

245

80

**Values
that
count**

157

78

Group Figures TÜV Rheinland AG

We are active in over 60 countries worldwide.
In 2018, our more than 20,000 employees
generated revenues of EUR 1.998 billion.

Revenues by business stream, unconsolidated (in € million)

	Industrial Services	Mobility	Products	Academy & Life Care	Digital Transformation & Cybersecurity*	Systems
2018 →	513	532	541	227	122	212
2017 →	503	508	524	226	139	203

Figures, consolidated (according to IFRS, in € million)

Total Revenues	Germany	Abroad
1,998	1,109	889
1,972	1,077	895

Earnings before interest and taxes (EBIT) (in € million)	EBIT margin (in %)	Cash flow from operating activities (in € million)	Net Working Capital (in %)
137.5	6.9	183.0	6.6
130.6	6.6	161.8	7.4

Equity (in € million)	Equity ratio (in %)	Consolidated net income (in € million)
412.2	22.8	85.1
358.9	20.1	78.1

Staff (average over the year, converted to full-time equivalents)

	Germany	Abroad
20,450	8,795	11,655
19,924	8,504	11,420

* formerly ICT & Business Solutions

The Corporate Report 2018 of
TÜV Rheinland AG is structured
into **four parts**:

1

Journal

page **03**

2

CSR Report

page **42**

3

Financial Report

page **80**

4

Service

page **106**

243,329
characters

are contained in this Corporate Report 2018. Precise measurement and evaluation are our standard and, in interaction with our values of Integrity, Excellence, Customer Orientation, Performance and Agility, they pave the way for us to become the best independent provider of inspection and testing services worldwide.

**Every story
in this journal begins
with a number – as a
sign of our commitment
to relying on
measurable standards.
For our customers,
for society. As an
innovation driver and as
a responsible company.**



Vincent Furnari

Ruth Werhahn

Ralf Scheller

Dr.-Ing. Michael Fübi

20,450

employees

work for TÜV Rheinland. All over the world, they strive to improve quality and safety **wherever man, the environment and technology interact.** Their greatest strengths are the tremendous expertise and meaningful insight that they apply to achieve that purpose.

How we drive progress

Our services are indispensable for products to be able to link with the “Internet of Things.” In a worldwide laboratory network, our experts help connect physical things such as tables, subways or industrial robots with the virtual world – in ways that are both functional and safe. That makes us an integral part of an unprecedented transformation that is permanently changing the everyday life of billions of people all over the planet.

Ralf Scheller Member of the Executive Board



What we do for our customers

Adapting to the continuous, technology-driven transformation of markets demands tremendous effort. After all, as a global provider of inspection and testing services – organized in 27 business fields – we serve an extremely wide range of industries. Our guiding principle: We act with performance-minded agility to deliver excellent services to our customers. One example of this is reported on in the journal section: the Cybersecurity Center of Excellence in Malaysia. It takes an entirely new approach to addressing the cybersecurity needs of manufacturing companies, plant operators and utility companies.

Vincent Furnari Member of the Executive Board

How our knowledge creates values

We make meaningful use of our expertise and our knowledge. That is probably one of the most important things that unite and drive the employees of TÜV Rheinland. Every story presented here in the journal clearly testifies to this. In our role as auditors, for example, we show how we monitor compliance with environmental and social standards or promote technical innovations, thereby enhancing both safety and quality of life. The key here is always the know-how and expertise of the people who work for us – their knowledge creates value.

Ruth Werhahn Member of the Executive Board

How we live up to our corporate responsibility

We aim to help shape a sustainable future that meets the needs of man and the environment. That engagement expresses itself in our commitment to the ten principles of the UN Global Compact. They include the obligation to protect, promote and implement fundamental values concerning human rights, humane working conditions, environmental protection and the fight against corruption within our control. Detailed information about our activities is available online in our CSR Report.

Dr.-Ing. Michael Fübi Chief Executive Officer

+ Executive Board in dialog with employees: Pictured in the back row (from left to right): Vincent Furnari, Joachim Roloff, Ruth Werhahn, Azamit Aghesa Haile and Daniel Wingerath. Seated in the front row (from left to right): Jay Prakash Narayan, Ralf Scheller, Ramona Hartwich, Michael Fübi and Cathy Zhou.

147

years

is the length of time that the **mission, values and principles of TÜV Rheinland have successfully endured** – despite, or precisely because of, our increasingly complex world with its ever newer technologies that are transforming entire industries.



Prof. Dr.-Ing. habil. Bruno O. Braun
Chairman of the Supervisory Board

Dear Reader,

In our pursuit of safety and quality wherever man, the environment and technology interact, TÜV Rheinland has always taken responsibility for shaping a sustainable future. To uphold that responsibility in everyday operations, TÜV Rheinland established values and principles for itself and laid them out clearly for everyone in its own mission statement. One of those principles is independent judgment: Because it ensures trust in the testing and inspection results, it represents one of the most important foundations for the success of the company.

The mission, values and principles by which TÜV Rheinland lives every day have successfully endured throughout 147 years of corporate history – despite, or precisely because of, our increasingly complex world with its ever newer technologies that are transforming entire industries.

The business development of TÜV Rheinland AG proved this once again in 2018. In a generally challenging industrial environment, the Group can look back on another pleasing business year. Sales grew by around 1.3%, finishing out the year just short

of the two-billion-euro mark. Earnings (EBIT) increased by 5.3% to 137.5 million euros, which represents a satisfactory level.

Course set for continued growth

We expect to see these values continue to increase sustainably in the coming years. With the conclusion of the reorganization within the Group initiated in 2016, which has placed global responsibility for earnings and customers in the hands of the business streams, additional optimization projects to create excellent overhead structures such as the already partially completed establishment of shared service centers to efficiently process internal service requests, as well as major investments in IT infrastructure improvements, the Executive Board has set the course for continued successful growth. Over the course of the current year, that forward-looking orientation will be completed by the development of the new strategy for TÜV Rheinland for the coming decade. All in all, against that background, TÜV Rheinland AG can look forward to 2019 and the years ahead with confidence.

During the year under review, the Supervisory Board diligently and comprehensively fulfilled the duties incumbent upon it in accordance with the law and the articles of incorporation, regularly monitored the Executive Board with regard to the leadership of the company, and provided it with advisory support relative to strategic development. The Executive Board reported regularly, promptly,

and comprehensively – both verbally and in writing – about the overall position of the company and the current business growth. In 2018, the Supervisory Board convened a total of four meetings. The work performed by the Supervisory Board's committees made a significant contribution to the work of the Supervisory Board.

New shareholder representatives were elected to the Supervisory Board during the 2018 general meeting. Prof. Dr.-Ing. Jürgen Brauckmann, Dr. jur. Hermann H. Hollmann and Dr. jur. Gerd Schäfer left the Board. The Supervisory Board thanks the departing members of the Supervisory Board for the working relationship based on a spirit of trust and cooperation over many years and their service to our company.

Dr. Patrick Adenauer, Uta-Micaela Dürig and Dr. jur. Jürgen Frodermann were newly elected to the Supervisory Board. All other representatives of the shareholders were reelected. For my own part, I was reelected as Chairman of the Supervisory Board. On the side of the employee representatives, Reiner Schon was reelected as Vice Chairman of the Supervisory Board.

As announced in the Corporate Report 2017, effective April 1, 2018, Ruth Werhahn was named as new Member of the Executive Board of TÜV Rheinland AG with responsibility for Personnel and in that function also Director of Labor Relations.

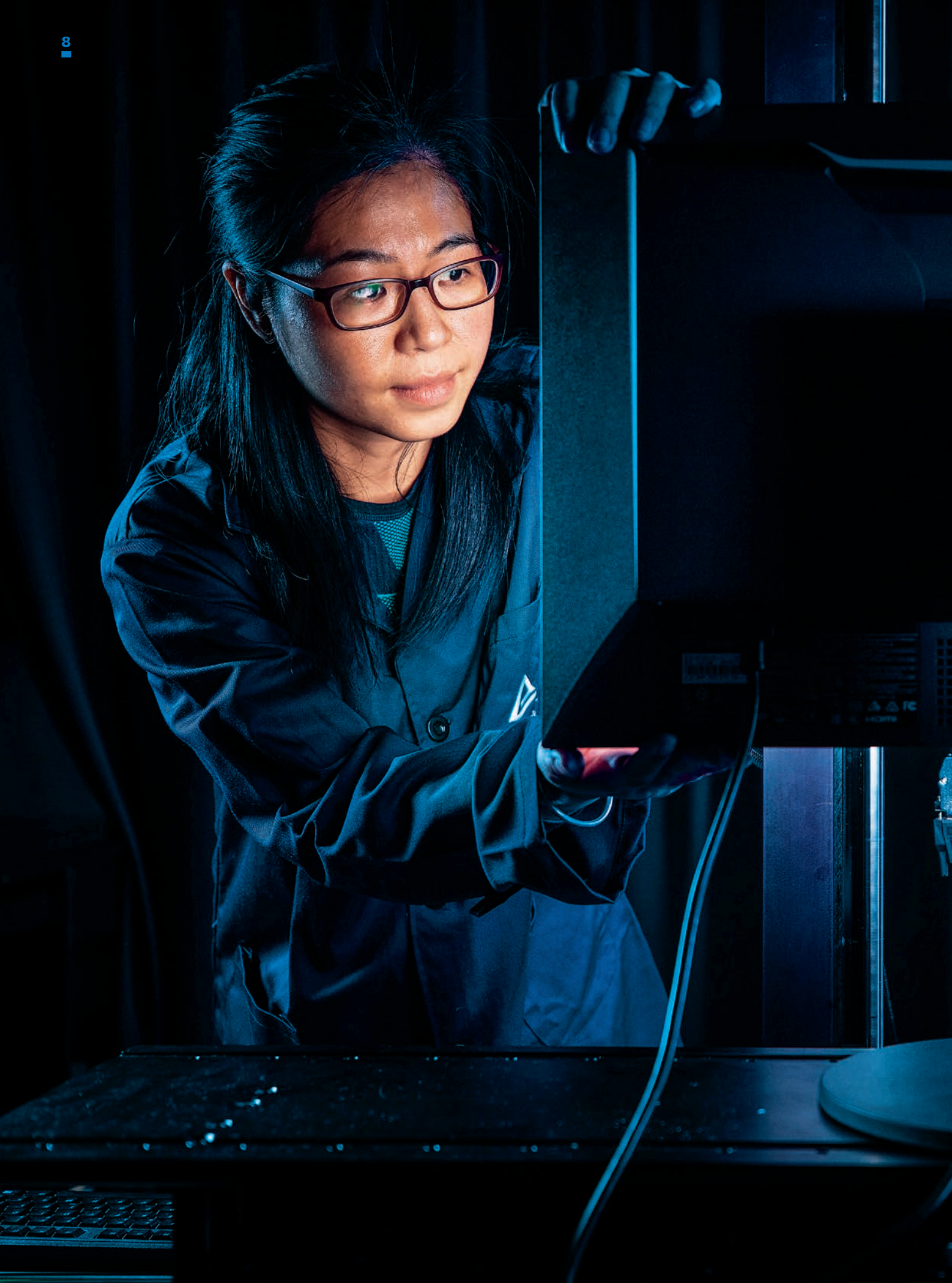
The auditing firm PricewaterhouseCoopers GmbH audited the annual financial statements dated December 31, 2018, including the management

report and accounting, prepared by the Executive Board of TÜV Rheinland AG. The audit of the annual financial statements, the management report, and the proposed appropriation of profits produced no objections. The Supervisory Board has adopted the annual financial statements.

On behalf of the entire Supervisory Board, I would like to thank the Executive Board members, managers and all employees for their successful work. I wish TÜV Rheinland AG and all of the Group's companies continued success in meeting future business challenges for the good of our customers and the company.



Prof. Dr.-Ing. habil. Bruno O. Braun
Chairman of the Supervisory Board
of TÜV Rheinland AG



415 nanometers

is the wavelength that **blue light emitted from LED-backlit display screens** can attain. Research suggests that it may be injurious to health. TÜV Rheinland is lighting the way.

On the screen

Project and testing engineer Iris Du measures the share of blue light emitted by a monitor in a laboratory in Shenzhen that specializes in the optical performance of displays.

LED backlighting is used for many of today's smartphone and computer screens. And excellent though that image quality may well be, the LED displays emit a high share of blue light in the wavelength range between 415 and 460 nanometers. We now know that this energy-rich light interferes with the natural sleep cycle, especially in the evening – the brain interprets blue light as daylight. Moreover, a growing number of studies suggest that blue light has additional negative effects – on the retina, for example. Since 2014, TÜV Rheinland has been helping to formulate blue light standards – for users and manufacturers. Meanwhile, the latter have started responding to consumer concerns by reducing the share of blue light. TÜV Rheinland has already issued over 750 “Low Blue Light” certificates for all types of displays. Developed independently, this standard is continuously updated to reflect the latest findings and developments.

It's all about information

A new certification is addressed to consumers and manufacturers of protective films that claim to filter out the dangerous blue light – a growth market with more and more new products entering the fray. Together with ophthalmologists and opticians, TÜV Rheinland's electrical and electronic product experts developed a retina protection standard that was used in 2018 as the basis to certify three smartphone filters made by ZAGG. “Targeted reduction of the potentially harmful blue light spectrum has the least detrimental impact on display quality,” stresses Iris Du, project and testing engineer in Shenzhen, China. The experts would like to establish a global committee on blue light emissions – in order to create uniform standards and promote transparency worldwide.



million



customized cars are on the road in Germany – and the trend is accelerating. The message from TÜV Rheinland: Do whatever you like – as long as it doesn't throw traffic safety under the bus. To ensure that **car tuning complies with statutory regulations**, specialists in the inspection centers advise car owners about legally permissible customization options. But that's not the only place they can go: Tuning Night is held every summer in Cologne. 2018 marked the tenth anniversary of this cult event. It also helps lower the inhibition threshold at TÜV's doorstep.



80

work stages

is the average number of manufacturing operations that a pair of jeans has undergone by the time it reaches the store shelf. **Social certification audits** ensure compliance with basic labor and environmental standards along the global supply chain.

T

The questions that Thomas Seliga poses are sensitive ones. They concern age, the behavior of supervisors, possible abuse. Along with the questionnaire that he carries with him, empathy and respect are the most important prerequisites he brings to these confidential conversations. With sensitivity and tact, the auditor discerns whether his interlocutor's responses are honest – or just canned statements imposed by the management. “The core of every social audit is its interaction with the employees,” he emphasizes. Thomas Seliga's job at TÜV Rheinland is to audit labor conditions along the production and supply chain. Under contract for factory operators, manufacturers and trading companies, a total of more

than 200 auditors monitor suppliers' compliance with accepted social standards or regulations. And they perform this monitoring all over the world. Because almost every product is manufactured in some sort of network – for many markets, the only way consumer goods are produced. Just for a simple pair of jeans, over two dozen suppliers are involved. For a smartphone, it takes well over a hundred. And for a car, the number easily runs into the thousands.

Prohibition of child labor

There are several accepted standards that TÜV Rheinland applies in its social certification audits. Their common denominator is local law and the basic requirements of the International Labor Organization (ILO) of the United Nations. Its SA8000 standard, for example, stipulates the prohibition of child and forced labor, the right to freedom of association, a maximum of 60 working hours per week, and the



When chemicals from **Chinese textile factories** flow into rivers unfiltered, they threaten the environment and human health. Applying specific standards, auditors monitor the capacity of wastewater treatment plants, but also the water consumption per pair of dyed jeans.



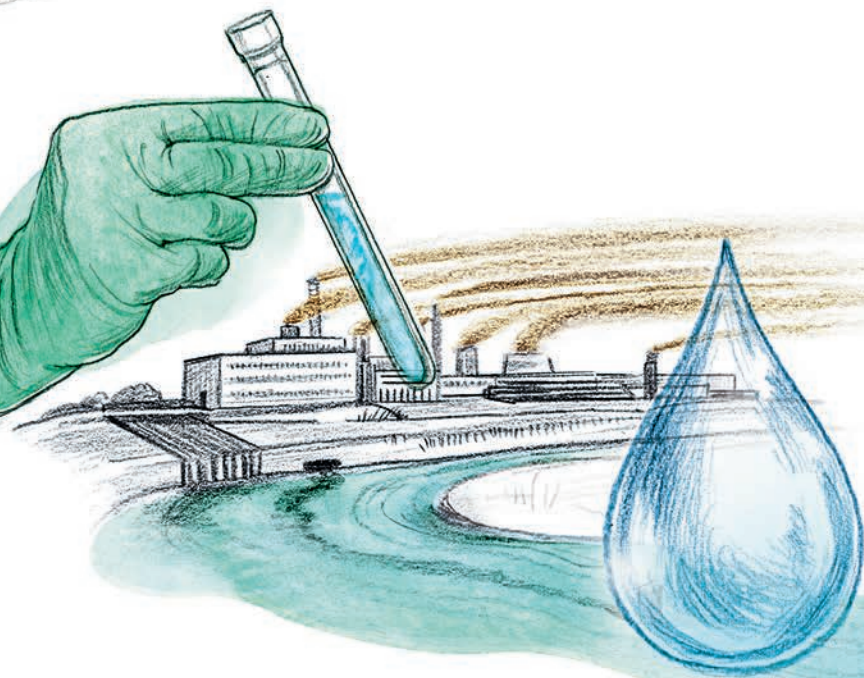
In the motherland of cotton, thousands of young **Indians work in the fields.** In conversations with some of them, auditors ask their age to make sure that minimum age regulations are not violated. Similarly, they ask whether the rules governing night work and days off are respected.

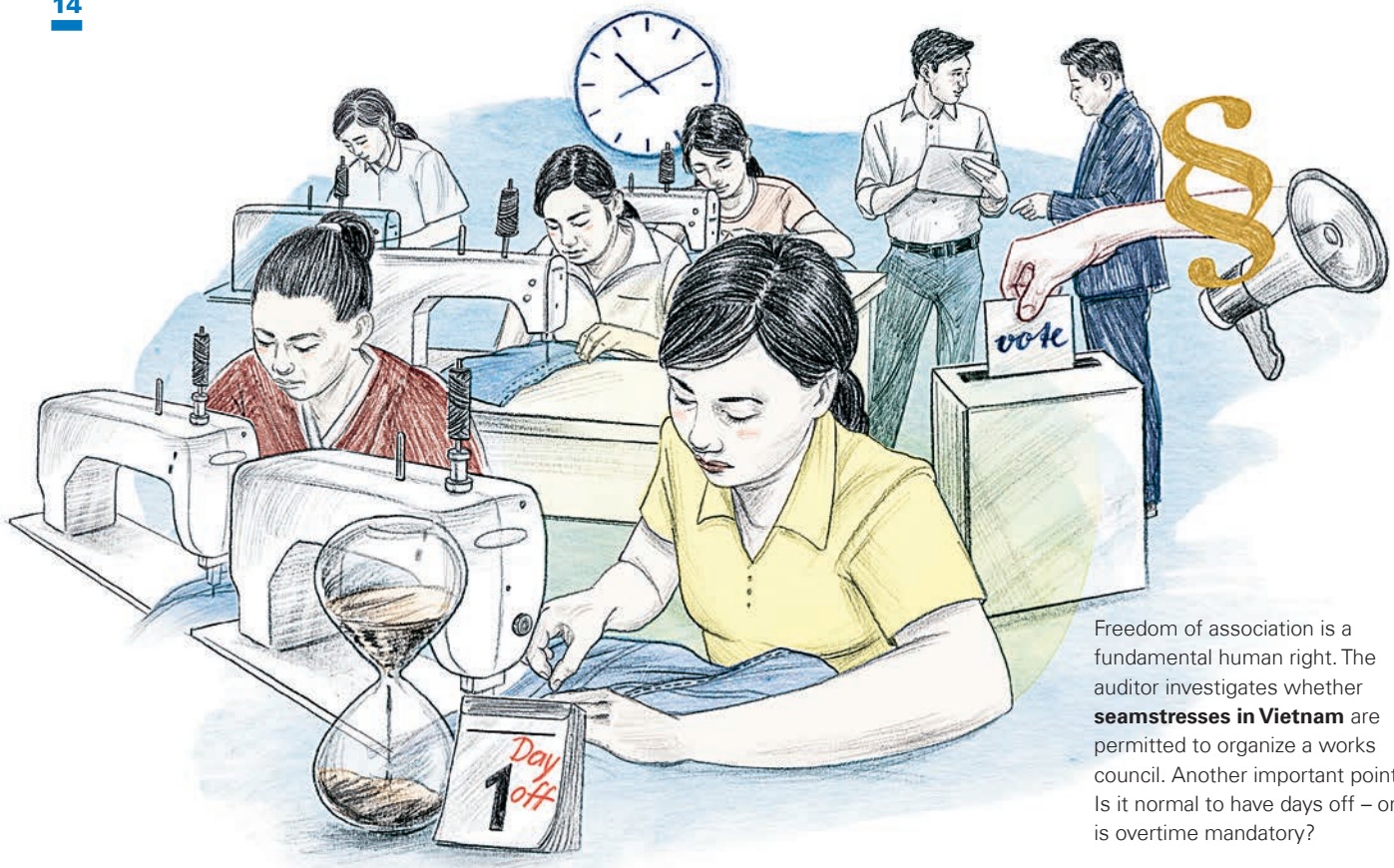
guarantee of a living wage. Other certification audits apply the amfori BSCI Code of Conduct. It complements the UN regulations with environmental aspects such as compliance with minimum requirements for emissions and for handling chemicals and other hazardous materials.

TÜV Rheinland is one of the six providers in highest demand. In 2018 alone, our auditors conducted 10,000 social certification audits. Focal regions include Bangladesh, India and China, among others – emerging countries where production facilities for textiles, pharmaceuticals and electrical equipment are located. With a strategy project started in 2018, the provider of inspection and testing services is bringing social certification audits to other countries and industries. Because more and more end customers demand social responsibility from manufacturers: Which smartphone, which jeans are produced under fair labor conditions? “Stakeholders have become much more aware of sustainable consumption in the past few years,” explains Michael Wepler, Head of the Systems business stream. According to Wepler, even capital markets are demanding more and more transparency about Corporate Social Responsibility practices of companies, including their supply chain.

Up to five days on site

A meaningful social certification audit requires careful, conscientious examination. For a company with over 1,000 employees, for example, auditors spend up to five business days at the company’s premises. They interview the management, examine the operating license and payrolls – and speak with employees. Thomas Seliga has been doing this for 15 years now. Like the rest of his colleagues, he is a highly trained expert. Working in tandem with experienced colleagues, new employees receive extensive on-the-job training. And with good reason. “Ex- →





Freedom of association is a fundamental human right. The auditor investigates whether **seamstresses in Vietnam** are permitted to organize a works council. Another important point: Is it normal to have days off – or is overtime mandatory?

Jeans in Bangladesh get their “used look” **by sandblasting**. It can carry health risks, especially when the employees are inadequately trained and receive no personal protective equipment – which should also be replaced as needed.



ant,” notes the auditor, “because all too often initial positive impressions are deceptive.” And that’s where intuition comes in. In response to the ostensibly casual question about where a company documents the fabric that employees have to take home with them to sew in the evening, a solicitous employee leads the visitor to a shelf with the relevant binders – revealing a viola-

tion that the employer uses to circumvent regulations governing the maximum number of working hours.

Auditors do not provide any mandatory regulatory oversight function imposed by official, police or state agencies. All audit results are documented in a report, which is handed over to the customer. Rejection criteria such as child or forced labor or false

statements in response to crucial questions immediately result in an unsatisfactory audit. Less critical shortcomings and uncertainties are documented in the report and must – depending on the standard and purchaser guidelines – be resolved by a specified deadline.

Positive contribution

Auditors are sworn to maintain neutrality, and integrity is the foundation of the business. “We’re not only protecting our customer’s brand, we’re also protecting our own reputation,” insists Michael Wepler. TÜV Rheinland’s customers include home improvement store franchises, worldwide retail giants and electronics groups. To eliminate the need for each manufacturer to audit each supplier separately, there are joint industry initiatives to standardize processes and standards. TÜV Rheinland is actively involved in a dozen of the leading initiatives. They are initiatives that have an impact. “Social certification audits make a positive contribution to the defense of human rights and are especially well-suited to improving the situation of children and women around the world.” Thomas Seliga is convinced of this. ■



97.8

percent

of the **playgrounds** **audited** in Taiwan failed to pass inspection. TÜV Rheinland reveals deficiencies.

In 2018, the most common deficiencies auditors found on the 439 playgrounds inspected in Changua County: objects too close together, protruding bolts. With regular inspections, TÜV Rheinland not only reveals specific safety risks, but also provides explanations. Because auditors now invite the employees of Taiwanese governmental agencies to attend seminars on how to make the playgrounds safer.

The program pays dividends, as we can see from the example of Germany: In 2005, when German playgrounds were first inspected, results were similarly abysmal: about 90 percent failed to pass inspection. Meanwhile, a complete turnaround is underway. The City of Cologne recently invested 3.25 million euros per year to optimize its playgrounds – more than ever before. ■

1/3

less downtime

is the potential benefit of using **digital aids** **during inspections** at industrial plants – and there are more and more areas of use.

The world is getting smarter – digital equipment is increasingly used also as inspection aids in the industrial and real estate sector: so-called “smart” applications. “During an inspection, data glasses display information right in the field of vision of the wearer – that facilitates and accelerates work tremendously,” explains Bruno Kuckartz, Sales Manager for Germany in the Industrial Services business stream. “According to projections, inspection times will be reduced by one third, so customers expect up-to-date solutions from us. Because the bottom line is that computer-aided inspections reduce downtime and increase plant productivity.”

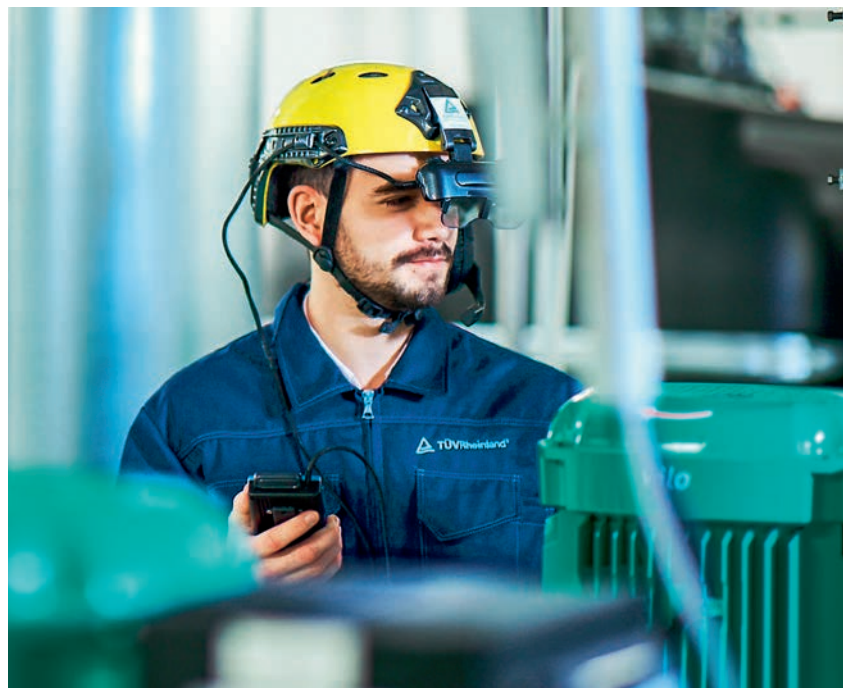
The equipment used by TÜV Rheinland comprises a helmet with a display, a camera, headphones, and a microphone along with a tablet that serves as a transmitter. In-

spectors first used the Smart Gear – the in-house term for the equipment – to examine offshore and on-shore wind turbines. Now, thanks to software modifications, it is also possible to use the Smart Gear to assist in real estate appraisals – on heating, ventilation and air conditioning systems, for example. Kuckartz: “It’s easy to imagine additional application areas such as bridge construction or in building services and electrical engineering.”

Smart Gear can also be used as training aids, when more experienced experts tune in to guide younger colleagues. ■

Digital aids

Testing an energy plant: Smart Gear supports inspections in industrial plants and real estate.



2030

sounds like an unknown future. However, the **corporate strategy** has long since proposed possible scenarios for that year. How does that work? A conversation with **Dr. Achim Ernst**, Head of Corporate Development, and **Dr. Wilfried Kienzle**, Global Officer Strategy and Organization.



Two strategists Dr. Achim Ernst (right) and Dr. Wilfried Kienzle are responsible for defining the future direction at TÜV Rheinland.

N

Nowadays the term “strategy” is rather overused and can, as a result, mean many things. How exactly do you use it as it applies to your work for TÜV Rheinland?

Dr. Wilfried Kienzle: To us, strategy means setting goals for the overall Group and mapping out a path that indicates how we’ll prepare the Group for the future. We also specify how that path can be followed. This involves setting a fundamental course to be decided at the level of the Executive Board and the Management.

So in strategy development, two factors come into play: actions of the company itself, and actions of others,

i.e. customers and competitors. How do you deal with that duality?

Dr. Achim Ernst: One essential point is missing from your explanation, namely: overarching trends and developments, such as climate change, demographics, migration and technological advancements. We must make absolutely certain that this comprehensive outward perspective is not overlooked. Bringing the world out there into the company, that's also the task of the strategy department.

But how is it even possible to model such environmental developments? With facts and figures?

AE: It's not so much about measurements or facts and figures, but rather about identifying and observing good, meaningful indicators. We can clearly see, for example, the increasing importance of consumer protection. More and more legislation addresses the topic, there are debates about particulates and diesel vehicle bans. Social media document broad public interest in safety issues. And whenever an incident occurs in connection with this, you can predict just about down to the minute when the call for effective regulations will follow. For a provider of inspection and testing services like TÜV Rheinland, these are all meaningful indicators.

Can't we take the interest in safety as a given?

AE: It's not quite so simple. How do we know that this mentality won't change? It's entirely possible, for example, that in ten years the values of quality and security will have grown less important, and that we will become an increasingly hedonistic, disposable society. I don't think so, mind you, but: Considering how such scenarios might play out is also part of our strategic work.

Every strategy focuses on the more or less unalterable DNA of the company. What values play the greatest role here for you?

WK: TÜV Rheinland's guiding principle is that we sustainably support and safeguard technical progress. We began to do that nearly 150 years ago with the inspection of boilers – and over the course of the decades that followed, we extended this attitude regarding man and technology to more and more fields. In that sense, it is strategically essential for us to prepare ourselves optimally, in order to fulfill that role also in the future and to remain both relevant and capable of action.

Technologies and trends develop today at an ever-increasing pace. What does this mean for strategic planning? Must it also become faster and faster?

WK: One thing is for certain: It is becoming more and more necessary. When change becomes more dynamic, strategy must also adapt to it and guide it. We think in complex scenarios here, in alternative worlds, while keeping various indicators in mind. The wrong response would be to draft strategies in ever shorter cycles, too. Rather, we ask ourselves: In this world of ever-accelerating change, what are the constants? When we cover these basic technologies well, we can also react rapidly when a new application technology comes along. Because its basic building blocks are nothing new to us.

Are there past examples that show how you managed to do this?

WK: In the case of cybersecurity, we were already intensely involved before the turn of the millennium. We already had hackers on board back then, who studied digital security gaps for us

and showed them to our customers.

AE: About ten years ago, we analyzed the increased significance of the tertiary business sector – i.e. service, health care, training or transportation – in western industrialized nations, and adapted our offerings for that sector while strengthening the associated business fields. Today they account for about one quarter of our revenues.

A good strategy with regard to competition for the best manpower is also important. How do you position yourself here?

AE: In the 15 or so years since I joined the company, the TÜV Rheinland's workforce has grown from about 6,500 to over 20,000 employees. That shows that we are an attractive employer. On the other hand, we have to protect that position – in a world where profiles, business ideas, and contexts are changing faster and faster, as we have already seen. That's why our growth strategy always keeps in mind the question of the appropriate employer branding.

When you think about strategies for the future, which topics do you concentrate on the most?

WK: As I mentioned before, we currently see no great risk that the importance of safety could decline in the near term. But even though we discovered the digitalization complex in time for ourselves, here we expect extremely strong disruptions, a winner-takes-all principle. The provider that offers the best system will prevail.

AE: In the near future, we will face the challenge of keeping a top solution available for a few of these extremely dynamic markets. Doing so for all of them is out of the question. Nevertheless, not only will it be a strategic challenge, it will be a sporting one as well. ■

74

percent

of decision-makers across all industries have never, or can't remember if they have ever, undertaken a **risk assessment of their industrial facilities** a recent TÜV Rheinland survey shows.





A

Anyone asking political leaders or CEOs about the biggest challenges they face will not have to wait long to hear “Cybersecurity.” This was only recently demonstrated again at the World Economic Forum in Davos, where the topic was high on the agenda. But as abstract as cybersecurity may sound at first, it always needs cybersecurity expertise at a global scale. Companies continue to build vast interconnected technology and digital ecosystems that demand new cybersecurity and risk management strategies to enhance resilience and safety of their business operations. TÜV Rheinland covers precisely this need with its Operational Technology (OT) Cybersecurity Lab in Kuala Lumpur.

Launched in June 2018, it is part of the Industrial and OT Cybersecurity Center of Excellence (CoE) focusing on cybersecurity needs of the OT sector and on securing business technology landscapes. This new demand is a result of the convergence of two formerly separate worlds: the world of industrial technologies and the world of the internet.



Reflection of reality

The laboratory facilities simulate industrial processes and thus produce real-time data. Employees use this data to identify weak points.



Experts in action With penetration tests, IT experts try to determine the sensitivity of IT systems through targeted attacks.

