Annual Report 2021

Key Figures

	2021	2020
Sales	**€38,313 million**	**€32,611 million**
Adjusted EBIT Adjusted EBIT margin	**€1,910 million** 5.0%	**€1,047 million** 3.2%
Net profit or loss before tax in % of sales	**€1,082 million** 2.8%	**–€745 million** –2.3%
Net profit or loss after tax	**€783 million**	**–€741 million**
Adjusted free cash flow[1]	**€991 million**	**€994 million**
Investment in property, plant and equipment	**€1,605 million**	**€1,441 million**
Equity ratio (Dec. 31)	**18.6%**	**12.1%**
Employees[2]	**157,549**	**153,522**

1) Cash flow from operating activities less cash flow from investing activities, adjusted for M&A activities and securities.
2) Direct and indirect employees without temporary workers, apprentices and vacation workers (as of Dec. 31).

Sales Development by Region

45% Europe
27% North America
24% Asia-Pacific
3% South America
1% Africa

€38,313 million
Sales

73%
Cars and light commercial vehicles <6t

€3,060 million
Expenditure on research and development

18%
Commercial vehicles >6t

157,549
Employees

9 %
Construction and agricultural machinery, marine craft, aircraft and wind power

Company Profile

ZF is a global technology company supplying systems for passenger cars, commercial vehicles and industrial technology. With its comprehensive product portfolio, the company offers integrated solutions for established vehicle manufacturers, mobility providers and start-up companies in the fields of transportation and mobility. Digital networking and automation are focal points of ZF system development as it transitions to becoming a software- and cloud-based company. ZF allows vehicles to see, think and act.

The Consolidated ZF Group is represented with 188 production locations in 31 countries as well as 18 main development locations in eight countries. In 2021, ZF achieved sales of €38.3 billion with approximately 157,500 employees worldwide. The company spent eight percent of its sales on research and development in 2021.

Founded in 1915, ZF has evolved from a supplier specializing in aviation technology to a global mobility technology company. After the successful integration of WABCO, ZF is a competent systems supplier for commercial vehicle technology worldwide thanks to its new Commercial Vehicle Solutions Division, which started operating in early 2022. With its trendsetting products, ZF is focusing on Next Generation Mobility for passenger cars, commercial vehicles and industrial applications. Group shareholders include the Zeppelin Foundation, administered by the City of Friedrichshafen, holding 93.8 percent of shares, and the Dr. Jürgen and Irmgard Ulderup Foundation, Lemförde, with 6.2 percent.

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“We’re Moving Full Speed Ahead with Digitalization”

CEO Wolf-Henning Scheider explains in the interview how ZF has driven forward transformation last year and outlines what the future holds.

Mr. Scheider, 2021 proved extremely eventful on many levels. How do you think the year went for ZF?

After a difficult first year of the pandemic, the economy made a positive start to 2021. However, chip shortages, supply chain bottlenecks, spiraling energy and logistics costs, not to mention new pandemic waves, then stifled the recovery. This affected our entire industry.

Thanks to long-term planning, a clear strategy and a highly motivated team, we managed to rise to these challenges and achieved our strategic and economic targets. Even though ZF once again invested more than ever in the development of new products and consistently reduced its liabilities.

"Our thinking and actions now focus on software": Interview with Wolf-Henning Scheider.

Here you can also find a video of the interview with CEO Wolf-Henning Scheider.

We were well prepared and laid important groundwork promptly and consistently.
One example is electric mobility, where we have been preparing for several years for the start of volume production of the 800 volt silicon carbide power electronics. We are now in the market with a complete product range covering electric drives for all vehicle classes. We have also become the technology leader in the key power electronics segment.

Equally important for us were the preparations for the launch of the new ZF Commercial Vehicle Solutions Division, which has been operating in the market since the start of this year. Through acquisitions and successful integration, we are now the world's leading commercial vehicle systems supplier. But, ultimately, it is our unrivaled ability to supply systems for today's commercial vehicles from a single source that counts far more than just size.

In which other areas are these changes apparent?

Essentially, the entire company is gradually changing – electric mobility is currently a strong driver, while software-defined vehicles will quickly bring about far more change in our industry. By the end of the decade, autonomous transport systems could fundamentally change the way we get around.

We at ZF are adapting to and anticipating these trends, and are already developing the solutions we need. From a strategic viewpoint, we have all but mastered the transition to electric mobility through our broad product range. Our next goal is to be an innovation driver for the entire sector.

What will be decisive over the next few years is the more intense use of opportunities presented by digitalization and the cloud. This applies to all our company processes as well as our products. That's why we're focusing even more on software and electronics, as these will define the new functions of future vehicles.

2021 is behind us – what comes next, what are the next steps?

The repercussions of many of the challenges we faced last year will be felt well into this year. This will call for determination as well as a great deal of flexibility and resilience from everyone at ZF. We're well positioned to drive forward our Next Generation Mobility strategy and to align our company for the future.

See – Think – Act. This motto is more topical than ever. See stands for sensors, Think for high-performance computers in the vehicle and for cloud implementation, and Act stands for the components that move the vehicle in all dimensions. Software brings everything together and creates new functions for the mobility of tomorrow.

Here, our aims include further expanding our global competencies in electronics and software, and driving forward cloud integration. For ZF, 2022 will be another year along the way to becoming a software- and cloud-based company.

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Fit for the Future

“Even ten years ago, they were saying companies couldn’t operate like start-ups.

The dual operating system from ZF proves them wrong.”

Wolf-Henning Scheider, CEO

The automotive industry is undergoing a major transformation. For vehicle manufacturers and their technology partners, the demise of the internal combustion engine has sparked an unprecedented revolution. The structures, mindsets and business models in place just a few years ago will have disappeared by the end of the decade. ZF identified this transformation early on and is in the midst of a restructuring process that will literally see everything change.

Here, ZF has identified three core areas as drivers of tomorrow’s mobility. The Group has already set the milestones to get there: electric mobility, automated and autonomous driving, and software-defined vehicles. As a full-range supplier, ZF already supplies electric mobility with a broad range of technologies for all vehicle types, from subcompact cars to heavy-duty trucks and buses, as well as for all drive systems, from plug-in hybrids to all-electric mobility.

The company also supplies key components for software-defined vehicles. In addition, ZF is a leading supplier of system components for Level 2+ automated driving and has put the first highly automated and autonomous shuttles onto the road.

Dual operating system

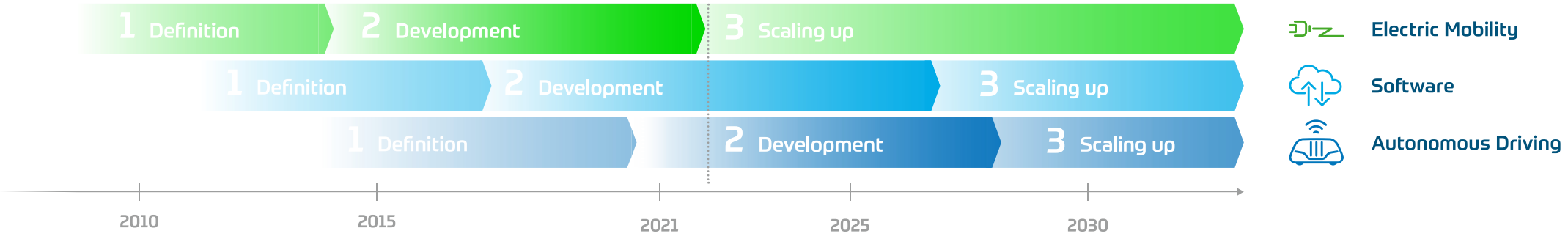
Continued use of tried-and-tested business models while they are still sustainable coupled with the development of new models – this strategy allows ZF to shape the transformation.

Within this approach, ZF has identified three areas of action: electric mobility, software-defined vehicles and autonomous driving. In each of these areas, ZF develops sustainable business models in three phases.

Phase 1: *ZF establishes in-house start-ups that can operate independently and flexibly.*

Phase 2: *These start-ups run separately from the rest of ZF’s business and turn new ideas into market-ready products.*

Phase 3: *ZF merges the start-up with tried-and-tested structures to create a new unit.*



Dual operating system boosts flexibility

How does ZF master these transformation challenges so successfully? One key element is the dual operating system. Here, ZF defines working groups early on that operate flexibly in accordance with the start-up philosophy, and separately from the rest of the business. Resources are assigned to these in-house start-ups to pursue innovative ideas. Largely decoupled from the operational business, they then develop their concepts into market-ready products.

ZF subsequently merges its start-ups with existing structures to create new, highly efficient units. Flat hierarchies and the agile mindset of fledgling, flexible start-ups merge with the established processes of an industrial company to create an efficient unit.

The rapid development of the first 800 volt power electronics with silicon carbide semiconductors for shorter charging times, better power demand and longer ranges demonstrates how effectively the dual operating system works. Within a very short period, ZF expects a significant ramp-up of inverter technology production. By 2030, the forecast volume of several million units will account for a major share of the market.

On the way to the software-based vehicle

ZF focuses on the core technologies required for the software-defined vehicle with new electric-electronic architectures (E/E): high-performance computers, software, intelligent sensors and smart actuators. In the future, vehicle software will need to be updatable wirelessly, over the air, throughout the vehicle's entire life cycle.

Most of today's vehicles feature a variety of control units that run custom software. This makes updating this software complicated and time-consuming. Tomorrow's software-defined vehicles will be different. They will be equipped with a centrally orchestrated architecture that allows the vehicle to be continuously updated over its entire life cycle and even new functions to be added. At the heart of this solution is a central computer that bundles many of the functions once provided by decentralized control units.

Here, ZF has set new standards with ZF ProAI, the most flexible and powerful central computer for automotive applications. ZF ProAI is now market-ready and compatible with all vehicle types and all levels of automated driving from Level 2 to Level 5. The solution now paves the way for domain-oriented or zone-oriented E/E architectures. The central ZF ProAI is therefore the key element in the software-defined vehicle.

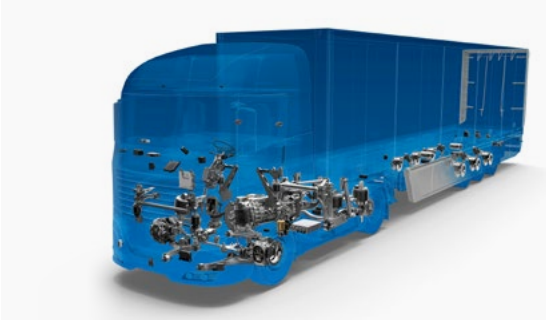
Supercomputer: ZF ProAI is one of the most flexible and powerful central computers for the automotive industry.

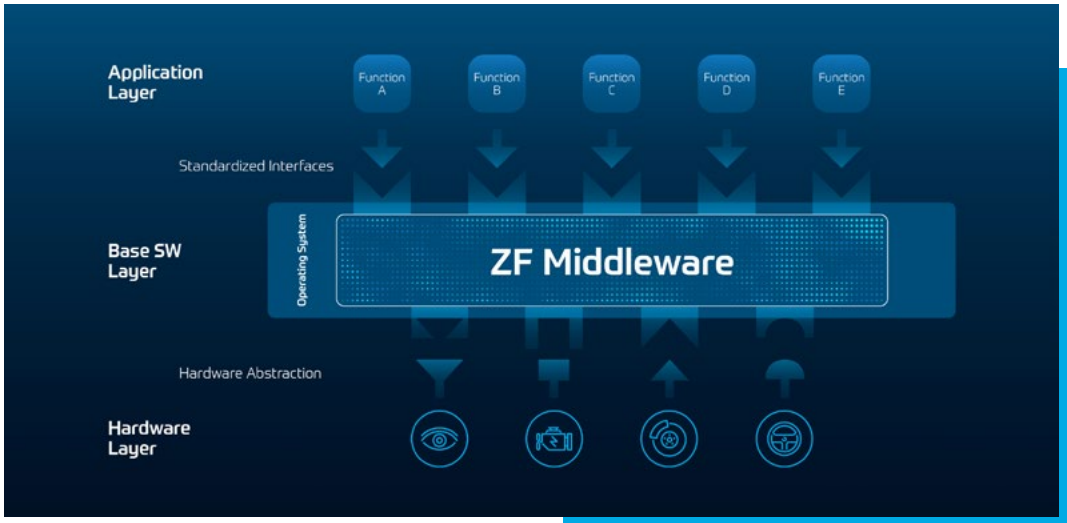
The capabilities of ZF ProAI have been optimized for artificial intelligence and deep learning, which underpin improved safety functions. The computer features a GPU-driven 360° fusion of all available sensor data, including ambient measurement data from cameras, radar and lidar sensors as well as audio patterns. ZF has already secured its first major orders for the ZF ProAI in the passenger car and commercial vehicle segments and will start volume production of the central computer in 2024.

