational, cultural, academic and sports projects as part of our social engagement strategy. We focus on projects that will have a lasting impact on specific target groups and offer learning opportunities for participating cooperation partners and BASF. Projects are developed, and impact-related targets defined together with partners from civil society.

As a responsible neighbor, BASF strives to create a livable community for our sites’ neighbors, employees and their families. In Germany, we support regional focus areas in Ludwigshafen and the Rhine-Neckar metropolitan region such as strengthening participation and integration among disadvantaged groups or promoting research and discovery. Examples include the Gemeinsam Neues schaffen program to foster cooperation between nonprofit organizations, a new approach to promoting cultural events called Tor 4, with which BASF aims to promote discourse on relevant social issues through cultural projects, or a pilot program to integrate people with immigrant or migrant backgrounds.

We also foster social integration, particularly of young low achievers and refugees. Programs in the Rhine-Neckar metropolitan region include Start in den Beruf, Anlauf zur Ausbildung and Start Integration. In 2018, 241 young people in the BASF Training Verbund participated in these programs in cooperation with partner companies. The goal is to prepare participants for a subsequent apprenticeship within one year, and ultimately secure the long-term supply of qualified employees for BASF and in the region as a whole. Since being launched at the end of 2015, BASF’s Start Integration program has supported around 350 refugees with a high probability of being granted the right to remain in Germany, helping to integrate them into the labor market. We spent around €5.6 million on the BASF Training Verbund in 2018.

In North America, BASF supported various charitable organizations to provide relief for the damage caused by hurricanes Michael and Florence in states such as Florida, North Carolina and Virginia in the fall of 2018.

We also aim to create long-term value for BASF and society with new business models and cross-industry partnerships. Our company-wide Starting Ventures program helps people with precarious livelihoods to improve their income-earning opportunities and their quality of life. At the same time, the program provides access to new markets and strengthens our contribution to reaching the U.N. Sustainable Development Goals. One project in Egypt, for example, helps tomato smallholders to increase their tomato crop yields. A digital early warning system developed by BASF sends an alert via SMS or voice message to inform them of any outbreaks of plant diseases.

In the area of international development work, we support the BASF Stiftung, an independent nonprofit organization, through donations to its projects with various U.N. organizations. In 2018, BASF supported a project spearheaded by the U.N. Children’s Fund (UNICEF) to promote inclusive education in Peru with its annual year-end donation campaign to the BASF Stiftung. BASF doubled all donations by employees of participating German and South American Group companies, bringing the total amount benefiting the children in Peru to €567,926.64.

The BASF Group spent a total of €38.4 million supporting projects in 2018; we donated 39% of this amount (2017: €56.0 million, of which 57% were donations).

For more information on social commitment at our sites, see ludwigshafen.basf.de/commitment

For more information on Starting Ventures, see basf.com/en/starting-ventures

BASF Group donations, sponsorship and own projects in 2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Social projects</td>
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<tr>
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<tr>
<td>Education</td>
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<tr>
<td>Other</td>
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</tbody>
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1 Figure relates to all consolidated companies with employees including joint operations, but excluding the vegetable seeds business acquired from Bayer (Bayer Nunhems®)