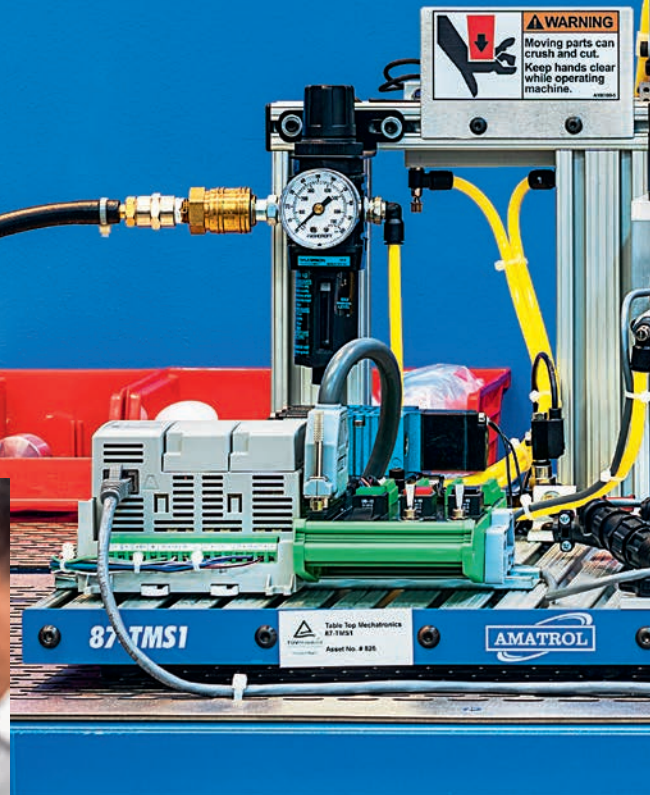
This convergence forms new digital ecosystems and interconnected technologies which not only bring about a lot of possibilities, but also new risks. In power plants, manufacturing plants, oil refineries, smart transport, transit or telecommunication systems, this growing interconnectivity turns the poorly secured area of OT into a target for cyber criminals and other bad actors. OT systems comprise computer systems that control or detect a physical effect such as a valve or temperature setting. Through the digitalization of industrial facilities, these areas have become vulnerable to cyber-attack: engines, pumps or ventilation systems run by embed-

ded control units can now be manipulated without having to gain physical access.

Detecting Vulnerabilities

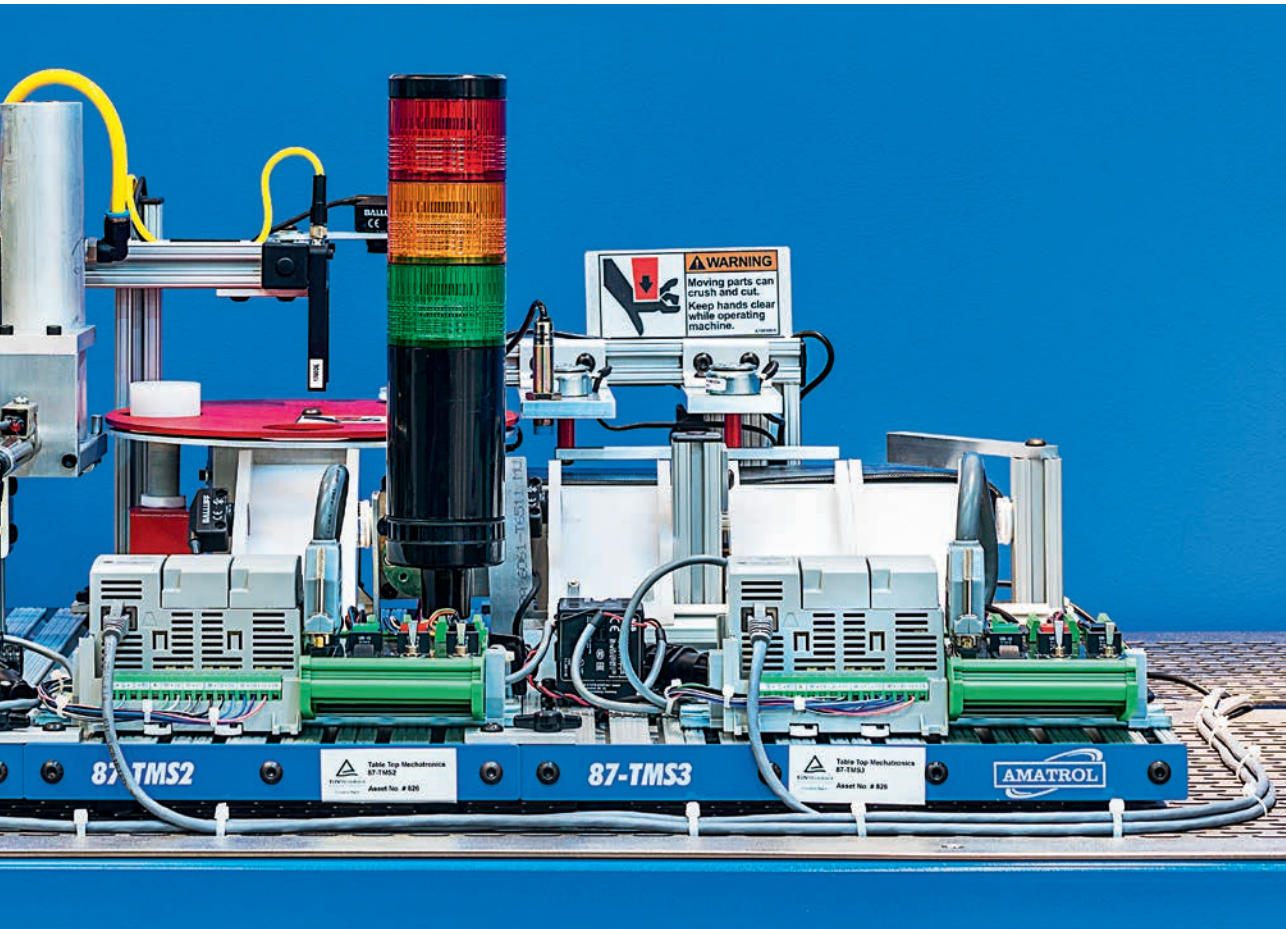
In order to detect industrial system vulnerabilities and to develop new risk management approaches, a safe and secure environment is needed. The Center of Excellence provides precisely that: It has got the tools to showcase industrial processes and can generate vast amounts of real-time industrial data. With this data, experts simulate various cybersecurity threat scenarios and can conduct penetration tests.

Using this center of excellence, solutions can be developed to secure



industrial facilities. “The Center of Excellence is a unique and significant step to serve the needs of our clients. Using a combination of training sessions, pilots, demonstrations, threat research and cyberattack simulations, the OT Security lab helps our clients stay ahead of industrial cyberthreats,” describes Urmez Daver, Global Head for Industrial Cybersecurity Center of Excellence.

Up until now, cyber risks have been underestimated. Although the fear of hackers is widespread, strategies to counteract these threats are often far from clear. In many cases a general understanding of the risk has to be developed before analyzing technical issues and weaknesses. This often goes hand in hand with a profound change of company culture, says Nigel Stanley, Chief Technology Officer for Industrial Cybersecurity at TÜV Rheinland: “Deployed OT systems can be a real challenge to maintain. The patching ap-



proach we see in IT systems would break many industrial processes – a real reminder how different this industrial technology area is.”

This problem needs to be addressed as cyberattacks can have catastrophic consequences that go far beyond expensive production losses. Even key future industries such as the solar industry depend on cybersecurity. “Orchestrated sabotage activities in energy storage systems can lead to the collapse of huge energy networks which will then have a devastating impact on the industry production in general”, emphasizes Roman Brück, head of energy storage systems at TÜV Rheinland.

A one-stop shop

With its longstanding experience with industrial facilities and with its internal structure, TÜV Rheinland can provide services throughout the whole value chain for all players, from manu-

“Using a combination of training sessions, pilots, threat research and cyberattack simulations, the OT Security lab helps our clients stay ahead of industrial cyberthreats.”

Urmez Daver, Global Head for Industrial Cybersecurity Center of Excellence

facturers to systems integrators and operators. “We can audit and certify the products,” explains Thomas Steffens, Regional Segment Manager Functional Safety and Cybersecurity from Industry Service at TÜV Rheinland. “But we can also consult manufacturers if needed.” System development from services providers and their staff can also

be audited and certified, and operators can get support, too. Thomas Steffens: “This unique positioning allows TÜV Rheinland to address and meet the challenges posed by Industry 4.0.”

With the OT and Industrial Cybersecurity Center of Excellence, this challenge has found a new home base – with global relevance. ■

1 million

euros



is how much
connoisseurs pay for
an original Porsche
911 Carrera RS 2.7.
**Counterfeit copies of
valuable automotive
gems** can be exposed
by TÜV Rheinland
experts – with
methodology adapted
from forensic science.

On the lucrative classic car market, counterfeits turn up every day: In high-tech workshops, for example, criminals can transform a common 1973 Porsche F Model into an extremely rare Carrera with a 2.7-liter boxer engine, not least by manipulating the vehicle identification number. The classic car experts from TÜV Rheinland use a magneto-optic procedure to track down counterfeiters. Developed in-house, the method relies on the same technology that forensic scientists use to determine the serial numbers ground off of stolen weapons. The classic car segment is confronted with the question: genuine pearl or fake? Certainty can be achieved in just a few minutes, and the required technology – including laptop – fits in a compact case. At the test point, such as the chassis number, a powerful magnetic field is generated,

which penetrates deep into the material. A strip of film makes the field visible through a reading device. Irregularities in the material structure, which are indicative of counterfeits, can be identified – when there's a 5 hidden behind the 3, for example. Documentation from these automotive forensics is admissible in court: Along with private individuals, customers also include public prosecutors.

A complete arsenal of methods

Meanwhile, the classic car specialists have developed a complete arsenal of methods to make life difficult for counterfeiters: Using hardness tests, acid etching methods and spectral analyses, they verify ID numbers, expose hidden weld seams, or draw conclusions about the age of the sheet metal used. ■




1,157
first aiders

worldwide have been trained by TÜV Rheinland to initiate lifesaving measures at work in an emergency. Courses for fire protection assistants and golden rules for safety awareness are additional pillars that securely anchor health, occupational safety, environmental protection and quality optimization in the company. As defined in the QHSE policy, TÜV Rheinland has dedicated itself to this goal:

“We achieve our goal as a company only when we protect the health and safety of employees and customers.”

Dr.-Ing. Michael Fübi Chief Executive Officer of TÜV Rheinland

19

The image shows the interior of the Louvre Museum Abu Dhabi. A large, white, cubic structure is the central focus, surrounded by a complex, geometric, and translucent ceiling that filters light in a pattern of star-like shapes. A tall, bare tree stands to the left of the cube. Several people are walking around the space, and a man in a purple shirt is pointing upwards. The floor is a light-colored, polished surface.

were conducted by the engineers from TÜV Rheinland in 2018. One of their latest projects took them to the **Louvre Museum Abu Dhabi**, where they inspected 51 elevators. This spectacular building with its translucent cupola houses the first universal art museum in the Arabian region. To guarantee the safety of elevators worldwide, more than 300 experts are deployed from Chile to Malaysia. The result: 15 percent of all elevators inspected had potentially dangerous defects.

5,325

elevator inspections



million

Chinese earn their money as migrant workers. What happens to the children they have to leave behind? Since 2018, TÜV Rheinland has been an active partner in a **project to support families**.

M

Meihua Yang's summer was great. In July 2018, the five-year-old was able to go on vacation for the first time in her life – to the industrial city of Qingyuan, with a population of 3.8 million, some 1,500 kilometers from her home town of Cuihua, a small village in southern China. During the day there, Meihua was in the best of hands at the childcare center of the Best Image Factory toy manufacturing facility. And late afternoons and evenings she then spent a lot of time with her parents, who work in the factory.

What might sound like nothing unusual to Western ears is an exception for many Chinese. 286.52 million people in the People's Republic – including Meihua Yang's parents – earn a living for their family as migrant workers. This means that they are employed in factories that are hundreds or thousands of kilometers from their home.

And this can have drastic consequences for the children of those workers – because most of them remain behind in their home village in the care of relatives or friends. Some 69 million girls and boys currently live in China as so-called “left-behind children” who see their parents only once or twice a year.

A very special daycare center

The program that enabled Meihua Yang and 36 other children to spend their summer with their parents helps to solve this problem – now, since 2018, with the energetic support of TÜV Rheinland Greater China. The idea came to the organization ICTI Ethical Toy Program (IETP) a few years ago: With a focus on the toy industry, it helps companies establish childcare offerings and seminars, which bring migrant workers and their children closer together again.

TÜV Rheinland Greater China contributes to three programs that promote on-site education and training. Family-Friendly Spaces (FFS) offers





What shall we play now?

Meihua Yang (center) at the FFS childcare program at the Best Image Factory in Qingyuan. In the summer of 2018, 37 children were able to participate in the project.

children the opportunity to be close to their parents during summer vacation. After School Centers (ASC) extends the offering throughout the year, organizing childcare between the end of the school day and the end of work shifts. Migrant Parent Training (MPT) teaches parents how to maintain, even from a distance, the closest and most vibrant possible relationship with their children.

Visionary partnership

“We actively support the initiatives of the IETP as a partner and a donor to help eliminate structural problems in one of our most important core markets,” says Eva Wu, Assistant Project Manager for CSR at TÜV Rheinland Greater China. “We see the programs as sustainable investments in the satisfaction, quality of life, and education of people whose labor is a prerequisite for economic success.”

Eighteen factories in the Yangtze and Pearl River Deltas participated in the FFS program in the summer of 2018, and Best Image Factory in Qingyuan was one of them. And in the end, Meihua Yang’s happy summer will leave more than just smartphone photos behind: Promoting the relationship between a child and their parents makes a permanent contribution to a better future. ■

14,200

followers

subscribe to the internet blog of Sara Beckmann, who works at TÜV Rheinland. Her blog offers **orientation in the world of technology**. Why that's more important than ever – a guest commentary.

I'm a techie. And I've been one ever since I could think. As a child, I played a lot with Lego technology and also soldered stuff from time to time. Today, I enjoy installing a Bluetooth thermostat or discussing hard drive transfer rates. And sometimes when I haven't got anything better to do, I have Alexa play my favorite songs. Technology excites me because it can make life easier and, yes, a little bit nicer, as long as it's applied correctly and – in my view, most important of all – safely.

Ready to call things into question

And as an engineer who works on building services engineering and electrotechnology, this is precisely how I've positioned my private blog. The name "Frau Technik" (Ms. Technology) pokes a little fun at a domain reserved mostly for men – but not exclusively, and that's sort of the point. I try to help anyone who is looking for some orientation on technical questions. For example, questions like: How does this work? And what role does safety play for me and my milieu? In other words: We can all use a bit of TÜV spirit in our

everyday life. I offer my expertise and my willingness to call things into question. That motivates me.

I just love to tear into the latest high-tech products, put them through their paces, and give practical tips. From installation and setup, to operation and a comparison of advertising claims versus actual characteristics. My favorite topic is home networking and automation. The Smart Home principle enhances the quality of life and saves energy costs – when I forget to turn off the lights at home, for exam-

Ms. Technology at work

Sara Beckmann has been employed as an engineer in the Building Services Engineering and Electrotechnology business field since 2015. Since 2018, the electronics specialist has published a blog for which she also tests drone cameras.

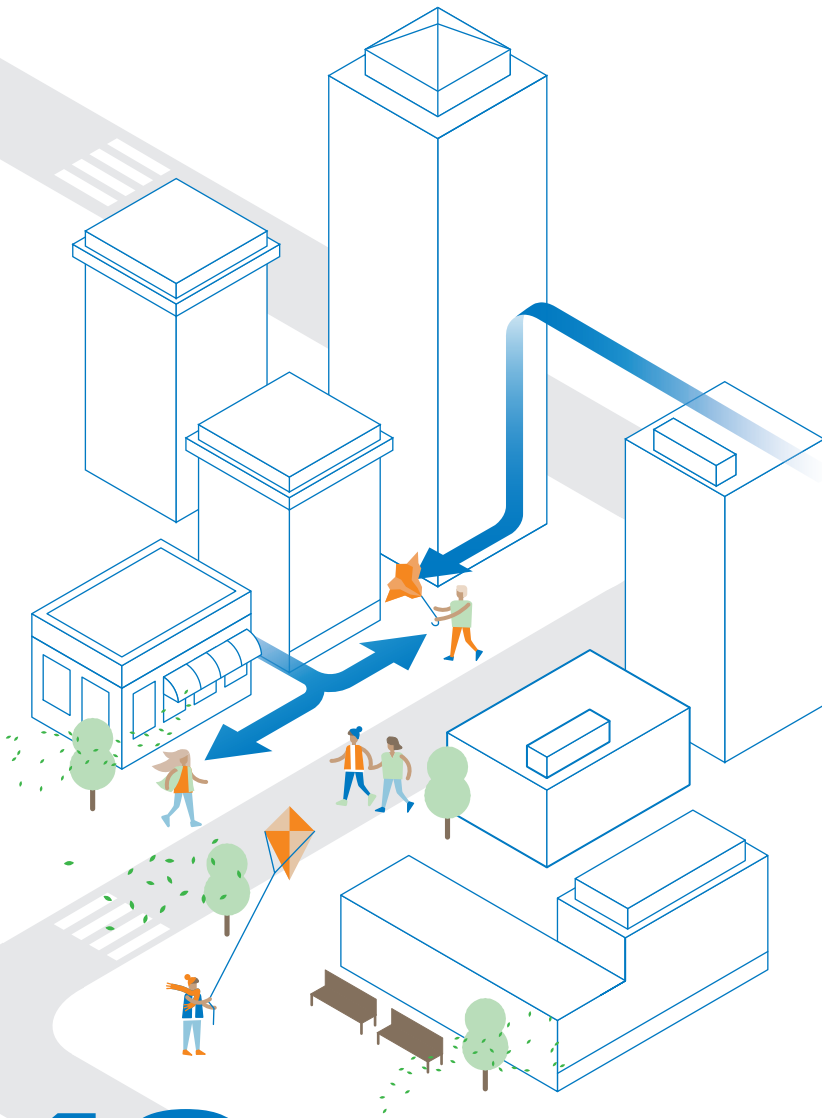
ple, and then use my mobile phone to do it retrospectively while I'm away. At the same time, I also understand that these digital assistants should be used with caution. That's why I try to raise awareness about data privacy and protection among my fans and followers.

And I think it's really great that my employer is committed to this topic – with industrial, product and vehicle inspection services, but also with training and continuing education programs, the keyword being e-learning. Because it's no fun being a techie unless you're well protected. ■

Sara Beckmann's tips and tests can be found (among other places) here:

frau-technik.de
facebook.com/frau.technik
youtube.com/FrauTechnik
instagram.com/frau.technik





18

km/h

and faster is wind speed that people find unpleasant. Municipalities and real estate operators in particular want to enhance **pedestrian wind comfort in cities**. Civil engineering and fluid mechanics experts from TÜV Rheinland are helping them. Using computer simulations, they support construction projects – such as the planning for Hamburg's HafenCity.

175,000

vehicles

per year is the production capacity that BMW wants to achieve at its new plant in Mexico. TÜV Rheinland is ensuring **construction site safety** there.



An interview with:
Stefan Perea,
Head of Academy
& Life Care at TÜV
Rheinland Mexico.

Mr. Perea, what was the scope of your team's role?

The construction of the BMW Group's new plant in San Luis Potosi was an ambitious project. Along with the manufacturing facilities, it also includes a training center, testing grounds, and a power plant for renewable energies, and everything had a construction timeline of about two-and-a-half years.

What exactly were you responsible for there?

Our team supervised all construction phases from an occupational health and safety perspective. The customer wanted special emphasis on worker safety, and on efficiency and sustainability, with the goal of zero accidents. We oversaw and coordinated construction safety for the project over the entire construction period. That enabled BMW to concentrate entirely on the actual construction project itself.

What were your most challenging tasks?

We had to minimize and monitor numerous risks on this major construction site. At the same time, we also needed to create a good coordination structure. Thanks to our experience and expertise and the exemplary communication with BMW, our collaboration was a great success. ■

The steam engine, the conveyor belt and the computer – these were the first three revolutionaries. Today, the interlinkage of man and machine has ushered in a fourth industrial transformation. Brother Robot is conquering factories the world over. He works right alongside professionals made of flesh and blood – without physical separation by protective barriers.

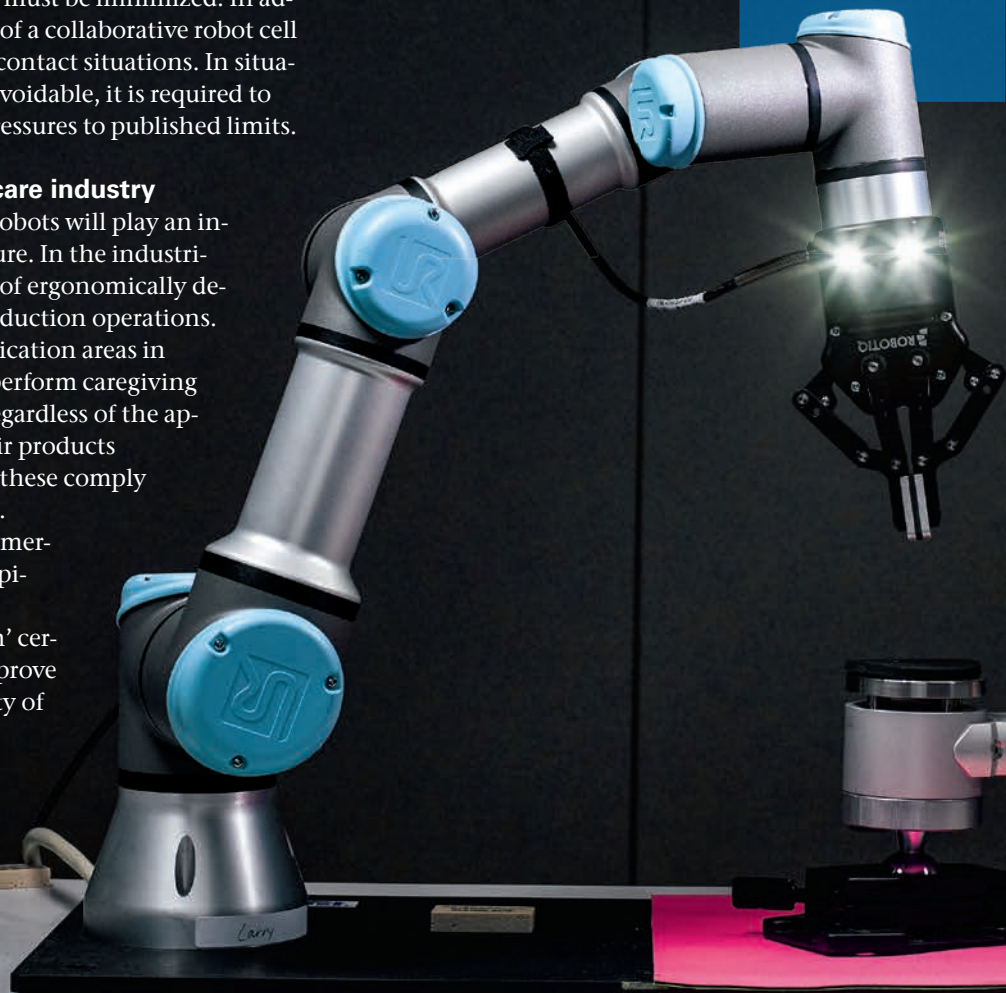
The collaborative robot is festooned with sensors to ensure that he gently stops whenever a human comes too close. “That’s why so-called ‘cobots’ and collaborative robot applications must meet tremendously high safety standards and comply with strict threshold limit values – and that’s exactly what we test,” explains Test Engineering Manager Ryan Braman, pictured here analyzing the characteristics of one of these robots in the laboratory of an American customer in Boston, Massachusetts. “The testing device in my left hand simulates the pain sensitivity of various body parts. I use the tablet-like manual programming device to control the movement of the robot.”

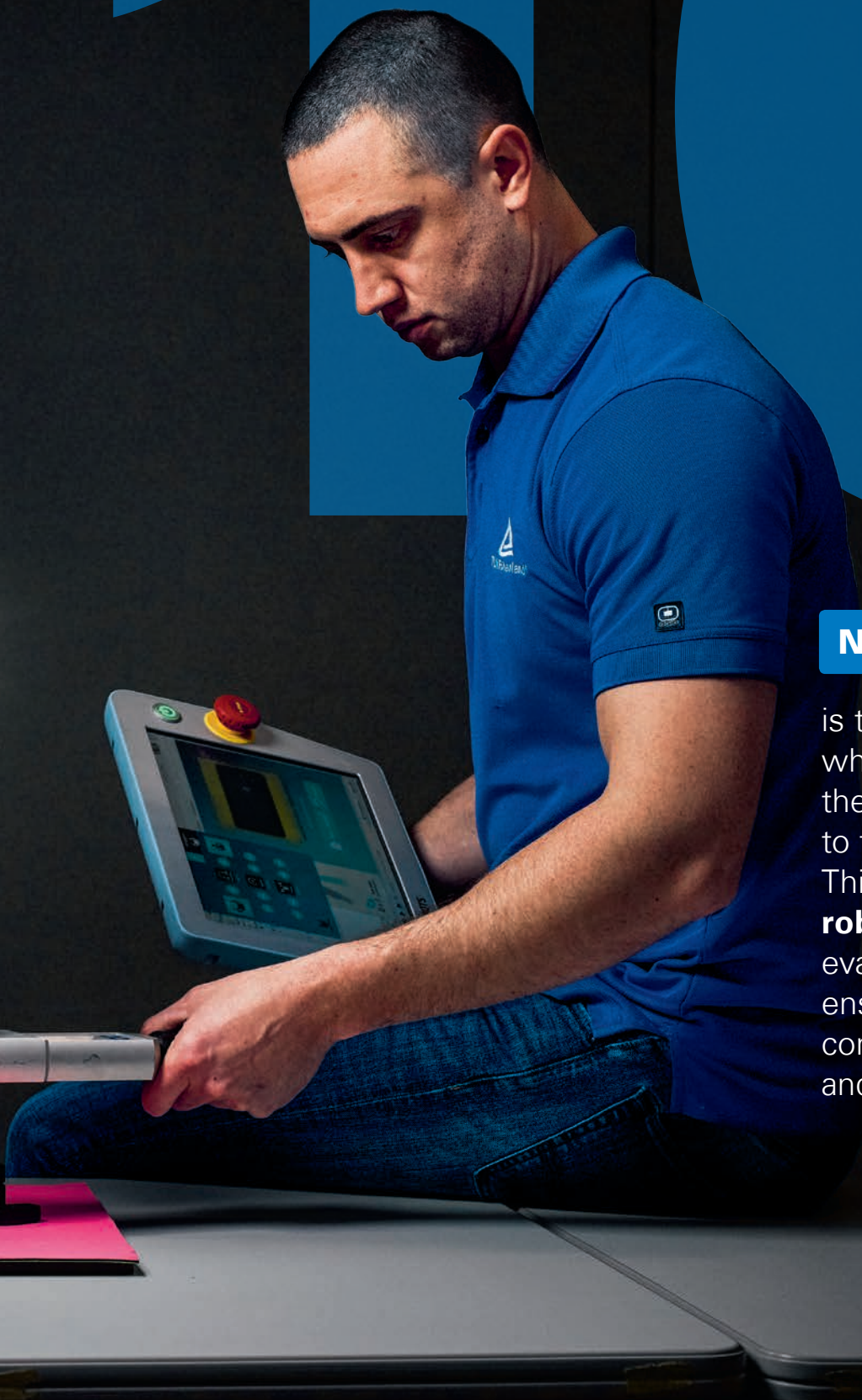
The load limits above which the human body feels pain due to mechanical pressure are defined in ISO/TS 15066. The jaw and the temples are considered to be the most sensitive points. To prevent on-the-job accidents, cobot cell manufacturers must build safety into the design right from the start. Oftentimes this means that sharp corners and edges must be minimized. In addition, the entire working envelope of a collaborative robot cell must be analyzed to limit potential contact situations. In situations where potential contact is unavoidable, it is required to limit potential contact forces and pressures to published limits.

Sensitive robots for the healthcare industry

Braman believes that collaborative robots will play an increasingly important role in the future. In the industrial sector, they are relieving humans of ergonomically demanding and strenuous tasks in production operations. “But manufacturers have other application areas in mind, as well: cobots developed to perform caregiving tasks, for example,” says Braman. Regardless of the application area, before delivering their products manufacturers must first prove that these comply with the applicable safety standards.

In 2018, TÜV Rheinland’s North American Commercial team developed a pioneering service for all actors. Ryan Braman: “‘Robot Integrator Program’ certification enables manufacturers to prove both their competence and the safety of their robots with a single label.” ■

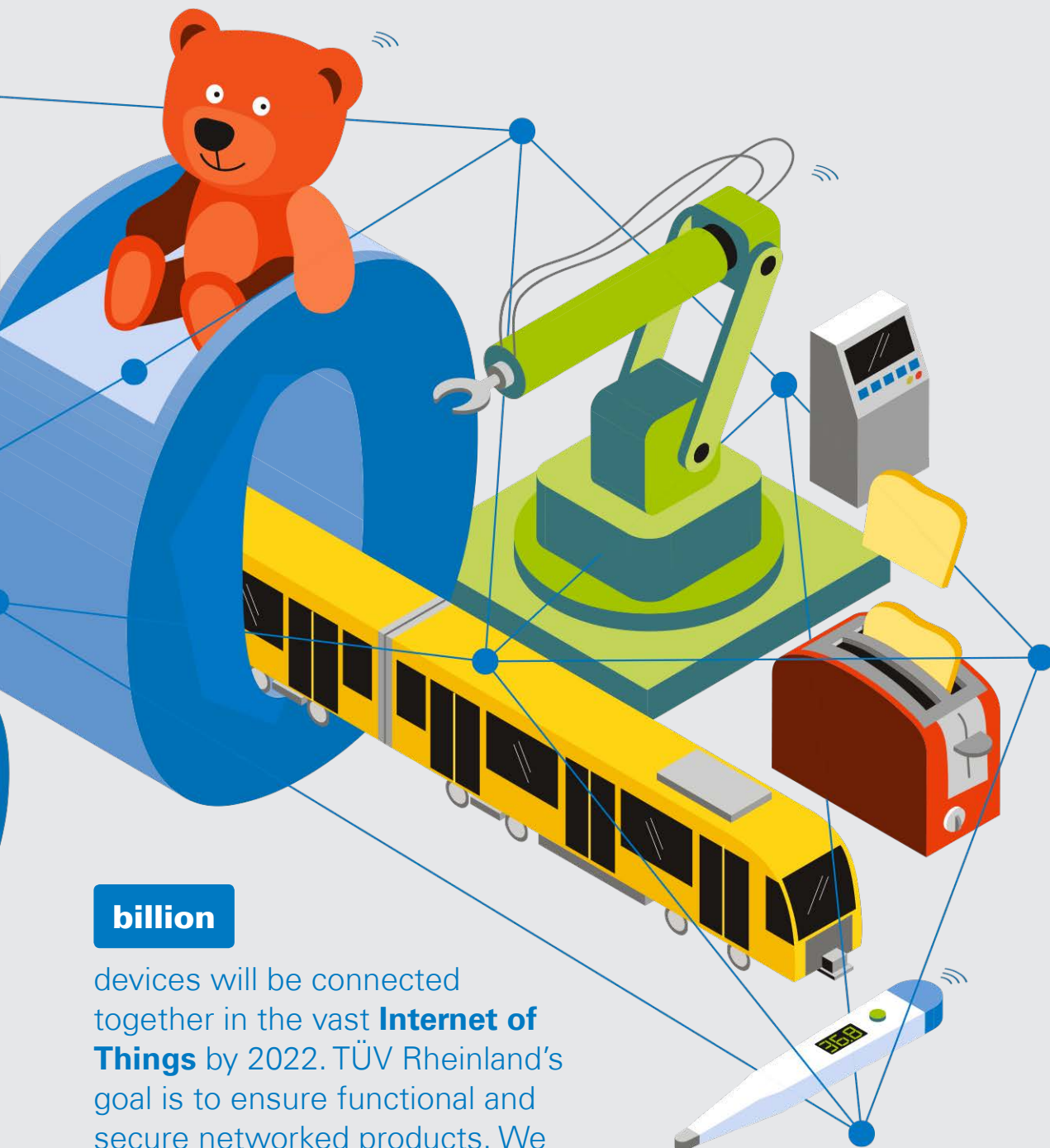




Newton / cm²

is the threshold above which certain parts of the human body begin to find pressure painful. This is why **collaborative robot** cells must be evaluated and tested to ensure these types of contacts are prevented and mitigated.





billion

devices will be connected together in the vast **Internet of Things** by 2022. TÜV Rheinland's goal is to ensure functional and secure networked products. We have positioned ourselves to achieve that goal accordingly.



When a manufacturer wants to sell a smartphone, for example, the experts from TÜV Rheinland ensure that the market entry functions in up to 180 countries.

After all, manufacturers of wireless products cannot obtain their **“license to sell”** without the appropriate safety certifications, certificates of conformity and test marks. Our experts use our in-house laboratory network and their comprehensive expertise to clarify these complex questions.

There are **many wireless technologies**. TÜV Rheinland currently tests and certifies 20 types. Each technology has its own profile – and new ones are being added all the time.

Closer-range wireless technologies such as Bluetooth or ZigBee are sometimes employed in the **Smart Home**.

