As a company, our goal is not just to comply with standards, but to set new benchmarks ourselves. When it comes to research and development, our corporate culture and products, we transcend normal boundaries in our thinking and actions: BEYOND.
Dr. Markus Steilemann:
This year’s Annual Report motto points the way forward: “Beyond”. We are optimistic about the future, beyond any short-lived trends, and will continue to push boundaries to provide innovative products and solutions for a more sustainable future. The principle of sustainability is our guiding star when it comes to finding solutions for the major global challenges of our age, while exploiting potential for growth.

Our materials support numerous key industries as they enter an increasingly sustainable and digitally minded world – in fields such as electromobility, energy-saving urban development and more efficient renewable energies. Because the fact is that plastic is indispensable for the future of our planet, and high-tech plastics are among the most sustainable materials we have. With this in mind, business and society must focus on achieving more sustainable patterns of production and consumption. This is why we are pushing ahead with the development of a circular economy and consistently aligning Covestro to this. In 2019, we set up a long-term strategic program to this end. Plastics should be treated as valuable resources at the end of their service lives, which is why we are pressing ahead with the development of innovative recycling processes. In the long term, we also want – as far as possible – to do without fossil resources such as crude oil in favor of other sources of carbon, including plastic waste, plant biomass and carbon dioxide. This will help close the carbon cycle and reduce greenhouse gas emissions.

“Beyond”: Our employees remain our most important asset in meeting this standard. We are confident that the creativity and unwavering resolve of every one of them will help take us that decisive step forward.
What role does the digital CUSTOMER EXPERIENCE play at Covestro?

**Sucheta Govil:** Digital technologies have become an integral part of our everyday life. Thus, our customers expect from us what they know from other areas of their lives – products that are easy to find and attractively displayed or even completely digital shopping experiences. In this respect, we want to be a pioneer in the chemical industry. The first successes are already visible, such as our Covestro Direct Store powered by Asellion, our WeChat channel or the Alibaba1688 flagship store in China. In addition, the more comprehensive use of data with the help of artificial intelligence enables improved control of the supply chain – with immediate and positive effects for our customers.

As one of the leading companies in our industry, we are therefore shaping new sales channels. Our customers should be able to shop on the new platforms around the clock and purchase our products with just a few clicks. Detailed product information, comparisons and samples can be found in the new Covestro Solution Center. And for the tailor-made development of new products, we work with high-performance computing to achieve results faster and more efficiently. This is where the future of our industry is revealed. And we’ll continue to exploit this enormous potential even more intensively in the future – as always, with the highest professional standards.

**Sucheta Govil**
Chief Commercial Officer

Sucheta Govil (born in 1963) joined Covestro’s Board of Management in August 2019. She studied at the University of Delhi and the Indian Institute of Management in Kolkata. As Chief Commercial Officer (CCO), she is in charge of the three divisions Polyurethanes, Polycarbonates and Coatings, Adhesives, Specialties. Govil is also responsible for Central Marketing, for Innovation Management & Commercial Services, and for the Supply Chain Centers in the three major regions EMLA, NAFTA and APAC.
Dr. Thomas Toepfer: We were able to post a solid result in fiscal 2019 and achieve the targets we set ourselves. Given the challenging economic environment, this is a success. As expected, our financial results are below those of the previous year, largely due to lower selling prices. Although we managed to increase our core volumes by 2.0 percent compared with 2018, EBITDA fell by almost 50 percent, while Group sales declined by 15.1 percent to around EUR 12.4 billion.

I am especially pleased that demand for our products continues to be steady: The solid growth in volume shows that we are focusing on the right products and solutions. We are also benefiting from our diversified positioning across various sectors and regions. For instance, high demand in the construction, furniture, and electrical, electronics and household appliance industries made up for weaker orders from the automotive industry. In this context, great credit must be given to our employees, who are constantly adapting to fluctuating market conditions as they work to develop innovative solutions for our customers.

2020 is set to be another challenging year. We therefore have to enhance our efficiency further and concentrate on the right projects. In the fiscal year just ended, we achieved savings of EUR 150 million thanks to the Perspective efficiency program, while making our organization faster and more dynamic.