ZF Commercial Vehicle Solutions

ZF is also a key player in driving forward the transformation in the commercial vehicle sector. In its Commercial Vehicle Solutions Division, ZF is pooling the expertise in the commercial vehicle industry as a globally qualified supplier of commercial vehicle technology systems. The division assumes a leading position in the key technology fields of electric mobility, digitalization, as well as autonomous and connected driving. It also decisively drives forward solutions for safe, sustainable and digitalized transportation.

ZF's Commercial Vehicle Solutions Division is supported by approximately 25,000 employees who are represented at 61 locations in 28 countries.





Translator: The ZF middleware works as an intermediary between the vehicle mechatronics and the operating system.

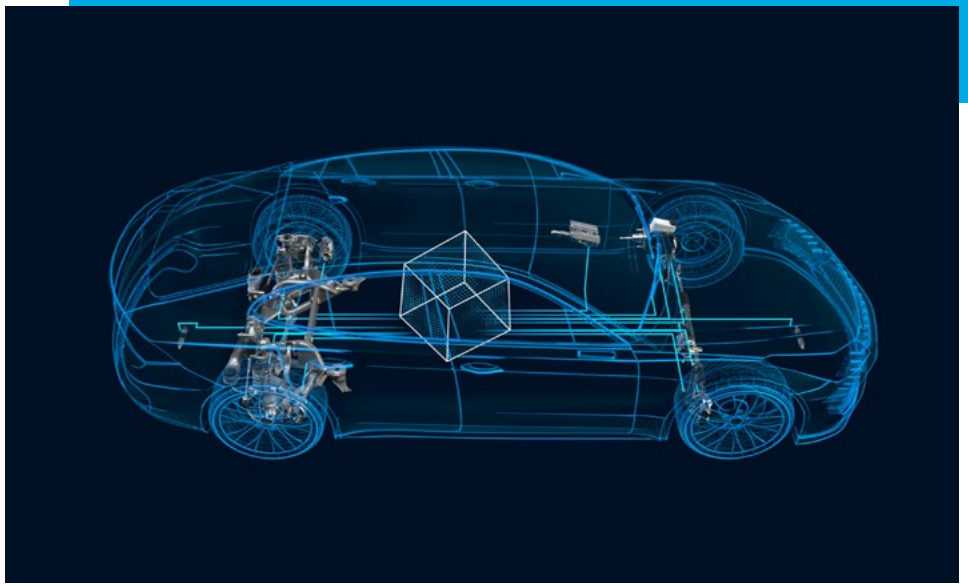
Over-the-air updates rather than traditional model updates

Even powerful electronics are of limited use without software. That is why software as a whole lies at the heart of ZF's thinking and actions. The foundation of the Global Software Center in early 2021 to develop software systems throughout the Group and make them available to the entire company is testimony to this approach.

ZF Middleware, which will be available as a comprehensive software platform for volume production vehicles from 2024 onwards, takes center stage in this respect. It translates and standardizes communication between the vehicle's various hardware and software layers. Its open architecture accelerates and improves the development process between ZF, vehicle manufacturers and other partners – from the initial development stage and throughout the vehicle's entire life cycle.

The cubiX vehicle motion control software is another example of software-based functions. It bundles sensor data from chassis and driveline components in a central instance. The networking of chassis systems is a prerequisite, especially for the autonomous mobility of tomorrow. cubiX can be used anywhere and will run on control units developed by ZF, vehicle manufacturers or third-party suppliers. This considerably reduces development costs.

By building on its strategic collaboration with Microsoft, ZF is entering the next phase of digitalization. The new ZF Cloud creates an all-encompassing data and integration platform to digitalize all ZF's industrial and operational production and business processes on the Microsoft Azure cloud platform. This effectively turns ZF into a cloud-based mobility service provider. The company intends to invest several billion euros in its digital transformation over the next few years.



The cubiX vehicle motion control software bundles sensor data from chassis and driveline components in one central instance.

In October 2021, ZF and DB Regio signed a joint partnership to bring highly automated and autonomous shuttles onto the road faster in Germany.

DB Regio estimates demand will top 30,000 units for these driverless minibuses by 2035. As such, the consistent transformation process at ZF gives rise to a long-term, profitable and sustainable business model.

More on ZF's Autonomous Transport System (ATS) can be found here.

ZF becomes platform provider for autonomous mobility

According to the Organisation for Economic Cooperation and Development (OECD), urban traffic accounts for about 40 percent of climate-damaging emissions caused by passenger transport worldwide. Both the number of city dwellers and their mobility needs will, however, increase significantly in the coming decades. Apart from the consistent electrification of urban transport, smart mobility concepts help cities meet their climate targets and offer residents an attractive place to live.

One possible solution comes in the shape of autonomous passenger transport systems. Here, ZF has expanded its portfolio of autonomous and electric shuttle systems. The Group now not only offers the shuttle vehicles themselves, but also all the associated planning, implementation, operation, maintenance and repair services for autonomous passenger transport systems. This means that ZF already has the necessary expertise to cover every aspect of the fledgling automated transport system market from a single source.

ZF is tailoring its offer to city authorities and urban mobility operators to make the new concept even more compelling and accelerate the uptake. ZF shuttles can solve many of today's acute traffic problems by getting people from A to B faster while reducing the number of cars on the road and cutting traffic-related emissions in large cities. The shuttles also make it easier to connect rural areas to urban centers.

The partnership with Microsoft makes it easier for ZF to implement its "Dafora" Data Management for Autonomous Driving development platform. This platform allows ZF to offer automated driving functions from Level 2 to Level 5. ZF has also managed to sign up Oxbotica, another leading expert in this field.

ZF shuttles have already notched up 100 million kilometers worldwide as part of various projects and transported 14 million passengers safely to their destination. Including in Germany where ZF started promoting public transport system automation with electric shuttles in September 2020 as part of the RABus project in Mannheim and the Friedrichshafen region.

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        and Acting</h1>
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Sabine Jaskula, member of ZF's Board of Management; responsible for Human Resources, Legal and Compliance.

Acting now. Sustainability@ZF

Accountability is essentially what acting sustainably is all about. Sustainability is an integral part of ZF's Next Generation Mobility strategy. Sabine Jaskula, Chief Human Resources Officer, explains in an interview how ZF intends to incorporate sustainability as a ZF unique selling proposition.

Ms. Jaskula, establishing sustainability as a unique selling proposition is going to be complicated, not least because it's on virtually everybody's agenda. Can ZF stand out clearly from its rivals with this approach?

Absolutely – thanks to our clear objectives, ambitious timetable and resolute action. ZF has been committed to sustainability in many areas for a long time. We believe firmly that our actions and our resolute approach are decisive for future generations, for our planet and, of course, for our success as a company. ZF employees, our customers and partners, the public and the government clearly expect us to act now.

In order to reflect our determination, we called our sustainability approach **Acting now. Sustainability@ZF.**

Social responsibility regarding social equality and equal opportunities, for example, is as much part of sustainability as environmental protection is.

Here you will find more information about the ZF Way principles.

Here you will find more information about sustainability at ZF.

To integrate this topic even more into the company's DNA, ZF launched a sustainability campaign under this banner. It aims to further raise awareness of sustainability in the company and inspire each and every employee to contribute to sustainability at ZF. The ZF Way principles essentially underpin all of this.

What about sustainability activities aimed at "people" and ZF's social responsibility?

Respect for human rights has always been hugely important to us. Incidentally, it was one of the reasons we signed up to the UN Global Compact in 2012. We respect everyone involved in the value-added process. We believe that diversity, equal opportunities, inclusion and equal rights are core values that we embrace passionately in tune with the ZF Way. Just as we do when it comes to the involvement and development of our employees.

ZF adheres to the highest standards of health and safety at work and we are committed to good working conditions and fair pay – not just at ZF but along the value-added chain. In other words, we are actively accountable for everyone in the ZF community as a whole.

In our experience, this aspect of sustainability, dealing with people, is increasingly important in ZF's attractiveness as an employer.

The third aspect in your sustainability strategy is "Acting for lasting values" – how important is this topic for ZF's market positioning?

Tremendously important. For ZF, sustainability not only means complying with standards and regulations. For us, sustainability also means that we are and will remain a reliable, ethical business partner.

It also means that where we're not good enough at present, we are going to create efficient, robust structures and continually improve. In addition, we're constantly striving to increase transparency and engage in regular dialog with our stakeholders. Consistent values that we create through our focus on sustainability are essential for future generations and will allow us to shape the mobility of the future.

Awards Single Out the Best Ideas for Boosting Sustainability

Sustainability affects us all to some extent, and each and every one of us can help to think and act more sustainably.

At the ZF Excellence Award, employees submit outstanding projects to share their own ideas and experiences with the entire ZF community – and, of course, to win the coveted Excellence Award.

In 2021, the Group-wide award established the new "Sustainability" category to emphasize the importance of this issue and to encourage ZF employees to embrace sustainability. Competing for the awards were successful projects that brought to the table a slew of improvements and solutions. ZF colleagues at the Mexican location in Chihuahua scooped the award. They developed a system that reduces the disposable plastic film used for transportation by 30 tons a year, lessening the environmental impact in the process.

We are drowning in disposable plastic products. Many of them are used for just a few hours, or even minutes in some cases – but once in the environment, they stay there for hundreds of years.

Sustainable packaging material

Disposable plastic films were also used at ZF in Chihuahua as transport packaging for short-distance consignments – but ZF colleagues have now developed a sustainable alternative. The team looked at all the materials and resources available in the plant and finally developed reusable transport packaging made from seat belts and fabric from old airbags – material that would otherwise have ended up as waste.

This innovative packaging secures and protects the cargo just as well as the disposable film used to. And it significantly reduces the amount of waste.

The team in Chihuahua developed reusable transport packaging from old seat belts and airbag material, significantly reducing the amount of waste.

“Sustainability affects us all to some extent, and each and every one of us can help to think and act more sustainably.”

Here you will find more information about sustainability at ZF.

Other finalists presented exciting projects, too. The photovoltaic system on a carport roof at ZF’s Schweinfurt location is one of them: Covering an area of 14,000 square meters, it generates a maximum output of more than 2.5 megawatts. This means it is one of largest photovoltaic plants in Germany. The generated power is used directly for the production areas, enabling ZF to cut 1,200 tons off annual CO_2 emissions. Since a leasing model is used to finance the project, it does not require a major investment.

Among the finalists was also a project which was developed by ZF engineers at the Shirley location in the UK. Their idea was to design the new Center of Technology – a workplace for over 700 employees as a replacement for the existing 60-year-old facility – as sustainably as possible within the specified budget targets. The cooperation between various cross-sectional functions covered the full gamut of energy-saving and energy-efficiency measures. The result of this collaboration is an A+ rated building which will be climate-neutral no later than this year. A superb real-estate project and also an ideal model for other locations.

Recycling saves resources

The finalist project “Remanufacturing” also saves resources by deploying the principle of circular economy. The Aftermarket team members at the Saarbrücken location brought together several functions to share their knowledge. In just twelve weeks, they produced four front and rear axles as well as two electric drives as prototypes with more than 80 percent reused parts. The insights garnered can now be transferred to other products.

Carport roof with solar panels reduced CO_2 emissions by 1,200 tons at ZF in Schweinfurt.

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Driven by Team Spirit

Last year, ZF successfully embarked on the ZF Way. At a time when change is gathering pace, the Group-wide and long-term program helps guide ZF employees as they move toward the future.

ZF Way

WINNING TOGETHER

"The enthusiasm for the ZF Way and its enormous importance for our colleagues around the world has clearly exceeded our ambitious targets and expectations."

Katrin Kaltenbach
Patron of the ZF Way transformation program

The ZF Way is a transformation program from ZF that describes the "how" behind the Group's strategy Next Generation Mobility: "It's about providing guidance on how we want to lead and work together," says Katrin Kaltenbach, patron of the ZF Way. "The framework should help to make the transformation even more active at local level and so contribute to everyone's success."