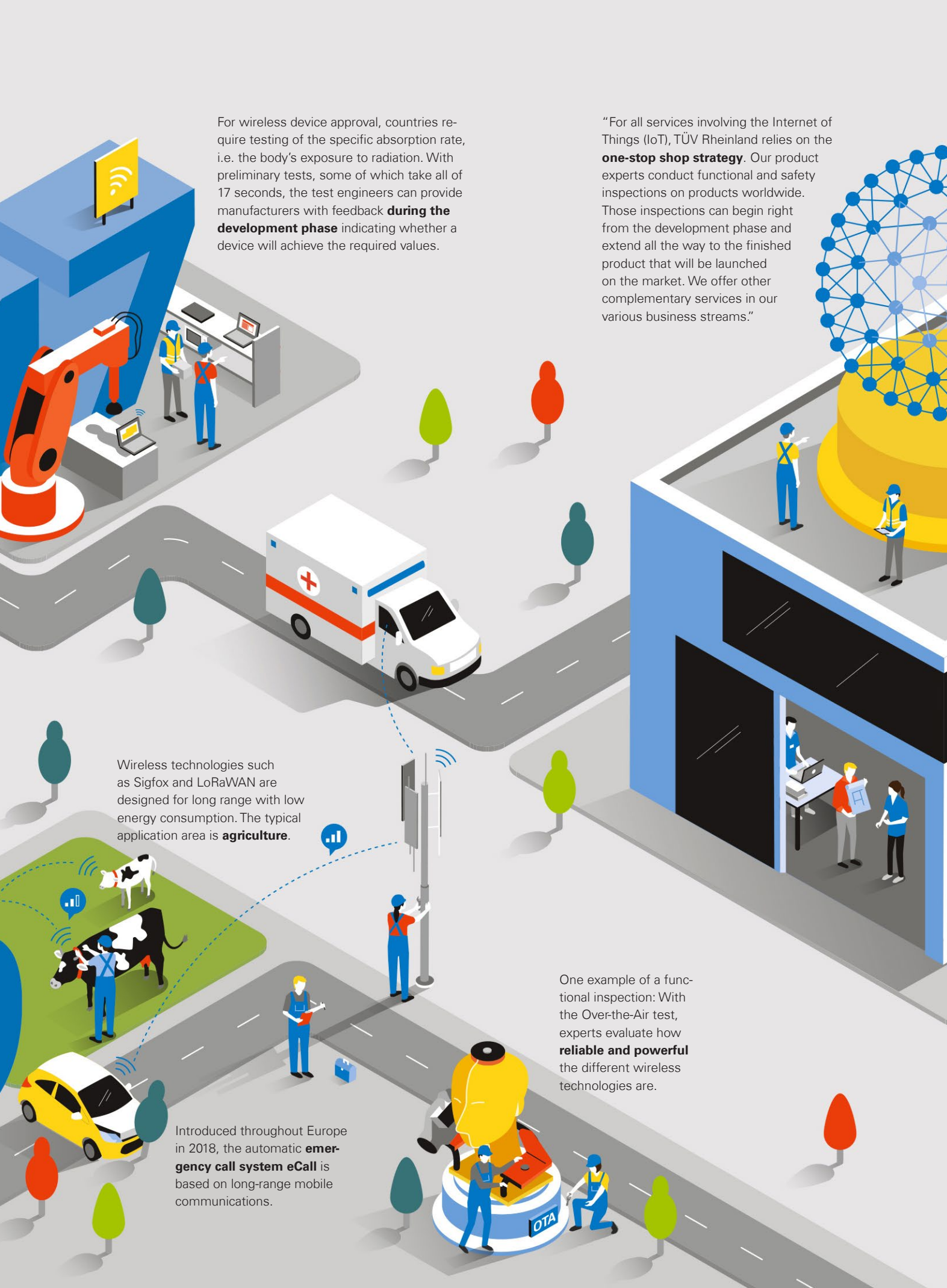
For wireless device approval, countries require testing of the specific absorption rate, i.e. the body's exposure to radiation. With preliminary tests, some of which take all of 17 seconds, the test engineers can provide manufacturers with feedback **during the development phase** indicating whether a device will achieve the required values.

"For all services involving the Internet of Things (IoT), TÜV Rheinland relies on the **one-stop shop strategy**. Our product experts conduct functional and safety inspections on products worldwide. Those inspections can begin right from the development phase and extend all the way to the finished product that will be launched on the market. We offer other complementary services in our various business streams."

Wireless technologies such as Sigfox and LoRaWAN are designed for long range with low energy consumption. The typical application area is **agriculture**.

Introduced throughout Europe in 2018, the automatic **emergency call system eCall** is based on long-range mobile communications.

One example of a functional inspection: With the Over-the-Air test, experts evaluate how **reliable and powerful** the different wireless technologies are.



TÜV Rheinland offers a wide range of IoT inspection and testing services: For one manufacturer, our specialists custom-equipped a laboratory room to subject some 50 smart home components such as heating controllers, lamps and switches to endurance testing – **24 hours a day, all year round**. The functionality and data security of the components are monitored here during interaction and following software updates.



TÜV Rheinland's **worldwide network of laboratories for the Internet of Things** is constantly expanding. All 15 current locations are in close proximity to the customer: in the USA's Silicon Valley, alongside Sweden's electronics groups in Lund, and in China's Smart Home industry capital in Shenzhen. Germany's newest laboratory has been established in Nuremberg and supports, for example, automotive manufacturers.

IoT devices are a favorite gateway for hackers. One example from 2018 shows just how easy it can be: Criminals hijack 33 smart washing machines, create a so-called "botnet" with them, and use it to attack a server. The need for cyber security is growing: In the first half of 2018 alone, the number of attacks on IoT devices was three times greater than during the entire previous year. Under contract from customers, TÜV Rheinland tests how safe their devices are.



TÜV Rheinland is working on the future: Preparations are in progress for application areas employing nascent technologies such as **blockchain**, **artificial intelligence systems** or **smart contracts** that make it possible to conclude legally binding contracts on the web.

According to industry estimates, some 18 million articles of clothing with wireless functionality will be on the market by 2021. The smart jacket not only informs the wearer of the latest weather forecast, it also **sends personal data to the manufacturer's server**. Since 2018, the General Data Protection Regulation (GDPR) has stipulated what the manufacturer can and cannot do in Europe. Based on that regulation, TÜV Rheinland developed certificates that the manufacturers of smart products can use to prove that they provide substantive data protection and data security.



81

percent

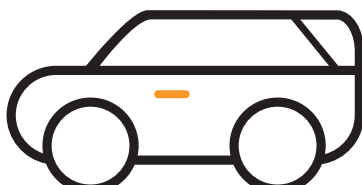


of drivers know that modern cars collect data. But what information is collected exactly and what happens to it? The **era of the mobility transformation** poses all sorts of questions – and requires an entirely new set of regulations and standards.



Digital gold

Modern motor vehicles produce large quantities of data. The question is, who manages all that information?



S

Supplied from batteries, controlled by algorithms, threatened by hackers: the future of mobility has already been gathering steam for some time now. Karl Obermair, Director Future Mobility, on the role of TÜV Rheinland as an innovator, vanguard and bulwark.

Mr. Obermair, where do things stand with regard to new forms of mobility?

The fact is that self-driving vehicles, alternatives to the internal combus-

tion engine, and connected cars that can make an appointment for maintenance on their own are becoming a reality faster than we can imagine today. Perhaps a metaphor will help: The snow on the mountainside has only just begun to slide, and the avalanche is going to be one of epic proportions.

In 2018, the number of charging stations for electric vehicles in Germany doubled to 12,500. Does this represent a breakthrough?

We're a long way from eliminating the conventional gas station. The biggest problems are the lack of adapter standards and the lack of regulations for a standardized payment system. The e-car is just one part of a complete ecosystem that needs to be established. The German automotive industry is still too product-oriented. It's rather like trying to organize the market launch of a great new smartphone that's difficult to charge and has only a handful of apps. Our experts are working in committees to create precisely such standards.

In your opinion, where are the biggest challenges?

In autonomous driving. It raises new kinds of questions, including data privacy issues. Automobile manufacturers are already collecting huge amounts of data today with semi-autonomous vehicles. For the most part, customers accept this with a shrug of the shoulders: "What could they possibly do with data on how I move my steering wheel?" This attitude is too naive, even out of ignorance. We see ourselves in the role of the pathfinder. Because most people don't realize that steering wheel motion can be used to diagnose diseases like Parkinson's in its early stages. Drivers who know about this don't want their data in the hands of an automotive group.

If not their hands, then whose? The government's?

The government can't afford the cost.

And it's also not their job. I think the onus here is on firms like TÜV Rheinland that provide inspection and testing services as an independent third party. I can imagine, for example, that auditing firms might install a kind of data repository. Digital vehicle files and personal mobility data could be stored there, safeguarded from hackers.

What can TÜV Rheinland do, and what should it do?

We do basic policy work, gather findings, and derive well-founded conclusions from them: "Here's what your car can and may do – and here's what it can't." Interestingly enough, we don't necessarily react rationally in an automated vehicle.

How so?

At first, we're highly skeptical of driver assistance systems. But as soon as our skepticism wanes, it suddenly turns into the exact opposite: We put too much faith in the technology. That's dangerous. In order to understand this phenomenon better, we are collaborating with the MIT Urban Mobility Lab in London and participating in a study by the University of St. Gallen on automated driving. Our most important product is and always will be trust.

You and your "Future Mobility Solutions" team seek to develop innovative mobility-related services. Can you give us a concrete example?

Scenario 1: You want to buy a used e-car. How can you tell if the batteries are still OK? They represent about

half of the total value of an electric car. Scenario 2: You convert your municipality's bus fleet to electric power. How will you know when the batteries reach their "expiration date" so you can prevent the whole fleet from breaking down on day X?

And TÜV Rheinland knows the answers to these questions?

We're testing a start-up that knows exactly. It's developing a "digital twin", whereby a vehicle's battery – complete with all charging and discharging cycles – is digitally mapped in the cloud. Those data can be used to predict battery condition at all times and determine when the expiration date is reached. An interesting role might await the worn-out batteries, by the way.

What role is that?

They might become a valuable "second life" product. Studies are under way to determine whether such batteries can be connected together to create desperately needed buffer storage systems for use when, for example, wind turbines temporarily produce more energy than the power grid can absorb. We are testing another start-up that can bundle together batteries from different manufacturers. TÜV Rheinland will test – and possibly certify – the safety of those battery packs.

Possibly? That sounds like you're not sure that it will work.

That's right. Safety is our top priority. We only certify what's safe. Our whole corporate image is anchored in trust, it's in our DNA. In 1872, our company was founded because a technical achievement had to be made safe in order to establish the necessary trust in it. Back then it was steam boilers – today it's batteries or charging stations. ■



Karl Obermair is responsible for the development of innovative mobility services as Program Director at TÜV Rheinland.

A new standout among standards

Internationally, the British Standard BS OHSAS 18001 had largely prevailed since 1999 – but in March 2018, it was replaced by the global ISO 45001 standard. The implementation provides for a transition period until 2021.

ISO

45001

is, since 2018, the new standard for **occupational safety and health** management in companies. A major advance over earlier regulations – at multiple levels.

Appropriate focus

In the face of increasing competitive pressures and the economy's accelerating reaction times, companies seem to forget that their most precious assets are the safety and health of their employees. ISO 45001 takes this insight into account by also focusing management's attention on the topic – and TÜV Rheinland audits that focus on site.

Compatible for all

Like other standards, the basic structure of ISO 45001 is oriented for the so-called High Level Structure. It relies on uniformity of layout, boilerplate texts, and definitions – thereby facilitating its integration in implemented management systems with multiple standards.

Expanded view

Broader implication: Application of ISO 45001 means that companies must not only place value on protection at their own workplaces, but must also, if necessary, consider the situation at their service providers and suppliers.

Greater responsibility

The standard assigns more of the responsibility to the company management than before. The topic thus becomes a top priority for management – and must be taken into consideration when making decisions at the highest level.



countries

are currently covered by TÜV Rheinland's **Market Access Services**. Good for manufacturers that want to export coffeemakers, for example.

Coffee is a particularly fragrant example. Twenty-five years ago, the coffee maker was a relatively simple appliance: The worst thing that could happen to you was an electric shock. Today it can receive wireless transmissions and is connected to the Internet of Things – and that makes it subject to various certifications, standards and legislation, which can often vary significantly from one country to another.

Complex market conditions

When a manufacturer wants to place a coffeemaker on the world market, they might well need help sorting through

the tangled mass of national product regulations. TÜV Rheinland offers that assistance with its Market Access Services: Expertise and inspection and testing services to ensure that a product complies with the respective standards – including the more complex ones – of all the countries to which it will be exported.

TÜV Rheinland has been specifically offering these services since the 1990s. By early 2019, the portfolio had grown to more than 400 accreditations. As a result, with a global staff of some 300 employees, TÜV Rheinland can now issue certificates for 165 countries. “As product requirements become more

demanding, exporters will also have to comply with an increasing number of inspection and certification requirements,” says Robert Zorn, Head of Market Access Services for Europe. Political trends around the world presented additional challenges in business year 2018 – and will continue to do so in 2019. The rise of trade protectionism, turbulent developments throughout the European Union, and upheavals regarding the international role of the USA demand flexibility and patience from the global team. Free trade – a precious asset that TÜV Rheinland supports and promotes with these services. ■

CSR

Report

Corporate Social
Responsibility

Six
chapters
examine our
contribution
to sustainable
development

1

CSR
Management

44 49

2

Governance

50 53

3

Employees

54 63

4

Environment

64 69

5

Society

70 75

6

Service
Responsibility

76 79

9

times

That's how many times we've already issued CSR Reports in accordance with the guidelines and standards of the Global Reporting Initiative (GRI) in the past – here is number ten.

Since 1999, the non-profit organization Global Reporting Initiative has been developing a continuously updated framework for sustainability reporting. In doing so, it involves stakeholders such as scientists, companies and environmental organizations. Its standards seek to make CSR reports more transparent and to facilitate comparison among them. GRI's strategic partners include, inter alia, the UN Global Compact, in which TÜV Rheinland participates since 2006.

1

CSR Management

Our goal, our guiding principle: to contribute to sustainable development

The key to sustainable development is to assume personal responsibility and to act conscientiously. That applies both to individuals and organizations. And TÜV Rheinland is no exception. “Our goal is to be the world’s best sustainable and independent service provider for testing, inspection, certification, consulting and training.” This ambition represents our mission statement. With our more than 20,000 employees, we want to help shape the world in terms of sustainable development – at the juncture of man, the environment and technology.

Sustainable goals, business opportunities

TÜV Rheinland aligns itself here with the principles of the UN Global Compact, the world’s largest corporate sustainability initiative. Moreover, we adhere to the Sustainable Development Goals (SDGs) of the United Nations. The SDGs are the core element of an agenda that considers all three aspects of sustainability – social, environmental and economic – in equal measure. The 17 codified SDGs raise awareness of fundamental socioeconomic challenges, focusing, for exam-

ple, on “affordable and clean energy” or “sustainable growth and production.” The SDGs also offer business opportunities, however, that match our core competences and the corresponding service portfolio. (More on this in the “Service Responsibility” section.)

TÜV Rheinland signed the UN Global Compact in 2006. We are also committed to the German Global Compact Network (DGCN), where we participate in peer learning and exchange formats and serve on committees. We have been part of the DGCN steering committee since 2007 and a member of the advisory board of the associated foundation since its establishment in 2009. Our work on the committees brings us in contact with an extremely wide range of participants. That interaction is beneficial in itself. Because the goal of sustainable development cannot be achieved alone.

DGCN players learn from one another

At the same time, the DGCN provides comprehensive insight into the expectations and challenges of TÜV Rheinland’s major stakehold- →



Susanne Dunschen
Corporate Development
CSR & Sustainability

“Effective CSR management involves all stakeholders and acquires credibility only through the consistent implementation of clear objectives.”

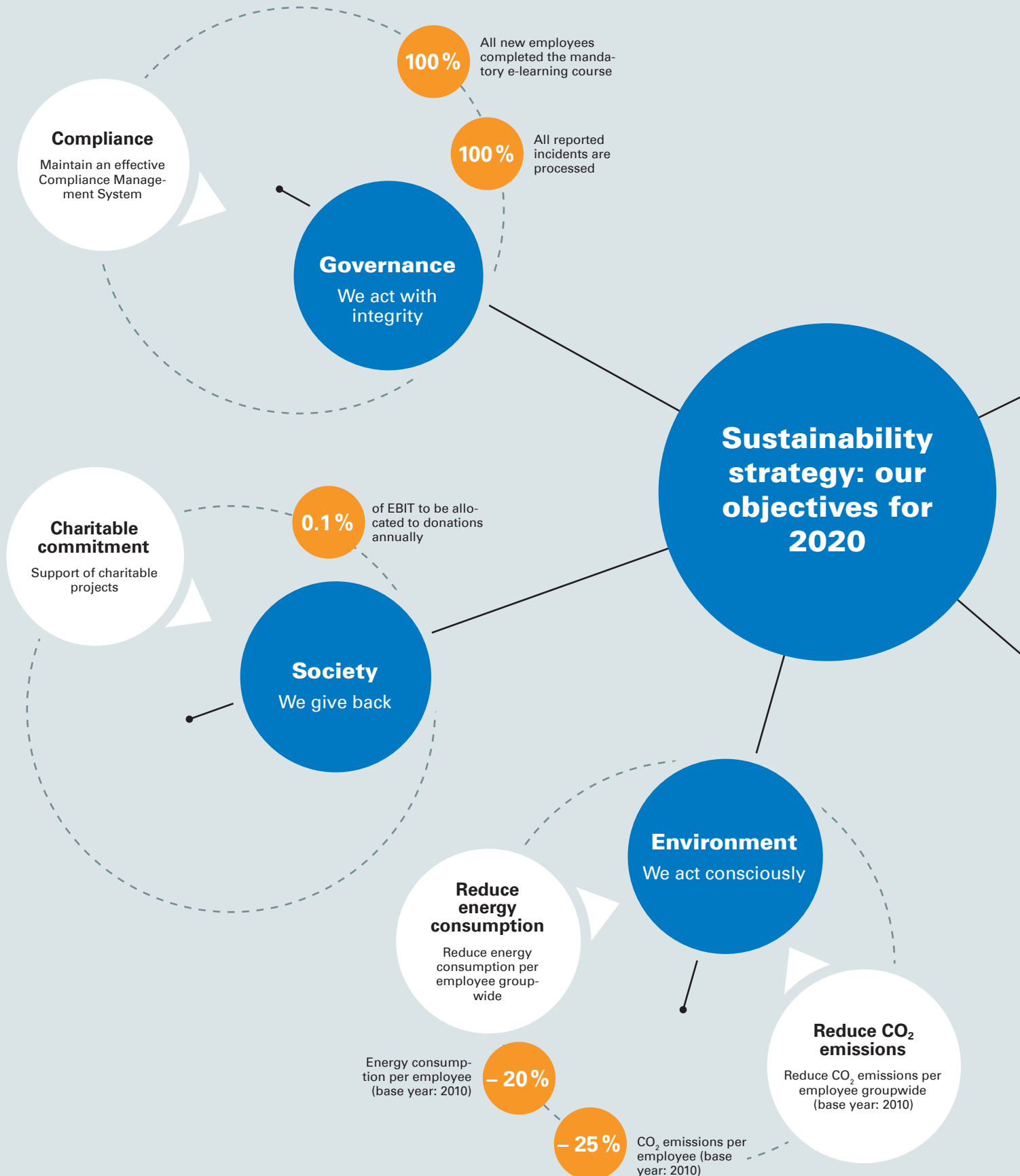


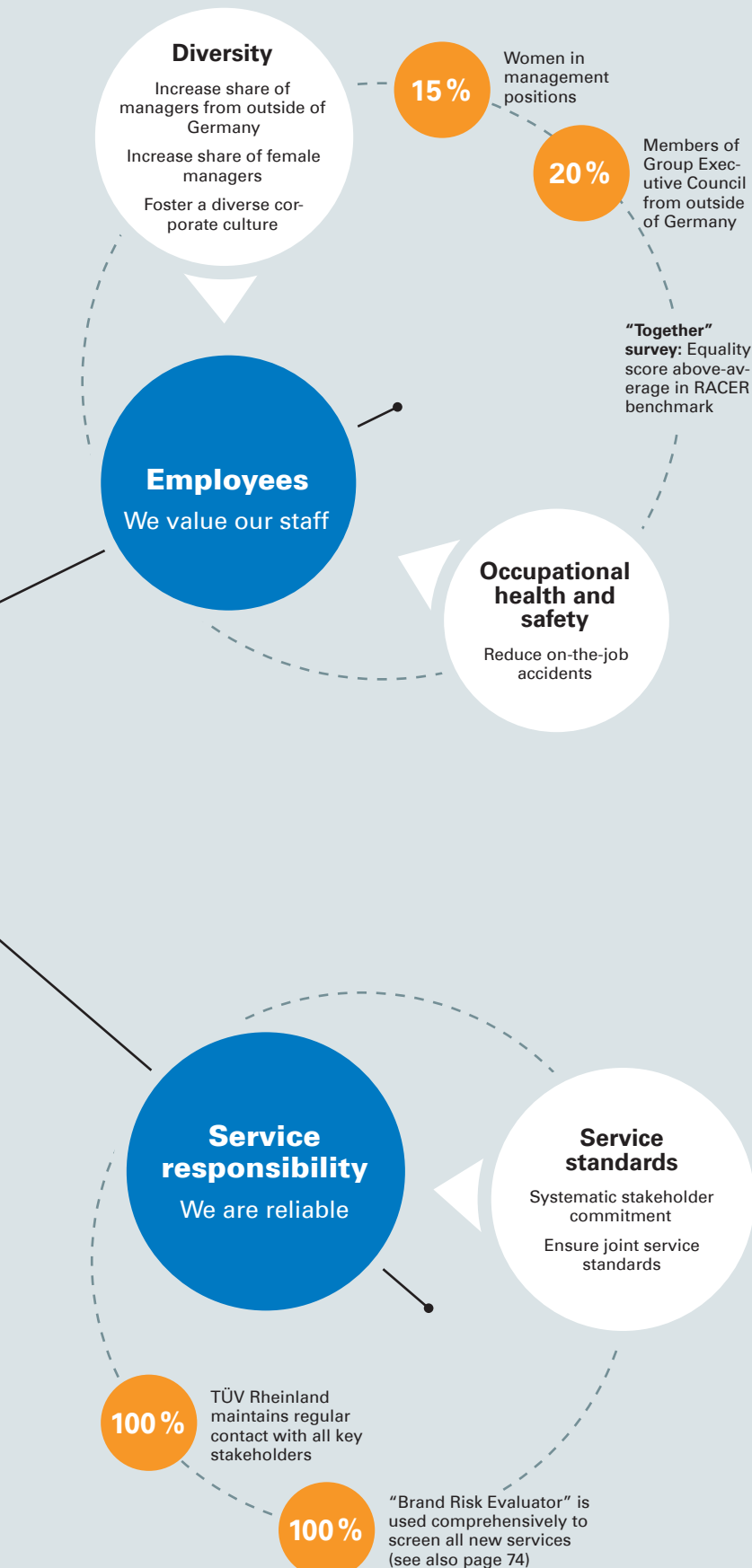
Stakeholders

We define stakeholders as all persons, companies and institutions with whom we enter into a direct relationship in the course of providing services, but also those in-

directly affected by our business activities. It is particularly important to us to provide our stakeholders with a clear picture of who we are, how we work, what we in-

spect and test, and who monitors our work. We use a broad range of instruments and channels to exchange information with our stakeholders on a regular basis.





13,000

Organizations

from some 160 countries
are committed to the
ten principles of the
UN Global Compact.

→ ers. The individual players can learn from each other. The aim is to use actions and partnerships to develop solutions for sustainable business operations – a solid foundation for successful CSR management. We participate in the "Climate Management" peer learning group, for example, and support the topic "Corruption Prevention" in the DGCN steering committee. Our work focuses on the latest developments in the two areas mentioned and on exchanging experience from everyday operations.

But TÜV Rheinland also uses the network as a platform to join other companies in considering how to set up an organizational structure to address the CSR challenge. And in the next step: how to apply the SDGs and the UN Global Compact in daily work and how to develop new business models in harmony with them. →

What “sustainable” means

The term “sustainability” became popular in 1987. Interest in it was sparked by a report commissioned by the United Nations: three decades later, “Our Common Future” remains one of the most frequently cited works of environmental and development literature. Published by an expert commission, it defined the guiding principle of “sustainable development” for the first time as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

→ TÜV Rheinland takes these issues seriously. In the year under review, we created a new database of sustainability services. Within the Group, the database catalogs all of our current sustainability services and helps identify synergy potentials between business streams. Moreover, it serves as a basis for determining focus issues in this area.

Like clockwork

The database project was managed by a task force established in November 2017, whose work will mark our future strategy for sustainability services. Among other things, they focused on suit-

able organizational structures, development prospects, key thematic areas, and target markets. The task force includes representatives of all business streams and the relevant Corporate Service Functions. It reports directly to Executive Board Member Ralf Scheller (see “Service Responsibility” section).

Overall, then, it is clear that TÜV Rheinland’s sustainability work is closely coordinated with its corporate development. A glance at the organizational structure also bears this out. The Group’s Corporate Development department formulates both the corporate strategy and the sustainability strategy. That strategy is based on a stakeholder survey as well as a discussion of the results at the Executive Board level, which also incorporates findings from regular dialogs with our stakeholders. After extensive discussion, the sustainability strategy was adopted by the Executive Board and confirmed by the Supervisory Board.

The Global CSR Officer knows the way

TÜV Rheinland’s sustainability strategy covers the dimensions of governance, employees, the environment, society and service responsibility. Those five dimensions mirror our fields of actions and goals. The Global CSR Officer of TÜV Rheinland informs the CEO about progress along the path to each goal. Behind the Global Officer is a CSR team that initiates projects throughout the Group. Along with this, local and regional contacts also participate.

In the year under review, we had to keep up to date and track the direction of sustainability-related trends. That included meetings of the “We together” network, in which representatives of German industry work to integrate refugees into the labor market. Another example is an initial exchange within the “CSR Center of Excellence Rheinland,” which aims to raise awareness for responsible corporate governance concepts. On an international level, we maintained our dialog with stakeholders – at the “IETP FFS Sharing Conference” in Dongguan, China, for example. There we focused on, among other things, establishing a network that aims to provide local support for the education and training of children whose parents work far from home as migrant laborers – and cannot provide enough care for their children.

In 1999, the UN Global Compact was established to foster more social and economic **globalization solutions** across national borders and industries.

90

members

This is the approximate number of companies that belong to **TIC Council** – the worldwide association that serves as the new voice of the industry’s actors.

Memberships and networks

Because professional exchange also plays a vital role for us within our industry, TÜV Rheinland is a member of several organizations. Our objective is to communicate and represent not only the interests of our Group, but also those of all firms that provide inspection and testing services. Some of the memberships that are most relevant to our business include:

TIC Council: Leading firms of the testing, inspection and certification sector established the organization TIC Council in December 2018. TIC stands for testing, inspection and certification, an industry that represents about one million employees worldwide. This new global association sees its role as representing the testing, inspection and certification services of independent third parties to industry, society and policymakers. With headquarters in Brussels, TIC Council was formed by the merger of the former international industrial associations IFIA and CEOC. In Paris, our CEO Dr. Michael Fübi was elected president of the new global association.

VdTÜV: The German technical inspection and certification organizations have joined together to form the TÜV Association (VdTÜV), which rep-



Dr. Hannes Payne
Corporate Development
Inhouse Consultant

“In expanding our sustainability services, we want to play an active role in the sustainable development of our customers.”

resents our interests within Germany. In the year under review, our CEO Dr. Michael Fübi took over as Chairman of the Executive Committee.

TÜV Markenverbund: The German technical inspection and certification organizations share an interest in a strong “TÜV” brand. In order to protect and maintain the value and the reputation of that brand, they have joined together to form the “TÜV Markenverbund e.V.” (TÜV Trademark Association) brand association. Our Executive Board Member Ralf Scheller is the Second Chairman of this association. ■

Our CSR agenda for 2019 calls for a **materiality analysis**. We need to determine stakeholder expectations and thereby establish the focus topics for a new sustainability strategy.

Connections between key areas of activity and the business model

Key areas of activity	Business partners	TÜV Rheinland	Customers/Consumers
Governance Compliance	Cooperation with business partners instills common values	Uncompromising commitment to acting with integrity	Reputation and protection of the brand
Employees Diversity, occupational health and safety		Securing success factors through diversity and health of the workforce	
Environment Energy consumption, CO ₂ emissions		Conservation of resources through efficient processes	
Society Charitable commitment		Making a measurable contribution to society	
Service responsibility Service standards		Strengthening trust through quality, safety and transparency	Effect of the promised standard of service in the market

2

Governance

The framework for our daily actions

For us, **compliance** means that corporate management and the workforce should always act in accordance with statutory regulations, in-house requirements, and voluntary commitments.

Good corporate governance is of paramount importance to a globally active testing and inspection services provider like TÜV Rheinland. In this context, regulatory compliance in particular merits our full attention. Our customers and business partners expect integrity, trust, safety and objectivity from us. Once per year, the general managers of all of our subsidiaries, together with our managers the world over, must explicitly con-

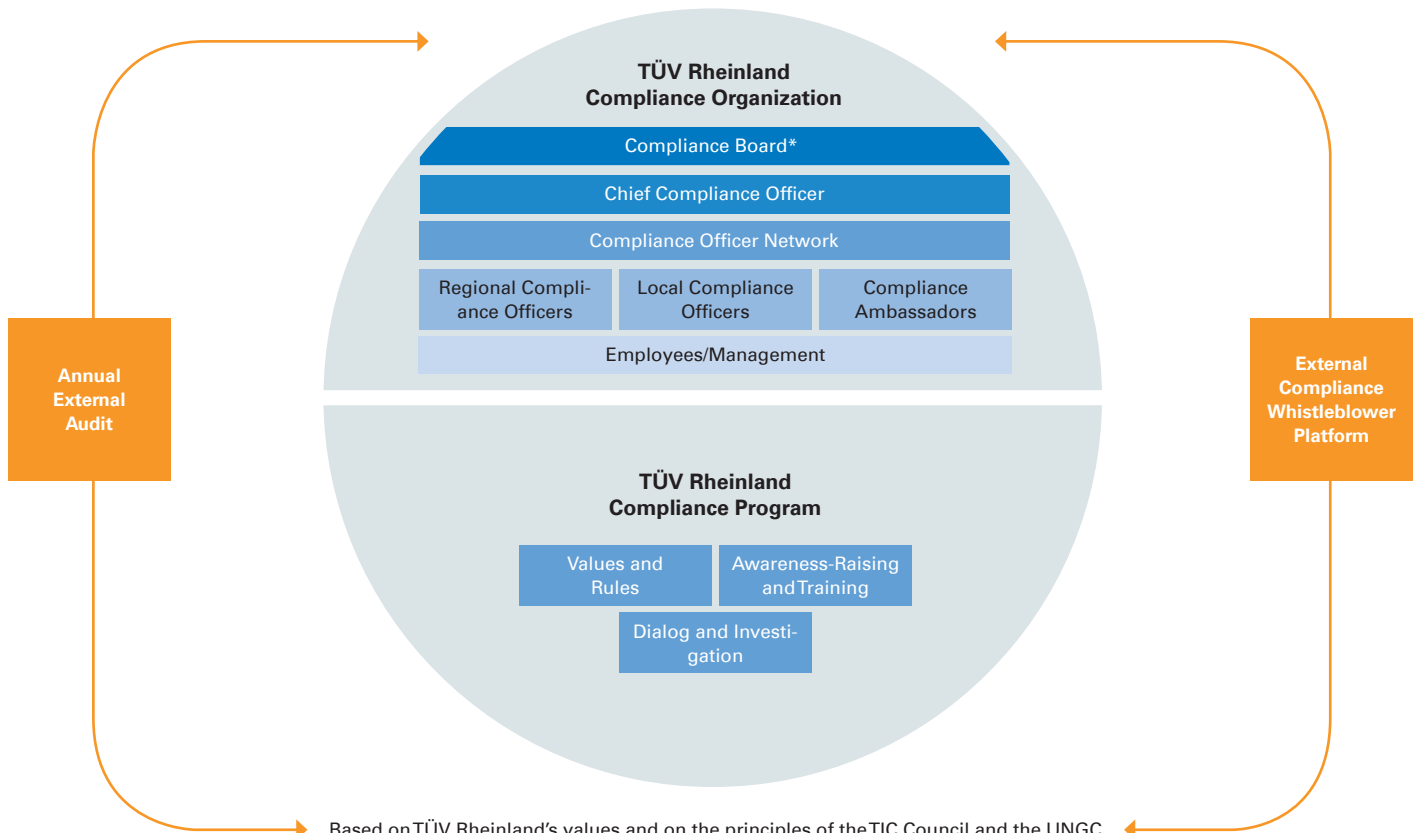
firm that they have operated in accordance with our compliance program and reported any violations to the responsible compliance officer.

Our daily compliance work is based on the principles of the UN Global Compact and is also aligned with the values anchored in our mission statement: Integrity, Excellence, Customer Orientation, Performance and Agility. We use our corporate compliance management system to help achieve that overarching vision.

TÜV Rheinland compliance organization

Our compliance organization is led by the Global Officer from Corporate Service Function Compliance (Chief Compliance Officer). Acting independently in that function, he reports directly to the Executive Board of TÜV Rheinland AG. Regular monthly meetings are held with one or more members of the Executive Board (including the Chief Executive Officer and the Chief Financial Officer), where the Global Officer Compliance reports on the work and current developments are

Compliance Management System



*Compliance Board here refers to monthly meetings with the CEO and the CFO, where the Global Officer Compliance reports on the work and current developments are discussed.

discussed. In addition, the Global Officer Compliance reports semi-annually to the Audit Committee of the Supervisory Board of TÜV Rheinland about current compliance-related matters, objectives, and risks, and on the status of the compliance management system.

In order to implement compliance principles at all locations, we have established an active worldwide network of compliance officers. During the year under review, we continued to systematically professionalize that network. Besides full-time compliance officers in the Corporate Service Function, we also employ full-time legal and compliance staff in six regions. In other large subsidiaries (in Japan and India, for example), we named additional full-time Local Officers for legal and compliance matters. Together with numerous compliance ambassadors, they serve as competent compliance contacts for our employees worldwide. In order to ensure continuous dialog and the flow of information back and forth between the regions and Corporate Service Function Compliance, we conduct four fixed meetings with regional and local compliance officers at one-to-two week intervals. In June 2018, we organized our global meeting once again at the site in Cologne, Germany, for the regional and local compliance officers. Attended by 30 participants, the meeting focused on adopting a needs-based approach with regard to the internal customer expectation concerning compliance matters. In that context, the actors concentrated especially on improving proactive collaboration on preventive and reactive measures. We want to intensify cooperation in the compliance officer network even further in the future.

An important part of our compliance organization is the risk management function, which is managed from corporate headquarters. The Global Compliance Officer is a member of the corporate-wide risk unit, which also includes Internal Services Corporate Audit, Quality Management, and Finance & Accounting as well as Corporate Service Function Legal. The Corporate Compliance team works especially closely with Corporate Audit, consulting one another regularly and conducting joint internal investigations as necessary. Compliance issues are part of Service Function Corporate Audit's list of audit items. This helps to ensure that the implementation of compliance requirements which apply throughout the Group is also followed up on a local basis.