How successful was the FISCAL YEAR?

Dr. Thomas Toepfer (born in 1972) has been a member of Covestro’s Board of Management since 2018 and the company’s Labor Director since January 2019. Toepfer holds a PhD in Business Administration from Otto Beisheim Graduate School of Management (WHU), Koblenz. As Chief Financial Officer (CFO), he is responsible for Accounting, Controlling and Finance. He also oversees Investor Relations, Information Technology, Portfolio Development, Taxes and Law, and Intellectual Property & Compliance.
Dr. Klaus Schäfer
Chief Technology Officer

Dr. Klaus Schäfer (born in 1962) has been a member of Covestro’s Board of Management since 2015. He studied physics in Cologne and, after completing his doctorate, worked for Erdölchemie and BP before joining the Bayer Group in 2001. As Chief Technology Officer (CTO) at Covestro, he is responsible for production and technology as well as all the company’s chemical production sites.

2019 was a year of RECORD INVESTMENT. Where does your focus lie?

Dr. Klaus Schäfer: Our products enable people to lead sustainable and modern lives. To this end, we have invested continuously in the maintenance and expansion of our production facilities, spending over EUR 200 million more in 2019 than in the previous year. Even though 2019 saw increasing pressure on margins, our sales volumes continued to grow. Thanks to our sustainability-oriented innovations, we have great potential for growth in the medium and long term, and with our investments in new plants we are creating the basis for exploiting the associated opportunities in the future.

In 2019, for instance, we once again achieved significant milestones with the expansion of our global film production, and are pressing ahead with the implementation of our projects in resolute fashion. At the same time, we are still working to ensure that our production is safe, reliable and efficient. Digitalization, in particular, offers a wealth of exciting opportunities in this context. Our global data integration project OSI2020 to boost the interlinking of engineering and production systems has entered its next implementation phase, while in Caojing, not far from Shanghai, we are piloting systems for the predictive maintenance of our plants with the help of artificial intelligence. We are determined to leverage all this potential for the further optimization of our production processes.

Video statements in the online report:
report.covestro.com/short/vo19
At Covestro, our goal is not just to comply with standards, but to set new benchmarks ourselves, as demonstrated by our strategic areas of focus, our innovation and corporate culture, and our practice of thinking and acting beyond the existing boundaries of our industry.
THE CIRCULAR ECONOMY: propelling us into the future

The biggest challenges of our age are climate change and an increasing scarcity of resources, coupled with a growing global population. Solving these problems demands intensive work not just from today’s society, but also from subsequent generations. One thing is certain – doing nothing is simply not an option. “We have to break our habit of using things only once. Instead, we need to strengthen the idea of recycling and orient our actions rigorously to it,” says Rainer Rettig, head of the Circular Economy program at Covestro. “A circular economy is the key to better climate protection and resource conservation, and the plastics industry has an important role to play here.”

CIRCULAR VISION
Covestro wants to be a pioneer and driving force in the transformation process and has set up a long-term strategic program with this in mind. The major goals: to use alternative raw materials, develop new recycling processes and establish new cooperative ventures along the value chain. “The plastics industry must find sustainable material solutions and establish comprehensive disposal and recycling systems to minimize the risk of plastic pollution,” explains Michael Carus, the scientist at the head of Germany’s nova-Institute. Covestro is working full-steam to meet this goal, developing waste recycling systems and using alternative raw materials such as biomass and carbon dioxide. The company has already achieved an innovative breakthrough with its use of carbon dioxide in plastics production and its step-by-step replacement of crude oil.

Video statements on the circular economy: report.covestro.com/short/ce19
Decades of experience, yet an entrepreneurial spirit? Being a DAX company, yet pushing boundaries with curiosity and courage? Founding start-ups, yet offering job security? These things may sound like contradictions in terms, but are not, at least where Covestro is concerned. We thrive on and encourage creativity and innovative capability – throughout the workforce. In the words of Hermann Bach, the man responsible for innovation management at Covestro: “We want to be a company of 17,000 innovators, because innovation is so much more than just conventional research and development. To leverage this potential in our workforce, new approaches are needed. At Covestro, we are courageous enough to identify and implement them.”