ZF is actively shaping change through the interplay of the dual operating system, the corporate strategy Next Generation Mobility and the ZF Way transformation program. Numerous initiatives and campaigns in 2021 attested to the cooperation between employees from all the company's departments and divisions:

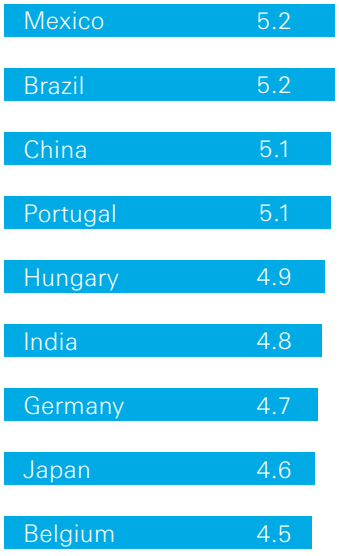
They networked to work together on topics and ideas. Developed training materials and team workshops. Were actively involved in the in-house ZF Way community – one of the largest communities in the entire Group. And independently motivated their colleagues to get involved and help shape the program.

The official ZF Way program was launched in early 2021. Since then, each division and function has developed its own ZF Way vision, which is now firmly embedded in strategic planning. A network of multipliers has also been established, comprising over 800 people who regularly share information, test measures, internationalize and bring the ZF Way to life in their departments.

Next Generation Mobility – ZF's corporate strategy. Find out more here.

Identification with the ZF Way

In the internal pulse check survey, ZF regularly evaluates how the ZF Way and the associated principles are received in each particular country. The finding: On the whole, employees already identify strongly with the ZF Way.



0 = no identification, 6 = strong identification

ZF Way – Win Together

The ZF Way is not a time-limited campaign, it describes the "how" behind the Next Generation Mobility corporate strategy. It defines how colleagues do things and expresses what people at ZF stand for. It also explains how they will win the race for the mobility of tomorrow together.

Intrinsic Motivation

Continuous improvement as part of ZF's DNA

The principles of the ZF Way are already embraced in the Group. The ZF Excellence Award attests to this. Since 1995, ZF employees worldwide have had the opportunity to submit their projects and ideas and win this in-house accolade. The quality competition has been awarded in five categories so far – another category was added in 2021: For the first time, the ZF Way was integrated into the Excellence Award to recognize outstanding ideas associated with the program.

Various divisions, regions and functions submitted projects solely for the ZF Way category. Whether it was optimizing processes for the hearing impaired, a program to facilitate WFH, a toolbox for data acquisition or the integration of employees with special needs or disabilities – all these projects reflected the employees' commitment, creativity and willingness to take the program forward.

All the submitted projects share one thing in common: They demonstrate that the ZF Way has been well received by employees across hierarchies and country borders.

ZF Way Excellence Award: The finalists

Creative ideas came from all over the world, with 20 of them making it to the final round – here are just a few of the finalist projects:

Emotional Management
A team from Portugal devised this category-winning idea that helps individuals to understand and deal with their own feelings during the pandemic.

Hearing Impaired Employees Project
A project aimed to optimize the departmental evacuation process for hearing-impaired employees.

The Counting Toolbox
Algorithms capture data from components such as electric axles and add value for customers by supporting predictive maintenance.

Hiring Disabilities and Special Needs Board Employees
Integration of staff from the Laurens County Disabilities and Special Needs Board.

Digital Boot Camp
Training program to facilitate WFH for employees during the pandemic.

E-Cademy: Transformative Learning

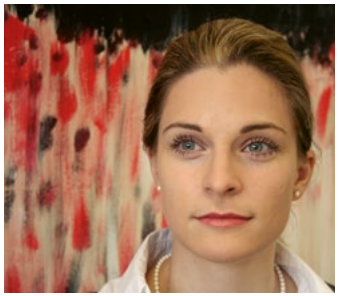
Initiative trains colleagues for electric mobility activities

A lot changed in 2021. The company ZF, the mobility industry, the market and demand are constantly changing. New skills are increasingly required. What did all this mean for ZF employees?

The ZF Way encourages and enables employees to embark on a shared learning journey in the company. To meet future challenges, ZF began setting up the ZF E-Cademy in October 2020, the largest training initiative in company history. The ZF E-Cademy helps employees actively shape the transformation of an entire industry by imparting basic electric mobility

Miloš Petrovič
Head of the Education and Training Department, Slovakia

"The world in which we live is changing and we want to secure our future. We are open to new opportunities, challenges and new kinds of training and work."



Frauke-Berenike Schmehr
Sales Department for Automatic Transmissions (Passenger Cars), Germany

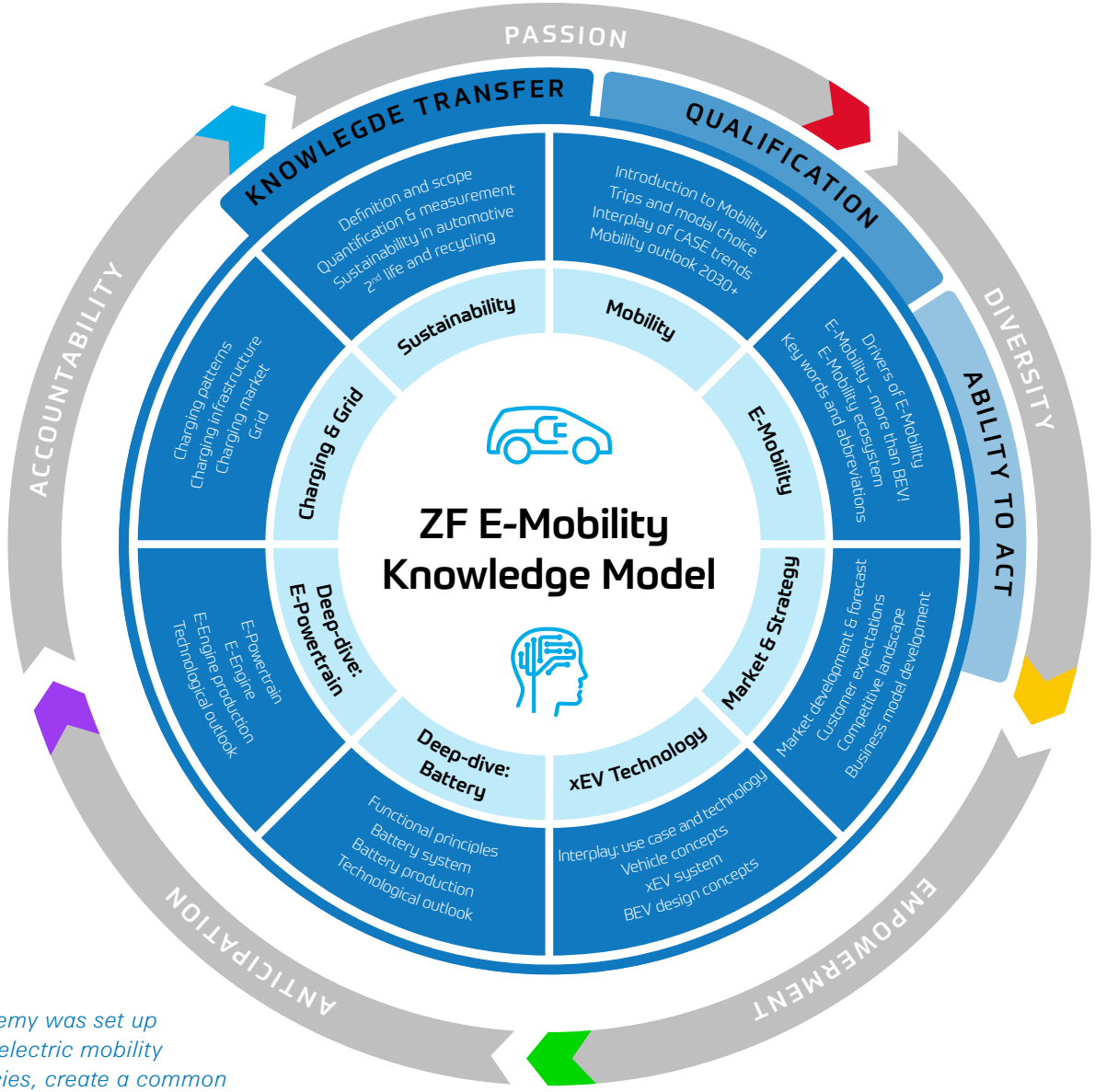
"Since the beginning of the pandemic, we've noticed that electric mobility is gaining momentum. Demand is strong for our further training courses. I think it's really impressive how much ZF is investing in us."

Holger Peschke
Simulation Team Leader, Germany

"We must realize that our training won't see us through the rest of our careers."

José Antonio Uscanga
Product Developer, Mexico

"For me, electric mobility is the future because we're all heading in that direction. And that's an improvement."



The E-Cademy was set up to expand electric mobility competencies, create a common knowledge base and enable employees to understand and prepare for the future.

knowledge and competencies, and preparing them for future job profiles. After all, you need to understand the future if you want to shape it.

The E-Cademy Fundamentals learning platform provides basic electric mobility knowledge. Course content is divided into eight different knowledge areas. Once employees have selected a persona that matches their qualifications and role, they can view the recommended modular online courses and complete each course at their own pace. In addition to self-study courses, live sessions allow course participants to hone and discuss their newly acquired skills. The platform includes additional material designed for this purpose. In mid-January 2022, around 7,250 employees were using the platform.

Certain divisions are already running specific retraining schemes. Employees whose current tasks will change through technology transformation will be able to train for job profiles in future work areas. Study formats cover everything from self-learning modules, virtual and face-to-face events, workshops and project-related tasks, to on-the-job learning. Last year, 19 development engineers successfully participated in the scheme, with another 100 employees due to complete the six-month program in 2022. Following the successful launch, the strategic initiative will be rolled out in other areas in the future.

Management

BOARD OF MANAGEMENT LETTER

WOLF-HENNING SCHEIDER

Dear Reader,

2020 was a special year for many of us, but 2021 proved to be even more challenging. For ZF, this meant continuing to produce and work with protective measures against the coronavirus in place. We also had to adapt with the greatest possible flexibility to the almost daily changing general conditions of our industry. Despite all this, we never had to adjust our targets defined at the beginning of the year, and finally we achieved them. ZF has asserted itself well on the market, was able to pursue the corporate strategy and make even more progress. This was achieved despite the strong headwind and an industry environment with profit warnings and revised forecasts. We quickly adapted to the new normal and successfully proceeded with our work. Altogether, our organization has become more agile, more flexible and more digital in the past year. This makes us confident that we will successfully continue our path in 2022 and beyond.

In this environment, we managed to considerably increase our sales by 17.5% to €38.3 billion – the highest value in ZF's history. With an adjusted EBIT margin of 5.0% of sales, we are in the planned range. In the second half of the year, disrupted supply chains caused a severe stir in the rhythm of the vehicle industry – affecting us, among other things, with chip shortages and serious material cost increases. Even in difficult times, we have remained a predictable and reliable partner to our customers.

In 2021, we made good progress with our debt relief and significantly strengthened the company's equity ratio. At the same time, we continued to invest in future projects and raised our research and development expenses to a new maximum. The focus was on efficient drives for electric vehicles, our new software architecture and electronic products as well as cloud connection and data management. We were only able to adapt so quickly and effectively because of the consistent implementation of our strategy, the clearly defined cooperation principles and the high level of commitment of everyone at ZF. One example are the considerably flatter management structures of our new divisions Electrified Powertrain Technology and Commercial Vehicle Solutions.

The successes of our company's strategic change are now clearly visible: In the area of electric mobility, we are an established supplier with a complete product range for all vehicle segments, we are technological leaders in many fields. Additional customer orders will more than compensate for the declining volume of classic transmissions in the future. Our next goal is to be leading in innovations for the industry by means of new products. One example are high-voltage inverters with silicon carbide technology that enable significant range extensions for battery-electric vehicles.

"The successes of strategic change are now clearly visible."