TÜV Rheinland compliance program

Our compliance program comprises, among other things, several guidelines which apply throughout the Group. The most important compulsory compliance documents are:

- Code of Conduct of TÜV Rheinland
- Compliance Guideline
- Guideline for the Prevention of Conflicts of Interest and Corruption
- Business Partner Management Guideline
- Sponsoring Guideline

Our employees can access all of these documents in English and German (and in some cases also in other languages) in the central document management system. Whenever new employees join the company in Germany, we immediately inform them about the relevant compliance documents. For interested business partners and third parties, the Code of Conduct and a compliance leaflet have also been published on our internet site.

To emphasize to all employees the importance of compliance, we have established an e-learning program throughout the Group. Available in English and German, it is mandatory for new employees. In the year under review, 2,403 employees completed the compulsory e-learning course on compliance. Along with groupwide training on the Code of Conduct of TÜV Rheinland, Corporate Service Function Compliance has also developed additional voluntary training courses for all employees. These informative training →

The annual global meeting of our regional and local **compliance officers** concentrated on the topic of **customer focus**.

214

issues

were treated by Corporate **Service Function Compliance** in 2018.

→ units cover the compliance management system, anti-corruption, and how to handle invitations and gifts, as well as conflicts of interest.

In 2018, Corporate Service Function Compliance managed the successful roll-out of a refresher compliance course together with TÜV Rheinland Akademie GmbH. The course has been made available to employees outside of Germany to take when three or more years have elapsed since they completed the compulsory course. In the year under review, 1,914 employees successfully completed the refresher course. We also continued to work together with Corporate Service Function Human Resources on a training course for managers and further developed the so-called “Compliance Fundamentals.” It provides special instruction to managers about compliance. Roll-out of that training course is scheduled for 2019.

The crucial importance of compliance for our company and the associated organization are also, together with the CSR management, for example. Corporate Service Function CSR, the subjects of the two-day orientation seminar entitled “New at TÜV Rheinland,” which all newly hired employees in Germany can attend. Comparable classroom training courses on specific topics and local regulations are also held by our compliance officers in other countries and regions (in Brazil, Poland or Greater China, for example). Their daily work clearly helps anchor compliance in the minds of our employees. In the Greater China region, for example, 2,941 employees participated in a total of 38 classroom courses during the year under review.

Business partner management

Within the framework of initiating business with suppliers in Germany, TÜV Rheinland is working

5,773
projects

were accompanied by
integrity audits in the
Greater China region.

In the Greater China region so-called **integrity audits** are conducted. In those audits, the local compliance team makes sure that service performance meets our compliance regulations.

to achieve acceptance of our general purchasing terms and conditions. By accepting them, suppliers agree to adhere to applicable laws and ordinances and to the principles of the UN Global Compact in the areas of human rights, labor standards, environmental protection, and anti-corruption measures.

The compliance organization adopted a compulsory global guideline on business partner management. Various risk factors are applied to classify business partners (joint venture partners, subcontractors or intermediaries, for example) into different risk levels. Depending on the risk level, those business partners then undergo different approval processes and risk management measures. In 2018, we further raised awareness for the guideline within the company. TÜV Rheinland Greater China initiated another project – Business Partner Management Batch Screening – in the course of which the compliance organization and those responsible for the business classified all new contracts with business partners as well as all contract extensions with existing partners in accordance with the provisions of the new guideline. The screening concerned about 600 contracts in all.

In another part of our compliance program, so-called “compliance monitoring” continued to expand in the Greater China region in the year under review. In five business streams, the local compliance team supported a total of 5,773 of our projects with so-called “integrity audits.”

Dialog and investigation

In 2018, the global compliance officer network treated a total of 1,055 compliance issues. Corporate Service Function Compliance handled 214 of those issues. The issues are divided into queries and cases of suspected misconduct. The queries submitted to us involved the following specific topics:

- Acceptance of invitations and gifts
- Donations and sponsoring
- Conflicts of interest
- Personnel issues

Despite all preventive measures, the possibility that TÜV Rheinland might violate compliance, or at least come under suspicion of such a violation, cannot be excluded. We always react to violations with the requisite consistency and resolve. The procedure follows a standardized process which is

likewise transparently specified in a guideline that applies throughout the Group. Within the scope of that guideline, we reserve the right to take legal action – under both criminal and labor law – in case of employee misconduct. The cases of suspected misconduct involving criminal law subject to review by Corporate Service Function Compliance could be classified mainly into the following subject areas:

- Corruption/Bribery
- Fraud
- Forgery of documents
- Embezzlement

Most compliance issues reported to Corporate Service Function Compliance come directly from the employees.

The new whistleblower platform

In 2018, a new whistleblower platform was launched. Employees can use this platform – also anonymously – to provide information about possible violations or abuses in the company. This concerns information about violations of laws, internal company guidelines (the Code of Conduct, for example) or our compliance program. The system is specifically designed for reports of compliance violations and not for general complaints (such as customer satisfaction or quality problems). The new compliance platform is administered by a worldwide leading provider and used by many other major companies. It is available in English, German, Chinese, Spanish, Portuguese, Japanese and Russian.

The TÜV Rheinland AG Group's approval catalog currently in force stipulates the mandatory involvement of Corporate Service Function Compliance in specific business transactions (for example, when contracting consultants, establishing companies, making donations, or sponsoring).

Annual external compliance audit

Since 2009, our compliance management system has been audited annually at several locations by an external auditor. For 2018, we are having compliance management systems audited at two companies of the TÜV Rheinland AG Group in Germany and one foreign subsidiary in the United Kingdom (TÜV Rheinland Risktec Solutions Ltd.). The requirements of that audit follow IFIA guidelines (so-called "agreed-upon procedures") and



Ruth Marie Mosch
Senior Compliance
Officer

"The ability to report compliance violations by means of a new platform has been well received."

the results are also reported to the IFIA (see information on the right). Moreover, we improve our compliance management system on a continuous basis by applying the recommendations of the auditing firm contracted to perform the audit.

Compliance goals

Naturally, we intend to further develop our compliance management system again in 2019. Our work will focus primarily on areas such as the collaboration with the compliance officer network and the incident management process as well as compliance monitoring, for example, integrity audits. ■

Note: The IFIA has now become part of the TIC Council (details on page 49). For the year under review, the audit was **still conducted according to IFIA standards**.

A step forward for compliance

More about the new platform for whistleblowers

Unlike with the previous helpline, all employees the world over can contact the compliance office in seven languages.

The benefit of the system **for Corporate Service Function Compliance** is that information can be seen rapidly and passed along to the responsible regional officer.

The platform also guarantees security:

The system offers a protected space where compliance officers can communicate with the whistleblower.

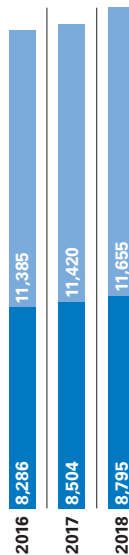
3

Employees

Driving the shared corporate culture – promoting the qualification, motivation and well-being of the international workforce

TÜV Rheinland doesn't sell any physically tangible products. As a service provider, our stock-in-trade is the expertise of our employees. They are a key factor in the business success of TÜV Rheinland. And that's why one of our top priorities is to continuously promote not only the qualification of our employees but also their motivation and performance.

Today, with our workforce of more than 20,000 employees, we have embarked on an ambitious journey: we want to be the world's best sustainable and independent provider of testing, inspection, certification, consulting and training services. The Group program "Do it. Best!" will pave our way to the top – and will, in the process, consistently transform TÜV Rheinland. In order to achieve the objectives, this development requires a shared corporate culture that is lived by the workforce at all Group locations the world



Employees in Germany and abroad*

■ Germany
■ Abroad

Over the course of 2018, we employed an average of 20,450 people (previous year: 19,924). Our workforce grew by about three percent as a result.

* FTE – FullTime Equivalent, average over the year – this includes the employees of all consolidated companies, excluding dormant employment contracts.

over. The cornerstones of that culture are our five values: integrity, excellence and customer-orientation, performance and agility are our defining characteristics. The values are an integral part of the Culture Framework we established in 2016.

The Framework incorporates not only our mission statement and values, but also our core managerial principles – we speak of “leadership essentials” – as well as the Code of Conduct and the competence model of TÜV Rheinland. The concept is addressed to every employee of the Group – new graduates, young professionals, experts and managers alike, as well as representatives of top management. Because the Culture Framework cannot come to full effect unless all employee groups carefully study the subject matter of the concept and act accordingly.

In order to integrate the content into the day-to-day work environment on a communicative level, TÜV Rheinland uses different channels in print and online formats: the intranet, the employee magazine “inmotion”, the company blog, and various social media platforms, for example.

Spotting talent and developing it

Moreover, in the year under review, we initiated or expanded personnel development projects for employees at every career level – starting with support for talented young professionals who work for TÜV Rheinland. Since 2017, our potential leaders have been assessed in a “Talent Orientation Center” – a process that is standardized throughout the Group and therefore transparent. Having previously passed an online test, each candidate receives feedback from the “Talent Orientation Center” about various competences. Does this person have managerial talent? Or are



Ruth Werhahn
Chief Human Resources Officer
of TÜV Rheinland

“We are convinced that the diversity of our workforce represents an essential key to our business success and to the satisfaction of our employees.”

they well-equipped for a career as a technical expert? After a day and a half, the center compiles an assessment of the candidate's future career path and continued personal development. In the year under review, we began the groupwide roll-out of the "Talent Orientation Center" – initially in the Group regions Germany, Asia Pacific and Greater China. In the pilot region of Germany, we also introduced an option permitting employees to nominate themselves for the program. Prior to this, interested employees always needed a recommendation from their supervisor.

Spotting talent is also part of the "Young Professionals Conference" concept. Also known as "YPC" for short, it started its sixth round in 2018. It sees itself as part innovation workshop and part talent diagnostics. The young professionals take aim at new and exciting business ideas, and their

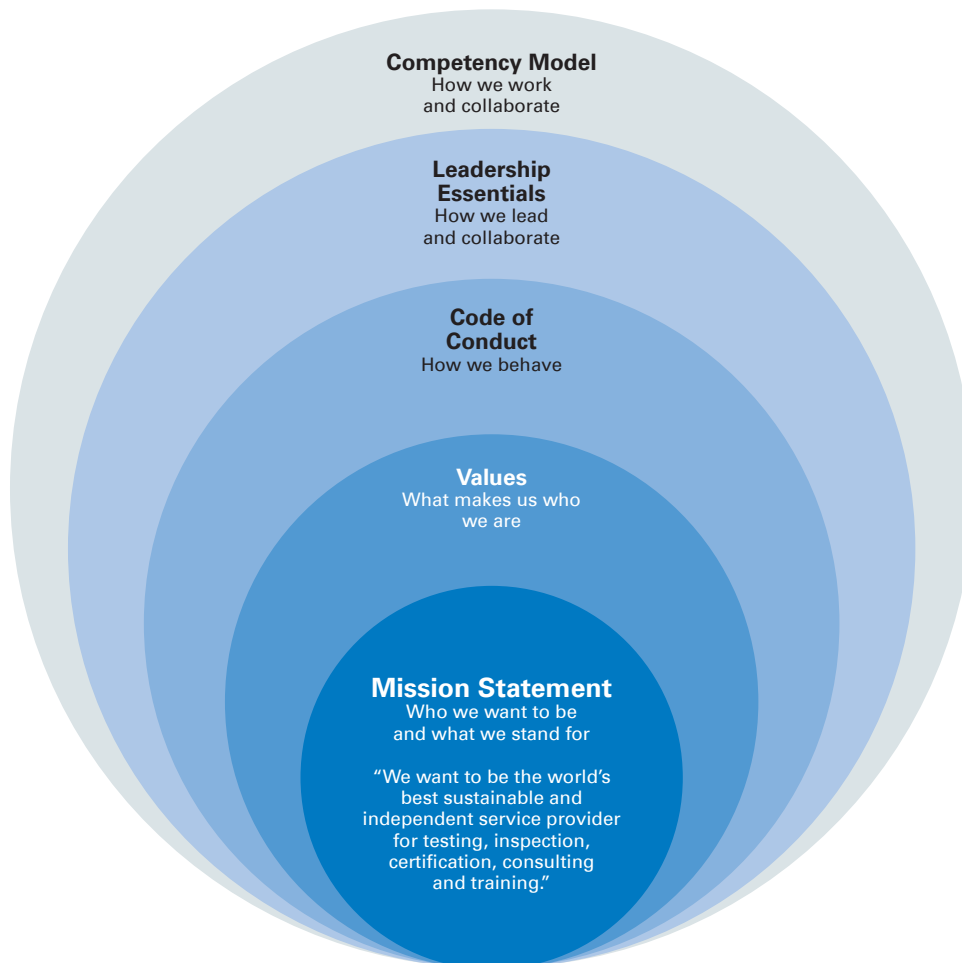
performance is then evaluated by Human Resources managers. YPC participants can either apply for the program on their own or be nominated by their supervisor. In the year under review, the outstanding players from the two programs – "Talent Orientation Center" and YPC – qualified for two personnel development programs: the "German Talent Team" and the "Global Talent Team." These approaches prove that anyone who demonstrates potential can continue along an exciting career path and achieve satisfying professional development at TÜV Rheinland.

Self-assessment strikes a chord with employees and supervisors

With regard to the Culture Framework and our goal of becoming the world's best provider of inspection and testing services, managers play →

The **Competency Model** formulates the defining **capabilities and characteristics** that our employees should exhibit: collaborative, entrepreneurial, driving, customer-oriented, purposeful, focused, exploring, enabling communicative.

Our Culture Framework



Documented training and further education days in Germany

	2017	2018
Employees trained (classroom seminars)	4,438	4,580
Training days for new experts	6,720	7,969
Seminar days for new employees	1,200	1,336
Further education days	14,645	17,104
Total training and further education days	22,565	26,409

Young Professionals are junior staff who have **no supervisory responsibility** experience yet, have one to five years of service with the company, and have distinguished themselves by their good performance.

→ a very special role. Because through their leadership style, they can help to anchor the principles of the Culture Framework securely in our daily work.

Based on the Culture Framework, the “Executive Review” was held again during the year under review, inter alia with the goal of strengthening the leadership culture. It focuses on the targeted planning of development programs for managers. There are worldwide harmonized assessment criteria, which are aligned with the Competency Model of the Culture Framework. The direct supervisor evaluates the performance, potential and skills of a top manager; the employees evaluate the manager’s skills and managerial behavior; the results are compared to a self-assessment of the person evaluated, and then jointly considered in the team.

In the fall of the year under review, following the pilot phase of the previous year, a groupwide Executive Review process was started for some 230 managers from upper management, including the Executive Board. The evaluations and the mutual exchange at the team level are planned for 2019 – to be followed by individual development programs for each of the top managers.

How to live the mission statement and the associated values in the leadership culture throughout the Group? A training program entitled “Leadership Fundamentals I” gives us the answers. Scheduled over the course of ten months, it is addressed to some 1,000 operative managers at TÜV Rheinland – some 200 managers have completed the training so far. The program comprises a multi-day classroom course, accompanying e-learning elements, and an individual development plan for each participant.

After an initial run that took it to Bangkok, Shanghai, Budapest, Bangalore, Milan and São Paulo in 2017, “Leadership Fundamentals I” was

rolled out in almost all regions during the year under review with the exception of North America, where the program launch is scheduled for 2019. “Leadership Fundamentals II” is a development program designed for managers with extensive previous experience. Participants closely examine techniques to help teams implement change processes and to create an open and innovative work environment. In 2018, two sessions were held in Germany. For 2019, eight more sessions are planned in Germany and five in the other Group regions. “Leadership Fundamental II” serves as the link to the “LeadX” training program. “LeadX” relies on interactive methods and comprises three modules: Ego, Entrepreneur and Enabler. The program is managed by our Global Officer HR Development & Diversity. (For more information about this, see the interview with Dr. Silke Wechsung on the next page.)

Strengthening the leadership culture

An ability on the part of managers – at all levels of management – to accomplish things is also in tremendous demand in connection with another project: the implementation of measures created as a consequence of the biennial employee survey “Together.” In 2017, 14,500 employees had provided their feedback in “Together” and showed where we can improve as a company. As a result, more than 1,700 measures were defined at both the Group level and in the individual teams and business streams by the end of 2018 – and 91 percent of those measures have been initiated and/or implemented so far. The most frequently treated topics are “Communication and Cooperation,” “Tasks and Work Processes,” and “Work and Workload.” The measures include for example, the “Listening Tour” and the “Change of Perspective” project, which are deployed in the region Germany in the context of the “Together” focus issue “Supporting Change in the Company.” The “Listening Tour” brings the Top Management out to different locations to engage in direct exchange with employees. With “Change of Perspective,” managers complete a work-study program on an operational basis, where they have the opportunity to see things from the employees’ point of view. The measures serve to address some employees’ desire to understand the Group and its strategic objectives better.



Dr. Silke Wechsung
Global Officer HR
Development &
Diversity

“The biggest challenge is putting it into practice”

A conversation about the training program “LeadX” for top managers.

Dr. Wechsung, how does the “LeadX” program make the participants better leaders?

“LeadX” was created with the knowledge of who we are, what we represent – and where we want to go as a technical testing and inspection organization. Leadership principles and leadership behavior are the foundation for the cultural transformation that we are striving to achieve. Within the framework of the Group program “Do it. Best!” and taking into account our five values, “LeadX” helps the managers successfully promote the changes for their area of responsibility – and thereby for the company.

Which content do the three program modules “Ego”, “Entrepreneur” and “Enabler” communicate?

You can’t lead others unless you lead yourself well. That is the core message of the module “Ego”. In terms of content, the focus is on putting previous thought and behavior patterns into question, while also examining mindfulness and the role model function. “Entrepreneur” concentrates on an agile leadership style – without silo mentality. This entails an awareness of the modern digital work world and innovative solution approaches such as design thinking. “Enabler” illustrates how, from a strategic and communicative perspective, to lead a team successfully in times of change.

What is the biggest challenge of such advanced training?

Putting it into practice. Effectively implementing the new spirit and the findings elaborated, whether they relate to leadership principles or change management – that will be an exciting challenge for the participants. Ultimately, the success of such a program can be judged only on the implementation of the new material in everyday work.

Employee turnover (Group)

in percent/headcounts



Employee turnover (Germany)

in percent/headcounts



Groupwide, **61 percent of the people who left the company are men and 39 percent are women**. The Group regions of India, Middle East and Africa as well as North and South America recorded most of the departures. Due to extraordinary changes in processes and organization in all Group regions, the turnover rate remained unusually high again in 2018. The change processes are designed to prepare the company for the future.

The sex of the **employees who join or leave** the North American subsidiaries is not recorded and has therefore been excluded from the calculation of the share of employees who joined and left the company broken down according to sex. The calculation includes the employees of all consolidated companies whose data are available in SAP, including dormant employment contracts. This represents more than 90 percent coverage.

New hires and new hire rates

Headcounts	Group	Germany	Abroad
Average workforce	22,226	10,501	11,722
New hires	4,455	1,426	3,028
New hire rate	20.0%	13.6%	25.8%

The **groupwide new hire rate is 20 percent**; it is much higher in the foreign subsidiaries than in Germany. This is primarily the result of the many new hires in North and South America. Of the newly hired employees groupwide, 36 percent are female and 64 percent are male.

The training program “LeadX” was rolled out worldwide during the year under review – and will be completely implemented by early 2020. It is intended for the 100 top managers of the Group, including Executive Board members.

Where we’re headed – and where we stand today

TÜV Rheinland also intends to remain an attractive employer in the future. The goal is to interest potential candidates – new graduates and experienced professionals – in joining the company. We have set clear objectives with regard to diversity as well as occupational health and safety. By 2020, we aim:

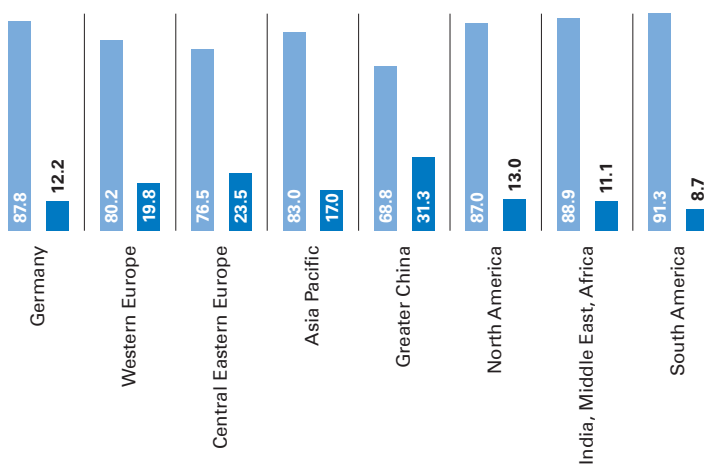
- to staff 20 percent of our top management positions with a broad range of nationalities,
- to raise the share of women in managerial positions throughout the Group to 15 percent,
- to score above the RACER Benchmark average in the area of equality with our employee →

Managers by gender*

in percent

■ Women ■ Men

* Across the Group, 16.3 percent of all management-level positions are held by women. This corresponds to a 16.6 percent share of women in managerial positions according to headcounts. The calculation includes the employees of all consolidated companies whose data are available in SAP, including dormant employment contracts. This represents more than 90 percent coverage.



TÜV Rheinland is a member of the so-called **RACER Group**. It currently includes twelve globally active companies. The members compare the results of their employee surveys and regularly exchange related information (www.racer-group.de).



- survey “Together,” and
- to reduce the number of on-the-job accidents.

Regarding those objectives, we made the following progress in the year under review:

- 40 percent of our top management positions are now staffed by executives from outside of Germany. As a result, at the present time the objective for 2020 has been exceeded.
- At the end of the year under review, the share of managerial positions held by women was 16.6 percent. This means that we have achieved our objective (see graphic “Managers by gender”).
- The upcoming employee survey “Together” will be conducted in 2019. We are striving for a result that compares favorably with the previous survey from 2017: TÜV Rheinland scored above the RACER Benchmark average in the area of equality. In direct comparison with other RACER group companies that surveyed their employees about equality, we actually achieved the best result.
- The number of on-the-job accidents in the Group declined (see table “Occupational Safety, Group”).

Diversity

It’s all in the mix: studies show that diversely staffed companies are more profitable. Like other companies, TÜV Rheinland relies on the interaction between colleagues from different countries and cultural groups: they contribute a range of experience to the projects and respectful behavior to the teams. This can nurture an environment where all actors win – our customers, our employees, our company. That’s why diversity plays a key role in the corporate culture of TÜV Rheinland and represents a core element of our sustainability strategy.

In 2013, we signed the “Diversity Charter” and undertook to create a work environment that is free of prejudice. To that end, we regularly reflect on our attitudes and behavior, and make use of networking. As a member of the Rhine-Ruhr Diversity Network, we participate in the organization of an annual conference commemorating German Diversity Day. In 2018, we hosted the high-profile event and invited managers of the member organizations to our Innovation Space. With a focus on “Digitalization and Diversity,” participants examined the question: How can companies use a diversely staffed workforce to improve their innovative force in the digitalization era?

Combating stereotypes

Moreover, in the year under review, we continued the diversity campaign that we initiated in 2017: “All different. All precisely. Right.” In that context, the internal diversity app that we developed in-house has now been expanded. Along with information and online training courses that raise our awareness of possibly unconscious stereotype-thinking, a toolbox in English and German has been added. It suggests concrete ways to make diversity a positive experience in the team. It features, among other things, guides for a “diversity quiz” and a broad range of team exercises – sample measures that provide a simple, playful introduction to the topic, thereby encouraging employees the world over to exchange and reflect on unconscious patterns of thought. Alongside those measures, internal resources can be used to book workshops that show how to recognize stereotypes and stereotype-thinking, and how to oppose them. On one hand, this makes it clear that diversity is a top priority at TÜV Rheinland. At the same time, we demonstrate that we respect

our workforce – regardless of age, gender, sexual orientation and identity, physical capabilities, ethnic origin and nationality, or religion and ideology.

Awards 2018

For the eleventh consecutive time, we have earned the right to call ourselves a “Top Employer” in Germany. This is the title that the international “Top Employers Institute” confers on employers that provide good career and work conditions, especially to young university graduates. Moreover, TÜV Rheinland was honored as one of the “Top 100 Employers in China.” Since 2008, the biggest personnel services provider in the country has awarded that title annually based on its “Employer Excellence of China” survey. It focuses on some 400,000 companies and their programs to recruit, retain and develop talented employees. TÜV Rheinland regularly submits applications to receive awards – the TOTAL E-Quality certificate, for example.

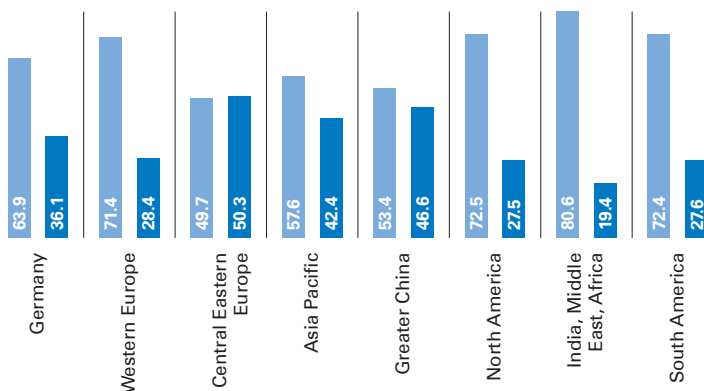
The “**Diversity Charter**” is an employer initiative to which 3,000 German companies with a total of 10.4 million employees are committed. It stipulates that, as a result of **globalization and demographic change**, the economy cannot succeed unless it makes use of the diversity of the workforce.

Workforce by gender*

■ Women ■ Men

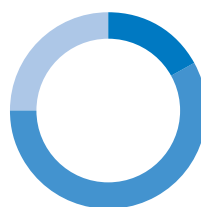
* With 64 percent, the majority of our workforce is male, 36 percent of the Group’s employees are female. The share of full-time employees is just under 88 percent. Throughout the Group, we employ people from at least 113 countries.

40 percent of our top management positions are staffed by executives from outside of Germany. The calculation includes the employees of all consolidated companies whose data are available in SAP, including dormant employment contracts. This represents more than 90 percent coverage.



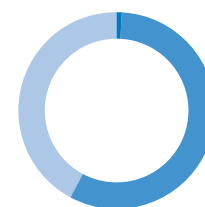
Age distribution of total workforce

Headcounts



Age distribution of managers

Headcounts



■ 17.0 %
less than 30 years old
■ 58.1 %
30 – 50 years old
■ 24.9 %
more than 50 years old

■ 0.0 %
less than 30 years old
■ 58.2 %
30 – 50 years old
■ 41.8 %
more than 50 years old

Most of the employees (nearly 60 percent) are between 30 and 50 years of age, whereby that age bracket constitutes 50 percent of the workforce in Germany and 69 percent of the workforce outside of Germany. The overview of age distribution of the total workforce takes into account all employees, including managers, except employees of the region North America, where age data are not systematically recorded. The calculation includes the employees of all consolidated companies whose data are available in SAP, including dormant employment contracts. This represents more than 90 percent coverage.

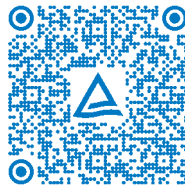
Like many technical firms, TÜV Rheinland employs more men than women. That’s why the promotion of equal opportunity for women is of central importance to TÜV Rheinland. In 2018, 36 percent of all TÜV Rheinland employees groupwide were female and women held 16.6 percent of the managerial positions. We aim to raise those shares further. The TÜV Rheinland mentoring offer for (future) female experts and managers – or TAFF for short – illustrates how, beyond cooperations, we improve and selectively promote career prospects for women in our company. In Germany, we implemented the TAFF mentoring program for the fifth time. It gives female employees the opportunity to learn from the experience of an executive in upper management. Mentee and mentor exchange information with one another on a regular basis. In their conversations, they discuss the mentee’s professional development goals and specifically related concrete questions. There is no direct employment re- ➔

→ lationship between the two individuals. Both sides gain important insights from the collaboration: the mentee acquires experience and know-how, while the interlocutor reaps fresh ideas and new perspectives.

Based on our extremely positive past experience, we initially implemented the TAFF mentoring program in the Group's Greater China region as a pilot project. Although mentoring was still unknown as an HR instrument there, 16 tandems were formed. In 2019, we intend to continue expanding the mentoring program for female and male employees outside of Germany.

We are also committed to the "Initiative Chefsache", a network for promoting a balanced ratio of women to men in management positions. Already in 2017, together with other member companies of the "Initiative Chefsache", we conducted a series of workshops on flexible work models. In January 2018, the managers involved in the series participated in an assessment workshop. The results were incorporated into an internal concept for "Mobile Work." In addition, within the framework of the "Initiative Chefsache", and with the active participation of TÜV Rheinland, the report

In 2018, the "**Chefsache**" initiative network published a report (in German): "Rethinking talent development – an action guide for boardrooms" provides two **best practice examples** from the everyday work routine of TÜV Rheinland (pages 29 and 42).



entitled "Rethinking talent development – an action guide for boardrooms" was developed and published in 2018. It also presents two best practice examples from TÜV Rheinland. One is the YPC as an example of self-nomination for talent programs, and the other is the TAFF mentoring program from the perspective of a mentee.

Corporate Service Function HR Development & Diversity also held a round of discussions on this topic with external guests in connection with the "Meetup" event series. Under the heading "Do Women Matter?", Sabine Hager, Diversity Manager TÜV Rheinland, and Robert Franken, organizational consultant and creator of the "Male Feminist Europe" platform, discussed opportunity-based talent development in companies.

Fair to families

TÜV Rheinland reacts to the responsibility that our employees bear for their relatives. To that end, we want to implement a flexible, family-conscious work culture and give the topic more attention in all regions. In the company's "TÜVtel Kids" childcare center at the Cologne site and with crèche spaces throughout Germany in the Fröbel Group's facilities – a nationwide non-profit childcare network that we have partnered with for many years – we have adapted to the needs of parents who work at TÜV Rheinland and made more daycare spaces available for their children.

One of the special highlights of the year under review was the "TÜVtel Kids" summer fest, where all employees were welcome under the banner "We are one team!" The international spirit of TÜV Rheinland is increasingly reflected in our childcare facility, not least due to the relocation of families coming (back) to Germany. We also want to help our employees should they need to provide care for members of their family. At two German locations, we have tasked employees with providing basic advice to colleagues who, facing questions of care for their relatives, feel lost in the "care jungle." In 2018, we continued that program and also hosted two information events on "Care of family members" in Berlin.

In terms of family-oriented measures, we have expanded our engagement since 2018 by including the perspective of fathers in the company: TÜV Rheinland is participating in Germany's nationwide "Father Network" project – with a "Väter@TÜVRheinland" group. In a workshop with fathers from various departments, the group

36

percent

of all employees at TÜV Rheinland are **female** and almost 17 percent of the managerial positions are held by women.

set out to prepare an initial analysis of work-life balance from the fathers' point of view. Specific topics that eventually attracted the most interest included additional flexible work time models and mobile work arrangements. Participants also expressed the wish for greater acceptance when fathers stay home to care for their sick children. "Väter@TÜVRheinland" plans to continue meeting regularly in 2019.

Diversity opens up new recruiting options

An internal LGBT network has already been active at TÜV Rheinland since 2015. LGBT: These four letters stand for lesbian, gay, bisexual and transsexual/transgender. The LGBT contacts organize a regular exchange. In 2018, the LGBT group also joined the LGBT Network Rhine-Ruhr, whose members include various major corporations in the region. Moreover, our internal LGBT network represented us in 2018 once again with a stand at "Sticks&Stones", a career fair primarily for LGBTs. With our participation in the event, we sought to gain new employees and sent a conscious message about respect for others. In so doing, we also make our company more attractive as an employer for that target group. With regard to recruiting, in the year under review we decided to address our job openings not only to applicants who are female and male – a third gender has now been added: "other". Here we are reacting to the social development that will allow people of the "third gender" to list that on their ID card in Germany.

Occupational safety – Group

in terms of reported on-the-job accidents with downtime of employees*

	2017	2018
Number of employees covered in percent	100%	100%
Reported on-the-job accidents with downtime of employees (Lost Time Injuries)	177	154
Reported accidents with downtime of employees per million hours worked (Lost Time Injury Frequency Rate)	5.2	4.4
Total number of working hours in the year under review**	34,300,791	35,043,355

* On-the-job accidents are all accidents that occur at work, and which cause one or more downtime days (calendar days); they relate only to TÜV Rheinland employees and exclude commuting accidents. Lost workdays are counted starting from the first day after the accident and relate to all calendar days.

** Hours worked were calculated on the basis of 7.7-hour days and on the basis of 220 workdays per year.

Occupational safety – regions

in terms of reported on-the-job accidents with downtime of employees per million hours worked***

Asia Pacific	0.0
Greater China	0.3
Western Europe	8.7
Central Eastern Europe	0.0
IMEA	0.9
North America	1.8
South America	7.0
Germany	7.0

*** The year under review is the first time that the data can be broken down according to regions, so no comparable values are available from 2017.

Companies of networked fathers: In Germany, the nationwide "Väter-netzwerk" project supports male employees with work-life balance.

Occupational health and safety

The business activities of TÜV Rheinland are global, its culture diverse, and the provision of its services is technically demanding – but as a group, we see the health and safety of our employees as a precious asset and want to ensure a safe work environment at all of our locations. We are convinced that the activities in our Group can be carried out safely and that losses are always avoidable. The Executive Board and the managers undertake to continue the effective implementation and continuous improvement of the HSE management system (health, safety and environment) at TÜV Rheinland. The company's securely anchored culture of occupational health and safety is of relevance not only to our own employees, but also for our partners and society as a whole.

In order to guarantee safety awareness, positive attitudes and the continuous improvement of our HSE performance, all managers, em-



→ ployees and business partners must be on board and actively dedicate themselves to implementing our guidelines, rules and processes. Our approach remains unchanged: “We cannot and will not accept incidents that cause injuries or impair the health of employees.” That is the essential message of the HSE vision that we developed in 2017: “NO INCIDENTS. NO HARM. NO COMPROMISE.” – and which is continuously communicated to our employees. HSE, especially workplace safety, was one of the main topics within the Group once again in 2018.