**FROM EMPLOYEE TO ENTREPRENEUR**

The aim of the Covestro Start-up Challenge is to help transform bright ideas into products. This internal contest gives employees the chance to pitch their business ideas. “The Start-up Challenge helps establish entrepreneurial thinking and action at the company. It also enables us to test innovative ideas on the market much faster than we otherwise could,” says Bach. The winners are given leave from work for a year to implement their business ideas, and receive seed funding of up to one million euros from Covestro.

Life as an entrepreneur now awaits the team that came up with the idea for a “power separator” in the hope of using new plastic materials to charge e-car batteries more quickly. Thus the team is helping to find answers for challenges such as climate change and is contributing to sustainable mobility.

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**Quiz**

How many contestants took part in the Covestro Start-up Challenge in 2019?

- **A** 250 contestants
- **B** 400 contestants
- **C** 600 contestants

Answer: 600 contestants
Digital chemistry – what exactly is it and what does it involve? It is closely associated with keywords such as artificial intelligence (AI), machine learning and big data. “These technologies are driving the digital transformation in a wide range of sectors. The chemical industry also harbors huge potential that we are a long way from exploiting fully,” explains Nils Janus, Head of Advanced Analytics at Covestro.

»The chemical industry harbors huge potential.«
Nils Janus, Head of Advanced Analytics

Cost-cutting potential of AI in a chemicals company the size of Covestro.

Source: Accenture
RESEARCH AND DEVELOPMENT 4.0

The associated opportunities – ranging from optimized production all the way to customized digital ordering processes – are extremely varied. In research and development too, AI and the like can be decisive factors in the ongoing digitalization of the chemical sector. The wealth of information that can be generated and analyzed using digital technologies can be used to help interpret existing research data and gain new insights for future innovations.

Covestro has already taken a decisive step toward data-based research supported by AI. A new company-wide knowledge platform pools global research data from laboratories the world over at a single (digital) location, boosting the efficiency of research projects thanks to the use of an analysis tool. At the same time, a new high-performance computer generates data from this knowledge platform and helps Covestro’s chemists perform numerous experiments within a very short time frame – first and foremost in a virtual environment. The result is a smarter, faster, but also more sustainable research and development process, capable of satisfying customer requirements even more quickly.

»The technological change we’ve achieved is phenomenal.«
Dr. Klaus Schäfer, Chief Technology Officer

Covestro has migrated its shift operations to the digital Shiftconnector shift book. Watch the entire video online: report.covestro.com/short/sc19
Seamless, simple, **CLOSE AT HAND**

Do you know how often you use the internet every day? The average German spends over three hours daily online. These statistics illustrate clearly how our habits have changed in the course of digitalization. Not only has this affected our private lives, it has also had an impact on companies and the way they interact with their customers. The “Digital@Covestro” program has been designed to make processes, business models and the customer experience fit for the digital age.

“We have to keep pace with the needs of our customers in a digital world,” says Andrea Maier-Richter, head of Central Marketing at Covestro. “This means offering a simple and seamless customer experience – from the initial information on a purchase all the way to subsequent relationship management.” The new Covestro Solution Center is one answer to this. It pools all Covestro’s expertise in polymers in a single location.

“Customers can browse the entire portfolio, compare products and request product samples with just a click of the mouse. It’s a leading-edge method of interacting with customers,” says Karsten Malsch, Program Lead Digital at Covestro. Anyone who wants to make a purchase immediately can do so in the Covestro Direct Store on the Asellion platform. The digital trading platform for chemicals complements existing sales operations and gives customers new options, with proprietary brand shops for sellers and individual customer offerings. Seamless, simple, close at hand. Covestro is equipping its business for the digital future.