With our new Commercial Vehicle Solutions Division, we have created the worldwide expert systems supplier for commercial vehicle technology. In addition to the extensive range of products and services, the 25,000 employees working in this field offer truck and bus manufacturers as well as fleet operators a high level of systems expertise and a strong focus on clean and safe future technologies. Last year, we were able to demonstrate that we benefit both technologically and economically from this field. For me, the successful integration of WABCO is a good sign of the ZF team's willingness to see change as an opportunity.

Society confronts the economy with the task of making progress in line with ESG requirements. Sustainable production, sustainable products and efficient use of energy are key criteria for all of our stakeholders today. This is why we have set ourselves very ambitious targets and continue to unequivocally embrace the ten principles of the United Nations Global Compact.

We pay special attention to reducing CO_2 emissions, both in-house and in upstream supply chains. ZF wants to be climate-neutral by 2040. To achieve this, we need contributions from all areas of our Group and from our supply chain partners. Details regarding roadmap and measures can be found in the Sustainability chapter, which we have integrated into the Annual Report for the first time.

Electric mobility, software and autonomous driving are critical turning points in this decade. They fundamentally change public and individual mobility as well as transportation as a whole. With our Next Generation Mobility strategy, we set the course at the right time to leverage this opportunity for ZF. Last year, we showed that we can do both at ZF: Master challenges at short notice and effectively advance an ambitious long-term plan. In 2022, we want to continue to improve our resilience and further develop ZF's organization. Strategic partnerships like the one with Microsoft help us to develop a ZF Cloud where all corporate data and processes worldwide will be digitalized, connected and accessible in the future. The expected effects are ultimate transparency, added value through new functions as well as standardized and more efficient processes that provide a stable basis for the dynamic evolution of the company.

In the ongoing year 2022, the environment remains volatile. Industry and society will continue to face increasing material, energy and logistics costs in particular. Potential risks also arise from regionally varying regulations and standards as well as international political conflicts. In the short term, we are therefore pursuing a cautious approach in the new year. We are taking measures that ensure flexibility in order to adapt to short-term changes. At the same time, we also see potential for recovery in all segments in the course of the year. After all, in 2021 alone, around ten million vehicles that would have found a buyer were not built worldwide.

The term trust once more plays a key role these days: Last year, we at ZF gained a great deal of trust in our ability to deal with the new volatile normality while keeping an eye on the company's long-term objectives. We want to continue to be a reliable partner for our customers and business partners, supporting them with trendsetting products and solutions on their way towards new mobility concepts.

With this in mind, I would like to thank the shareholder representatives and the members of the Supervisory Board for their once again extremely constructive work throughout the past year. I would also like to thank our employees for their great commitment and openness regarding our ZF Way. With dedication, perseverance and team spirit, they have made a decisive contribution to successfully meeting the diverse challenges of these still extraordinary times. Together, we set important milestones for the implementation of our strategy. We know that phases of transition and change are not comfortable. But we also know: It's worth it. The first results are already visible. And I look forward to making further progress in this regard – together with you in 2022.

WOLF-HENNING SCHEIDER
Chief Executive Officer

THE BOARD OF MANAGEMENT

In the video conference

Right:

Wolf-Henning Scheider

Left:

(from top left to bottom right):

Wilhelm Rehm

Dr. Martin Fischer

Sabine Jaskula

Dr. Holger Klein

Stephan von Schuckmann

Dr. Konstantin Sauer

MANAGEMENT BODIES

THE BOARD OF MANAGEMENT

Wolf-Henning Scheider, Chief Executive Officer

Research & Development, Sales

Wolf-Henning Scheider (born in 1962) has been Chief Executive Officer of ZF Friedrichshafen AG since February 2018. After graduating in Business Administration, he started his career at Bosch in 1987 where he assumed various management functions within the Group in Germany and abroad as a member of the Board of Management and Divisional Director. From 2010 to 2015, he was a member of the Board of Management of Robert Bosch GmbH where he also became spokesman of the Automotive Technology sector in 2013. From 2015 to 2018, Wolf-Henning Scheider was Chief Executive Officer of the Mahle Group.

Dr. Konstantin Sauer, Chief Financial Officer, Deputy Chief Executive Officer

Finance, IT, M&A

Dr. Konstantin Sauer (born in 1959) has been Chief Financial Officer of ZF Friedrichshafen AG since 2010. In this function, he is responsible for major financial transactions such as the acquisition of TRW. Having studied industrial engineering, he did his PhD at the University of St. Gallen (Switzerland) in cooperation with Daimler-Benz in Stuttgart (Germany), before he moved on to ZF Friedrichshafen AG in 1990. Here he held various management roles, taking over responsibility as CEO for the entire Region of South America in 2000.

Dr. Martin Fischer

Passive Safety Systems, Active Safety Systems, Electronics and ADAS, North and South America Region, Quality

An electrical engineer with a PhD title, Dr. Martin Fischer (born in 1970) has been a member of the Board of Management of ZF Friedrichshafen AG since November 2019. After completing his studies at the Technical University of Darmstadt (Germany), he joined Siemens VDO Automotive in 1998, assuming various management roles, before moving on to automotive supplier Hella in 2006. From 2014, he held various management positions at U.S. automotive supplier BorgWarner, including in the USA.

Sabine Jaskula, Director of Labor Relations

Human Resources, Legal and Compliance

Sabine Jaskula (born in 1967) has been a member of the Board of Management of ZF Friedrichshafen AG since January 2019. After completing her studies, the fully qualified lawyer headed the legal department of Mast-Jägermeister, before joining an international corporate law firm. From 2001, she worked at the Continental Group, where she started out as an HR officer, before assuming various management functions in Human Resources from 2005. After working for Continental in China for several years, she moved on to become the head of Human Resources at ContiTech in 2016.

Dr. Holger Klein

Car Chassis Technology, Aftermarket, Regions of Asia-Pacific and India, Production

As of October 2018, Dr. Holger Klein (born in 1970) was appointed to the ZF Friedrichshafen AG Board of Management, having assumed responsibility for the Car Chassis Technology Division in the previous year. After completing his industrial engineering studies with a major in mechanical engineering, and having gained a PhD title from the Technical University of Darmstadt (Germany), Dr. Holger Klein held various management positions for McKinsey in Düsseldorf (Germany) and Chicago, Illinois (USA). From 2006, he was part of the global management team for the automotive sector. In 2014, he transferred to the ZF Group as head of Integration Management for the acquisition of TRW.

Wilhelm Rehm

Commercial Vehicle Solutions, Industrial Technology, Materials Management

Wilhelm Rehm (born in 1958) has been a member of the Board of Management of ZF Friedrichshafen AG since 2012. Having studied mechanical engineering, he started his career at LOKOMA, a provider of business facilities, before moving on to become head of the assembly department at the AGCO/Fendt group of companies in 1984, which is the biggest manufacturer and provider of tractors and agricultural machinery worldwide. For almost two decades, Wilhelm Rehm held various management positions at several locations of the group of companies. In 2003, he joined ZF Passau GmbH as Managing Director responsible for Production and Materials Management. In 2010, he assumed the role of chairman of the board in Passau and became a member of the Board of Management of ZF Friedrichshafen AG, responsible for the Off-Road Driveline Technology and Axle Systems Division.

Stephan von Schuckmann

Electrified Powertrain Technology

Stephan von Schuckmann (born in 1974) has been a member of the Board of Management of ZF Friedrichshafen AG since January 1, 2021. He heads the Electrified Powertrain Technology Division, which was newly founded in 2021 and pools all competencies in the area of electrified powertrain technology. In this function, he is responsible for expanding ZF's position in the field of electric mobility. The business economist joined ZF in 2003 and has held various management positions in the company since then. In 2015, he moved to the Car Powertrain Technology Division as Senior Vice President for Finance, IT and Process Management before taking over as head of the division in 2018.

SUPERVISORY BOARD

Dr. Franz-Josef Paefgen
(until December 31, 2021)
Chairman until December 31, 2021, former Chief Executive Officer of Bentley Motors Ltd.

Dr. Heinrich Hiesinger
Chairman as of January 1, 2022, former Chief Executive Officer of thyssenkrupp AG

Roman Zitzelsberger*
Deputy Chairman, District Manager of IG Metall for Baden-Württemberg

Jörg Amon* (as of September 1, 2021)
Chairman of the Lemförde location Works Council of ZF Friedrichshafen AG

Andreas Brand
First Mayor of the City of Friedrichshafen

Jürgen Bunge* (until August 31, 2021)
Chairman of the Lemförde location Works Council of ZF Friedrichshafen AG

Achim Dietrich*
Chairman of the Group Works Council of ZF Friedrichshafen AG

Robert Friedmann
Chairman of the Central Managing Board of the Würth Group

Klaus Helmrich (as of January 1, 2022)
Former Member of the Managing Board of Siemens AG

Joachim Holzner*
Member of the Senior Management Team of the CVS Division, responsible for special projects

Peter Kippes*
Head of Functional Area Business Policy, IG Metall

Mario Kläs*
Chairman of the Saarbrücken location Works Council of ZF Friedrichshafen AG

Prof. Dr.-Ing. Gisela Lanza
Director of Production Systems at the wbk Institute of Production Science, Karlsruhe Institute of Technology (KIT)

Dr. Joachim Meinecke
Lawyer

Oliver Moll*
Chairman of the Schweinfurt location Works Council of ZF Friedrichshafen AG

Jürgen Otto
Chairman and CEO of Borgers SE & Co. KGaA

Hermann Sicklinger*
Chairman of the Passau location Works Council of ZF Friedrichshafen AG

Dr. Mohsen Sohi
CEO of Freudenberg SE

Helene Sommer*
First Representative of IG Metall, Administration Center Friedrichshafen-Upper Swabia

Dagmar Steinert
CFO of Fuchs Petrolub SE

Axel Strotbek
Former Member of the Board of Management of Audi AG

Erdal Tahta*
Chairman of the Koblenz location Works Council of ZF Active Safety GmbH

*Employee representative

OUR STRATEGY

In the second year of the pandemic, our Next Generation Mobility strategy continued to provide important orientation. In addition to the technological change, we have also continued to drive forward our commitment in the area of sustainability.

The structural change in the automotive industry is still happening at a fast pace. People want constantly available, affordable, clean and safe mobility, but the reality looks a little different: traffic jams, emissions and a lack of mobility services. With our Next Generation Mobility strategy, we are developing comprehensive solutions for these challenges. In doing so, we present ourselves as an integrated systems supplier that will play a decisive role in shaping future mobility.

Software, networking and artificial intelligence are defining essential functions for mobility. Consequently, numerous new players from other industries are appearing in the mobility market in order to leverage growth opportunities. This has intensified competition between not only manufacturers but also suppliers. We are getting ready for this by expanding our digital service portfolio and linking it to ZF's enhanced core competencies.

In the field of electric mobility, we have already successfully implemented the strategic realignment. In the meantime, we have become a technology leader with a complete product portfolio that serves all vehicle segments. We will strengthen and expand this position in the coming years. In addition, we are pushing forward our development in the fields of digitalization, software and autonomous driving. Strategic partnerships such as with Microsoft help us turn ZF into a cloud-based mobility service provider.

Sustainability – an essential component

Sustainability is an integral part of our corporate strategy. We want to be fully climate-neutral with our company by 2040. Upstream supply chains are included in our targets as well. By 2030, we want to reduce CO_2 emissions at ZF locations by 80% compared to 2019. We want to achieve this without the carbon offset instrument. Our climate targets have been evaluated and confirmed by the Science Based Targets initiative (SBTi).

Sustainability, however, is more than climate protection. We want to meet the needs of the present without jeopardizing opportunities for future generations. The United Nations has defined 17 Sustainable Development Goals. These are policy objectives designed to ensure sustainable development worldwide at the economic, social and environmental levels. ZF has identified eight of these goals to which our company can make a relevant contribution in the context of our business activities, either by minimizing impacts or by developing new technical solutions with positive effects. In our sustainability efforts, we focus on the following three dimensions: climate and nature, people, enduring values. ZF is a founding member of the World Economic Forum's (WEF) First Movers Coalition which aims to jumpstart the demand for zero-emission technologies.

Change in vehicle technology accelerates development

With digital innovations and continuously high investments in research and development, we are developing into one of the leading electronics and software suppliers – with technology for electric mobility, vehicle motion control, semi-autonomous and autonomous driving, with central high-performance computers and software that enables new functions. We are already active in the field of electric mobility as an overall systems supplier for commercial vehicles and passenger cars, for which we also supply the centerpiece – power electronics. This will result in significant growth.