Uncompromisingly safe

Our management system is based on the ISO standards 14001 and OHSAS 18001. We take the requirements of those standards as minimum requirements, but see ourselves as responsible for achieving an even higher HSE standard, and encouraging every employee to contribute to their own well-being and to the well-being of colleagues and others affected by their activities. The HSE management system of TÜV Rheinland comprises:

- a QHSE policy (Quality, Health, Safety and Environment) which is usually reviewed annually,
- the HSE strategy, which is in effect through 2020, and

- the “Main Process HSE (Manual)”, an overarching document that covers all areas of the HSE management system and serves as a roadmap for all relevant guidelines, standard operating procedures (SOPs) and documents.

In the first quarter of every year, we conduct a management review. During the review in 2018, we identified several areas for improvement. We were then able to implement those improvements in the year under review and on schedule. The HSE management system was re-certified in the year under review, both for occupational health and safety and for the environmental part.

HSE inspections continue to be conducted throughout the Group, drawing attention to ways to improve performance at the local and global level. In the fourth quarter of 2018, we updated our internal global HSE audit program to provide the business streams with a comprehensive explanation of HSE compliance within the Group. In all, 14 audits were conducted in Europe during the year under review. Where non-conformities were found, corrective and preventive actions (CAPAs) were applied. These oblige the affected companies to define measures and timing to eliminate the non-conformities. For 2019, we have determined to conduct at least 36 audits on a global basis.

The dashboard of HSE performance across all business streams is reviewed monthly. The results are distributed to Executive Board members and business streams heads (Executive Vice Presidents, or EVPs). The information is disseminated throughout all business streams and regions. Overall, the HSE performance dashboard helped us achieve significant successes for the year under review:

- The majority of our HSE objectives were met.
- The number of on-the-job accidents resulting in downtime (Lost Time Injuries) declined significantly.
- The number of on-the-job accidents was reduced.
- The reporting of near-miss accidents was expanded.
- All key indicators (training courses, meetings, audits and inspections) far exceed the previous year’s results.

TÜV Rheinland continues to focus on proactive measures to guarantee a safe work environment

14

internal HSE audits

were conducted in
Europe during the
year under review.

and reduce incidents to the lowest possible level. The following measures enabled us to meet our objective of raising standards, following best practice examples, and implementing HSE initiatives once again during the year under review:

- **Personal Commitment Card:** Enacted by our CEO, this initiative permits every employee to intervene whenever she or he perceives an unsafe situation and identifies a risk to health or safety. There are already signs that the card is in active use and our customers are demonstrating broad acceptance of this process. During the year under review, for example, a colleague who, having been instructed to take samples at a construction site, found that it had not been secured according to procedures, invoked the initiative and discontinued his activity. His supervisor praised that decision, and the customer also agreed, correcting the faulty conditions which did, indeed, exist.
- **Golden rules:** In the past year, we used the HSE performance dashboard to analyze those incidents that caused injuries in the context of our activity. In so doing, we developed nine golden rules that help shape a safe work environment. These rules were rolled out worldwide in various languages, using posters and other communication means to introduce them to the workforce.
- **Safety alerts:** This is what we call the notices that we issue in case of specific safety risks or incidents, which, without intervention, could have caused severe injuries and damage. Because we conduct our business activities in many countries and regions, there is a high risk that incidents will recur at other locations. The safety alerts are an effective means of preventing such recurrence. In 2018, we issued five such safety alerts to the workforce.
- **HSE Learnings:** The size and the geographic distribution of TÜV Rheinland present the possibility of collecting and exchanging so-called HSE Learnings with the Group. The focus here is on findings generally reported after an incident. The goal is not only to educate the workforce about HSE, but also to give Corporate Service Function HSE the opportunity to review the established management system and to revise it if necessary. The HSE Learnings are available in multiple languages and are distributed in the organization.
- **Learning lunch:** This proactive, volunteer,

With the **"Personal Commitment Card"** our CEO Dr. Michael Fübi authorizes every employee **"to discontinue any action** that cannot be carried out safely and to help correct any such situations."

lunchtime program provides brief explanations of relevant occupational health and safety topics to interested employees in an informal atmosphere.

Because work must not become a burden

TÜV Rheinland has set itself the goal of preventing work-related harm to health and of enhancing the well-being of every employee through health campaigns and initiatives. Many health initiatives were undertaken during the year under review, for example:

- a new medical facility on the Cologne campus, including a site medical officer,
- a winter care program – flu vaccination for employees,
- a nicotine withdrawal program to help smokers stop smoking,
- Health Days. The most recent Health Day was held in September 2018.
- There were also many health and fitness offerings, such as back fitness training, yoga and running groups,
- the ergonomic arrangement of our workplaces and
- stress management exercises.

In addition to the initiatives listed here, in the year under review we were also able to post excellent results regarding serious health incidents: In one case in 2018, a colleague in Nuremberg, who, having ridden his bicycle to work, collapsed unconscious on the grounds and was rescued by five of his colleagues. They used cardiopulmonary resuscitation to reanimate him until the emergency responders arrived – a skill they acquired through, inter alia, their participation in a first aid course. ■

4

Environment

– (also) a question of organization

Taking the base year 2010 as a reference, we have been able to reduce **energy consumption** by 25 percent and CO₂ emissions by 37 percent – per employee group-wide.

As a globally active corporation with more than 20,000 employees, our actions also inevitably affect the environment. Even though we produce no material goods, our company does consume resources, of course, just like any other – through operations at our offices and testing facilities, our employees' daily commute to their workplace, and travel to our customers. Since we want to keep the negative environmental impacts of our activities to a minimum, however, we analyze the efficiency potentials of our business and management processes and use eco-friendly technologies wherever it is reasonable to do so.

Our Quality, Health, Safety and Environmental (QHSE) Policy clearly states: The primary responsibility for the implementation of this guideline rests with the managers. A global HSE manual supports them in this task. We also made organizational changes and implemented an HSE Main Process throughout the Group. Members of our top management are informed monthly about our HSE-related objectives and progress. This shows that environmental protection is also a question of organization. That's why most TÜV Rheinland companies are covered under group certifications that audit management systems: ISO 9001 (Quality Management), ISO 14001 (Environmental Management) and OHSAS 18001 (Occupational Safety and Health). All activities of our Systems business stream are generally excluded from such group certifications, because they provide certification services of their own.

Own objectives achieved

In our sustainability strategy, we set concrete objectives for ourselves regarding the dimension "Environment". Taking the base year 2010 as a reference, we want to

- reduce energy consumption by 20 percent and
- reduce CO₂ emissions by 25 percent per employee groupwide by 2020.

In the year under review, we achieved the former objective once again: we have reduced our ener-

TÜV Rheinland environmental performance per employee*

		Germany			Group		
		2016	2017	2018	2016	2017	2018
CO ₂ **	metric tons of CO ₂ equivalents	6.0	5.2	3.5	5.3	5.0	4.0
CO ₂ ***						5.0	4.1
Energy**	MWh	27.2	23.4	24.1	22.0	20.5	20.0
Energy**						20.8	20.3
Business travel	km	12,630	12,747	12,121	11,315	11,916	10,316
Paper	kg	38.0	33.8	26.6	24.8	23.2	19.4
Water	l	24,663	18,260	29,650	19,796	16,819	20,744

* Full Time Equivalent.

** Values resulting from all energy sources and business travel. In order to maintain comparability with previous years, this calculation excludes the district heating, natural gas and heating oil used by our foreign subsidiaries.

*** Values resulting from all energy sources and business travel and the calculation includes the district heating, natural gas and heating oil used by our foreign subsidiaries. This has been possible since 2017.

Progress in target achievement

		2010	2015	2016	2017	2018	Delta*	Target 2020
CO ₂ emissions per employee (Group)**	metric tons of CO ₂ equivalents	6.4	5.4	5.3	5.0	4.0	– 37%	– 25%
Energy consumption per employee (Group)**	MWh	26.6	22.3	22.0	20.5	20.0	– 25%	– 20%

* Base year 2010.

** Values resulting from all energy sources and business travel. In order to maintain comparability with previous years, this calculation excludes the district heating, natural gas and heating oil used by our foreign subsidiaries.

gy consumption by 25 percent versus 2010, thereby surpassing our own ambitions. Moreover, we reduced CO₂ emissions by 37 percent compared to 2010, thereby also achieving our second objective in the year under review for the first time and by a wide margin, as the table on this page shows. There are several explanations for these positive developments. We have successfully promoted efficiency measures, including the conversion of our new headquarters from oil-fired heating to a power station that supplies energy to all Cologne-Poll campus buildings (except two laboratories), as well as renovation measures at other German locations. Moreover, the composition of energy sources in many countries has also improved. As a result, we procure electricity and natural gas in Germany on a CO₂-neutral basis. That means we use less heating oil and it eliminates the CO₂ emissions from other more intensive types of heating. Furthermore, the information base for the calculations has improved.

Beyond the investments in the Group headquarters, in the year under review we invested EUR 1.5 million (previous year: 17.5) in resource-efficient new construction and energy-related renovations at German locations. The large change from the previous year is mainly attributable to the now-completed renovation of the TÜV Rheinland Tower.

For the groupwide acquisition of these and other environmental data, we use the software solution “EtQ Sustainability Module.” Having implemented that solution in 2016, we covered 88 percent of our employees worldwide as of the balance sheet date of the year under review (previous year: 85). To achieve our environmental objectives, we specifically want to

- use efficient energy technology to run our buildings,



Renovating the building shell and updating its central building services, along with connecting the Cologne-Poll business park's buildings to a modern and efficient power station, are some of our biggest levers for reducing our CO₂ footprint.



- reduce the number of business trips through increased use of video conferencing,
- favor fuel-efficient company cars over other models, and
- use state-of-the-art technologies to operate our data centers, test labs, and facilities.

We also implemented measures at our locations outside of Germany, to make them more energy-efficient and to conserve resources. In Chile, we donate used paper from our office operations to the “Fundación San José para la adopción” – a foundation that supports pregnant women and adoptive parents and children in the process of adoption. They collect the used paper for a recycling company and receive materials such as diapers, toilet paper and milk bottles in return. This benefits the orphanages of the foundation and also helps the environment at the same time. Moreover, in the year under review, we started a paperless initiative in the Greater China region. Within a few months, it had already lowered paper consumption and reduced work time, inter alia through streamlined paper transport and the elimination of wait times between process steps (for more information about this, see the interview on page 68).

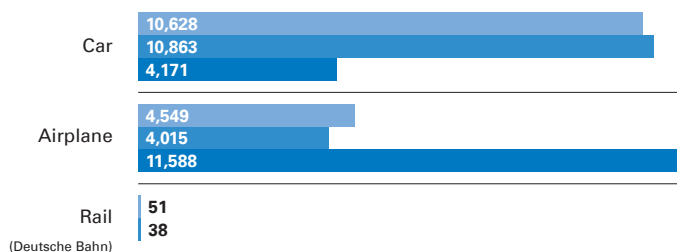
Acting responsibly – staying mobile

In the year under review, as part of the Peer Learning Group of the German Global Compact Network (DGCN), we worked on various aspects of

CO₂ emissions from business travel

in metric tons of CO₂ equivalents

■ 2017 (Germany) ■ 2018 (Germany) ■ 2018 (abroad)



CO₂ emissions (direct and indirect)*

in 1,000 metric tons of CO₂ equivalents

	2017	2018
Total / Group**	99.1	84.9
of which, direct	19.8	14.9
of which, indirect***	79.3	70.0
Germany	44.1	30.7
of which, direct	12.4	9.9
of which, indirect****	31.7	20.8

* In contrast to the shown figures of scope 1, 2 and 3 emissions in the GRI index, the direct emissions also contain CO₂ from operations with our company cars.

** Since 2017, improved data acquisition now also enables us to measure CO₂ emissions from energy sources such as heating oil and district heating at our locations outside of Germany. Those data were first taken into account in 2018. For values at the Group level comparable to those of the previous year, the following figures apply: 14.1 (direct) and 69.7 (indirect).

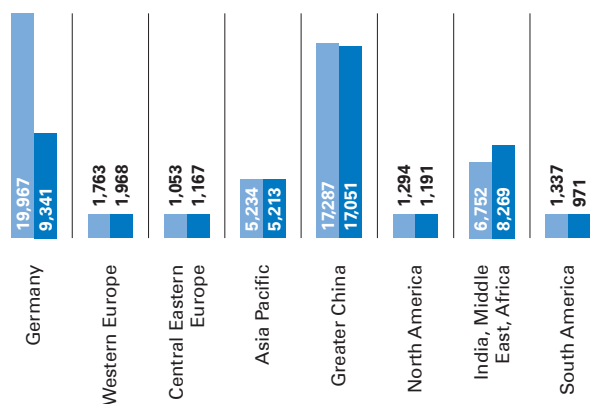
*** CO₂ emissions from rail travel were taken into account in Germany only.

**** Including CO₂ emissions from rail travel.

CO₂ emissions from real estate electrical power consumption

in metric tons of CO₂ equivalents

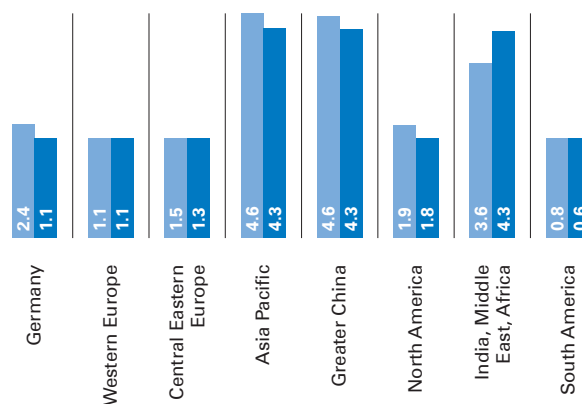
■ 2017 ■ 2018



CO₂ emissions from electrical power consumption per employee

in metric tons of CO₂ equivalents

■ 2017 ■ 2018



CO₂ emissions from energy consumption (Germany)

in metric tons of CO ₂ equivalents	2017	2018
from natural gas	4,530	2,036
from heating oil	1,507	1,236
from district heating	2,921	3,175
from electricity (real estate)	19,967	9,341

Energy production from wood pellets is considered as CO₂-neutral.

Energy consumption (Germany)

in megawatt-hours	2017	2018
from natural gas	22,648	25,880
from heating oil	5,714	4,687
from district heating	10,859	11,803
from electricity (real estate)	32,573	35,805

climate management, including an assessment of the efficiency and cost-effectiveness of corporate climate protection measures, for example.

For us as a global service company, emissions generated by our employees' commuting and by business trips play an important role. Because our business demands the personal presence of our experts and managers at the customer's location even if we rely on telephone and video conferences as often as possible. In the year under review, our employees in Germany logged about 68 million kilometers of business travel by company car, rental car or private car (previous year: 66). Of that total, our 1,850 leased vehicles (previous year: 1,811) accounted for approximately 41.7 million kilometers (previous year: 39.6) and consumed 2.5 million liters of fuel (previous year: 2.4). That resulted in an average fuel consumption of 6.09 liters per 100 kilometers (previous year: 6.13), which corresponds to a CO₂ emissions rate of 160 grams per kilometer (previous year: 161). These calculations are all based on the assumption that 70 percent of leased vehicle operation is for business purposes. Employees who choose a low-emission company car with a CO₂ exhaust rating below a specified limit continue to receive a bonus from us as a reward.

Business travel by air worldwide by our German employees in the year under review totaled 31 million kilometers (previous year: 35). When we include our non-German companies, the total comes to 120 million kilometers traveled by

The **Peer Learning Group** examines concrete climate management issues. Ten to fifteen companies exchange information here on topics such as climate strategy and climate risk analysis in webinars and presentation meetings.

air (previous year: 125). Our internal calculations are based on a per capita jet fuel consumption rate of 0.05 liters per kilometer flown. This results in a groupwide jet fuel consumption of 5.9 million liters (previous year: 6.2).

Our employees traveled 7.6 million kilometers (previous year: 7.2) with the Deutsche Bahn rail service in the year under review. That corresponds to an electrical power consumption of 397 MWh (previous year: 438). We continue to use Deutsche Bahn's climate-neutral option on these long-distance trips.

Our energy, water and material consumption

We use energy mainly for the heating and lighting of our properties as well as for the operation of technical equipment. In Germany, we rely on fuels, natural gas, heating oil and wood pellets as direct sources of energy, while gradually reducing heating oil consumption and replacing it with climate-friendlier energy sources. In addition, we buy district heating from local utility companies. Besides those direct sources, we also use electricity and heat as indirect sources of energy. For all German locations under consideration, that power consumption totaled 35,805 MWh (previous year: 32,573).

Even though our company does not produce any material goods, we consider water and materials as relevant environmental parameters in the context of ISO 14001 and report them



“We preserve the environment and save time and money”

A conversation about the paperless initiative in three of our Group regions.

What is the paper initiative all about that TÜV Rheinland expanded in 2018?

The initiative originated from a “value-stream mapping” of processes in the Products Business Stream in Japan, and was expanded to the Greater China region in 2018. The Asia Pacific region will follow in 2019, and India, Middle East, and Africa will follow in 2020. As part of the initiative, we record how much paper is consumed at each and every printer, and whether the options duplex or color printing are used.

What is the goal of the initiative?

Primarily, it's about spending less money on paper and printing. Thanks to the initiative, we also shorten routing and time spent printing and sorting. In addition, it reduces wait times between process steps. In this way, we conserve resources and improve our groupwide CO₂ balance sheet. And by the way, it also gets our processes in shape for the future, because paper is almost superfluous in a modern company. By saving large quantities of paper, we aim to make our services much more competitive.

How will the plan be implemented?

In the Products business stream, the introduction of a digital signature, for example, has rendered hard copies largely obsolete – from issuing quotations and contracts to testing and certification. In addition, we have started a continuous improvement project that links the analytical testing in our chemical laboratories to the internet. This also eliminates the need to print out the test data or to transfer them into test reports manually. In this way, we hope to reduce paper consumption by another 30 percent and shorten project timelines.

How is the topic being communicated internally?

Managers have to demonstrate the benefits and the necessity and set a persuasive example. To boost motivation, colleagues were informed monthly about the savings throughout the region. This let them see the success of their own actions right away. Another useful measure is that all solutions will be available on the future ComPASS platform.



Bodo Kretzschmar
Manager
Continuous
Improvement

The “**Paperless Initiative**” bears fruit: In Japan, employees reduced paper consumption by 50 percent in the fourth quarter of 2018 as compared to the same period of the previous year. In China, paper consumption in the fourth quarter of 2018 averaged **40 percent less** than in May 2018.

➔ accordingly. In the year under review, water consumption at our properties worldwide totaled 431,357 m³ (previous year: 335,116). Of that total, our German locations accounted for approximately 260,768 m³ (previous year: 155,269). Based on full-time equivalents, those figures for the year under review result in a per capita consumption of 20,744 liters worldwide (previous year: 16,819) and a per capita consumption of 29,650 liters in Germany (previous year: 18,260). The increase in water consumption was due to the prolonged and extremely hot summer in Germany in 2018. Green spaces at our locations were watered during that period, especially in Cologne.

Because we do not procure or process any semi-finished products, we do not document the weights or volumes of the materials we use – with the exception of paper. We strive to reduce our use of paper – through digital archiving, for exam-

ple, and SharePoint systems for the exchange and processing of files. groupwide, we purchased 403 metric tons (previous year: 462) of paper in the year under review. Of that total, our German locations – where we use FSC-certified paper from sustainable forestry as standard – accounted for 234 metric tons (previous year: 287). The per capita consumption of paper was 19.4 kilograms groupwide (previous year: 23.2) and 26.6 kilograms in Germany (previous year: 33.8), in both cases on a full-time equivalent basis.

The global decline in paper consumption is attributable, inter alia, to the initiative started in Greater China during the year under review as already mentioned. Those measures helped us reduce consumption significantly, save work time,

The international standard **ISO 14001** specifies the requirements of an environmental management system that an organization can use to improve its environmental performance, fulfill statutory and other obligations, and achieve environmental objectives.

and eliminate capacity problems in file cabinets or storage rooms there – without affecting the quality of our work. The objectives we formulated internally in June 2018 were achieved within a few months by raising the awareness of our employees. Through, among other things, the use of a global testing and certification process and the implementation of a digital signature in the Products Business Stream, we were able to reduce paper consumption in the months of the fourth quarter of 2018 in the region – as planned – by 40 percent compared with the May reference value. From June to December 2018, we thus saved 2,289,383 sheets of paper and 9,975 kilograms in weight and were able to preserve 230 trees. ■

19.4

kilograms

is the amount of paper per person that we **consumed** groupwide in the year under review – nearly four kilograms less than in the previous year.

5

Society

We want to give something back: Personal engagement on behalf of other people and charitable projects matters.

Society creates an environment that benefits us as a company. Whether it be the well-educated young professionals, the existing infrastructure, or the political and judicial framework that enables the long-term development of our business. By promoting charitable projects, supporting the volunteer work of our employees, and helping solve social problems – with the integration of refugees into the labor market, for example, or the improvement of family relationships for migrant workers and their children in China – we give something back to society. For us, personal engagement on behalf of others counts. Because it's important to us, social commitment represents a dimension on its own in our sustainability strategy. The selection of projects and activities is subject to one rule, however: they have to fit TÜV Rheinland. They do so when they embody the values we represent, have a close connection to our business, or are situated near our locations or markets.

We focus on projects that

- promote education, science and technical progress,
- protect people and the environment, or
- support the principles of the UN Global Compact.

The integration of refugees remains important to us. As part of “We together – Integration initiatives of the German economy” (www.wir-zusammen.de), we are committed to concrete measures in this regard. In 2016, young people from the refugee community started a training program initially at the Cologne and Nuremberg locations,

after we had increased the number of trainee positions in our company by nearly one third. The trainees took advantage of the opportunity for a successful professional future: In the year under review, seven trainees who started the program in 2016 also successfully completed the second year of training. Meanwhile, we have expanded this integration work.

We created five additional trainee positions for refugees in Cologne, Nuremberg and Berlin in 2017, and three more in 2018. The range of professions that they learn is broad: from IT specialist for system integration to commerce and food services to mechatronics technician. We provide the trainees with additional training, language courses, and assistance with administrative formalities. In the first year of the training, the refugees are supported in so-called “integration tandems” by mentors, who serve as their primary contact →

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integration tandems

are currently in place –
**whereby mentors
provide one-on-one
support to refugees
enrolled in our training
program.**

Social commitment
is important to us.
That's why it represents
a dimension
all its own in our
**sustainability
strategy.**

Dietrich Gödderz
is an expert for IT
Service Governance in
our Customer Service
Center in Cologne – and
an integration mentor



“Advisor and sparring partner”

A conversation about the role of integration mentors for refugees.

Mr. Gödderz, why did you become an integration mentor for a trainee who came to Germany as a refugee?

We humans all live on one planet, so I like the idea that we maintain harmonious relations. And I always like to help others. Especially when it's about feeling at home in a completely new environment. Language, culture, but also educational subject matter, and also expectations, of course – both what you yourself expect and what others expect of you – just coping with all the changes in your daily routine, that's not easy, particularly for young people.

How have you been able to help?

Mohammad Anan, my tandem partner, is training with us to become an IT application developer. He's 21, from Syria, and has been living in Germany for about five years now. For integration mentors, it's extremely important to demonstrate trust and sensitivity. I'm interested in our colleague's personal and professional development, and Mohammad knows this. So according to my own definition of the role, the key is to listen, understand and ultimately serve as advisor and sparring partner.

What are some of the challenges he faces?

We meet regularly to exchange information – it can be while sharing a meal at lunchtime or during an “After Work Classix” concert series event organized in part by TÜV Rheinland. And we also chat often. We discuss technical points and also familiar things that concern Mohammad. Once when, within the framework of his training program, he switched departments, the communication between him and the new team got off to a bit of a rocky start. I was able to intervene as a moderator and help resolve a few misunderstandings there.

“For integration mentors, it's extremely important to demonstrate trust and sensitivity.”



Eva Wu
Assistant Project Manager for CSR
at TÜV Rheinland Greater China

“We see the programs that we support as a contribution to harmonious relations within one of our most important core markets, and therefore as a sustainable investment in the future.”

With our support, Chinese students built a geofilter water purification system for children in Africa **to produce drinking water**. Their project won second prize in an international competition.

→ in all questions related to everyday (professional) life in Germany and at TÜV Rheinland. There are twelve such tandems in all (for more information about this, see the interview on the previous page)

Improved power supply in rural schools

We want to donate up to 0.1 percent of our EBIT to charitable organizations and projects every year. In 2018, we achieved that objective. We give

those donations to projects and organizations that act in keeping with our values. With our social commitment, we also rely on the cooperation with aid organizations, non-governmental organizations (NGOs), state institutions and other companies. We supported the organization Engineers Without Borders once again in 2018. Similarly, we participated in the “More than a market” initiative of the Bertelsmann Foundation in China. In collaboration with the German Chamber of Commerce in China and the German General Consulate in Shanghai, it recognizes outstanding German projects for social engagement in Chinese society.

A TÜV Rheinland CSR project aimed at improving the power supply in the Chinese province of Yunnan was also shortlisted for the award. Together with other companies and an NGO, solar power plants were built at seven rural schools in Yunnan Province. The project could not have been successfully completed without the good cooperation of the partners involved. The NGO coordinates with the schools and local education officials, one company designs the installations, the other supplies the solar modules, and TÜV Rheinland is responsible for the testing, inspection and maintenance of the power plants along with the overall project management. By design, the project aims to achieve a sustainable impact. Because in the next stage, the teachers will learn how to maintain the plants themselves.

14 years

TÜV Rheinland has already been promoting **voluntary commitment** of its employees.

Support in our markets and for education projects

Another organization we support is ICTI Ethical Toy Program (IETP). It takes care of migrant workers' children, who often live thousands of kilometers from their parents. According to a UNICEF study, there are 69 million such girls and boys in the People's Republic of China – so-called “left-behind children” who see their parents only once or twice a year. The IETP project enables the supported factories to establish daycare offerings and seminars that bring the migrant workers and their children closer together again. At an IETP conference in Guangdong, China, where representatives of TÜV Rheinland also participated, the organization thanked the project's supporters. At the conference, the participants exchanged information about, inter alia, sustainable urban concepts that can provide better support to certain target groups such as migrant workers and their children.

Along with our engagement for aid organizations, we also support educational institutions. In January, for example, a TÜV Rheinland employee visited an elementary school in Taipei to present environmental protection concepts to the children. As they watched a series of videos about paper and plastic as well as waste and recycling, the girls and boys learned how plastic bottles are recycled and plastic waste endangers marine life. Another school project that we supported in China concerned the preparation of potable water for children in Africa. In a research project, children at the Shenzhen Shekou International School

Our engagement for the **children of migrant workers** in China: You can find a full report on this project in the Journal of this Corporate Report on pages 24 and 25.

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million Chinese children – so-called “**left-behind children**” – see their families only once or twice a year, according to a UNICEF study.

built a geofilter water purification system and even won second place in an international competition with it. At TÜV Rheinland in Shenzhen, the students gained insights into testing methods and learned how we test for compliance with drinking water standards.

Volunteer days: Playground in Cologne, animal shelter in Littleton

We encourage our employees to perform volunteer work and assist them accordingly. Our internal corporate portal “blueye” features a platform for volunteers, for example, and TÜV Rheinland locations the world over offer their employees the chance to participate in volunteer days. At the Cologne location, our employees have been engaged in charitable projects already since 2004. In 2018, twelve volunteers spent a day working on the construction and adventure playground “Der Bau” in Cologne-Chorweiler. They rolled up their sleeves to build a goat shed and organized a handicraft station for the children who visit the facility, whereby the volunteers' work highlighted “upcycling.” The employees built with left-over lumber and showed the girls and boys at the handicraft station how to convert empty drink cartons into lanterns.

In Littleton, Massachusetts (USA), employees used a volunteer day to help an animal shelter. It offers refuge for pets, livestock and local wildlife. The group repaired two fenced enclosures. ■

Worldwide engagement – an abbreviated list of our diverse activities

Collecting donations, working as a volunteer, or participating in a charity run – at many of our locations, our employees contribute their time to the community. And thereby support organizations, institutions and projects that make life a little better for many others.



Great Britain: Playful learning. Employees developed the “Installation Manager” game. It lets children try their hand at scientific and technical disciplines and presents potential career paths to them.



USA: Furniture for the needy.

Employees from Pleasanton worked for one day as volunteer helpers at a non-profit hardware store that sells inexpensive furniture, accessories and construction materials. They helped out in the warehouse.



Brazil: Bicycles for children.

In São Paulo, employees assembled children's bikes at a meeting. They delivered 30 bikes to a non-governmental organization that later donated them to needy children.



Chile: Help for children and the environment. We collect waste paper for the “Fundación San José para la adopción.” The foundation provides adoption support. In exchange for the paper, recycling companies supply the foundation with material such as diapers.



Chile: Recycled scooters

435 of our employees recycled and repaired scooters and bicycles. In December, the two-wheelers were then donated.



Italy: Reconstruction after earthquakes.

We donated school furniture and research center equipment to Organization Hope, thereby helping to rebuild schools after earthquakes in central Italy.



Germany: Christmas cheer. Employees collected donations for charitable organizations like "Aktion Lichtblicke" that helps needy families, the "Tafel" food banks in Cologne and Berlin, and homeless people in Nuremberg.



Germany: Safe in the saddle.

To help children in North Rhine-Westphalia successfully complete their bicycle training, we provided the schools with 170,000 bicycle test forms and bicycle passports free of charge. Riding a bike improves physical fitness, motor skills and perception.



China: Gifts for the less fortunate. 30 colleagues and customers from throughout China answered our call to donate gifts for children studying in two remote schools in Sichuan and Yunnan.



Japan: Girls' Day. 17 young women learned about occupations in technical and scientific fields during our Girls' Day event.



Hungary: Playing it safe.

So children in an orphanage in Budapest can climb and swing safely, three of our colleagues joined other volunteers to start inspecting and securing the playground at the institution.



Poland: Product quality study.

We commissioned a study to investigate the importance of quality in the consumer behavior of Polish people. The goal was to raise public awareness for quality. The study showed that quality is the main criterion for non-food products.



Vietnam: Promoting health.

We support "Operation Smile" with donations. Colleagues also lend a hand as volunteer medical assistants. Medical checks are conducted to diagnose cleft lip and cleft palate. This is a prerequisite for subsequent treatment.



Taiwan: Running to help others.

We paid the registration fee for 15 employees who participated in a charity run for people with visual impairments. They ran three kilometers, ten kilometers or a half marathon.

6

Service Responsibility

Our services should make the world a little better every day

In 2015, the Member States of the United Nations adopted Agenda 2030. Its core element: **a catalog with 17 goals** for sustainable development – the Sustainable Development Goals (SDGs).

TÜV Rheinland has stood for safety and quality in the interplay of people, technology and the environment for more than 140 years. Our commitment to making life safer and acting in sustainable ways is reflected in our services. Not only the way in which we deliver them but also the activities themselves are meant to help to make our customers' products and processes safer, more efficient and thus ultimately sustainable as well. Like the other dimensions of our sustainability strategy, we set quantitative targets for the dimension of service responsibility during the reporting year. These targets are intended to help us meet the expectations we ourselves, and our stakeholders, have for the impact of our services:

- With regard to the engagement of our stakeholders, we want to ensure that we are in regular contact with 100 percent of the interest groups

we have identified as important. We will be able to review our progress towards this goal for the first time in 2019 when, in a new stakeholder survey, we engage in depth with our interest groups, their expectations and the communication channels used to interact with them.

- Concerning the identification of risks in our services, we intend to use the Brand Risk Evaluator (BRE) tool in the future to screen 100 percent of the new services. (See page 79 for more information on BRE.) Likewise, we want to significantly expand the review of the existing service portfolio in the effort to identify any possible risks. Our ambitious goal: a screening rate of 100 percent.

While customers place their faith in our expertise, our services should also create value for society and the environment. With this in mind, our business conduct is based on the ten principles of the UN Global Compact and is guided by the United Nations Sustainable Development Goals (SDGs). The 17 Sustainable Development Goals draw attention to global challenges and highlight the importance of entrepreneurial activity for society.

There are several examples we can reference to illustrate the ways in which TÜV Rheinland can contribute toward this undertaking.

Global sustainability measures

For example, we have been inspecting playgrounds for potential safety gaps (SDG 11: Sustainable Cities and Communities) – for several years, now, in Cologne, and in Taiwan for the first time



Pascal Kromke
Customer advisor at TÜV Rheinland
Akademie in Bonn

“Many jobs require a basic command of the national language. That is why we launched a combined qualification program for refugees in 2018.”

in 2018. 97.8 percent of the playgrounds inspected in the Asian island state failed to fulfill the testing requirements. In Cologne, a positive trend emerged in the year under review, after almost 90 percent of the playgrounds had failed in the first and, thus far, last tests conducted 15 years ago.

Furthermore, in 2018 we launched a qualification program for refugees, the only one of its kind in Germany (SDG 4: Quality Education), in which we combined an internationally recognized course of welder training with language instruction. The eight-month initiative “Perspektive Schweißen” [“Welding Perspectives”] held at the TÜV Rheinland Akademie in Bonn, focuses on career qualifications and instruction in German language skills – basic competencies when it comes to looking for a job. “Without the right certificate, and with language problems, it’s very hard to find a job in Germany,” says Fawad Noori, who comes from Afghanistan and completed the program in October 2018. Noori’s initial situation is symbolic of the situation facing many other refugees: He previously worked as a welder in his home country for 15 years, but in Germany his technical expertise was not in demand. “The welding methods I learned were quite different,” says the family father, who had to apply his vocation-related knowledge of German and three recognized welding techniques in his final examination.

With this project, we are not only supporting refugees but at the same time doing something about the shortage of skilled workers: There are nearly 10,000 welder’s positions currently vacant throughout Germany – with some 400 qualified personnel missing in the Cologne-Bonn metropolitan area alone, in fields such as pipeline construction and the automotive sector. We will offer the program in Bonn again in 2019. During the reporting year, we also developed a certification for the “Fit for the German job market” [“Fit für den deutschen Arbeitsmarkt”] program jointly developed by CPC Unternehmensmanagement AG and Deutsche Telekom AG. The “Fit for the German job market – TÜV Rheinland-tested qualification” certificate is awarded to participants who successfully complete a five-day training course that teaches, among other things, the cultural principles of working life as well as the content and functions of various forms of communication in German companies. The collaboration with CPC Unternehmensmanagement AG and Deutsche Telekom AG was the result of our net-

10,000

welder positions

are vacant throughout Germany – we are working on solutions to reduce this **shortage of skilled workers**.