Quiz

**What percentage of Covestro’s ship deliveries have customers been able to follow via GPS since 2019?**

A 30%  
B 75%  
C Over 90%
Our materials are designed to transcend the status quo. We are continually developing them, thereby actively helping to shape the future. Our innovations often give the end product a decisive edge, whether in terms of design, properties or more – in the automotive industry, the development of 5G and the cities of the future.
THE INTERIOR:
seamless and fully networked

Trends such as autonomous driving, electromobility and car-sharing will redefine the way vehicles are used. The car will double as a mobile living room and study: Fully networked, it will be seamlessly integrated into day-to-day life. Covestro has joined forces with industrial partners to develop a premium interior concept for future mobility that made its debut at the plastics trade show K 2019. The concept is based on material innovations that fulfill more demanding requirements in terms of functionality, comfort and design, but also efficiency and a lightweight interior.

“Our materials are paving the way for the mobility of tomorrow. We want to help shape the development process and are already a leading player. We are cooperating with partners along the value chain to this end,” says Jochen Hardt, Global Marketing Mobility at Covestro. “And our work has paid off: car manufacturers and our direct customers are extremely interested in the concept.”

FLEXIBILITY AND COMFORT
The focus is on multi-sensor infotainment systems, movable and space-saving seats, smart surfaces and personalized lighting. Thanks to polycarbonate products such as Makrolon® and Makrofol®, three-dimensional multifunctional displays can be integrated seamlessly in the dashboard of the future. Plastics ensure energy-efficient thermal management, while polyurethane foam muffles external noise and creates a personal private space in the privacy dome, which passengers can lower over their heads if required. Use of the composite material Maezio™ makes for particularly narrow, lightweight and robust seats that can be moved at will, without compromising on comfort. And the aqueous INSQIN® coating technology gives their surface the appearance of real leather. The future of mobility depends in no small part on materials – and Covestro has them in its portfolio.

»Our materials are paving the way for the mobility of tomorrow.«
Jochen Hardt, Global Marketing Mobility
Discover the CAR OF THE FUTURE

1 THE DISPLAY: A freely configurable display integrated seamlessly in the dashboard? Polycarbonate gives designers a free hand. No geometry is too complex for this material from Covestro. Visitors to K 2019 had the opportunity to check out the optical quality of the slender and transparent prototype.

2 A PERSONAL PRIVATE SPACE: Sometimes you just crave peace and quiet – even when sharing a ride in a self-driving car. Now you can block out sounds from other passengers and the outside world thanks to a dome made from noise-canceling foam. Loudspeakers and other functions can theoretically also be integrated in the dome, making for an even more personal travel experience.

3 SEATING: The car seat of the future has to be narrow, robust, lightweight and movable in order to create as much space as possible in the vehicle’s interior. Covestro’s thermoplastic composite material Maezio™ combines robustness with flexibility, making it a perfect fit. This also goes for bio- and water-based coatings for seat backs and cushions made of polyurethane, both of which feature in Covestro’s portfolio.

4 THE TABLE: When the car needs to be transformed into an office, a space-saving work area is of the essence. Thermoplastic composites from Covestro’s Maezio™ range offer the perfect solution: they are just as stable as metal, but extremely narrow and lightweight too. A Maezio™ table can bear 60 times as much weight as other materials of the same thickness – more than enough for a laptop, notepad and cup of coffee while en route to work or during meetings.

5 SURFACES AND LIGHTING: No longer do we have to put up with too few lamps providing either inadequate or overly bright illumination inside the car. Thanks to Covestro’s materials, lighting is now easily integrated in the car’s interior – whether in the floor, doors, ceiling or seats. Whether as ambient lighting, a ventilation temperature indicator, a conventional reading lamp or more, Covestro’s plastics cast the interior in an entirely new light.

6 THE FLOOR: One topic that has not been given the attention it deserves is the car floor. In electric vehicles, the floor will be much flatter than before, opening up a wealth of possibilities. Whatever its design, the floor must be robust, easy to clean and resistant to wear and tear in order to withstand the demands posed by increasing car-sharing. Polycarbonate is a perfect match – it even enables LEDs to be integrated in creative lighting solutions.