The change in vehicle technology, which accelerated considerably over the past two years, also resulted in more dynamic development in the ZF Group. Here comes the payoff for the years of early investments in the development of a range of central high-performance computers that are increasingly being used by our customers. This is, therefore, another field where we will be among the leading suppliers in the coming years.

For passenger cars, we see great potential for driver assistance functions, also known as Level 2+ systems. Some commercial vehicle segments and particularly urban public transportation are more likely to be able to use fully automated systems earlier. Autonomous driving functions used in vehicles driving in self-contained areas – such as depots and factory sites – as well as on specific routes are already paving the way. Our company is well-positioned to cater to both trends.

The trend towards electric mobility has received a very strong boost. In markets with a suitable infrastructure, we expect purely electric drivelines to prevail in passenger cars and many commercial vehicles. Here, in addition to the driveline technology, we can make a contribution, for example, with our ZF brake system that recuperates energy, increasing the range of vehicles by up to 15%.

For us, plug-in hybrid drives appear to be an efficient interim solution along the way to the electrification of vehicles. The plug-in hybrid offers the best of both worlds: local zero-emission driving and the ability to cover long distances. This is a good prerequisite for using this technology for many years to come.

ZF will no longer pursue fundamental developments for pure combustion engines. We are preparing for the fact that in major regions of the world hardly any vehicles with combustion engines will be sold after 2035. Their current sales contribution of around one quarter can be compensated by solutions from the new technology fields, which can also generate additional growth.

4 plus 1 technology fields for three customer segments

We provide our customers in the three segments of passenger cars, commercial vehicles and industrial technology with products and services that also include the aftermarket.

In taking the company forward, our strategic focus is on electrification, digital networking and automation. We are therefore continuously further advancing our portfolio beyond the 4 plus 1 technology fields, which we combine using integrated solutions:

- **Automated Driving:** Automated driving will make mobility more comfortable and safer, and everyday life easier for people. ZF systems already enable vehicles to see, think and act as well as drive autonomously. This will also lead to innovative mobility concepts for which new suppliers are already positioning themselves. Moreover, for ZF as a systems supplier, it is creating additional opportunities across the broad spectrum of mobility.

- **Electric Mobility:** Hybrid and fully electric vehicle drives are a reality today. They will continue to grow at a substantial rate. ZF supplies the core components for electric mobility, such as hybrid transmissions, electric motors or power electronics, as well as complete systems for pure battery vehicles – across all vehicle categories from passenger cars, commercial vehicles, agricultural and construction machinery to marine or rail applications and the micro-mobility sector.

- **Vehicle Motion Control:** The chassis, comprising smart motion-related actuators, plays a major role in ensuring safety, comfort and efficiency in all types of vehicles. We can network and synchronize virtually all systems that affect longitudinal, transverse or vertical dynamics so that cars and commercial vehicles are quiet and safe, regardless of whether they are driven or driverless.

- **Integrated Safety:** Autonomous driving and intelligent traffic routing will make a vital contribution to avoiding accidents. Nevertheless, occupant safety technology will continue to play an essential role. ZF already has the most comprehensive safety technology in the supplier industry. It ranges from electronic control units, sensors, brakes, steering systems and seat belts as well as airbags, electronics and central computers with their corresponding software right up to active chassis systems equipped with the actively steering rear axle, for example.

- **+1 Digitalization, Networking and Software:** Electronics, cloud networking and software are central basic modules for the transformation in all four technology fields: ZF will be among the leading providers for mainframe computers. Along the way, our company presented the open middleware software platform and established a global software center to develop individual approaches to customer-oriented software solutions. Individual components are networked into comprehensive systems that are able to act independently with artificial intelligence. With this approach, ZF is working on the software-defined car that uses software functions in a central system, communicating continuously with the cloud. ZF's middleware seamlessly integrates these systems.

Five objectives for balanced evolution

Our company is implementing the strategy around five objectives comprising all dimensions of relevance for us. This is how we ensure that the company evolves holistically.

1. **Innovation and cost leadership:** We have a broad product range. This means that we are already setting standards in our markets today. We want to stabilize and enhance this position – through regular innovations and by continuously making large investments in research and development. We secure funding for this also by continuously improving our efficiency and performance. Our cost leadership is vital in safeguarding our global competitiveness. Therefore, we will reduce costs through various programs.

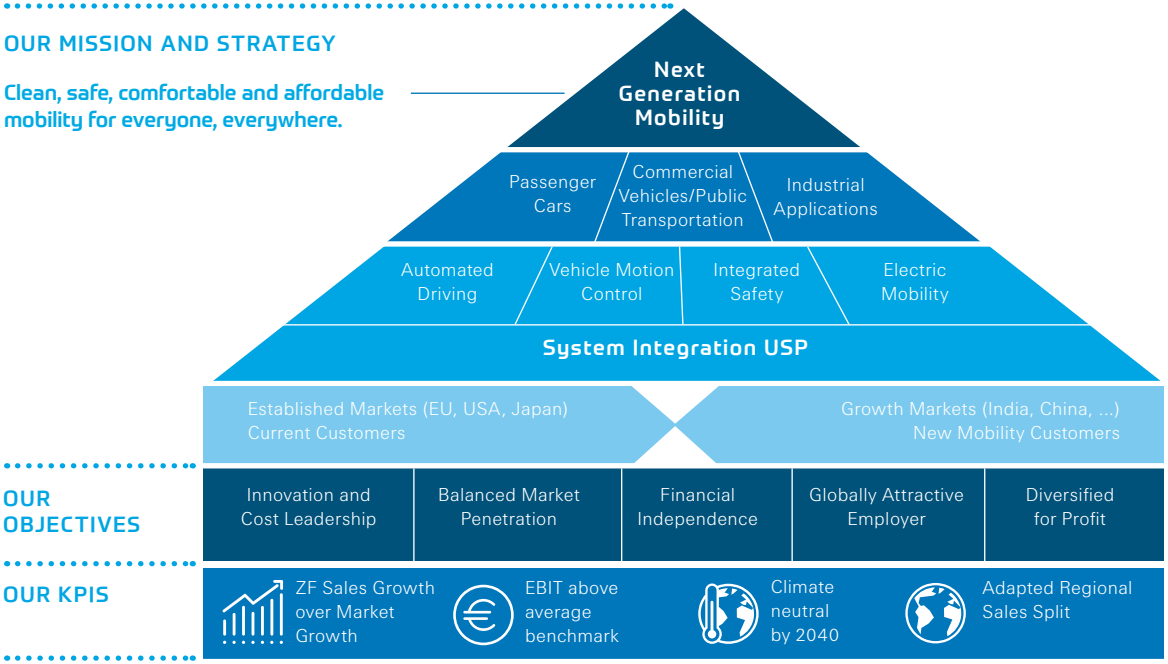
2. **Balanced market penetration:** Where our customers go, we go – worldwide. Our aim is a balanced presence in all markets. Alongside Europe and the USA, we are focusing particular attention on regions with further growth potential: China and India. There, we reach new customers from the mobility sector who opt for ZF to accelerate their market rollout.

3. **Financial independence:** We aim to make our business decisions from a position of financial stability at all times. Financial independence is the foundation we build on to further increase our company value and meet the economic interests of our owners. To secure it, we engage in active financial management. Its purpose is to ensure that the balance sheet structure data remains within our target framework and that the free cash flow gives us leeway for action to implement our projects in operations.

4. **Globally attractive employer:** We want to ensure that the best employees are in the right place at the right time. We promote leadership quality, diversity and team culture. Therefore, we are using various dialog measures to improve the feedback culture. Along the lines of "team beats silo," our cooperation goes beyond department and division boundaries.

5. **Diversified for profit:** We develop our service portfolio decentrally from the business units. This means that we not only stay close to our respective customers, but can monitor the markets individually for new business opportunities and tailor our solutions to market and customer needs. Diversification provides the Group with stability and makes it easier for us to deal with temporary market fluctuations. At the same time, we take action to set up new business models in the area of software and service, e.g., for new mobility solutions.

Our Next Generation Mobility strategy



REPORT OF THE SUPERVISORY BOARD

DR. HEINRICH HIESINGER

DR. FRANZ-JOSEF PAEFGEN

Dear Reader,

Looking back on 2021, it was an extraordinarily challenging year, marked by global delivery bottlenecks and the Covid-19 pandemic.

2021 was characterized by extreme volatility, scarcity of materials and increasing energy, raw material and logistics costs. The Group met these challenges with a strict R&D and investment focus, consistent supply chain management and a team performance based on the five principles defined for future success under the name of ZF Way: passion, anticipation, diversity, empowerment and accountability.

Increasing regulations, the global pressure for CO_2 reductions and the increased demand for new mobility solutions accelerate the implementation of sustainable technologies. ZF is well equipped for this with the Next Generation Mobility strategy. Sustainability and the 2040 climate neutrality target are integral elements of our organization and our processes.

The fundamental transformation of industry and the global economy requires a digital transformation. ZF is also embarking on new paths in the digital age in order to sustainably safeguard the long-term future. Significant development success in the area of high-performance computers, ZF ProAI as well as further technologies in the AD/ADAS segment will enable ZF to achieve a new real net output ratio in hardware and software.

The founding of the new Commercial Vehicle Solutions Division as of January 1, 2022 will also have a positive effect in this regard. It results from the merger of the Commercial Vehicle Technology Division with the Commercial Vehicle Control Systems Division, formerly WABCO. With the new division, ZF is positioning itself as a highly qualified systems supplier in the commercial vehicle sector as well.

Last year brought the following personnel changes to the Supervisory Board and the Board of Management:

Due to his retirement, Mr. Jürgen Bunge resigned from the Supervisory Board as of August 31, 2021. Mr. Jörg Amon took over his position as employee representative on September 1, 2021. At his own request, Dr. Franz-Josef Paefgen resigned from the Supervisory Board as of December 31, 2021. The shareholders of ZF Friedrichshafen AG appointed Mr. Klaus Helmrich as member of the Supervisory Board as of January 1, 2022. Dr. Heinrich Hiesinger was elected Chairman of the Supervisory Board as of January 1, 2022.

The Supervisory Board thanks the members who have stepped down for their many years of commitment.

In the fiscal year 2021, the Supervisory Board performed the duties as required by the law, our articles of association and code of procedure duly and with great diligence. It continuously monitored the work of the Board of Management and provided advice in the management and strategic further development of the company. The Board of Management promptly and directly involved the Supervisory Board in all issues and decisions of fundamental significance. The Chairman of the Supervisory Board was also in regular exchange with the Board of Management, especially the Chief Executive Officer, and received regular reports from him about current and important developments in the Group, also outside of committee meetings.

At the end of 2021, as in previous years, the Supervisory Board carried out a self-evaluation with the aim of further optimizing cooperation and efficiency in its own activities. The members provided valuable feedback and suggestions for the further development of committee work, which will be taken up in the new year.

In 2021, the Supervisory Board met for four ordinary meetings during which the Board of Management duly reported on business performance and all relevant current and strategically important issues. The Supervisory Board also held one extraordinary meeting and passed one resolution by way of circulation.

In its ordinary meetings, the Supervisory Board extensively discussed the company's situation, the development of the major sales markets, purchasing, the general political conditions as well as the key financial figures with the Board of Management. The ongoing reports on the business situation focused, among other things, on the global semiconductor shortage as well as on other missing parts which led to production interruptions in the entire value-added chain as well as significant fluctuations and drops in call-offs. Although sales growth was also not as expected due to the semiconductor crisis, ZF maintained targeted investments in future technologies, especially in the areas of electric mobility, software and electronics as well as AD systems. This was also reported on regularly.

Likewise, the Supervisory Board regularly dealt with the WABCO integration process and took positive note of the final report on its successful integration given at the October meeting. In addition to the aftermarket and HR strategy, other key topics included the electronics and software strategy. The Supervisory Board also focused on the company's sustainability program and the ESG roadmap. On top of that, the Supervisory Board regularly handled personnel decisions of top management. In its ordinary meeting in December 2021, the Supervisory Board, after a thorough examination, approved the Group's operational planning after being informed in detail about the objectives at Group and division level.

As part of the Group-wide enterprise risk management, the Board of Management reported regularly to the Audit Committee and the Supervisory Board on the main opportunities and risks identified. No individual risks that threaten the existence of the company or its results of operations, net assets and financial position were discovered. Furthermore, the Board of Management reported duly on the effectiveness and further development of the Compliance Management System.