Sustainability has been one of our strategic priorities since 2010. With this in mind, 2011 marked the launch of the “**Green Solutions**” initiative designed to promote shared sustainability services across all Business Streams.

working in the “We Together” initiative for the integration of refugees into the labor market.

DigiCamps for greater equality of opportunity

We also promote equal opportunities for young people with a prevention project designed to convey a sense of the right way to deal with digital and social media (SDG 10: Reduced Inequalities). Some 3,000 school pupils have already participated in the seminars throughout Germany, and there are another 100 project weeks set to follow between now and the end of 2019. We foster SDG 12 (Responsible Consumption and Production) with our green product label that certifies environmentally friendly and energy-efficient products. During the reporting year, the environmental label was included in the “Siegelklarheit” [“Seal Clarity”] and “Kompass Nachhaltigkeit” [“Compass Sustainability”] databases – a success that underscores the quality of the label (please see the interview on page 78 for more information).

Another proof of our commitment to SDG 12 is the ZNU Standard of Sustainable Management that was introduced in the Systems Business Stream. We developed it in conjunction with the Center for Sustainable Corporate Management [Zentrum für Nachhaltige Unternehmensführung (ZNU)]. The B2B standard bundles all sustainability requirements for businesses in all sectors and seeks to make sustainable action measurable, feasible and verifiable for external parties. The certificate aims to promote sustainable business management by developing an integrated system of environmental, economic and social management.

As was already pointed out in the “CSR Management” section, in 2018 we established a new, group-wide database for sustainability ser- ➔



Fallight Xu,
Manager
Sustainability
Services

“It encourages manufacturers to improve their systems”

A conversation about our environmental label that promotes greater sustainability in consumption.

Mr. Xu, what does the green product label stand for?

The green product label is an environmental label that we launched in 2012 as part of the global trend toward sustainable consumption.

Which companies use the environmental label?

Many leading industrial companies have relied on our test mark for years to underscore the sustainability of their products. Following a two-stage process of analysis commissioned by the German Federal Ministry for Economic Cooperation and Development, in 2018 the label was included in the “Siegelklarheit” [“Seal Clarity”] and “Kompass Nachhaltigkeit” [“Compass Sustainability”] databases.

What is the goal of these systems?

Both platforms were launched in 2017 in order to implement the German federal government’s national program for sustainable consumption that was set up in 2016. The measures for which the program provides are intended to enable consumers to make informed choices.

What does inclusion in these databases mean for TÜV Rheinland?

Presence on these two important platforms underscores the quality of our test mark, which gives consumers in Germany credible and reliable guidance toward sustainable purchasing decisions.

What incentives does this create for manufacturers?

It encourages them to develop more sustainable products and services. Comparison of seals also encourages standard-setting organizations to work steadily to improve their systems.

Our database (certipedia.com) lists the **certificates of TÜV Rheinland** – a service that is open to manufacturers, purchasers, retail and end consumers in equal measure.

→ vices. The tool provides information about our current range of sustainability services, helps employees quickly gain an overview of these services and locate a contact person – which can be helpful in responding to customer inquiries, for example – and can provide a basis for articulating the strategy of the Sustainability Services Task Force. (Further information on this follows in the next paragraph.) Employees can search the database for specific skills and services related to sustainability, filtering by region or country, for instance, and sorting across six areas of expertise:

- Health and environmental protection
- Protection of the ecosystem
- Sustainable use of resources
- Mitigating climate change and appropriate adaptive steps
- Social responsibility
- Multidisciplinary topics

The database is a result of the Sustainability Services Task Force established in November 2017 and composed of representatives of all Business Streams and relevant Corporate Service Functions. The Task Force was set up to set strategic priorities for sustainability services, identify target markets, locate possible synergies within the Group and create appropriate organizational structures. Thanks to the governance structure that was developed and the new database that reflects our capacity for sustainability services, the next step will be to focus on prioritizing individual sustainability issues and finding solutions to these. One implementation option would be to define prioritized SDGs to which we want to contribute even more systematically with sustainable services in the future.

IT tool identifies risky services

To protect the high reputation of our brand, since 2016 we have been using the Brand Risk Evaluator (BRE), an IT tool we developed ourselves; it helps us identify potential risks in connection with our services. This tool takes into account not only the actual service provided but also the customer, its industry and the country in which the service is provided. An assessment is performed to determine whether the service harbors any risks for our brand – for instance because it conflicts with our corporate values, might lead to a misinterpretation on the part of the consumer, or addresses customers that must be viewed critically.



The 17 UN Sustainable Development Goals (SDGs), with their 169 sub-goals, are at the heart of “Agenda 2030” adopted by all 193 United Nations Member States in September 2015. The Agenda sets the framework for achieving the ambitious **goals of the global community** toward a more sustainable society by 2030. The focus is on **combating poverty, environmental protection and prosperity**.

services reviewed with BRE is expected to increase significantly in 2019. The focus here is on services provided by the Systems, Products and Industrial Services Business Streams.

Our reputation is attractive to other actors as well, however. This is unfortunately why we are regularly required to defend ourselves against misuse of marks of conformity. We are thorough in this effort – after all, when consumers see the TÜV Rheinland label displayed on the outside of goods and services, they have a right to know that TÜV Rheinland is on the inside, too. That is why our certificates have a built-in “copy protection”: they contain an easy-to-read ID number, the authenticity of which can be verified using our Certipedia certificate database (www.certipedia.com). The database also includes product properties, services, companies, systems or personnel qualifications.

Review of trademark infringements

We also monitor online marketplaces for possible trademark infringements, cooperate with international police agencies and do not shy away from trademark disputes in official and judicial proceedings. We visit trade fairs to locate trademark counterfeiters – often in direct cooperation with customs authorities, prosecutors’ offices and representatives of other TÜV companies organized together with us in the “TÜV Markenverbund e. V.” (TÜV Trademark Association). Customs authorities also help us combat imports of products with counterfeit TÜV Rheinland labels. The basis for this is what is known as the “border seizure application” that was approved by the European customs authorities in 2010 and that concerns all imports across the external borders of the EU. ■

If we identify risks, we take appropriate countermeasures, adjusting the service or its context – or, in case of doubt, walking away from a transaction altogether. Based on initial practical experience with the BRE, we rolled out a new version of the tool with improved functionality in 2017 and examined six services in the Digital Transformation Business Field in 2018. There was no need for action identified for four of these services, but the evaluation tool detected a medium level of risk for two of the services examined. We made this risk transparent in order to permit the appropriate adjustments to both services. The number of

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137.5

million

euros is the operating result – EBIT: Earnings before interest and tax – at the Group level. This figure was 5.3 percent higher than the previous year (EUR 130.6 million).

In a challenging industry environment, TÜV Rheinland remained on course for growth in the reporting year. This is also evidenced by the consolidated revenue (including the change in inventories) of EUR 1,998.1 million; this corresponds to an increase of 1.3 percent over the 2017 financial year. As the Financial Report outlines in the Outlook section, the company expects a stable to moderate EBIT margin of 7 percent in 2019.

Group Management Report

of the TÜV Rheinland Aktiengesellschaft for the 2018 financial year

The Results for 2018 at a Glance

The TÜV Rheinland AG Group concludes the 2018 business year in what is a demanding overall industry environment with revenue (incl. inventory changes) of €1,998.1 million (+1.3% year-over-year), continuing the path to growth seen in recent years. At constant exchange rates, the Group generated total revenues of €2,037.3 million, which corresponds to growth of 3.3%.

The results for 2018 are as follows:

Earnings before interest, taxes, depreciation, and amortization (EBITDA) total to €212.8 million (previous year: €206.5 million), representing a change of +3.0%.

- The operating result (EBIT) reached €137.5 million (previous year: €130.6 million), representing a change of +5.3%.
- Consolidated net earnings total to €85.1 million (previous year: €78.1 million), representing a change of +8.9%.
- The pre-tax return on sales is around 6.2% (previous year: 6.0%).
- The EBIT return is 6.9% (previous year: 6.6%).
- Cash flow from operating activities is €183.0 million (previous year: €161.8 million), representing a change of +13.1%.
- International sales account for 44.5% of revenues in total, employees abroad for around 57.0% of the Group's workforce.
- The average number of employees is 20,450 (previous year: 19,924).

1 Presentation of the Business Streams

As an independent testing company, for more than 140 years, TÜV Rheinland has stood for quality, efficiency and safety in the interaction between people, technology and the environment in almost all areas of the economy and life.

As a neutral and independent third party, TÜV Rheinland inspects and tests technical equipment, products, and services, and monitors projects and processes for companies. The Group does so on the basis of recognized standards as well as national and international legal provisions. Added to this are services relating to information security, occupational health and safety, as well as training and professional qualifications.

With new ideas, expertise, and a global network, this is

how TÜV Rheinland lends a hand in making products, services, systems, and people safer and more competitive. The work carried out by TÜV Rheinland is based on the conviction that societal and industrial development is not possible without technical progress. That is precisely the reason why the safe and responsible use of technical innovations, products, and systems is of decisive importance for future development. TÜV Rheinland monitors, develops, tests and certifies. This is how it helps build a future that sustainably does justice to the requirements of humankind and the environment.

The work of TÜV Rheinland is organized into six Business Streams: Industrial Services, Mobility, Products, Academy & Life Care, Systems, and Digital Transformation & Cybersecurity.

The **Industrial Services Business Stream** generated revenues of €513.3 million in 2018. This covers the Business Fields of Pressure Equipment & Plant Technology; Elevator, Conveyor & Machine Technology; Electrical Engineering & Building Technology; Industrial Inspection, Infrastructure & Civil Engineering; Energy & Environment; Project Management; as well as Materials Testing and Non-Destructive Testing. The services include, for example: testing of pressure vessels, elevators and lifts, and systems in building technology; monitoring of industrial and infrastructure projects; engineering as well as materials inspection and testing; and environmental and pollutant analysis.

The **Mobility Business Stream** achieved revenues of €531.7 million in 2018. In addition to Periodical Technical Inspections and Rail, the Business Stream is also responsible for Driver's Licenses in Germany, Car Services & Appraisal, testing of eligibility of vehicle components and vehicles (homologation), intelligent transport systems, and logistics. The Business Stream is additionally involved in developing new services for safety in the networked mobility of the future.

The **Products Business Stream** generated revenues of €540.6 million in 2018. Among other things, the Business Stream performs testing for product functionality, serviceability, ergonomics and safety, as well as the certification of products. This is often the prerequisite to ensuring that manufacturers, importers or trading companies can offer their products in certain markets. The Products Business Stream tests everyday articles – such as consumer electronics, glass, furniture, textiles, toys, leisure articles or household appliances. Added to this, for instance, are tests in environmental and pollutant analysis; testing of the electromagnetic compatibility of electrical and electronic products, machinery and medical devices; as well as testing of solar modules, batteries or fuel cells.

The **Academy & Life Care Business Stream** combines the expertise and services of TÜV Rheinland applicable to the individual in his or her workplace and career environment. This comprises topics in HR development and consulting services, further education and seminars, corporate health management, occupational health and safety, as well as certifications of individuals, labor market services and private schools. The Business Stream achieved revenues of €226.8 million in 2018.

TÜV Rheinland has bundled its services for cybersecurity and telecommunications in the **Digital Transformation & Cybersecurity Business Stream**. This Business Stream achieved revenues of €121.8 million in 2018. In this Business Stream, specialists offer strategic consulting, conceptual design and process optimization, as well as implementation and certification of secure IT

systems, cloud technologies and telecommunications networks, on an international scale. The aim is to support businesses as well as government agencies and institutions with effective strategies and solutions for information security and telecommunications within the context of digital transformation processes.

The **Systems Business Stream** generated revenues of €212.3 million in 2018. This Business Stream certifies management systems and processes, certain services or entire enterprises as an independent third party. These include, in particular, quality management systems (ISO 9001) and environmental management systems of numerous businesses (ISO 14001 and the European EMAS system), as well as service quality, compliance management and energy management.

2 General Conditions

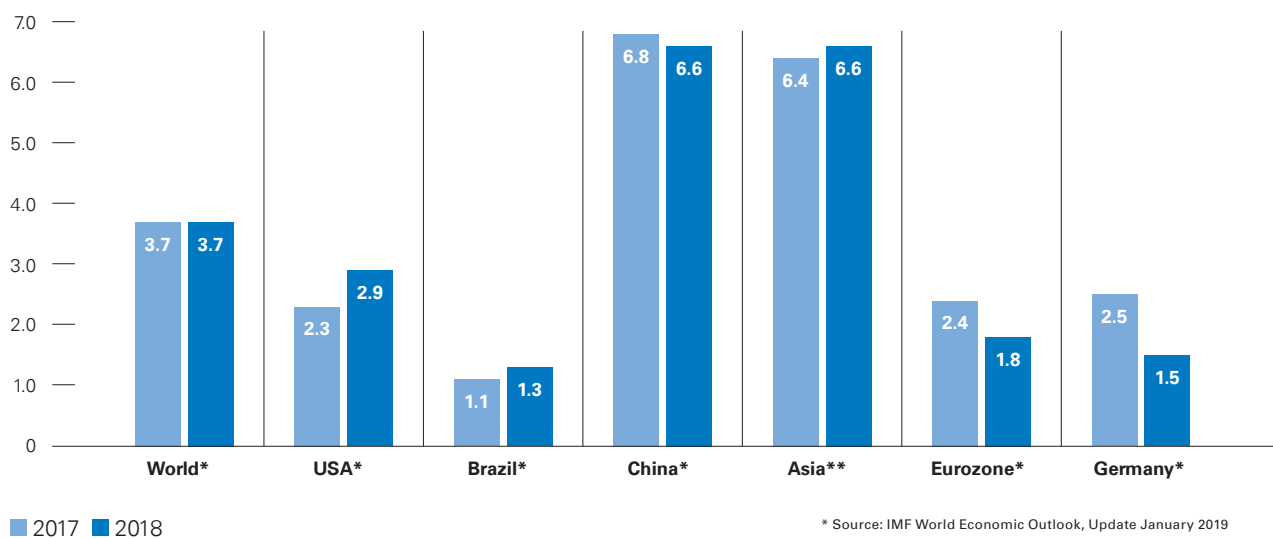
2.1 General Economic Conditions

The expansion of the global economy slowed down in 2018, but is still positive with growth of 3.7%. Compared to the previous year, economic sentiment has deteriorated nearly everywhere. In addition to the uncertainties of mounting trade conflicts, the tightening of monetary policy in the USA has contributed to this, resulting in a turnaround in international capital flows that in turn is holding back expansion in emerging markets. As in the previous year, the global econo-

my grew by 3.7% on an annual average. Differences in the economic dynamics between countries have widened. While the pace of expansion in the United States continued to increase, economic activity in the Eurozone and Japan lost momentum, and output growth in emerging markets slowed. World trade grew only slightly during the year.

Risks to economic development relate to protectionist trends, especially in the USA; a disorderly Brexit; escalation of trade conflicts; and a resurgence of the euro crisis.

Economic growth in important markets of the TÜV Rheinland AG Group
in %



* Source: IMF World Economic Outlook, Update January 2019

** Source: IFW Kiel, Global Economy in Winter 2018

USA: The gross domestic product of the US economy grew by an average of 2.9% in 2018 due to strong fiscal impulses, thus growing more steeply than it had the year prior (previous year: 2.3%). Household consumption was again the greatest contributor in this regard. On the other hand, the dynamics of business investment and housing construction were down. While unemployment remains at a very low level, employment growth is slowing.

BRICS countries: The economic development of the BRICS countries is particularly important to the TÜV Rheinland AG Group due to its presence in these countries, particularly in Brazil and China. After the upturn of 2017, the economy came under

pressure in 2018, yet it was quite robust throughout the year. The recovery in the economic performance of commodity exporters was significantly weaker than expected, however. Economic growth in the BRICS countries totaled to 5.3% in 2018 (previous year: 5.2%). In Brazil, the recession ended in 2017, and a further increase in production was recorded in 2018. In Russia, despite the economic sanctions of Western industrialized nations, production remained oriented towards an upward turn.

With an increase of 6.6% in gross domestic product (previous year: 6.8%), the Chinese economy still grew at a significantly stronger rate than the other emerging economies. An important support here is private con-

sumption. The recovery in private investing in fixed assets helped to offset declines in investment in public infrastructure and other government spending. Industrial production and export growth slowed, however, owing to a weakening in global production activity. Current account surpluses are declining because imports have grown faster than exports. Net outflows of capital continued in the reporting year, and currency reserves declined. Both stock prices and the Chinese yuan were again subject to price pressure. China is a particular focus of the US president's trade threats and actions. The process of structural transformation of the Chinese economy, in which the service sector is gaining significance versus the manufacturing industry, will continue in 2018.

In Brazil, the economy is only slowly recovering from the recession. On the one hand, there are fiscal concerns and, on the other, there is political uncertainty following Bolsonaro's election to the presidency. As a result, growth increased only slightly in 2018 by 1.3% compared to the previous year (1.1%).

Eurozone: The recovery continues at a slower pace. Gross domestic product was 1.8% higher in 2018 (previous year: 2.4%). There are variations between member states. While the trend seen in France and Italy was surprisingly weak in the first half of the year, growth slowed only slightly in Germany and Spain. The reduced growth rate can be attributed not least to increasingly full utilization of production capacities and weaker impulses from abroad. In this context, appreciation of

the euro hampers export development and contributes to the development of weaker foreign trade. At the same time, price and wage pressures increased somewhat in 2018, while monetary and fiscal policy remains expansionary. Unlike the Federal Reserve, the ECB continues to pursue its policy of negative interest rates. Inflation in the Eurozone rose significantly during 2018. Increases in energy and food prices in particular contributed to this. Employment growth in the Eurozone continues and contributes roughly to the same extent as wage growth to employee compensation.

Germany: The German economy is still in a boom. However, the general conditions have noticeably deteriorated, with the recovery losing momentum in 2018 as a result. On the one hand, the political risks have increased. On the other, the pace of expansion in world trade has declined markedly. Overall growth in 2018 stood at 1.5% (previous year: 2.5%). In addition, production problems in the automotive industry and capacity constraints caused a decline. A pronounced labor shortage is discernible in many areas. Wage and consumer price developments have gathered steam as well. Further digitalization opens up great potential and could help address the impending shortage of skilled workers. Exports continue to be of great importance for Germany. This is why the unresolved trade conflict with the United States, the turmoil in individual emerging markets, the impending Brexit and political uncertainty in the Eurozone all pose a significant risk to the future development of the general macroeconomic conditions.

2.2 Market-Specific Development

TÜV Rheinland offers its testing, inspection and certification services through companies on all continents throughout the global TIC (Testing, Inspection, Certification) market. This gives the Group the ability to serve clients' often worldwide value chains. Demand for the testing, inspection, certification, consulting and training services of TÜV Rheinland is particularly high among clients in economically strong, industrialized countries. At the same time, fresh demand for our services can be seen in emerging markets as well. The global TIC market, and hence the business of TÜV Rheinland as well, are influenced by the following market factors and trends:

Globalization: Issues such as energy supply, infrastructure, international division of labor and mobilization are continuing to gain importance for our globalized society. For the TIC market, globalization entails opportu-

nities and risks at the same time. Increasing liberalization efforts in markets strengthen global trade and open up opportunities to enter new markets. Worldwide supply chains render high-quality and globally uniform testing standards and certification services indispensable. On the other hand, the trend toward increasing regulation continues in emerging markets as well. Due to its global focus on increasing internationalization, TÜV Rheinland is already very well positioned today and is increasingly focusing on the expansion of services for local markets.

Technologization and Digitalization: The advance of new information technologies is changing society as well as the global markets and products. Against the backdrop of this digital transformation, TÜV Rheinland ensures the quality, safety, and controllability of the technologies involved. The following market trends are of particular importance here:

- **Internet of Things:** Through the networking of tech-

nologies of everyday life with the internet, in the area of smart home solutions or industrial components and products, for instance, the physical and online worlds are converging. This presents sweeping new opportunities but also challenges for providers and consumers.

- **Big Data:** Rapidly increasing use of the internet means that data providers are generating large volumes of data. The challenge is to make these quantities of data manageable while creating conditions that permit profitable use of them.
- **IT Security:** Round-the-clock availability and transmission of data – with mobile payments, for instance, or data storage in the cloud or in industrial plants – provide a textbook case of the growing importance of IT security.
- **Intelligent Transport Systems:** The vehicles of tomorrow will drive autonomously, permit remote diagnostics and offer a host of systems for safety and comfort. Mastering the communications infrastructure that this requires while ensuring transportation safety are central challenges for the mobility market.

Industry 4.0: The economy is on the verge of the next industrial revolution. In the future, the shape of industrial production will be characterized by strong customization of products under conditions of highly flexibilized production. Under this form of hybrid production, complex data networks will link customers and suppliers with production over the entire value chain. Labor-intensive and monotonous activities in production are increasingly being performed by robots, and networking of machinery will increase. The resulting requirements in terms of the availability, functionality and security of data and networks will produce additional potentials.

Demographic Change: TÜV Rheinland also views the demographic trend toward a globally aging population structure as an opportunity. In certain markets, such as health care and nursing care, an increase in demand for services in this portfolio can already be seen.

M&A Activities / Consolidation in the Market: Consolidation trends continue in the market for technical services and especially in the TIC market. This results in both opportunities and risks for companies based on their positioning in the changing TIC market.

The TÜV Rheinland AG Group provides products and services in the area of TIC for a variety of markets and industries worldwide. While global economic trends are important to TÜV Rheinland, they are not all-deciding, given the Group's diversification across industries and regional markets. In addition, the company is largely unaffected by specific developments in individual industries, particularly when it comes to mandatory in-

spections. At the same time, the following general economic and market-specific conditions in 2018 had an effect on TÜV Rheinland's business:

Overall economic conditions were upbeat in 2018. Because in some cases the economy developed quite differently in the individual regional markets, the effects on the business of TÜV Rheinland must be analyzed by countries and regions.

In the business year 2018, the Greater China region with growth of 6.1% and business within Western Europe, which grew 5.3%, represented the main sources of revenue growth for the TÜV Rheinland Group. By contrast, revenue was down in North and South America, as well as in the IMEA region.

TÜV Rheinland's European business posted a positive development in the past financial year. Revenue growth outperformed conditions in the general economic environment. In the Mobility Business Stream, Germany, Spain and France show a positive development in Periodical Technical Inspections. The increase in revenue in the Driver's Licenses Business Field is mainly due to the increased number of examinations by refugees. In the Academy & Life Care Business Stream, the seminar business in Germany continued to develop very positively. In addition, certifications based on new standard editions further improved the margin, with strong growth in the Systems Business Stream. Despite the uncertainties in the UK owing to the forthcoming Brexit, the Risktec Group was able to increase its revenue in a difficult market environment.

Despite increased economic growth in the United States, TÜV Rheinland's business had to cope with a slight decline in demand. A weaker orders situation in the Products and Digital Transformation & Cybersecurity Business Streams put downward pressure on developments here. In contrast to the United States, the Mexican company reported increased revenues once again.

Against the backdrop of positive overall economic conditions in the regions of Greater China and Asia Pacific, TÜV Rheinland's business in those regions plays a significant role in the Group.

The Products Business Stream continues to be supported by the Greater China region, even though Chinese economic growth was slightly weaker. In China and Asia, extensive investments were made in the Digital Transformation & Cybersecurity Business Stream to expand the business there. Overall sales growth in the Asia Pacific region is distributed relatively homogeneously across the individual countries, with particularly noteworthy revenue increases in Japan, the Philippines, and Thailand.

With slightly positive indications in the investment-driven business in Brazil (infrastructure projects), earnings in South America were improved year-over-year, but these remained in a deficit posture. In the Industrial Services Business Stream, however, there were successful business acquisitions in the private sector. The Systems Business Stream in particular had strong growth rates in the accredited area, at all South American locations.

While the Russian economy continued to recover in 2018, there was a slight decline in revenue for the TÜV Rheinland business there.

As a globalized service company, the goal of TÜV Rheinland is to systematically strengthen its operations worldwide. The focus at TÜV Rheinland in this regard is particularly on expanding its operations in the markets in which the company can make ideal use of its competitiveness and tap new markets as a result.

In its market position, the TÜV Rheinland AG Group ranks among the largest market participants in the TIC sector. Overall, TÜV Rheinland views itself as extremely well-positioned compared to the international competition, and is confident that it will succeed in further improving its position in the global TIC market. In this connection, the increasing liberalization of the markets and expanding international trade are both to be viewed as opportunities.

Consumers' increased demand for information – in relation to information about production conditions, for instance, or a responsible approach toward the environment – can be met through complete and credible transparency. In this connection, independent testing companies such as TÜV Rheinland play a crucial role, as they generate security, credibility and trust through certification and proof of testing. To maximize the comprehensibility of the testing approach, TÜV Rheinland provides the certificate database Certipedia, in which users can search for details such as testing criteria or methods. TÜV Rheinland also offers its customers a Customer Information System that they can use to manage all of the information associated with TÜV Rheinland. A web portal makes the certification process more transparent. This close communication between customers and TÜV Rheinland makes it possible to close vulnerability gaps and improve efficiency.

Further advances in digitalization increase the risk of hacker attacks and cyber crime. The IT security experts at TÜV Rheinland provide support predominantly for medium-sized entities with the "APT Defense Service," which, for instance, contains a sensor-based review of network traffic. The Cybersecurity Division of TÜV Rheinland also develops solutions for the main se-

curity questions involved in networked production facilities, smart home systems or the increasing use of cloud data storage.

Legislatures have turned to measures such as the German IT Security Act or the EU Cybersecurity Directive in an attempt to counter the growing risk of cyber crime. These measures include obligations to comply with minimum standards with regard to IT security. In this context, TÜV Rheinland offers services worldwide, ranging from strategic consulting and process optimization to implementation or certification of secure IT systems and telecommunications networks.

In addition to the growth potential that presents itself through advances in digitalization, other positive effects are also expected for the original core business of TÜV Rheinland. Particularly the increased demands on the mobility market by intelligent transport systems present opportunities for expansion in TÜV Rheinland's business. TÜV Rheinland expects other growth opportunities through increasing demand for quality assurance along the supply chain, for example by means of system certification, product testing and inspections, as well as in the field of energy and infrastructure.

3 Corporate Management – Growth and Long-Term Value Enhancement as Target

The business strategy of the TÜV Rheinland AG Group defines the company's focus and goals for the coming years. Profitable growth, further internationalization and consistent customer orientation are essential foundations of the company's strategy.

The area of corporate management relies on a group-wide management information and controlling system, creating cost and income transparency in all areas and thus contributing to a profitable earnings performance. Reporting is standardized worldwide and is based on the International Financial Reporting Standards (IFRS).

The annual focus is on the following financial target and management figures: revenues, earnings before interest and taxes (EBIT) as well as requirements for optimized working capital management. The Group's value-oriented management is further strengthened by making these performance and management figures a fixed component of the executive-level compensation structure.

Approved in 2015, the Business Strategy 2020 takes into account essential, sustainable changes that stem from the digital revolution and ongoing globalization. The aim is to ensure that TÜV Rheinland remains sustainable and successful in a TIC market characterized by continued consolidation.

In the medium and long term, performance and profitability in all Business Streams will continue to increase. Above-average long-term growth is expected particularly in the Digital Transformation & Cybersecurity, Products, and Industrial Services Business Streams.

The focus areas are clearly defined: The reputation and protection of the TÜV Rheinland brand continue to enjoy top priority. TÜV Rheinland has also made it its mission to reduce the number of accidents in the TÜV Rheinland AG Group even more significantly. The quality of the services and innovations in the products and services offered by the TÜV Rheinland AG Group also represent elements of sustained success. To ensure the Group's long-term investment capability, the focus for the years ahead remains geared toward an increase in return.

Focus in investments continues on the work areas of digitalization (for example IT Security, Industry 4.0 or Intelligent Transport Systems), Supply Chain Services (qualification of the supply chain through system certifications, product testing and inspection) as well as En-

ergy and Infrastructure (for example railway technology, asset integrity management). Thus, TÜV Rheinland is concentrated on work areas that already belong to its core business or give rise to expectations of significant market growth.

Beyond this, TÜV Rheinland's mission statement charts a confident course: The TÜV Rheinland AG Group intends to be the world's best sustainable and independent service provider of technical services for testing, inspection, certification, consulting, and training. Across the Business Streams and the regions, the path to the top will be paved by the "Do it. Best!" program and the five corporate values of Integrity, Excellence, Customer Orientation, Performance Orientation, and Agility. This is because in its effort to assume a leadership role in the TIC market, the TÜV Rheinland AG Group needs clear structures for more effective and faster action, along with stronger focus on customers and the digital transformation. The substantive concept is delivered by the three pillars upon which "Do it. Best!" is built. First, there is the implementation of Strategy 2020, for example the organizational adjustments within the framework of Excellence@TÜV Rheinland and the corporate culture.



In 2016, the TÜV Rheinland AG Group launched its reorganization of the Business Streams, defining new structures and responsibilities in the form of the so-called RACI Matrix. Excellence@TÜV Rheinland is a core component of the project; it was implemented to secure the company in the long term. Building on this, targeted global and regional projects were launched – some of which have already been completed – to improve processes and structures within the Group. For our customers, Excellence means that they receive their test results faster and in a quality that is uniform worldwide. Thanks to improved processes and structures, employees of the TÜV Rheinland AG Group can carry out their work better and more efficiently.

2017 marked the beginning of restructuring of the Service Functions within the framework of EOS (Excellent Overhead Structures). The focus of all initiatives is always on the customer. For this purpose, the TÜV Rheinland AG Group has focused its corporate culture on the value of customer orientation, turning the corporate pyramid upside down. This means that the needs of colleagues who are close to the customer and ensure the customer's satisfaction are now at the forefront internally.

Although not all projects were completed in 2018, the TÜV Rheinland AG Group is well on track. This benefits not only customers in the form of competitive and innovative products and solutions, but our employees as well. This offers them a future-proof job, because TÜV Rheinland will remain a strong company in the sector and can generate the funding it takes to make targeted investments in the future.

Another important change process was initiated as part of the EOS (Excellent Overhead Structures) project in 2018. With the aim of improving quality and the added value of Service Functions through a holistic and global approach, first of all, the Service Functions of Finance & Accounting, IT, Controlling, Marketing and Communication have since been redesigned for Germany and Europe. The cross-business and regional harmonization and optimization of all processes forms the basis for a clear internal and external customer focus in the future, offering world-class quality and consistently tapping new potentials. For this purpose, the Marketing and Finance & Accounting services were bundled in the Regional Service Centers for Germany and Europe in Cologne and Katowice. Corporate IT was centralized, and communication is now centralized in the Newsroom.

4 Results of Operations, Financial Position and Net Assets

The TÜV Rheinland AG Group's consolidated financial statements are prepared in accordance with the International Financial Reporting Standards (IFRS).

4.1 Development of Revenues

Consolidated revenue (including inventory changes) of the TÜV Rheinland Group increased from €1,971.9 million in the previous year to a total of €1,998.1 million in the 2018 business year; this represents an increase of €26.2 million.

Of the total revenue, €889.4 million is attributable to foreign countries; this accounts for a 44.5% share of total revenue.

Revenue by Business Stream break down worldwide as follows; due to fluctuations in exchange rates, what follows also contains the figures adjusted for exchange rates in the 2018 business year:

Revenue by Business Stream

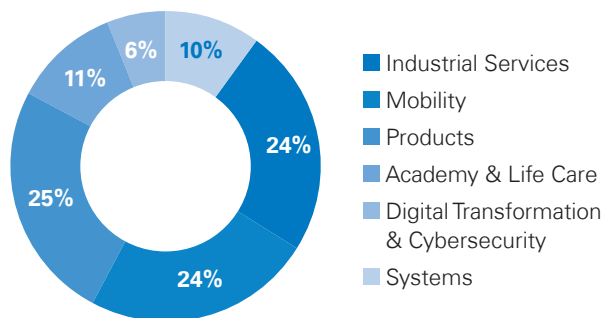
in € millions	2017	2018	2018*
Industrial Services	503	513	522
Mobility	508	532	533
Products	524	541	549
Academy & Life Care	226	227	228
Digital Transformation & Cybersecurity**	139	122	122
Systems	203	212	218
Miscellaneous***	-131	-149	-134
Total	1,972	1,998	2,037

* Revenues at constant exchange rates

** Formerly ICT & Business Solutions

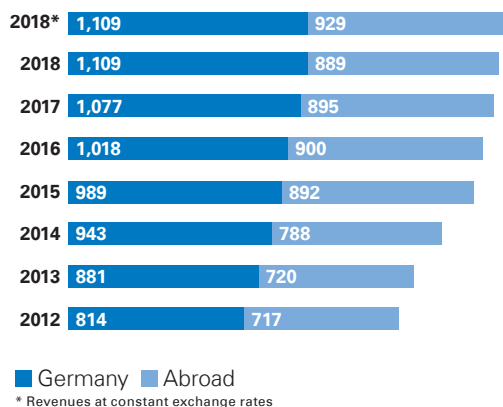
*** Intra-group revenues and central functions

The following graph shows the percentage of revenues generated by each Business Stream:



The €26.2 million increase in total revenue year-over-year corresponds to a 1.3% relative increase in revenue and is attributable mainly to domestic business. What follows is a diagram showing the revenue trend (including inventory changes) for recent years, both domestically and abroad, in € millions:

Development of Revenues (including inventory changes, in € millions)



Changes in currency exchange rates also led to a decrease in revenue in the 2018 financial year. The Chinese yuan and the Argentine peso merit particular mention in this regard. Holding exchange rates constant, revenue would have been up by €65.4 million year-over-year, resulting in currency-adjusted revenues for the financial year totaling €2,037.3 million. This corresponds to revenue growth of 3.3%. The additional revenue generated by the TÜV Rheinland Group at average rates of exchange totals to €26.2 million and, in contrast to the previous year, contains no revenue

due to expansion in the scope of consolidation. Revenue growth within Germany was largely organic in nature again during the financial year under report; with the exception of Digital Transformation & Cybersecurity, all of the Business Streams reported revenue growth in the single-digit percentage range. The Greater China and Western Europe regions were able to increase their revenues by double-digit millions year-over-year and thus contributed significantly to the increase in revenue in the 2018 financial year. Due to fluctuations in exchange rates, total revenue generated abroad is slightly lower than the previous year's level.