7 THE OVERHEAD CONSOLE: Ultra-thin and versatile in design, incorporating electronics, lighting and an inclusive touch function: this could be the control panel of the future, mounted where the rear-view mirror currently goes. Polycarbonate is again the material of choice here, supplemented by specialty films boasting a wide range of colors and properties, including scratch resistance.
Materials for the **DIGITAL AGE**

The 5th-generation mobile communications standard is set to bring about radical change. Not only will it be possible to download films in a matter of seconds thanks to data transmission rates of up to 10 gigabits, but 5G’s extremely low latency will also enable real-time communication – between cars and the internet, to name just one example. Regarded as a basis for the breakthrough of the Internet of Things, the standard is also considered a cornerstone of Industry 4.0 as well as of a number of other groundbreaking trends in all spheres of life and economic sectors.

But there are challenges to be overcome: 5G transmits its signals on a particular wavelength and has to operate extremely reliably for applications such as self-driving cars. It follows that many more base stations need to be deployed, with estimates ranging from 500,000 to 800,000 in Germany alone. In Japan, the government recently gave the go-ahead for its 200,000 or so traffic lights to host this 5G network infrastructure. State-of-the-art materials and designs and new collaborations are required if the cityscape is not to be defaced as a result. This is precisely why 2019 saw Covestro, Deutsche Telekom and Sweden’s Umeå Institute of Design (UID) join forces in a pilot project to develop creative designs for 5G base station housings capable of blending seamlessly into their urban surroundings. These might come in the guise of colorful birds perching on a traffic light or street lamp, masquerade as a clock at a bus stop, or be camouflaged in the color of the building on whose facade they are mounted.

**INNOVATIVE MATERIAL SOLUTIONS**

Material solutions from Covestro satisfy the associated requirements to the letter: they are weather-resistant, offer design versatility, allow 5G signals to penetrate and can be recycled or made of recycled polycarbonate. “We’re well prepared for the breakthrough of 5G and have the solutions to cope with the forthcoming growth in demand for base stations and the associated materials,” says Dr. Fabian Grote, Industrial Marketing Manager at Covestro.

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**Quiz**

**Around how many 5G base stations will be required to provide blanket mobile communications coverage in Germany?**

- **A** 250,000 – 500,000
- **B** 500,000 – 800,000
- **C** 1 million – 1.5 million

**Source:** BMU
Waste gas that used to billow in large quantities from giant industrial facilities can be recycled as a raw material in the future. Covestro is collaborating with 14 partners from science and industry to extract carbon from the steel industry’s emissions in the European research project Carbon4PUR. The carbon is then used in the production of insulating materials and coatings. A particularly exciting aspect is that the carbon dioxide and carbon monoxide can be processed directly instead of having to be separated first, which saves a lot of work.

**SIDE BY SIDE**

In the words of Prof. Mark Saeys from consortium partner Ghent University: “We need this type of collaboration between industry and universities and across various sectors and skills in order to achieve research and climate goals more quickly. Carbon4PUR sets an excellent example with great partners.” The idea behind Carbon4PUR is to use the carbon from industrial waste gases as a future source of raw materials for the polymer industry. The first test quantities of polyol precursors have now been successfully manufactured at the CAT Catalytic Center of RWTH Aachen University on the basis of model gases. Covestro has managed to convert these precursors into polyols and to scale the process to the point of being able to test initial rigid foam and coating applications at project partners. The results are now being taken into the next phase. “Using industrial waste gases as a future source of raw materials with a view to expanding the resource base and closing the carbon cycle is an important step in the right direction,” says Dr. Liv Adler, Covestro’s Carbon4PUR coordinator.

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**Quiz**

What percentage of CO$_2$ can Covestro incorporate in specific plastics precursors?

- A 10%
- B 20%
- C 30%

Answer: 20%
PACKING a punch

Ongoing climate change and limited fossil resources are accelerating the breakthrough of new vehicle concepts and alternative drive technologies. Electric vehicles are gaining ground as a future means of transport. According to estimates by consultants Deloitte, some 21 million electric cars will be sold in 2030. This development opens up huge market potential for Covestro and offers many new applications for materials, for instance when it comes to the heart of any e-car: the battery.