At the extraordinary meeting in spring 2021, the Supervisory Board dealt with the sale of ZF Luftfahrttechnik GmbH. The election of a member to the Supervisory Board, which had become necessary to fill a vacancy, was performed as vote by circulation in October.

In its four ordinary meetings in 2021, the Executive Committee advised in particular on the strategic alignment of the ZF Group, relevant legal issues as well as personnel matters.

The Audit Committee held three ordinary meetings in 2021. During its meeting on March 16, 2021, the Audit Committee was informed by the appointed auditor in detail about the results of the 2020 annual financial statements and the consolidated financial statements, and discussed these with the Board of Management. In the July meeting, the committee discussed the 2021 semi-annual financial statements in detail. A key element of the Board's work is the Group's corporate governance. To this end, the persons responsible for the four core disciplines Enterprise Risk Management, Internal Control System, Compliance and Corporate Audit submitted detailed reports, including the respective implementation and effectiveness status. In July 2021 for the first time, this was realized in the form of an integrated governance, risk and compliance (GRC) report.

The chairpersons of both committees, Dr. Franz-Josef Paefgen and Mr. Axel Strotbek, reported in detail on the activities and essential issues in their committees at the subsequent Supervisory Board meetings.

The annual financial statements of ZF Friedrichshafen AG compiled by the Board of Management in accordance with the provisions of the German Commercial Code (HGB) and the consolidated financial statements compiled in accordance with Sec. 315e HGB on the basis of the International Financial Reporting Stan-

dards (IFRS), dated December 31, 2021, as well as the corresponding management reports, were audited by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft. The company issued its unqualified audit opinion in each case.

The Supervisory Board extensively studied the documentation and examined it themselves; all members of the Supervisory Board had access to the audit reports in good time. The auditor explained the main audit results first to the Audit Committee and then to the Supervisory Board during the board meeting on March 16, 2022. In both cases, the results were discussed in detail. The Supervisory Board had no objections after its concluding audit result. During this board meeting, the appointed auditor's report as well as the annual financial statements of ZF Friedrichshafen AG were approved and the consolidated financial statements were adopted.

For the fiscal year 2021, the Board of Management drew up a report on the relations to affiliated companies (dependent company report) according to Sec. 312 German Stock Corporation Act (AktG). After comprehensive review of the dependent company report, the Supervisory Board had no objections. Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft audited the report and issued the following audit opinion:

"Based on our dutiful audit and assessment, we confirm that

firstly, the actual statements of the report are correct; secondly, the contribution by the company with regard to the legal transactions presented in the report was not unreasonably high."

The Supervisory Board agrees to the audit result of the appointed auditor. According to its concluding audit result, it does not raise any objections with regard to the Board of Management's closing statement contained in the report.

In 2021, the Board of Management and all employees of the ZF Group showed great commitment to the company under difficult conditions and strong willingness to accept change. The Supervisory Board expresses its appreciation and gratitude for the work performed, the trust shown and the high willingness to support the necessary measures in such challenging times.

Friedrichshafen, March 2022

On behalf of the Supervisory Board

DR. HEINRICH HIESINGER
Chairman of the Supervisory Board as of Jan. 1, 2022

DR. FRANZ-JOSEF PAEFGEN
Chairman of the Supervisory Board until Dec. 31, 2021

Sustainability

SUSTAINABLE CORPORATE MANAGEMENT (GOVERNANCE)

In order to achieve long-term business success, a company needs an intact environment. This entails the awareness that one's own success also depends on the development of corresponding stakeholders and that the company should be in sync with them and their objectives. This is the only way to achieve sustainable corporate management. This principle plays a major role in all relationships with business partners, as well as in investments in production materials and capacities.

ZF takes responsibility for its own core business very seriously. At the same time, the company is aware of its impact on society. In order to streamline its social commitment in Germany, ZF founded the registered association "ZF hilft." in 2005. It provides worldwide aid and support in the event of humanitarian disasters. All donations directly benefit the relief projects because the ZF Group covers all general administrative expenses of the association. The company's local and regional commitment outside of Germany has been under the global umbrella of the we>care initiative since 2016. For more information, please visit **www.zf.com**

Within the scope of knowledge workshops ("Wissenswerkstätten"), we also promote children's interest in science and technology. After the first one opened in Friedrichshafen in 2009, more knowledge workshops followed at the five largest ZF locations in Germany.

In addition, ZF pays a dividend to its shareholders: In doing so, the Zeppelin Foundation operates in line with its articles of association, especially in the fields of science and research, art and culture, as well as child and youth development. The Dr. Jürgen and Irmgard Ulderup Foundation in Lemförde that also owns a stake in ZF Friedrichshafen AG supports the education and vocational training of young people as well as nature and landscape conservation. For more information, please visit **www.zf.com**

COMPLIANCE

The ZF Group has earned the recognition and trust of its customers through its responsible corporate governance and outstanding products and services. The aim is to further increase the company's commitment and the high esteem it has earned.

We regard compliance as the foundation of successful and good corporate governance. It supports the reliable and respectful engagement with all stakeholders and thus forms the basis for lasting cooperation in an atmosphere of trust. For more information on corporate governance, please refer to the group management report. **Group Management Report**

As a globally active company, ZF is continuously working to ensure compliance with relevant laws, regulations and guidelines. This applies in particular to the current marked rise in regulations in the field of climate protection or human rights.

Compliance is a core value of ZF's corporate culture. We therefore promote honest, law-abiding and responsible behavior of employees at all levels and in all areas. Compliance regulations and guidelines, such as the ZF Code of Conduct, are made available to all employees. Besides the intranet, the document can also be found at **www.zf.com**

The ZF Code of Conduct defines mandatory principles for correct and ethical behavior. It covers topics such as fair competition, human rights, anti-corruption activities, economic and social responsibility, product compliance, occupational safety and health, data privacy and transparency. The ZF Code of Conduct is a core element of the ZF Compliance Management System (CMS) and is available in more than 25 languages. In 2021, the CMS was revised in cooperation with the relevant internal stakeholders. In the course of this revision, statements on human rights became more specific and other topics, such as government affairs, social media and marketing messages, were included.

All newly hired employees receive the ZF Code of Conduct. They undertake to comply with the Code in writing. In addition, employees receive information on how to ask questions about the ZF Code of Conduct and how to report possible violations.

Beyond the ZF Code of Conduct, ZF has regulations and work instructions that primarily cover the following areas:

- Lawful and responsible behavior
- Ban on corruption
- Business partner integrity
- Handling favors, gifts and hospitality
- Correct behavior in competition
- Conflicts of interest

- Contacting the Corporate Compliance Office and reporting incidents
- Responsibilities, tasks and authority of the Compliance Organization
- Money laundering

The corresponding documents define and explain topics such as conflicts of interest or corruption to promote better understanding. They also clearly state that conflicts of interest, for example, are to be avoided and explain how this can be achieved. There is, for instance, a directive that prohibits sponsoring and donations favoring:

- Politicians and political parties
- Individuals or organizations that are not charitable
- Organizations that discriminate against third parties on the basis of skin color, gender, age, nationality, origin, religion, sexual orientation, disability or other legally prohibited grounds

Exceptions to this include donations made through political action committees (PACs) in the United States. The natural prerequisite for such donations is that they are made in strict compliance with applicable law. Also, the distribution of such donations must reflect neutrality as regards the parties and candidates. Payments to private accounts or in cash are prohibited.

Compliance management

The Compliance Organization is set up in line with the organizational structure of the ZF Group. The CMS constitutes the framework for meeting the respective legal requirements worldwide. It is based on the elements: prevention, detection and response. The CMS focuses on preventing and investigating potential violations by employees and business partners in the areas of:

- Corruption/bribery
- Conflicts of interest
- Gifts/entertainment

The objective of the CMS is to ensure compliance with internal and external regulations. To this end, it fulfills the following requirements:

- Independence and effectiveness of the Compliance Organization
- Integration of compliance into business processes
- Transparency of decision-making processes
- Respective HR processes (sanctions)

As part of the continuous improvement of the CMS, the Compliance Department has already been staffed up. It was also decided to further develop the CMS in terms of content and staff. The implementation of the concept is scheduled for 2022 and beyond.

The effectiveness of the CMS is checked regularly: The Compliance Department was audited by the Group in 2019. Besides, the auditing company EY performed a health check in 2020. In 2021, the international law firm Hogan Lovells carried out an assessment of the application of the CMS in the expert departments.

The goal of the ZF Group for consolidated joint ventures is the implementation of ZF's own or a comparable CMS.

ZF Compliance Organization

Prevent	Detect and respond
■ Risk analysis ■ Regulations ■ Communication ■ Training ■ ComplianceHelpdesk ■ Business partner due diligence	■ Reporting violations ■ Investigation ■ Sanctioning misconduct ■ Actions monitoring ■ Continuous improvement

Compliance tools

- The ComplianceHelpdesk is a tool for systematically clarifying and documenting compliance questions. ZF employees can contact the ComplianceHelpdesk whenever they are faced with a compliance-related question in their day-to-day business activities.

- The ZF CMS is complemented by the ZF Trustline. This is an electronic notification system that employees and third parties can use to anonymously report suspected serious misconduct. Such incidents could be violations of competition and antitrust law, cases of corruption and bribery, conflicts of interest, fraud and financial reporting concerns, employment-related matters, violations of human rights and other material violations of policies or law.

- In 2021, 197 notifications were received by the case management system, which comprises the ZF Trustline and other reporting channels. Of these, 128 incidents were reported via the ZF Trustline and 69 incidents via other internal channels. In total, 60 cases fell within the direct area of responsibility of the Corporate Compliance Function.

Business partners can pose a compliance risk if their actions or failure to act can be attributed to ZF.

All business functions of the Group must therefore take appropriate measures – preferably before business relations with a partner are initiated – to ensure that business partners are adequately assessed and instructed. For more information, please refer to the Supply Chain chapter. ↘ **Supply Chain**

In order to prevent corruption, all operating activities are regularly assessed over a target period of about three years as part of a risk analysis process. To achieve more precise results, this process is currently being revised.

The sharing of news and information about compliance issues in internal communication channels helps to raise awareness among employees. In addition, the company's values and expectations regarding employee behavior are communicated regularly. A range of communication measures ensure that compliance is firmly anchored within ZF's corporate culture. All employees, including the Board of Management, have constant access to all compliance topics and trainings through the intranet, the Compliance intranet blog and other channels. As the main communication channel, the intranet also offers employees information on compliance contacts and access to important documents. The ZF Trustline can be found at **www.zf.com**

Further compliance training

Due to its large employee base, ZF primarily relies on online trainings. The objective of these online courses is to firmly anchor compliance in employees' minds and prevent wrongdoing. Course design is topic- and target group-oriented. The trainings convey knowledge and promote the employees' ability to act in critical situations.

In 2021, the following courses were completed via the myHRSuite online learning management system (MHRS):

- ZF Code of Conduct: 12,146 participants
- Conflicts of Interest: 824 participants
- Ethical Leadership: 1,041 participants
- Recognizing and Avoiding Bribery: 57,461 participants
- Business Integrity and Fraud: 25,966 participants

The MHRS enables all employees to independently track their training progress. In addition, an escalation process for mandatory trainings was established in cooperation with the HR Department. Employees can also use the intranet independently and on a voluntary basis to obtain information on many topics. Training in other formats, such as in-person training on key topics, is provided in a targeted manner based on region, job function and risk category.

COMPLIANCE WITH TAX REGULATIONS

The ZF Group's tax strategy was developed as part of ZF's corporate responsibility and in line with the company's overall corporate strategy. The tax strategy is aimed at meeting the following criteria:

- Compliance with tax regulations to ensure that tax returns are filed correctly and on time.
- Ensuring that taxes are paid in the countries where value is added, thereby avoiding aggressive tax planning.
- Ensuring that tax information used for corporate decisions and intended for the publication of financial data is correct and relevant.
- Introduction of appropriate measures to minimize tax risks and avoid unexpected tax payments.
- Upholding ZF's positive reputation in public perception as a responsible company that respects tax laws.
- Preventing inefficiencies from a tax perspective, such as double taxation.