For the second year in a row, the **Industrial Services Business Stream** generated the third-largest contribution to revenue for the TÜV Rheinland Group. By comparison, however, revenue was €10.6 million or 2.1% higher year-over-year; at constant exchange rates, there is an increase of €19.7 million or 3.9%. The increase is attributable, among other things, to domestic business, which mainly responded to the strong trend in the construction sector. Furthermore, the Energy & Environment Business Field in the UK developed positively as a result of increasing orders in the 2018 financial year. The Business Field recorded revenue growth of 10.5%. The Business Field with the second-strongest revenue was Electrical Engineering and Building Technology, which managed to increase its revenue by 6.1% year-over-year. Growth impulses from international regions such as Greater China and North America were additional drivers of a welcome boost in revenue throughout the entire Industrial Services Business Stream. The continuing political and economic crisis in Brazil, which is accompanied by ongoing weak demand for services in the energy and infrastructure sectors, continued to present a challenge in the 2018 financial year.

The **Mobility Business Stream** increased its revenues by €24.0 million or 4.7% year-over-year to make the second-largest contribution to revenue in the 2018 financial year. Decisive in this development, among other things, was very good growth in the Business Fields of Engineering & Homologation and Periodical Technical Inspections. The Engineering & Homologation Business Field increased revenue by 10.2% year-over-year and made the second-largest contribution to sales in the Mobility Business Stream, with €76.5 million. The largest Business Field, Periodical Technical Inspections, with a revenue share of sales of €300.1 million, reported a 2.9% increase in revenue. In Periodical Technical Inspections, Germany and Spain in particular showed very positive trends in revenue. Despite the loss of business of two major customers in the profitable liability-loss business, the revenue of the Damage and Valuation Reports Business Field continued to be encouraging as well. Revenue in the Mobility Business Stream was higher year-over-year across all the Business Fields.

Revenue for the **Products Business Stream** continued to increase in the financial year under report and made the largest contribution to sales of €540.6 million across all of the Business Streams. The Greater China region was once again a main driver. The largest Business Field, Electrical (testing of electronic products for safety and quality), with a revenue share of sales of €191.3 million or 35.4%, achieved a year-over-year increase of 1.8%; this fell significantly short of expectations, however. On the other hand, the €7.9 million or 16.6% year-over-year increase in revenue in the Solar Business Field was encouraging and is due to the worldwide investment trend in clean energy. Revenue for the Softlines (testing of toys, cosmetics and textiles, among other things) and Hardlines (testing of furniture and household goods as well as mechanical products) Business Fields again reported revenue growth of around 2.0% per Business Field. Overall, there was an increase in revenues across all Business Fields compared to the previous year.

Revenue in the **Academy & Life Care Business Stream** was only slightly higher compared to the previous year. While the previous year saw an increase in sales of €6.9 million or 3.2% compared to the 2016 financial year, the Academy & Life Care Business Stream recorded a revenue increase of just €0.5 million in the 2018 financial year. A sharp decline in the number of participants in vocational training in Saudi Arabia and a lack of budgets for labor-market services in Germany as a result of delayed government formation were circumstances that were responsible for a decline in revenue in the Labor Market Services and Private Schools Business Field. At the same time, a strong monsoon rain in August 2018 in India weighed on the Further Training & HR Development Business Field, with course enrollments failing to materialize. The seminar business in Germany, on the other hand, developed extremely positively, as did the Occupational Health & Safety Business Field, which recorded a 4.4% increase in revenue. The largest share of revenue was generated in Germany again in the 2018 financial year. In return, the difficulty of recruiting skilled employees in Germany (especially doctors and social education workers) inhibits growth, as has also been shown in the Academy & Life Care Business Stream.

The **Systems Business Stream** reported a € 9.1 million or 4.5% rise in revenue over the previous year. As a result of the strong growth from (re)certifications according to ISO 9001, ISO 27001 and IATF, the Business Field of Certification of Management Systems recorded an increase in revenue of €9.4 million and 7.0%, and, at €143.5 million and 67.6%, was the largest Business Field in terms of Business Stream revenue. The Customized Services Business Field (auditing of internal rules on risk management, compliance, service quality, sus-

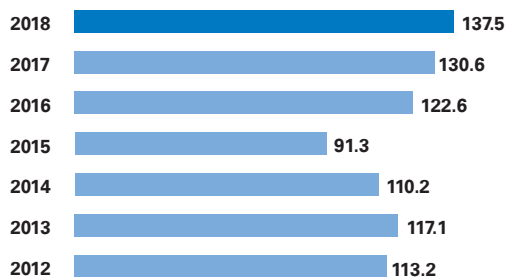
tainability, quality in commercial business processes, data protection, social or technical requirements) reports a revenue share of €40.7 million or 19.2% in the 2018 financial year. The Government Inspection Business Field, which is also the smallest Business Field in terms of Business Stream revenue, has a revenue share of €28.0 million and was able to increase its previous year's revenue by €1.7 million. The development in the Gulf States, and the "Iran embargo" in particular, together with introduction of the new SALEEM approval program in Saudi Arabia, influenced the overall positive revenue trend in the Systems Business Stream.

The **Digital Transformation & Cybersecurity Business Stream** reported a decline in revenue of €17.4 million or 12.5% in the 2018 financial year. The decrease in revenue in the IT Services & Cybersecurity Business Field, at €13.9 million, is attributable, on the one hand, to introduction of the new international accounting standard IFRS 15, according to which certain business models lead to netting of accounts in the case of principal-agent relationships, and to the shrinking project volume in the current financial year on the other. The change in sales structures in the USA, which was already launched in the previous year, has not yet been reflected in revenue trends. In the Telco Solutions & Consulting Business Field, there was no year-over-year increase in revenue in 2018, due to termination of the major Vodafone order. The Business Field reported a €3.5 million or 5.0% drop in revenue. The Digital Transformation & Cybersecurity Business Stream continued to focus outside of Germany in 2018, and on the USA in particular. Start-up investments in the development of business in Asia placed an unplanned strain on the Business Stream.

Domestic revenue for the TÜV Rheinland AG Group was 2.9% higher in the 2018 financial year. At €889.4 million, foreign revenue was 0.6% lower than in the previous year; at constant exchange rates, this would represent an increase of 3.8%. As a result, 44.5% of the Group's revenue was generated abroad.

4.2 Development of Income

Earnings before interest and taxes (EBIT)
in € millions



in € millions	2017	2018
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	206.5	212.8
Amortization of intangible assets and depreciation of property, plant, and equipment	-75.9	-75.3
Earnings before interest and tax (EBIT)	130.6	137.5
Financial result	-12.2	-12.6
Earnings before tax (EBT)	118.4	124.9
Taxes	-40.3	-39.8
Consolidated net income	78.1	85.1

At €212.8 million, earnings before interest, taxes, depreciation, and amortization (EBITDA) for the financial year are 3.0% higher than the previous year's total of €206.5 million. Earnings before interest and taxes (EBIT) as well as earnings before tax (EBT) turned out higher than the previous year, improving year-over-year by 5.3% and 5.5% respectively.

With the exception of the Digital Transformation & Cybersecurity and the Academy & Life Care Business Streams, all other Business Streams outperformed the prior year's earnings before interest and taxes, with the strongest earnings growth from Mobility, contributing €+6.3 million, and Industrial Services, contributing €+6.2 million. Earnings before interest and taxes (EBIT) exceeded the previous year's level by €6.9 million. This was due to targeted optimization measures and an adapted recruitment policy.

The **Industrial Services Business Stream** improved its earnings before interest and taxes by 13.2% and achieved the second-highest earnings in the TÜV Rheinland AG Group with €53.5 million. The Electrical Engineering & Automation Business Field increased EBIT from €19.3 million in the previous year to €21.0 million in the current financial year. The Energy & Environment Business Field also reported an increase of €1.6 million year-over-year, due in particular to the encouraging developments in the UK in light of increased order intake. Additional hires and employee training, along with targeted restructuring measures, also had an impact on the earnings trend in this Business Stream, which would have been even more positive had it not been for these factors. Ongoing price pressures in the oil and gas sector continue to weigh on earnings in the 2018 financial year. On the other hand, the positive growth impulses from Greater China facilitated an important contribution to the overall good earnings trend in the Industrial Services Business Stream.

The **Mobility Business Stream** also exceeded the earnings target and achieved earnings before interest and taxes of €56.4 million in the financial year; this

represents an increase of €6.3 million and 12.6% over the previous year. The Periodical Technical Inspections Business Field was the strongest, with an EBIT contribution of €33.2 million and a year-over-year increase of €4.1 million. Despite high competitive pressures, the significant increase in results in the Periodical Technical Inspections Business Field is attributable to the regions of Germany, Spain, and France. The Engineering & Homologation and Rail Business Fields also posted positive results due to very good capacity utilization.

The **Products Business Stream** continues to experience increasing demand, even though the earnings targets were not met in all of the foreign markets. The Business Stream generated earnings before interest and taxes of €69.0 million, making the largest EBIT contribution to the TÜV Rheinland AG Group. Overall, however, the Softlines and Hardlines Business Fields remained below expectations and did not match the previous year's figures. One of the reasons for this was, for example, the lack of growth in North America. Overall, the Business Stream was able to improve its results by 4.2% over the previous year. High future investments in digital infrastructure and laboratories in wireless communication products, which weighed on the results, should also be mentioned in this connection.

Overall, the **Academy & Life Care Business Stream** performed below expectations. The two Business Fields of Occupational Health & Safety as well as Further Training & HR Development outperformed their previous year's results. Decreases in orders in India and Saudi Arabia, in some cases consequential effects from the oil-price crisis, as well as delayed government formation in Germany in early 2018, led to a reduction in training measures. The Occupational Health & Safety Business Field was positive; despite the difficult search for occupational physicians, it managed to boost earnings before interest and taxes by 5.1% during the reporting year. With an EBIT contribution of €8.2 million, this Business Field makes the largest contribution within the Business Stream. With strong demand for seminars on data protection, cloud computing and other digital topics offsetting lower demand in other areas, the Academy & Life Care Business Stream was able to nearly maintain the overall result for the previous year.

The **Digital Transformation & Cybersecurity Business Stream** also underperformed expectations for earnings before interest and taxes. Despite the decline in revenue, the EBIT of €3.6 million held steady at the previous year's level. Sustained shrinkage in project volumes in the USA as well as the organization's strategic focus on investing in expanding business in the Middle East and building Asia and China business led to EBIT losses. The significant improvement in business returns in Germany as well as synergy effects from completion of the major project with

Vodafone stabilized the result at the previous year's level. In the **Systems Business Stream**, a year-over-year increase of 6.9% in EBIT was achieved. In the Certification of Management Systems Business Field in particular, earnings before interest and taxes were 16.7% higher and totaled to €18.7 million. This Business Field also makes the largest contribution to earnings in the Business Stream. Despite the improvement in earnings owing to significant expansion of activities in producer countries, the still-tense political and economic situation in the IMEA region persists, affecting the Government Inspections & International Trade Business Field. The Iran embargo and the introduction of the new SALEEM authorization program led to changes in market conditions.

In terms of regions, Greater China was able to increase earnings before interest and taxes by 6.4% to €57.9 million across the Group. The Asia Pacific region even doubled EBIT to €11.2 million. As a result of the current political and economic situation in these regions, the IMEA and South America regions were unable to match their figures for the previous year.

Earnings before interest and taxes of €137.5 million of the TÜV Rheinland AG Group include €1.7 million in expenses from foreign currency translation.

The share of purchased services expressed as a share of total revenues in the 2018 financial year stood at 15.6% (previous year: 16.1%).

The share of personnel expenses increased, going from 54.9% the previous year to 55.5% in 2018 financial year. The €25.2 million year-over-year increase in personnel expenses is in line with the 2.6% increase in the average number of employees compared to the previous year.

Amortization of intangible assets and depreciation of property, plant, and equipment totaled to €75.3 million in the 2018 financial year.

Expressed as a share of total revenue, other expenses in the 2018 reporting year are 0.5% lower than the previous year's value of 22.2%. Other operating income, on the other hand, stood at 3.5% of total revenue and was thus 0.2% points below the previous year's figure.

The financial result in the reporting year amounted to €-12.6 million and was €-0.4 million higher overall than in the previous year. The €-2.2 million decrease in interest income more than offset the €0.9 million decrease in interest expenses. A major driver of the reduced interest expenses vis-à-vis banks was the repayment of a promissory note loan of €42.5 million in the first half of 2018.

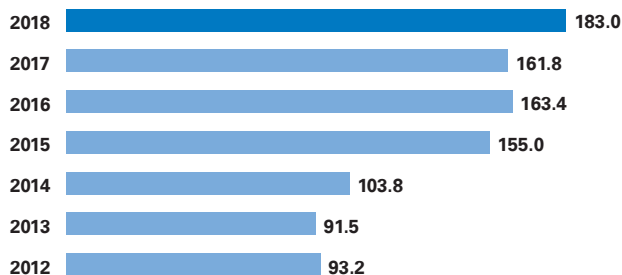
At €124.9 million, earnings before taxes were €6.5 million higher than the previous year's figure of €118.4 million.

At €39.8 million, income taxes remained at the previous year's level (previous year: €40.3 million). The tax rate fell once more, from 34.0% in 2017 to 31.9% in the 2018 financial year.

Consolidated net earnings increased by 8.9% and went from €78.1 million to a total of €85.1 million.

4.3 Financial Position

Cash flow from operating activities
in € millions



At €183.0 million, the positive cash flow from operating activities in the financial year was significantly higher than the previous year's figure of €161.8 million, representing an increase of €21.2 million or 13.1%. In addition to the increase in consolidated net income of €7.0 million and in current liabilities (excluding trade payables) of €20.0 million, an improvement in working capital compared to the previous year was also responsible for the increase in cash flow from operating activities. Trade payables increased by €11.0 million year-over-year as of the balance sheet date of December 31, 2018. Inventories and trade receivables were at the previous year's level.

The negative cash flow from investing activities decreased by €18.8 million compared to the previous year and stood at a total of €84.8 million. The decrease in cash outflows from investing activities is mainly due to the reduced payments for acquisitions during this financial year. A total of €16.6 million was paid out for acquisitions in the previous financial year.

In the area of financing activities, repayments of bank liabilities and a reduction in the taking-out of additional financial loans led to a year-over-year reduction in

cash flow from financing activities. Taking the payout of €15.0 million in dividends to the shareholder into account, cash flow from financing activities was negative and totaled to €69.8 million (previous year: €97.2 million).

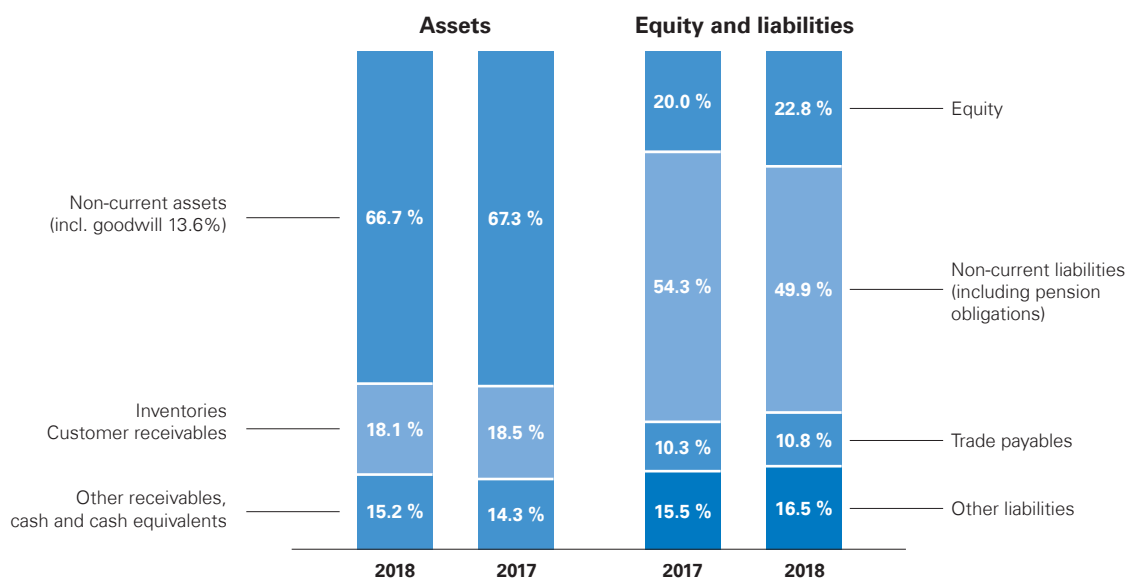
Restrictions affecting the availability of capital totaled to €68.1 million in the 2018 reporting year.

Cash and cash equivalents amounted to €219.5 million as of the balance sheet date and were €25.5 million higher year-over-year, while financial liabilities fell to €180.3 million as of the balance sheet date. This change year-over-year is primarily associated with the improved earnings and further optimized working capital management.

To ensure its ongoing solvency, the TÜV Rheinland AG Group maintains extensive current and non-current lines of credit. A total of €180.3 million of this amount was used as of December 31, 2018.

4.4 Balance Sheet and Capital Structure

The balance sheet total is 1.1 % or €18.9 million higher, rising to €1,807.8 million.



Non-current assets increased by €3.7 million to €1,206.8 million, with the increase due mainly to investments in property, plant and equipment. Investments in property, plant and equipment amounted to €66.8 million, compared with depreciation of €56.3 million. Goodwill amounted to €246.1 million (previous year: €245.5 million) and accounts for 77.8% of intangible assets.

Current assets increased as a result of higher amounts of cash and cash equivalents of €219.5 million (previous year: €193.9 million) as well as lower levels of trade receivables, at €324.3 million (previous year: €326.9 million) by €15.2 million or 2.6% as of the balance sheet date. At the balance sheet date, other receivables and other current assets were €8.4 million lower year-over-year.

Equity was €53.3 million higher and totaled to €412.2 million. The change is mainly attributable to the positive consolidated net income of €85.1 million. This is offset by a dividend distribution of €15.0 million to the shareholder TÜV Rheinland Berlin Brandenburg Pfalz e.V., actuarial losses of €5.3 million from the valuation of pension obligations, and €2.4 million from currency differences. As a result, the equity ratio improved from 20.0% in the 2017 financial year to 22.8% in the current reporting year.

Within non-current liabilities, pension provisions fell from the prior-year value of €731.5 million to €725.7

million in the current reporting year. Pension provisions thus account for 40.1% of total assets. Pension provisions are offset by an actuarial reserve quota in the form of reinsurance policies of €290.9 million. The main reason for the reduction in non-current debt is the decrease in non-current liabilities from €200.8 million in the previous year to €144.9 million as of the balance sheet date. The reason for this was the partial repayment of a promissory note loan of €42.5 million in the first half of 2018.

Current liabilities increased by €31.0 million year-over-year. The increase is mainly due to the €11.0 million increase in trade payables and the €13.7 million increase in other liabilities.

4.5 Investments

The volume of investments in the reporting year, not including corporate acquisitions, totaled to €91.0 million. With investments totaling €24.4 million in 2018, TÜV Rheinland stepped up its focus on its innovative capacity, investing in future- and digitalization-related topics (such as wireless, cybersecurity or autonomous driving). This also includes expanding and strengthening the IT infrastructure and acquiring highly specialized testing software and technology. The One SAP on HANA project merits particular mention in this connection. One of the largest IT projects in recent decades is currently under way with the transition to the new application platform SAP S/4 HANA with the new in-memory database HANA. In the future, all data will be kept in the main memory on a server. This permits real-time processing and more powerful evaluation of large amounts of data (big data). It also takes advantage of the opportunity to unify the global SAP landscape at TÜV Rheinland. Currently, the SAP landscape is physically concentrated in Cologne, but in terms of processes it is mapped in four different SAP clients. These are now being merged. In addition, both customer and supplier data, as well as the various country-specific charts of accounts in finance and accounting, are harmonized to create a global, uniform chart of accounts. Implementation of One SAP on HANA is an important prerequisite for the use of new technologies. The performance of the IT infrastructure was additionally strengthened, parti-

cularly through investments in improved hardware, targeted increases in server capacity and higher-performing telecommunications equipment.

In addition, the global Wireless Strategy 2020 comprises the worldwide provision of radio technology to the testing network. €7.7 million was invested for this purpose in the past financial year. With these investments, the TÜV Rheinland AG Group is strengthening its position in the briskly expanding IoT market.

In the Mobility Business Stream, there were investments of around €7.8 million in expanding and improving the level of equipment in the network of motor-vehicle testing authorities.

The TÜV Rheinland AG Group is underscoring the importance of its largest location in Germany with continuation of the extensive new construction and refurbishing measures on the grounds of the Group's headquarters in Cologne. Among other things, the structural measures undertaken there include the renovation of the façade, fire protection, heating and air conditioning as well as electrical installations. The main building was occupied in April 2017. In 2018, the investments applied to retrospective services for the modernization work on the main building. €5.8 million was invested in the financial year completed.

5 Employee Report

As of the end of the year 2018, a total of 20,537 employees (full-time) or 21,393 employees (headcount) are employed at TÜV Rheinland AG Group. The average number of employees in the reporting year is 20,450; in a year-over-year comparison, this represents an increase of 526 employees or 2.6%.

The average workforce size abroad stands at 11,655; this corresponds to a share of around 57.0%. The number of employees abroad increased year-over-year by 235 or 2.1%. The average number of employees in Germany increased from 8,504 to 8,795 during the financial year under report (+3.4%).

The change in the number of employees in Germany is mainly due to an increase in staffing in the Industrial Services and Mobility Business Streams. Poland, the United Kingdom, the Asia-Pacific countries and China are particular contributors to the increase in the num-

bers of employees abroad. The workforce declined, on the other hand, in Brazil and the United States of America.

Total staff (average)
FTE



Information in connection with the law mandating equal participation by men and women in management positions in the private sector and in civil service

Diversity is a focus in the sustainability strategy of TÜV Rheinland. In concrete terms, this means increasing the share of women in management positions within the Group to 15.0% in 2020 and to 20.0% of top management bodies internationally. We achieved both targets during the reporting year. The share of women in management positions is 16.6% (previous year: 15.2%); 40.0% of the most senior management body excluding the Executive Board is internationally staffed.

We had set ourselves a target for the proportion of women in the Supervisory Board of TÜV Rheinland AG at three of the then twelve posts by 2017. We successfully reached this target by the deadline of June 30, 2017. In compliance with a statutory requirement, the number of posts on the Supervisory Board currently totals to 16, with four of these posts filled by women. The goal of accomplishing a 25.0% share of women on the

Supervisory Board is thus still achieved. In fulfillment of statutory requirements, however, the total number of seats on the Supervisory Board now stands at 16. The Supervisory Board had specified 20.0% as the proportion of women in the Executive Board at TÜV Rheinland AG; this target could not be reached by the 2017 deadline. A woman was added to the Executive Board in the 2018 financial year, however. This achieves a rate of 25.0% and thus meets the progress toward the 2020 target at this stage.

The targets in the company's top level of management are 14.0% and 24.0%. The first target was to be reached by June 30, 2017, and was precisely met at 14.0%. The second target must be reached by December 31, 2020. There is no second level of management in place at TÜV Rheinland AG.

Targets have been defined for the five German subsidiaries subject to quotas under the law mandating equal participation by men and women in management positions. These are set forth at the website: www.tuv.com.

6 Risk Management System and Corporate Governance

For a globally active company like TÜV Rheinland, a comprehensive internal control system (ICS) – in relation to IT-assisted business processes and paired with effective and efficient risk management – is an indispensable control element which defines the framework for management and monitoring. The ICS is mainly intended to ensure compliance with statutory requirements, TÜV Rheinland-specific guidelines, and its corporate objectives.

In addition, risk management aims to identify and evaluate risks at an early stage, so that suitable precautions, controls, and safeguards can be put in place and proactive countermeasures can be initiated. TÜV Rheinland AG's Executive Board is responsible for the Group's risk management system.

A detailed description in the quality management system and explicit treatment in the management framework manual define the risk management process of the TÜV Rheinland Group. These documents are available around the world on the company's intranet. In addition, for a long time TÜV Rheinland AG has had an interdisciplinary risk unit in place consisting of the functions Audit, Finance & Accounting, Legal & Compliance, Quality Management, Human Resources, Accreditation & Certification as well as Insurance.

Multiple amendments to applicable laws and provisions were passed in recent years with the goal of fur-

ther improving corporate governance. In keeping with international standards, the Corporate Sector Supervision and Transparency Act (KonTraG) requires the Executive Board to take suitable steps to ensure that developments which might pose a threat to the company's continued existence are made identifiable at an early stage. This requirement is taken into account by an effective ICS and TÜV Rheinland's early risk warning system. The Group's internal Corporate Audit Department also applies a risk-oriented audit approach to check the ICS of TÜV Rheinland companies around the world in accordance with international auditing standards.

In addition, information derived from quarterly risk reporting by the Executive Vice Presidents is subject to detailed analysis in connection with the regions involved. Based on the information obtained, all of this information is then aggregated into one report. This report is then appraised from portfolio and Group viewpoints. Risk determination is based on the areas of risk that are specific to TÜV Rheinland. These areas comprise the categories market/customer, processes, employees, finances, accreditations/standards/regulatory framework and miscellaneous. Risk quantification is based on the anticipated impact on earnings as well as the likelihood of the risk's occurrence. Additionally, the naming of planned countermeasures also represents a central component of the risk management process.

Dealing with risks is also a part of the ongoing reporting process. Reporting follows the requirements of the matrix structure and, in addition to regularly updating the economic outlook, also takes business-specific early indicators into account. This forms an essential foundation for recognizing risks as well as introducing and consistently pursuing specific efforts to avert possible damage to TÜV Rheinland. In addition, the Executive Board is informed of significant circumstances by means of ad hoc disclosures. In the case of transactions that may have a significant impact on the performance of a Business Stream or Business Field, an approval process established worldwide provides transparency and reduces risk.

Risk management thus forms an integral part of the Group's standard planning, reporting, and control processes and is incorporated into the information and communication system at TÜV Rheinland AG. It is continuously enhanced and adapted to changing framework conditions. Risk management is therefore suitable for identifying risks at an early stage that pose a threat to the Group's continued existence and for taking appropriate countermeasures.

The TÜV Rheinland Group abides by the basic principles of good corporate governance, which place a focus on the legal and practical framework of managing and monitoring the company. In particular, the Group utilizes a professional compliance management system that is designed with prevention in mind and sets the relevant framework for TÜV Rheinland. Specifically, this framework includes the Code of Conduct, a compliance guideline, a guideline for avoiding conflicts of interest and corruption, a guideline for donations and sponsoring, and an external helpline for matters concerning compliance. An active worldwide network of compliance officers has been established who are available to our employees as competent points of contact.

TÜV Rheinland is convinced that proper corporate governance is of great importance to its long-term success and that the implementation of and adherence to the corresponding guidelines play a key role in permanently strengthening the trust placed in the Group by all interest groups.

7 Value Management and Business-Related Environmental and Social Factors

The TÜV Rheinland AG Group is committed to conducting itself in accordance with the principles of the UN Global Compact and the newly established world group for testing, inspection and certification service providers, the TIC Council. Specifically, this entails explicit consideration of human rights, labor standards, the concerns of environmental protection and the fight against corruption as well as the implementation of these in practice.

TÜV Rheinland systematically continued its activities in regard to social responsibility and sustainability during the 2018 financial year. TÜV Rheinland manages the topics of CSR and compliance on the basis of sustainability management and a compliance management system. Here, the sustainability strategy, which is linked to the corporate strategy, forms the substantive framework; with its five areas – governance, sustainable human resource management, efficient energy and resource consumption, social commitment, and service responsibility – it helps strengthen the key factors for success, thereby helping achieve the goal of becoming the world's best sustainable and independent service company in the field of testing, inspection, certification, consulting and training. The targets set for TÜV Rheinland in the areas of compliance, energy con-

sumption, emissions, diversity, workplace health and safety, and society were at the root of the substantive continuation of the program for CSR and sustainability again in 2018. One sign of progress in this regard, for instance, is the definition of quantitative targets for the fields of action of compliance and service standards, which previously had purely qualitative objectives.

8 Opportunity and Risk Report

In connection with risk management, special attention is paid to opportunities and risks that are not explicit elements of planning. Important aspects result from TÜV Rheinland's global orientation and primarily relate to customers and markets as well as to legal and political framework conditions.

Opportunities are mainly associated with service innovations in individual Business Streams and Business Fields. Examples of this are expenses for new laboratories, for energy and environmental services, and digital data security. In addition, increased acquisition of major contracts, such as the monitoring of infrastructure projects together with the relevant delivery chains, offers major potential. Major opportunities also exist in the continued significant growth of international markets. These markets continue to include the Greater China region, where additional potential is tapped through the continuously expanded presence as well as a continuous diversification of the spectrum of services offered. The resulting network, which will follow globalized value chains and client demand even more closely, forms one of the most important strategic pillars of TÜV Rheinland. The institutionalized, close coordination between business-specific and regional expertise results in additional opportunities – for example, in identifying new fields of activity as well as the effective and efficient handling of cross-border projects. Furthermore, reducing complexity and increasing standardization in all Business Streams open up areas of potential. In addition to optimizations in sales and administration, this includes pooling operations across national borders and the use of innovative IT applications according to customer wishes.

The opportunities that result through digitalization or Industry 4.0 are presented in the “Market-Specific Development” section (page 85 ff.).

Major risk items arise out of the global orientation of TÜV Rheinland, specifically concerning customers and markets, the stability of political and social conditions, as well as international trade and financial systems together with their potential impact on the economy. The continued increase in geographical and service-related diversification has a risk-reducing overall effect in this regard. This makes it possible to cushion strong growth in China, or continuing challenges of the kind witnessed in Brazil. Changes in regulatory framework can result in a liberalization of markets. Late issuance of accreditation, or its possible withdrawal, poses a risk as well. Measures for risk management focus on the quality of the services that form a central element of corporate strategy. The point

is also to prevent negative repercussions for the reputation of the TÜV Rheinland brand.

Possible strains can also stem from regulatory changes as well as sector-specific developments, such as changes in customer requirements and demand in the oil and gas sector, or in renewable energies. In addition to this, in various markets, there is also the challenge of finding skilled workers in numbers sufficient to enable further innovation and growth or qualifying personnel while avoiding high rates of turnover. This applies in particular to the difficult search for occupational physicians in Germany as well as specialist engineers and IT specialists. Continued efforts toward consolidation in the TIC industry, combined with price and margin pressure as well as increasingly fierce competition, poses an ongoing and thus a future challenge.

Risks may arise both from the company's own business activities and from external factors; in the case of breast implants of the French company Poly Implant Prothèse (PIP), for example, TÜV Rheinland is mentioned as the notified body in connection with conformity assessment procedures conducted pursuant to the European Medical Devices Directive. PIP continuously deceived the notified body TÜV Rheinland LGA Products GmbH (TRLP) by using, in some cases, a silicone gel for the production of the implants which was not approved for this purpose and was not covered by the certification by TRLP.

To date, the German courts have consistently confirmed that TRLP fulfilled the duties of a notified body responsibly and in compliance with all laws and legal norms applicable in Europe. In one case, the German Federal Court of Justice [Bundesgerichtshof – BGH] referred questions regarding the interpretation of the Medical Devices Directive to the European Court of Justice (ECJ) for a preliminary ruling. In its judgment of February 16, 2017, the ECJ essentially confirmed the legal position of TÜV Rheinland and found that a notified body does not have a general obligation to carry out unannounced inspections, to examine products and/or to view a manufacturer's business records. Only if there are indications that a medical device does not meet the requirements set out in the Directive must the notified body follow up upon these indications. In the case of PIP, to date the German courts have always found that the notified body had not been presented with such evidence. On the basis of the ECJ's replies, in its judgment of June 22, 2017, the German Federal Court of Justice [BGH] finally rejected the appeal. The judgment of the BGH is final. As a result, a number of other German courts of first and second instance have issued rulings in favor of TRLP.

TÜV Rheinland's legal view was also declared correct in a judgment of the appellate court in Aix-en-Provence, France, handed down in 2015. The appellate court found that TRLP fulfilled its duties as the notified body in line with the applicable laws and norms and that the notified body had no indications of a lack of conformity. Other courts in France have repeatedly taken divergent decisions in the first instance, granting compensation claims to plaintiffs. TÜV Rheinland appealed these decisions handed down by the courts of first instance. The matter was considered for the first time by the top French civil court in 2018: In six decisions issued on October 10, 2018, the Court of Appeal in Aix-en-Provence held that the grounds for the 2015 decision were incorrect or inadequately justified in three respects, including one asserted by TÜV Rheinland and concerning the inadmissibility of a number of actions that had been brought. The French Supreme Civil Court referred the case to the Court of Appeals in Paris, which will rule on the plaintiffs' claims in the six proceedings, once all parties have re-submitted their arguments and evidence. TÜV Rheinland is confident that the previous line of the case law by the Court of Appeals in Aix-en-Provence will also be confirmed before the other courts of first and second instance dealing with the matter in France.

Using systematic risk management, the aforementioned risks can certainly be made more manageable or rather the undesirable effects thereof weakened.

Due to the integration of risk management into the management information system of TÜV Rheinland AG, risk is controlled by appropriate weighting consistently in all Business Streams and companies as well as at the Group level.

Targeted countermeasures are undertaken comprehensively at an early stage to minimize risks. This applies not only to market, customer and competition issues but also to internal processes in particular, for instance systematic integration following M&A transactions. Continuous tracking of measures and updating of risk reports in the course of the year are obligatory. The Executive Board has installed the risk management unit, including the functions of Audit, Finance & Accounting, Legal & Compliance, Quality Management, Human Resources, Accreditation & Certification, as well as Insurance. Its task is to analyze and evaluate risks.