Many battery cells have to be packed tightly together to ensure a high storage capacity. Cell holders, hybrid metal-plastic cooling plates, frames, crash absorbers and other battery pack parts made from the right material protect the cells and enable them to work efficiently. The right material includes polycarbonate from Covestro. Lightweight, stable, heat-resistant, mechanically robust, impact-resistant and flame-retardant, it boasts just the right properties for the e-mobility of the future, combining minimum material consumption with maximum performance, while also reducing battery maintenance.

VERSATILE POLYCARBONATES

The use of these materials makes for secure and well-cooled battery packs and renders cars lighter and more efficient. Batteries can also be customized to precise specifications. “The properties of our material are consistent with e-mobility requirements. We’re currently working on processes for the mass production of the necessary complex components to enable us to respond flexibly to market conditions and customer specifications in the future,” says Steven Daelemans, an electromobility expert at Covestro. We are thus working on sustainable product innovations for one of the megatrends of our age, while at the same time strengthening our robust portfolio of products that are more resilient to cyclical fluctuations.”

Quiz

How many e-cars will be on the world’s roads by 2030?

A 25 million  B 125 million  C 250 million

Answer: 125 million

Source: IEA
LED the light shine

Did the inventors of the lightbulb ever imagine that their innovative idea would one day be replaced by a more sustainable version? LED lighting technology offers a much more energy-efficient as well as versatile alternative to the traditional bulb. Vast amounts of energy can be saved in sectors ranging from mobility all the way to the cities of the future – and demand is increasing steadily as a result. Materials from Covestro have an important role to play, as they render LEDs even more efficient and eco-friendly, ensuring perfect light diffusion in lenses and lamp covers, and preventing cooling elements from overheating.

Covestro’s collaboration with the Karelia University of Applied Science and Finnish injection molding company Vesuto Oy demonstrates what is possible in practice. The three have joined forces to develop a cooling element for LED lights that dissipates heat evenly – thanks to polycarbonate.

COOPERATION FOR THE CIRCULAR ECONOMY

The next LED milestone is already in sight: Signify, the world market leader in lighting, has recently started using Covestro’s polycarbonates in its 3D-printed luminaires. “Plastics from Covestro enable us to customize our luminaires extremely quickly,” says Coen Liedenbaum, Venture Manager 3D Printing at Signify. The material is fully recyclable for good measure. These LED efforts illustrate how Covestro is looking beyond the confines of its own industry with partnerships designed to push boundaries in pursuit of a future technology and drive the concept of the circular economy.
Full SOLAR POWER ahead!

In 2019, an international team of students from RWTH Aachen University and FH Aachen University of Applied Science once again showed how it’s possible to drive thousands of kilometers without a drop of fuel – in a new model of their solar-powered Sonnenwagen. Thanks to its ingenious design, the vehicle weighed under 170 kilograms and could travel at up to 145 kph, helped by high-quality and innovative materials from Covestro in its headlamps, steering wheel, engine and coating.

The concept car was developed to compete in Australia’s 2019 Bridgestone World Solar Challenge over a demanding 3,000-kilometer course. “Thanks to the car’s lightweight and functional materials, we were able to finish in an impressive sixth place,” says Markus Eckstein, Sonnenwagen Aachen team chairman.

This project forms part of Covestro’s strategy of developing sustainable and innovative solutions in line with the United Nations Sustainable Development Goals. When it comes to the development of mobility concepts, the focus is on goal 13, Climate Action.

»Lightweight and functional materials were one of the keys to success.«
Markus Eckstein, Sonnenwagen Aachen team chairman

What could the energy consumed by the Sonnenwagen during the race otherwise be used for?

- 3,000 mobile charges
- 2,100 cups of coffee
- 30x Watching „Lord of the Rings“ (Extended Version)
ONLINE ANNUAL REPORT

Covestro's digital Annual Report offers additional functions and the interactive comparison of key figures; all tables can be downloaded as XLS files.

report.covestro.com/annual-report-2019

FINANCIAL CALENDAR

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