The Group is committed to an open and transparent exchange of information with tax authorities. It advocates fair and practical legislation, supports the work of industrial associations and international organizations in the field of tax law and contributes towards ensuring transparent and responsible taxation.

Taxes – Values & Principles

Responsible conduct in tax matters

The basis for effective tax management is a clear definition of roles and responsibilities with regard to tax processes, measures and structures. ZF's tax function is set up along the lines of an organizational matrix structure. It is tailored to the operational needs of the business organizations, such as corporate functions and divisions, and ensures a clear assignment of tasks, rights and responsibilities within each region.

Roles and responsibilities have been defined primarily in the following areas:

- Policy-making competence
- Requirement to involve the Tax Department
- Requirement for involvement of or prior approval by the tax function
- Responsibility for tax-relevant elements in ZF's business processes
- Maintenance and improvement of ZF's tax compliance management system

Within the Board of Management of the ZF Group, the responsibility for taxes lies with Corporate Finance Finance, IT and M&A, and is managed by the Chief Financial Officer (CFO). The Group tax function, directly reporting to the Head of Corporate Finance or the Group's CFO, is responsible for compliance with the tax strategy. Tax compliance measures are executed by centralized local tax functions. These are either part of the tax function of a larger region or organized at the local finance function level. General definitions are embedded in ZF's respective management policies to make sure that all Group entities adhere to these principles.

ZF ensures that taxes due are determined according to local tax laws and that internal transfer prices within the ZF Group are set in accordance with the arm's length principle. Remuneration for intra-Group transactions is generally based on the fair market value of the individual transaction.

Tax risk management

ZF seeks to minimize tax risks. The ZF tax risk management and the tax control framework are consistent with and embedded in the Group's overall risk management and internal control framework. Tax risks are actively and continuously identified, assessed, monitored and managed. This ensures that they remain in line with the overarching objective of the Tax Function to guarantee Group-wide tax compliance.

Effective tax risk management and tax compliance are ensured by the following measures:

- Tax guideline concept integrated in ZF's policy management structure
- Continuous monitoring and improvement of the tax control framework via an established TAX CMS lifecycle process
- Verification of compliance with tax rules in the context of the confirmation and issue reporting process integrated in the Group's internal control system
- Structured approach to monitoring and assessing potential tax risks

Country-by-country reporting of tax and other key figures

In compliance with the base erosion and profit shifting (BEPS) actions of the OECD, ZF prepares a country-by-country report (CbCR) for the entire ZF Group and then makes it available to the German tax authorities on an annual basis. In turn, the German tax authorities share ZF's CbCR with countries that have signed a corresponding agreement permitting this data exchange. The ZF Group's CbCR is therefore available to all countries whose tax authorities have agreed to the OECD standards.

Ongoing tax payments by region

in € million	2021	2020	2019
Europe	67	30	154
North America	32	33	32
Asia-Pacific	200	127	114
Other	17	6	6
Total	**316**	**196**	**306**

SUSTAINABILITY MANAGEMENT

Sustainable corporate management is firmly anchored in the ZF Group Directives and is therefore also a key aspect of all business activities and day-to-day decision-making processes. Key elements are the Environment, Health & Safety (EHS) management implemented and established at all locations, the principles of social responsibility, the environmental policy, the respect for human rights policy statement, the Code of Conduct, as well as our Business Partner Principles.

The year under review was characterized by the specification of ambitious climate targets and the development of measures to achieve these targets. Another focus was on preparing for the German Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz or LkSG for short in German) and for requirements resulting from future EU legislation. The main task was to enable ZF to fulfill all core elements.

In order to achieve sustainability targets, ZF launched the Sustainability Ambition Project. In the year under review, the focus was on the operationalization of climate targets and on further implementation. To this end, the following steps were made:

- Defining 2019 as the baseline for determining the corporate carbon footprint
- Deriving reduction potentials for all greenhouse gas scopes and their evaluation from a technical and economic perspective
- Defining the goals for 2030 and 2040 in detail
- Deriving binding sub-goals for the operational and functional ZF units

Organizational anchoring of sustainability

The Sustainability Department reports to the Sustainability, Environment, Health and Safety Function which is assigned to the Board Function Human Resources, Legal and Compliance. In the year under review, the implementation of a multi-level sustainability organization was continued across all divisions, regions and major global domain functions. The Sustainability Department is responsible for the development of the Group-wide sustainability strategy and for non-financial reporting. It represents the contact point for all questions about sustainability and steers the stakeholder dialogue. In addition, the department is also responsible for individual topics, such as the climate strategy or human rights due diligence. In the coordination of sustainability topics in the company, the Sustainability Department is supported by a cross-functional steering committee.

In order to further anchor sustainability issues within the Group, the steering committee is to be replaced in 2022 by a body that will also include representatives from all divisions. This body's superordinate tasks are as follows:

- Supporting the Board of Management in the monitoring of relevant sustainability and corporate social responsibility aspects
- Regular reviews of the appropriateness and effectiveness of the sustainability strategy, the agreed targets and measures
- Ensuring that the strategy is anchored in relevant processes and structures
- Regular reviews of key topics

The body will be able to establish topic-related working groups, campaigns or projects for the specific processing of further issues.

A human rights working group, set up in 2020, provides regular consultations on topics related to the human rights CMS and its further development, within the scope of human rights risk management.

Sustainability reporting

The company's material topics are regularly evaluated as a basis for sustainability reporting. This is preceded by an intensive analysis of global challenges, the company's own impact as well as stakeholder expectations.

The topics included in this report follow the materiality analysis from summer 2021. As a first step, essential topics of the industry, ESG requirements and the most important sustainability standards were evaluated for the analysis. On this basis, a list of topics was created and then evaluated and prioritized from three different perspectives: In the context of internal expert interviews and workshops, the topics were considered from a business perspective, with a particular focus on discussing the strengths and weaknesses of ZF's current sustainability commitment and its business structure. An assessment from a stakeholder perspective was carried out by means of a series of interviews with representatives of customers, associations and NGOs. Based on the resulting insights, the Sustainability Steering Committee evaluated the impact of ZF's operating activities on the environment, employees and society.

Combining the three perspectives, topics for reporting and focus areas for further strategic development were identified. The Board of Management thoroughly reviewed and confirmed the results of this analysis. They are also reflected in the focal points of the ESG strategy Acting now. Sustainability@ZF.

Stakeholder communication and management

ZF communicates with a large number of diverse interest groups in order to find comprehensive and balanced solutions. The most important stakeholders are employees, customers and suppliers, the company owners, investors, authorities, trade unions, associations and politicians. The media, business partners and residents at the company locations are also included.

Each group is important, having unique insights and feedback to contribute. As in previous years, climate protection and respect for human rights were priority issues.

ZF is convinced that cooperation is the key to successful sustainable development. Many divisions contribute to this by sharing knowledge with their stakeholders and by working with them to develop solutions.

Integrating customer expectations

Increasing legal requirements and consumer awareness as well as megatrends such as electric mobility are reflected in the expectations of the automotive industry regarding the sustainability performance of its supply chain. Our customers were particularly interested in solutions for battery-powered vehicles as well as fuel-cell, electric and hybrid electric vehicles. ZF also offers a large portfolio of complex vehicle functions. This requires new skills and a market presence that reflects the Group's collective know-how as well as its entire product portfolio. In addition, ZF customers expect to interact with a competent contact person who represents the entire Group.

Furthermore, in 2021, customers mainly enquired about the use of recycled materials and renewable energies. Green electricity at the production locations is one example of this. In addition, they requested transparent information on the life cycle emissions of products, for example based on a product carbon footprint. One way in which ZF addressed these matters is the new ESG strategy.

Implementing employee ideas

Our employees contribute ideas and feedback in various ways. The ZF Excellence Award is a special platform, where a winner is announced also in the sustainability category. It is an internal competition that supports a Group-wide knowledge exchange regarding best practices. These not only cut costs, but often lead to innovations and increase the overall fitness of the company. The ZF Excellence Award is intended to encourage follow-up projects and the implementation of proven ideas in other regions, locations or organizational units.

Stakeholder communication channels

Stakeholder groups	Media and formats
Employees	Zoom social intranet including various news channels, blogs from the CEO, CHRO and other members of the Board of Management, face-to-face and virtual town hall meetings, webinars, skip-level meetings, innovation challenges, pitch events and virtual marketplaces, team communities, ZF BarCamp, New Work, management calls and internal target group mailings, notices, poster campaigns and on-screen information at the plants, family days, ZF website, social media and ZF hilft. e.V.
Potential employees	Collaborations with universities, Annual Report, Sustainability Report, advertisements, ZF website, participation in trade fairs, events, sponsoring, social media and – in the future – employee ambassadors
Former employees	ZF website, ZF pensioner association, social media
Customers	Combined Annual and Sustainability Report, ZF website, brochures, advertisements, face-to-face or virtual customer days, participation in trade fairs, key account management, social media
End customers	Combined Annual and Sustainability Report, participation in trade fairs, such as the IAA Mobility, CES, Auto Shanghai, non-automotive trade fairs, advertisements, ZF website, social media
Suppliers and partners	Combined Annual and Sustainability Report, ZF website, participation in trade fairs, advertisements, supplier days, key purchasing strategy, ZF Global Supplier Summit, social media
Politicians, associations, interest groups	Combined Annual and Sustainability Report, ZF website, Associations & Politics Department: topic-related discussions, round-table events/webinars, on-site visits, association work, social media
Educational institutions	Combined Annual and Sustainability Report, collaboration with universities and schools, ZF website, participation in trade fairs, advertisements, social media
Press and the media	Combined Annual and Sustainability Report, ZF website, press releases, face-to-face and virtual press conferences and test drives, social media
Communities	Press, ZF website, advertisements, sponsoring, social commitment at the locations, regional events, social media
Investors, analysts and other capital market participants	Annual and semi-annual conference calls with analysts and investors, capital market days, face-to-face meetings, trade fairs, ZF IR website

Involving suppliers

The ZF Group's ambitious climate neutrality target has a decisive impact on the entire supply chain. This is why the annual ZF Global Supplier Summit – held in November 2021 – focused on decarbonization. At the virtual conference, ZF top management provided around 1,000 delegates from around the world with an insight into ZF's corporate strategy, new technologies and new requirements related to purchasing and logistics. One customer and four suppliers presented their decarbonization activities to demonstrate potential solutions that are already applied in practice.

ZF also used the Global Supplier Summit to communicate concrete levers and expectations regarding the transparency of emissions (product carbon footprint – PCF) as well as the organizational integration of the topic at the supplier end. The corresponding specific expectations were distributed in writing to the approximately 10,000 suppliers of direct production materials.

As part of the Global Supplier Summit, eight of the approximately 60,000 suppliers worldwide received the ZF Supplier Award for their excellent performance. The Sustainability category honoring particularly outstanding achievements in the context of decarbonization was included for the first time.

Informing investors

In the context of the EU strategy for financing sustainable growth (sustainable finance), financial institutions and credit rating agencies are also calling for greater transparency and ESG commitment. ZF has responded to this with its climate strategy, ESG strategy and extended sustainability reporting. ZF is also preparing for the upcoming requirements of the EU taxonomy in order to be able to classify investments and revenues according to the sustainability criteria. In the future, to a much larger extent than in the past, access to capital will come to depend on a company's ability to substantiate its successful sustainable management.

One component of sustainable finance is the Green Finance Framework (GFF) established in April 2021. It enables ZF to use new financing opportunities for projects that contribute to a lower-emission and more climate-friendly economy. The framework takes the Sustainable Development Goals into account and follows the ICMA Green Bond Principles and the LMA Green Loan Principles. ZF will further develop the GFF in accordance with evolving market standards, the entry into force of the EU taxonomy and the European green bond standard.

In April 2021, ZF issued its first green bond, followed by a second one in October 2021. The proceeds are used for the development, production and sale of products for battery electric vehicles (clean transportation) and for the development, production and sale of gearboxes for wind turbines (renewable energy).

Supported initiatives

The ZF Group has committed itself to acting in a socially responsible manner by signing the United Nations Global Compact on May 1, 2012. Since joining, ZF has also become a member of the German Global Compact Network and actively participates in exchanges between the member companies.

The ZF Group therefore acknowledges the core labor standards of the International Labour Organization (ILO), the contents of the German Corporate Governance Code (DCGK), the OECD Guidelines for Multinational Enterprises, the Universal Declaration of Human Rights and the UN Guiding Principles on Business and Human Rights.