TÜV Rheinland counteracts liquidity risk by means of active financial management, the overriding objective of which is to ensure solvency at all times. Specifically, this includes systematic working capital and treasury management. The latter particularly includes implementing cash pooling and in-house banking. Financial derivatives are used to hedge currency and interest-rate risks. As of the reporting date, derivative financial in-

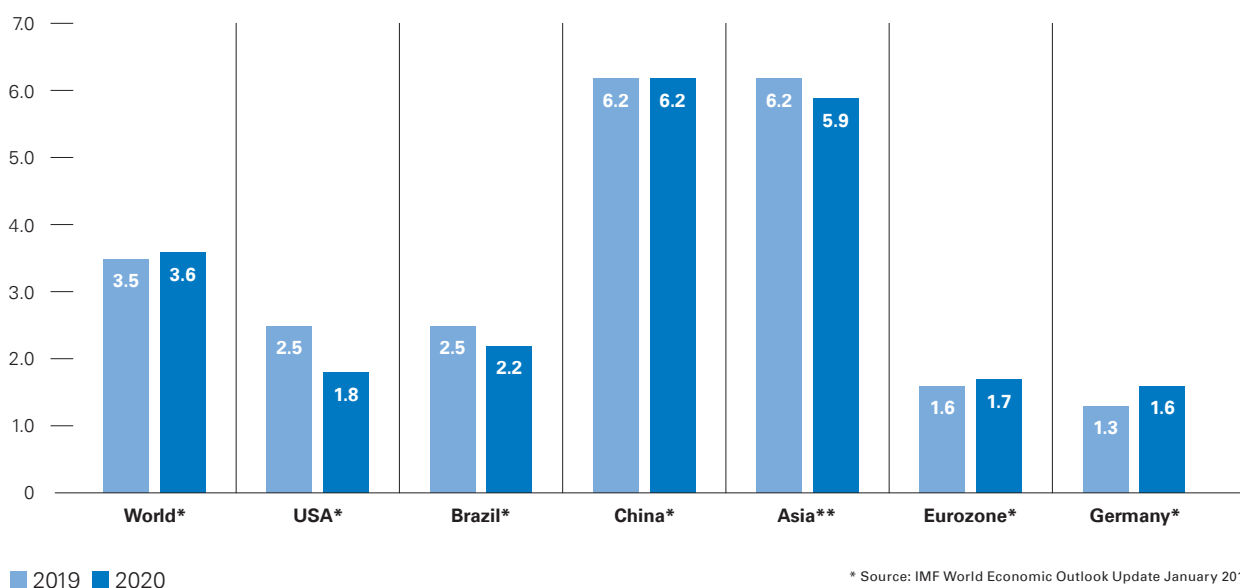
struments are of rather subordinate importance in terms of their volume and risk potential; a shift in the yield curve of +100 (-100) base points would change the market value of the interest-rate swaps by €0.5 million (€-0.5 million). Currency risks do not, for the most part, exist within the TÜV Rheinland AG Group because individual Group companies largely conduct their operational activities in their respective functional currencies. Any major currency risks resulting from operational business may be hedged by the use of financial derivatives. In addition, loans granted to subsidiaries and denominated in foreign currency are secured by currency derivatives. As of the reporting date, TÜV Rheinland AG held currency derivatives with a nominal volume of €1.8 million.

As far as possible, risks are hedged by taking out specific insurance coverage to minimize financial consequences up to a defined deductible.

9 Outlook

Future Economic Outlook: Forecast 2019 to 2020

in %



* Source: IMF World Economic Outlook Update January 2019

** Source: IFW Kiel, Global Economy in Winter 2018

The global economy is projected to expand in 2019 and 2020. The economic experts at the International Monetary Fund forecast an overall increase in global gross domestic product of 3.5% for 2019. These forecasts were slightly downgraded in October 2018 and January 2019, however. The main reasons for this are negative effects arising out of the trade dispute between the USA and China that has existed since the beginning of 2018, as well as the dangers of a disorderly Brexit. Global trade and investment will decline as a result. The situation in the financial markets, the introduction of new exhaust limits in Germany, and government and financial risks in Turkey and Italy further dampen expectations. Against the backdrop of increasing economic uncertainties and moderate price inflation, monetary policy in advanced economies is expected to be only gradually tightened by the Fed and the ECB.

The USA is expected to achieve stable growth on the basis of the positive situation in the labor market as well as the brisk investing activities by businesses in light of the tax incentives and high levels of capacity utilization. However, the momentum toward expansion is likely to decline in 2020 as monetary policy is less expansionary and fiscal policy no longer provides additional impetus. The pace of expansion in the Eurozone is expected to continue to slow. While financing conditions remain very favorable and exports can be expected to reconnect with expanding world trade, some Eurozone countries are reaching their capacity limits, including Germany. In other countries, particularly Ita-

ly and France, structural problems are holding back momentum. Chinese economic performance will continue to grow sharply, but the expansion there will gradually slow. Economists are forecasting sustained high economic dynamics for India, on the other hand. For Brazil, the economic situation is expected to improve more significantly than was recently the case after an election year of great political uncertainty in 2018.

Assessments of developments in the global and country-specific economies are, however, based on a series of key factors. Risks are seen particularly when unexpected developments occur. Consequently, political uncertainties in the United States and Europe, an unexpected deterioration in the Chinese economy or upheavals in global financial markets could lead to a lowering of expectations. Sustained geopolitical tensions or an existing threat of terror could hamper the global economy as well.

9.1 TÜV Rheinland AG Group Outlook

All in all, the TÜV Rheinland AG Group anticipates organic revenue growth in the mid-single-digit percentage range in 2019. Germany's share in this development will total to around 51.0%. The following, in some cases macroeconomic, assumptions have been factored into planning for 2019:

- Stable, slightly weakening development of the world economy
- Effects of the US-China trade dispute with little impact on our business at the moment
- Slight changes in the exchange rates of the main currencies – with a strong euro
- Global central banks with noticeably different interest rates (Fed with further interest-rate hikes, ECB hikes in the second half of the year at the earliest)
- No significant effects from Brexit

Based on the solid trend in Germany and driven by an upturn in demand for our services in South America and expected double-digit growth rates in Greater China and IMEA, we expect steady growth at the previous year's level in the **Industrial Services Business Stream**. Although macroeconomic developments are weakening in many relevant global markets for 2019, we see our position strengthened by initial successes in our optimization measures and capacity building in Germany on the revenue and earnings side.

Revenue growth in the upper single-digit percentage range in 2019 is forecast for the **Mobility** Business Stream. Contributing factors here are particularly the Homologation Business Fields as well as further regional expansion in the Rail field. Due to the disappearance of the monopoly position in Murcia, Spain, revenue and earnings from general inspections are expected to decline slightly in Spain. The earnings situation in Chile will ease with the introduction of an electronic certificate for general inspections. Business in driver's licenses will stabilize at the previous year's level.

The **Products** Business Stream anticipates an increase across all Business Fields again in 2019. This applies to business in Germany as well as the international regions. Growth will increase in nearly all of the Business Fields, particularly in Medical and Commercial. Expansion in the capacity for the testing of wireless communications technologies will move forward as planned, with considerable investments focusing on Asia and Europe.

The **Academy & Life Care** Business Stream expects considerable growth in revenue volume again in 2019. Focuses for growth are the areas of personnel certification, digital learning formats, and occupational-safety

services and training. Internationally, the turnaround in India and Saudi Arabia is expected for 2019. Greater China continues to grow at double-digit rates and also generates a margin in the double-digit range.

After another difficult year, the **Digital Transformation & Cybersecurity** Business Stream expects sales growth in the upper single-digit range in a still positive market environment in 2019. The IT Services & Cybersecurity Business Field continues to suffer from the high demand for IT experts by industry and the competition. Here, however, Germany in particular was able to hold its own well, attracting significant numbers of new experts. The complete restructuring of business in the USA will require further efforts and will be characterized by low growth in 2019. Significant investments are also planned in the expansion of the Cybersecurity Business Field in Asia, China, and the Middle East. The Digital Transformation Business Field is enjoying increasing demand and, if it succeeds in recruiting the consultants it needs, will be able to largely fill the gap created by cancellation of the Vodafone project.

Planning for the **Systems** Business Stream assumes a positive overall market environment for the further development of the Business Stream in 2019. Against this backdrop, all of the Business Fields and regions will contribute to the sales growth forecast. Strong growth is expected in Customized Services due to the expansion in the supply chain audits. As in the previous year, the Government Inspections & International Trade Business Field will make a significant contribution toward an increase in revenue and earnings in the Systems Business Stream. The establishment of a Shared Service Center in Katowice for the technical assessment of test reports and certification will lay the groundwork for continued high margins in the double digits.

The number of employees is expected to increase only slightly in 2019 compared with 2018. Workforce increases will depend on the Group's business success, and on the excellence projects that have been launched, and will be disproportionately low compared to the increase in revenue.

The outlays approved by the Group Executive Board and Supervisory Board, beginning in 2018, around the issues of innovation and digitalization will also place a significant strain on expenditures in 2019. This will strengthen and secure the sustainability of the TÜV Rheinland AG Group. Against this backdrop, a stable to moderately upward-trending EBIT margin is expected for 2019, up to a value of 7.0%.

Cologne, March 19, 2019

TÜV Rheinland Aktiengesellschaft
The Executive Board

Dr.-Ing. Michael Fübi
(Chief Executive Officer)

Vincent Giesue Furnari
(Chief Financial Officer)

Ralf Scheller
(Chief Operating Officer)

Ruth Werhahn
(Human Resources, Law and Labor Relations Director)

Income Statement

in € thousands	2017	2018
Revenues	1,971,698	1,998,121
Inventory changes	244	-26
Cost of purchased services	-317,625	-311,982
Operating services	1,654,316	1,686,112
Personnel expenses	-1,083,554	-1,108,725
Amortization of intangible assets and depreciation of property, plant, and equipment	-75,925	-75,281
Other expenses	-437,974	-433,990
Other income	73,735	69,392
Operating result	130,598	137,507
Interest income	9,290	7,066
Interest expenses	-19,073	-18,171
Other financial result	-2,377	-1,528
Financial result	-12,160	-12,633
Earnings before income taxes	118,438	124,874
Income taxes	-40,303	-39,782
Consolidated net income	78,135	85,092
Thereof attributable to:		
TÜV Rheinland Aktiengesellschaft equity holders	67,527	76,126
Non-controlling interests	10,608	8,966
Earnings per share (in €)	1,929	2,175

Balance Sheet

€ thousands	12/31/2017	12/31/2018
Assets		
Intangible assets	316,337	316,395
Property, plant, and equipment	472,830	476,616
Investments accounted for using the equity method	2,350	2,712
Other financial assets	291,715	293,594
Other non-current assets	31,719	28,856
Deferred tax assets	88,089	88,577
Non-current assets	1,203,040	1,206,750
Inventories	3,212	3,239
Trade receivables	326,865	324,324
Income tax receivables	7,453	8,023
Other receivables and other current assets	54,339	45,962
Cash and cash equivalents	193,926	219,470
Current assets	585,796	601,017
Total assets	1,788,836	1,807,767
Equity and liabilities		
Issued capital	35,000	35,000
Capital reserves	23,802	23,802
Other reserves	273,331	326,972
Non-controlling interests	26,722	26,380
Equity	358,855	412,154
Provisions for pensions and similar obligations	731,525	725,733
Other non-current provisions	19,236	19,149
Non-current liabilities	200,845	144,901
Deferred tax liabilities	16,544	13,008
Non-current liabilities	968,149	902,791
Current provisions	89,665	91,612
Income tax liabilities	9,022	13,417
Trade liabilities	185,122	196,109
Other current liabilities	178,023	191,685
Current liabilities	461,831	492,822
Total equity and liabilities	1,788,836	1,807,767

Limited Assurance Report of the Independent Auditor regarding Sustainability Information dependent Assurance Report*

To the Executive Board of TÜV Rheinland AG, Cologne

We have been engaged to performed an independent limited assurance engagement on selected qualitative and quantitative sustainability disclosures in the chapter “CSR Report - Corporate Social Responsibility” in the Corporate Report 2018 (further: “Report”) for the period from January 1 to December 31, 2018 of TÜV Rheinland AG, Cologne (further: “TÜV Rheinland”).

It was not part of our engagement to review service related information, references to external information sources, expert opinions and future-related statements in the Report.

Management’s Responsibility for the Report

The legal representatives of TÜV Rheinland are responsible for the preparation of the Report in accordance with the principles and standard disclosures of the Standards of the Global Reporting Initiative, in combination with internal guidelines, as described in the section “About this report” (further: “Reporting Criteria”).

The responsibility includes the selection and application of appropriate methods to prepare the Report and the use of assumptions and estimates for individual qualitative and quantitative sustainability disclosures which are reasonable under the circumstances. Furthermore, this responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Report in a way that is free of – intended or unintended – material misstatements.

Independence and quality assurance on the part of the auditing firm

We are independent from the company in accordance with the requirements of independence and quality assurance set out in legal provisions and professional pronouncements and have fulfilled our additional professional obligations in accordance with these requirements.

Our audit firm applies the legal provisions and professional pronouncements for quality assurance, in particular the Professional Code for German Public Auditors and Chartered Accountants (in Germany) and the quality assurance standard of the German Institute of Public Auditors (Institut der Wirtschaftsprüfer, IDW) regarding quality assurance requirements in audit practice (IDW QS 1).

Practitioner’s Responsibility

Our responsibility is to express a conclusion based on our work performed on the information above within a limited assurance engagement.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): “Assurance Engagements other than Audits or Reviews of Historical Financial Information” and the International Standard on Assurance Engagements (ISAE) 3410: “Assurance Engagements on Greenhouse Gas Statements” of the International Auditing and Assurance Standards Board (IAASB). These standards require that we plan and perform the assurance engagement to obtain limited assurance whether any matters have come to our attention that cause us to believe that the information above for the period from January 1 to December 31, 2018, has not been prepared, in all material respects in accordance with the aforementioned Reporting Criteria. In a limited assurance engagement the evidence gathering procedures are more limited than in a reasonable assurance engagement and therefore significantly less assurance is obtained than in a reasonable assurance engagement. The choice of audit activities is subject to the auditor’s own judgement.

*Translation of the independent assurance report, authoritative in German language.

Within the scope of our work, we performed amongst others the following procedures:

- A risk analysis, including a media search, to identify relevant sustainability aspects for TÜV Rheinland in the reporting period
- Evaluation of the design and implementation of the systems and processes for the collection, processing and control of qualitative and quantitative sustainability disclosures included in the scope of this engagement, including the consolidation of the data
- Inquiries of personnel on group level responsible for providing the data and information, carrying out internal control procedures and consolidating the data and information
- Evaluation of selected internal and external documents
- An analytical review of the data and trend explanations submitted by all subsidiaries for consolidation at group level
- Assessment of local data collection and reporting processes and reliability of reported data via a sampling survey at the corporate headquarters in Cologne (Germany) as well as via video conference with the subsidiary TÜV Rheinland Philippines Inc. (Philippines)
- An evaluation of the overall presentation of the selected qualitative and quantitative sustainability disclosures included in the scope of this engagement

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the selected qualitative and quantitative sustainability disclosures in the chapter “CSR Report -Corporate Social Responsibility” of TÜV Rheinland AG for the period from January 1 to December 31, 2018, published in the Report, are in all material respects not prepared in accordance with the Reporting Criteria.

Restriction of use / AAB Clause

This report is issued for purposes of the Executive Board of TÜV Rheinland AG, Cologne, only. We assume no responsibility with regard to any third parties.

Our assignment for the Executive Board of TÜV Rheinland AG, Cologne, and professional liability is governed by the General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften (Allgemeine Auftragsbedingungen für Wirtschaftsprüfer und Wirtschaftsprüfungsgesellschaften) in the version dated January 1, 2017 (https://www.kpmg.de/bescheinigungen/lib/aab_english.pdf). By reading and using the information contained in this assurance report, each recipient confirms notice of provisions of the General Engagement Terms (including the limitation of our liability for negligence to EUR 4 million as stipulated in No. 9) and accepts the validity of the General Engagement Terms with respect to us.

Frankfurt am Main, April 11, 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft
[Original German version signed by:]

Hell

Glöckner
Wirtschaftsprüfer
[German Public Auditor]

About this Report

In 2018, the TÜV Rheinland Corporate Report once again contains the Financial Report and the Sustainability Report. The Corporate Report is based on the internationally recognized IFRS and Global Reporting Initiative (GRI) reporting standards, the principles of the Global Compact, as well as the anti-corruption guidelines of the UN and Transparency International, and encompasses the consolidated companies that are also included in the consolidated financial statements.

The present TÜV Rheinland Sustainability Report was compiled in accordance with the current GRI Standards: Core option. The GRI Content Index lists which GRI guideline criteria were used in TÜV Rheinland's 2018 Corporate Report. Our reporting activities are also carried out in accordance with the COP Advanced Level of the UN Global Compact.

The most recent previous Corporate Report was published in April 2017. The Corporate Report will continue to be published on an annual basis in the future.

Methodology used in the Report

The reporting period is the 2018 business year. If, at the time of publication (deadline: March 18, 2019), certain final figures for 2018 were not yet available, comparable annual figures from 2017 were used.

For computational reasons, values listed in tables are subject to rounding differences of \pm one unit (€, % etc.).

Environmental indicators

German companies:

98 sites were included in the reporting scope during the reporting year, accounting for approx. 73 percent of the employees in 2018. The data collected were then projected for the entire workforce in Germany, and the figures were rounded up or down. Headcount-based figures were applied for this purpose. Other bases for calculation are stated separately. Several figures were newly aggregated and calculated with average figures for the year. Although some details are lost in the process, it permits reliable long-term comparisons and goals to be formulated. Estimates and assumptions are identified as such.

Foreign subsidiaries:

To achieve global coverage of key figures relevant to environmental impact, data were collected from all the TÜV Rheinland regions. Each of the foreign subsidiaries with an environmental management system and/or more than 50 employees was considered at the company level. This resulted in data collection that allowed us to cover at least 78 percent (passenger car utilization) for our foreign subsidiaries. With regard to key environmental figures (such as air travel and electricity consumption), the figures even cover 86 percent and 90 percent of employees, respectively. The data collected were then projected for the entire workforce of the foreign subsidiaries, and the figures were rounded up or down accordingly. In this context, the annual average FTE (full-time equivalent) value was used. Other bases for calculation are stated separately.

Workforce figures

Unless identified as headcount-based figures, all disclosures on employee structure are based on FTE (full-time equivalent) figures. Both types of disclosure represent closing-date disclosures (December 31, 2018), unless otherwise stated. The data collected covers over 90 percent of the total. When collecting information about workforce age and nationality, the Group region of North America is excluded, as this information is not available for that region.

The chart of days spent in training and further training shows data reported for 2018 which was registered within the Group through 3/5/2019. E-learning sessions are not included in this figure.

GRI Content Index

GRI Standard and description		Corporate Report and Web References	Comments
GRI 100 Universal Standards			
GRI 101: Foundation		108	
GRI 102: General Disclosures			
Organizational Profile			
102-01	Name of the organization		TÜV Rheinland AG
		82 – 83, www.tuv.com , www.tuv.com/About Us	
102-02	Primary brands, products and services		
102-03	Location of organization's headquarters		Am Grauen Stein, 51105 Cologne, Germany
		84 – 85, www.tuv.com , www.tuv.com/About Us/Facts and Figures	
102-04	Countries where the organization operates		
102-05	Nature of ownership and legal form	116 – 117	
		82 – 87, www.tuv.com , www.tuv.com/About Us/Facts and Figures	
102-06	Markets		
		2, 4 – 7, 54, 94 – 95, www.tuv.com/Sustainability	
102-07	Size of the organization		The workforce figures are not subject to seasonal variations. 83 percent of our workforce comprises permanent employees. 65 percent of those permanent employees are male. Of the employees working under temporary employment contract, the share of men is 57 percent. The share of permanent employment contracts in each region is as follows: D – 88%; WE – 96%; CEE – 100%; AP – 98%; GC – 47%; NA – 100%; SA – 95%; IMEA – 95%. 93% of men and 80% of women in the Group work on a full-time basis.
102-08	Total workforce	54, 58 – 59, 108	
102-09	Description of the supply chain	52	A complete description of the supply chain is available in Corporate Report 2016, page 34.
102-10	Significant changes in the organization's size, structure or ownership	17, 93 – 94	
102-11	Explanation of how the precautionary principle is addressed	44, 64 – 65, 97 – 100	
102-12	Participation in and endorsement of externally developed charters, principles and initiatives	26 – 27, 44, 47 – 48, 98	
102-13	Important memberships	44, 47, 49	
Strategy			
102-14	Foreword by the Chairman of the Board of Management	5	

GRI Standard and description		Corporate Report and Web References	Comments
102-15	Key impacts, risks and opportunities	44, 46 – 48, 58 – 69, 76 – 79, 97 – 100	
Ethics and integrity			
102-16	Values, principles and code of conduct	4 – 5, 44, 50 – 51, 97 – 100	
Management			
102-18	Governance structure of the organization	4 – 5, 48 – 51, 116 – 117	
Stakeholder engagement			
102-40	Overview of stakeholder groups	43	
102-41	Employees covered by collective bargaining agreements		The compensation for about 73 percent (per-capita disclosures as of the reporting date on December 31, 2018) of our employees (excluding temporary employees, interns, employees in limited part-time employment, retirees) in Germany is subject to a collective bargaining agreement.
102-42	Basis for identification of stakeholder groups	45	
102-43	Engagement of stakeholder groups	44 – 49	
102-44	Consideration of key concerns raised by stakeholder groups	45 – 49	
Reporting practice			
102-45	All entities included in the organization's consolidated financial statements	www.tuv.com/Sustainability	
102-46	Process for defining report content	44 – 49	For guidance in defining the report content, we relied on the key areas of activity of the Sustainability Strategy 2020, which is based on a stakeholder survey.
102-47	Material aspects	46 – 47, 49	
102-48	Effects of any re-statements of information	108	
102-49	Changes in the scope, boundary or measurement methods	108	
102-50	Reporting period	108	
102-51	Date of most recent previous report	108	
102-52	Reporting cycle	108	
102-53	Contact point	Editorial Information (43)	
102-54	Claims of reporting in accordance with the GRI Standards	108	
102-55	GRI Content Index	109 – 115	
102-56	External assurance for the report	106 – 107	
103-1	Explanation of the material topic and its boundary	46, 49	
103-2	The management approach and its components	44, 46 – 48, 50 – 53, 58 – 65, 76 – 79	The references relate to the management approaches to CSR, governance, employees, environment and service responsibility.
103-3	Evaluation of the management approach	44, 46 – 48, 50 – 53, 58 – 65, 76 – 79	The references relate to the management approaches to CSR, governance, employees, environment and service responsibility.

GRI Standard and description		Corporate Report and Web References	Comments
GRI 200 Economics			
GRI 201: Economic Performance			
201-1	Direct economic value generated and distributed	70 – 75, 82, 88 – 92, 95 – 96, 104	
201-3	Coverage of the organization's defined-benefit plan obligations	95, 105	
GRI 202: Market Presence			Due to insufficient data, we are unable to provide this information at this time.
GRI 203: Indirect Economic Impacts			
203-2	Significant indirect economic impacts, including the extent of impacts	44 – 45, 49	
GRI 204: Procurement Practices 2016			As a service provider, the procurement of products is of minor significance. This primarily concerns office supplies.
GRI 205: Anti-corruption			
205-1	Business units analyzed for risks related to corruption	51 – 53	
205-2	Percentage of employees trained in anti-corruption policies and procedures	51 – 52	
205-3	Incidents of corruption and actions taken		Due to the relative informative content, no separate processing and recording of compliance-relevant violations with regard to corruption takes place.
GRI 206: Anti-competitive behavior			
206-1	Legal actions for anti-competitive behavior		To our knowledge, there were no known legal actions for anti-competitive behavior during the reporting year.

GRI Standard and description		Corporate Report and Web References	Comments
GRI 300: Environment			
GRI 301: Materials			
301-1	Materials used	64, 67 – 69	
GRI 302: Energy			
302-1	Energy consumption within the organization	64, 66 – 68	We do not indicate any differentiation between renewable and non-renewable sources. The conversion factors used in the calculations derive from different sources, including thinkstep.
302-3	Energy intensity	64 – 65	
302-4	Reduction of energy consumption	65 – 68	The following sources of energy were taken into consideration: Electricity, fuels for cars (diesel, gasoline) and aircraft (kerosene), natural gas, heating oil, district heating.
GRI 303: Water			
303-1	Total water withdrawal	64, 68	Specific information on water sources is not available. However, we assume that the total volume of water used by TÜV Rheinland AG was drawn from the water system of the local water supplier and therefore cannot be classified more specifically.
GRI 304: Biodiversity			As a service provider, our business activities do not harm the environment any more than other urban development areas.
GRI 305: Emissions			The GWP factors from 305-1 to 305-5 are derived from: http://ow.ly/ZgdPG . Our business activities produce only CO ₂ emissions but no other relevant greenhouse gas emissions.
305-1	Direct greenhouse gas emissions – Scope 1	67	Direct greenhouse gas emissions according to Scope 1 amounted to 4,028 t CO ₂ in the reporting year. Breakdown of Scope 1 emissions: a) from natural gas (global): 2,714 t CO ₂ ; b) from heating oil (global): 1,313 t CO ₂ .
305-2	Indirect greenhouse gas emissions – Scope 2	66 – 67	Indirect greenhouse gas emissions according to Scope 2 amounted to 50,205 t CO ₂ in the reporting year, thereof from electricity (global): 46,697 t CO ₂ and from district heating (global): 3,508 t CO ₂ .
305-3	Other indirect greenhouse gas emissions – Scope 3	66 – 67	Indirect greenhouse gas emissions according to Scope 3 amounted to 30,675 t CO ₂ in the reporting year.
305-4	Intensity of greenhouse gas emissions	64 – 65	
305-5	Reduction of greenhouse gas emissions	64 – 68	Reductions were made in Scope 1 (direct), 2 (indirect) and 3 (business trips).
GRI 306: Effluents and Waste			When compared with classical industrial companies, we only produce negligible quantities of wastewater and waste in the provision of our services; that waste and wastewater is properly removed and disposed of.
GRI 307: Environmental Compliance			
307-1	Fines for non-compliance with environmental laws and regulations		To our knowledge, there were no such significant breaches and resulting fines across the entire Group in the reporting year.
GRI 308: Supplier Environmental Assessment			As a service provider, the procurement of products is of minor significance. For that reason, supplier management was assessed as less relevant.

GRI Standard and description		Corporate Report and Web References	Comments
GRI 400 Social			
GRI 401: Employment			
401-1	Employee turnover	57	Regional turnover rates: WE – 17.4%; CEE – 13.8%; AP – 19.7%; GC – 16.8%; NA – 36.0%; SA – 45.2%; IMEA – 25.1%.
GRI 402: Labor/Management Relations			
402-1	Minimum notice periods regarding operational changes		Pursuant to statutory regulations (§§ 111, 112 German Labor-Management Relations Act [BetrVG]), in Germany the responsible works council is fully informed on a timely basis about planned operational changes which might result in significant disadvantages for the workforce or for significant parts of the workforce, and the works council is consulted regarding the planned operational changes.
GRI 403: Occupational Health and Safety			
403-1	Workforce representation in health and safety committees		We monitor the effectiveness of our occupational safety measures through, among other things, a network of business unit-related safety committees in Germany and abroad through safety committees at the corporate subsidiary level. All of our employees in Germany are represented by these safety committees. Throughout the Group, a safety committee was set up for each company with more than 50 employees in the reporting year; these committees should meet quarterly.
403-2	Injuries, occupational diseases and work-related accidents	60	In the reporting year, no occupational diseases were reported in Germany. Records do not differentiate between men and women.
GRI 404: Training and Education			
404-1	Training and Education	56	All of our employees have access to training and continuing education. Differentiation between men and women or between employee categories is of no relevance.
404-2	Programs for skills management and lifelong learning	54 – 57	In addition, days of training and education outside of Germany are not systematically recorded. For that reason, the average number of training and education hours per employee Groupwide cannot be determined.
404-3	Regular performance and career development reviews	54 – 57	100% of the designated senior management members took part in the executive review process. Our employees worldwide have the opportunity to discuss their career development and collaboration in a structured employee review with their supervisor – sometimes complemented by a target agreement/performance assessment review. Because the system landscape in which completed employee appraisals are entered is diverse, we cannot maintain records on an international level of the proportion of employees who have taken part in these appraisals.

GRI Standard and description		Corporate Report and Web References	Comments
GRI 405: Diversity and Equal Opportunity			
405-1	Composition of governance bodies and total workforce	4 – 5, 58 – 59, 116 – 117	Three members of the Executive Board are male, one female. All members of the Executive Board are German. Two members are between 30 and 50 years old, two members are over 50 years of age.
405-2	Equal remuneration for women and men		At TÜV Rheinland, an employee's wage is oriented on the employee's work activities, qualifications, and professional experience.
GRI 406: Non-Discrimination			
406-1	Incidents of discrimination and corrective actions taken		In the reporting year, there were two allegations of discrimination in North America, which were resolved through dialog with employees and appropriate management training.
GRI 407: Freedom of Association and Collective Bargaining 2016			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 408: Child Labor 2016			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 409: Forced or Compulsory Labor			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 410: Security Practices 2016			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 411: Rights of Indigenous Peoples 2016			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 412: Human Rights Assessment			Human rights issues are relevant for only a small portion of our business activities. Nevertheless, we adhere to the applicable legal requirements, and the topic is an integral part of our internal guidelines.
GRI 413: Local Communities			To date, we have not conducted any impact analyses or environmental impact assessments.
GRI 414: Supplier Social Assessment			For a service provider, purchasing products is of minor significance. For that reason, supplier management was assessed as less relevant.
GRI 415: Public Policy			
415-1	Political contributions		According to our donation and sponsoring guidelines, political parties may not be supported without the prior written authorization of the Executive Board. Corporate GO Compliance must be informed about political contributions. In the year under review, a donation to a political party was reported in India; it had a value of less than EUR 50.

GRI Standard and description		Corporate Report and Web References	Comments
GRI 416: Customer Health and Safety			
416-1	Significant product and service categories for which health and safety impacts are assessed		Analyzing products and services with regard to their effects on health, safety, and the environment is TÜV Rheinland's core area of expertise. An overview of our services can be found at www.tuv.com .
GRI 417: Marketing and Labeling		www.certipedia.com	We are not aware of any significant violations during the reporting year. Our companies have no specific requirements for the labeling of products or services. There is a catalog for our test marks, however, that provides transparency about the underlying testing services.
GRI 418: Customer Privacy and Data Protection			
418-1	Complaints regarding customer data privacy		There were no legitimate complaints relevant to breaches of customer privacy or losses of customer data during the period under review. Our Group quality management system includes a data privacy management system. In that context, the first Group companies are already certified according to ISO 27001 (information security).
GRI 419: Socioeconomic Compliance			
419-1	Non-compliance with laws and regulations in the social and economic area		For the reporting year we are not aware of any significant fines or other sanctions for non-compliance with laws and/or regulations in the social and economic area.



Business Streams

Organization of TÜV Rheinland

The Group is organized in the form of a matrix with its six global Business Streams and regionally in eight regions.



Industrial Services
Petr Láhner



Mobility
Dr. Matthias Schubert



Products
Holger Kunz



Academy & Life Care
Markus Dohm



Digital Transformation & Cybersecurity*
Frank Luzsicza

* formerly ICT & Business Solutions



Systems
Michael Wepler

The responsibility for results lies with the global heads of the Business Streams. The regional heads are the top representatives of TÜV Rheinland in the respective regions and coordinate activities there which concern all Business Streams. The heads of the Business Streams and of the regions prepare the content of important decisions of the Executive Board together; they reach agreement in the Group Executive Council, the top operative management team of TÜV Rheinland AG under the Executive Board. The operational parent company is TÜV Rheinland AG, the shares of which are entirely in the possession of TÜV Rheinland Berlin Brandenburg Pfalz e.V. In accordance with Germany's right of co-determination, employees are represented by staff representatives on the Supervisory and Management Boards.


Germany

Dr.-Ing. Michael Fübi


**Western Europe /
Central Eastern
Europe**

Kirsten Raapke


**Asia Pacific / India,
Middle East, Africa**

Andreas Höfer


Greater China

Yushun Wong


**North America /
South America**

Kimmo Fuller


Regions

Supervisory Board of TÜV Rheinland AG

Shareholder representatives on the Supervisory Board

Prof. Dr.-Ing. habil. Bruno O. Braun Cologne,
Chairman
CEO, TÜV Rheinland Berlin Brandenburg Pfalz e.V.

Dr. Patrick Adenauer Cologne (from April 19, 2018)
Managing Partner, Bauwens GmbH & Co. KG

Dipl.-Wirtsch.-Ing. Heinz-Werner Binzel Langenselbold
Managing Director, Densys GmbH

Prof. Dr.-Ing. Jürgen Brauckmann Kehlen, Luxembourg
(until April 19, 2018)
Former Member of the Executive Board,
TÜV Rheinland Berlin Brandenburg Pfalz e.V.

Uta-Micaela Dürig Stuttgart (from April 19, 2018)
Vice Chair of the Board of Management,
Robert Bosch Foundation

Dr. jur. Jürgen Frodermann Düsseldorf (from April 19, 2018)
Attorney and Partner, CMS Hasche Sigle Partnerschaft von
Rechtsanwälten und Steuerberatern mbH

Dr. jur. Hermann H. Hollmann Cologne
(until April 19, 2018)
Attorney

Prof. Dr. Michael Hüther Cologne
Director and Member of the Presidium,
Cologne Institute for Economic Research

Dr. jur. Gerd Schäfer Tribsees/Landsdorf
(until April 19, 2018)
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Univ.-Prof. Dr.-Ing. Dr.-Ing. E. h. Dr. h.c. Dieter Spath
Sasbachwalden
Director, Fraunhofer Institute for Industrial Engineering IAO and
Director, Institute for Human Factors and Technology Management
IAT at the University of Stuttgart

Employee representatives on the Supervisory Board

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Qualified Expert, TÜV Rheinland Industrie Service GmbH

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Regional Unit Officer for Special Services,
ver.di Landesbezirk NRW

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Volker Lück Münchenbernsdorf
Instructor, TÜV Rheinland Akademie GmbH

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