ZF also demonstrates its commitment to human rights by promoting numerous national and international campaigns and projects in the areas of education, social affairs and culture. ZF's non-profit association "ZF hilft." is the main example for such activities.

As an active member of the Automotive Industry Dialogue, a multi-stakeholder dialogue in the context of the National Action Plan on Business and Human Rights (NAP), ZF participates in measures and campaigns to help companies improve their compliance with human rights due diligence obligations along their supply and value chains. In 2021, ZF primarily participated in the elaboration of the manual "Managementansätze zur Umsetzung menschenrechtlicher Sorgfaltspflicht und Wirkungsindikatoren" (Management Approaches for the Implementation of Human Rights Due Diligence and Impact Indicators) as well as in a working group on the establishment of a cross-company complaint mechanism in the automotive industry.

ZF is also involved in the NAP industry dialogue of the German Association of the Automotive Industry (VDA) and has joined the VDA's "Sustainability in the Supply Chain" working group. On top of this, ZF also participates in other local and international campaigns and dialogues in the field of sustainability, such as the CLEPA Task Force and the Sustainability Dialogue of the Zeppelin University.

In order to underline its commitment to climate protection, ZF joined the Alliance of CEO Climate Leaders of the World Economic Forum at the beginning of 2020. This alliance holds the position that the private sector must take responsibility and actively engage in efforts to reduce greenhouse gas emissions, thereby helping to shape the global transition to a low-carbon, climate-resilient economy. Furthermore, ZF is a founding member of the World Economic Forum's First Movers Coalition which aims to jumpstart the demand for zero-emission technologies.

Since spring 2021, ZF has been an expert member of the cross-industry Value Balancing Alliance (VBA). It aims to develop a standard for the measurement and evaluation of social impacts of economic activities and to integrate this standard into central decision-making processes. The international members of the VBA test potential methods for applicability to and relevance for their business. The VBA is currently a member of the EU Platform on Sustainable Finance, which is tasked by the EU with developing green accounting principles.

Memberships in associations

The ZF Group and its companies are active in a wide range of associations and interest groups. The following list provides a representative selection:

- German Association of the Automotive Industry (VDA), i.a., participation in the Sustainability in the Supply Chain working group
- German Engineering Federation (VDMA)
- Association of German Engineers (VDI)
- Lake Constance regional association (as a supporting member)
- Chamber of Industry and Commerce Hochrhein-Bodensee
- Netzwerk Compliance e.V.
- Employers' Association Südwestmetall
- German Digital Industry Association (Bundesverband Digitale Wirtschaft (Bitkom e.V.))
- European Association of Automotive Suppliers (CLEPA), i.a., participation in the Green Deal Task Force and in the Energy and Environment Working Group
- Automotive Industry Action Group (AIAG)
- WindEurope
- Hydrogen Europe, i.a., participation in the Mobility and Energy Working Group
- eFuel Alliance
- Foundation Remembrance, Responsibility and Future/EVZ Foundation (as a donor)
- German Global Compact Network (DGCN)
- German Diversity Charter (Charta der Vielfalt e.V.)
- German Association for Supply Chain Management, Procurement and Logistics (Bundesverband Materialwirtschaft, Einkauf und Logistik e.V. (BME))
- German Federation for Motor Trades and Repairs (Zentralverband Deutsches Kraftfahrzeuggewerbe e.V. (ZDK))
- Mexican National Auto Parts Industry (INA)
- Original Equipment Suppliers Association (OESA)
- Knowledge Workshop Friedrichshafen (Wissenswerkstatt Friedrichshafen e.V.), as a supporting organization
- Mobility as a Service (MaaS) Alliance, participation in the Users and Rules working group
- Association of German Transport Companies (VDV)

CLIMATE AND RESOURCES (ENVIRONMENT)

Conserving natural resources and reducing the ecological footprint of the company are the fundamental principles of ZF's environmental strategy. The corresponding environmental policy therefore includes essential areas of activity such as climate protection, the environmental impact of production, eco-friendly product design and environmental performance improvement. This policy is binding for all locations.

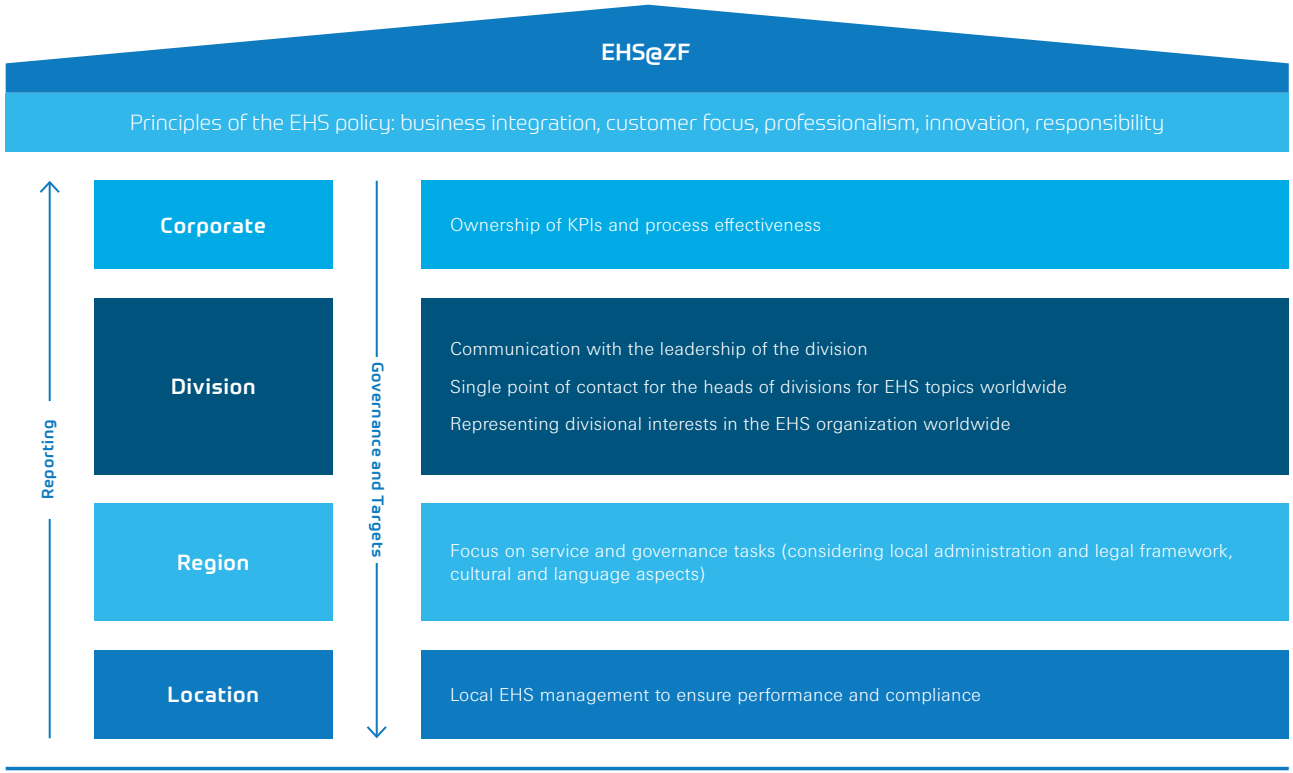
Compliance with legal and regulatory requirements is the basis for all EHS activities. Furthermore, ZF has implemented Group-wide, integrated EHS standards in its EHS management system. This system contains detailed stipulations for strengthening relevant processes throughout the company. The objective is to meet or exceed customer requirements while at the same time preventing EHS risks.

With regard to environmental regulations, the ZF Group operates responsibly as a business and manufacturer of products by constantly striving to comply with legal requirements and internal standards on a global scale. In the context of environmental management, compliance is a core issue. Due to various local requirements, legal developments are monitored and evaluated and – where necessary – measures are implemented at all locations and levels of the ZF Group. Compliance-relevant processes as well as incidents and violations must be reported.

EHS MANAGEMENT

The global ZF environmental organization covers all areas of the company, from the various divisions to each region and individual location. The Corporate Environmental Protection Officer is responsible at Group level, with senior environmental protection officers appointed at divisional level. At plant level, environmental, health and safety officers work on securing environmental protection every day. Regional managers provide support for ensuring compliance with requirements in their respective regions, the implementation of ZF standards as well as the monitoring of the environmental management system.

EHS organization



Systematic environmental management according to ISO 14001:2015 is the standard for all production and main development locations. In the ZF Group, a total of 217 certificates had been issued by the end of 2021 (2020: 216 certificates). These external expert audits confirm that the participating locations conform to current environmental and occupational health and safety legislation as well as certification standards.

The Board of Management assesses the locations' target achievement in management reviews twice per year. The Board also evaluates whether the environmental management system is adequate for fulfilling current customer and management requirements from a legal standpoint.

PREVENTION BEFORE REACTION AND PRECAUTIONARY PRINCIPLE

All locations follow the "prevention before reaction" and precautionary principles. A core element of ZF's environment, health and safety (EHS) management system is therefore the evaluation and minimization of potential risks. All locations regularly conduct assessments of environmental aspects and risk for their respective facilities and processes in a local context – for example prior to introducing procedures or substances. To minimize liability and financial risks, environmental due diligence is also conducted as part of acquisition processes, along with internal and external audits.

In order to be prepared for emergencies, each location has an emergency organization plan in place. Emergency response teams are provided with all the necessary equipment and procedures. Mock emergency drills are carried out on a regular basis. Technical installations, e.g., flood or fire protection, collection trays and redundant installations, are company standard, as are behavior-based measures for increasing employee awareness to prevent environmental damage.

In 2021, the company was involved in 62 remediation projects whose causes date back at least a decade. The processing of these projects was carried out jointly with the relevant local authorities and cost more than €5.6 million (2020: €5.6 million). No major violations were reported in 2021.

ZF climate neutrality strategy

Climate protection has become one of the most urgent issues of our time. ZF has adopted a correspondingly ambitious climate strategy, with the objective of achieving climate neutrality across all emission categories by 2040. Production-related emissions are to be reduced by 80% by 2030 as compared to 2019. In the year under review and in connection with the Sustainability Ambition Initiative, 2019 was agreed on as the base year to be used. At the same time, ZF is working on reducing the emissions along its entire supply chain and on minimizing the environmental impact of its products.

The Group's target path towards climate neutrality is defined in accordance with the UN Sustainable Development Goals (SDGs), requirements of the Science Based Targets initiative (SBTi), the CDP (formerly the Carbon Disclosure Program) and the Taskforce on Climate-related Financial Disclosures (TCFD). The SBTi validation of the ZF climate goals ensures that these are consistent and robust and comply with the Greenhouse Gas Protocol (GHG) and the targets of the Paris Agreement.

In addition to managing CO_2 emissions, ZF will also tackle emissions such as methane and various hydrocarbons which occur in smaller quantities than CO_2 but which are much more harmful in the atmosphere.

ZF climate targets at a glance

- ZF undertakes to reduce its absolute Scope 1 and 2 GHG emissions by 80% by 2030, with 2019 as the base year.
- ZF undertakes to reduce Scope 3 GHG emissions by 40% per million euro sales by 2030, with 2019 as the base year.
- ZF undertakes to increase its annual procurement of electricity from renewable energies from 10% in 2019 to 100% by 2030.

Therefore, all relevant greenhouse gases are included and reported as CO_2e. The GHG Protocol sets an international standard for the categorization of direct and indirect sources of emissions. Climate neutral means that no process, product or service will increase the CO_2e load in the atmosphere. ZF addresses all three scopes of GHG emissions: Scope 1 includes direct emissions resulting from the combustion of fossil fuels in ZF's own production and Scope 2 involves emissions from purchased energy, e.g., electricity. Scope 3 accounts for indirect emissions generated by purchased goods ("upstream") and emissions generated by ZF products in the utilization phase ("downstream"). These emissions cannot be directly influenced by the Group.

ZF has been reporting climate data within the CDP reporting scheme on an annual basis since 2016. The data includes all greenhouse gas emissions listed by type, such as CO_2, methane, etc., and by country in which ZF operates. In 2021, the Group achieved

a Management B- rating in the category "Climate Change", and a Supplier Engagement Rating of A-. Since the CDP is widely aligned with the TCFD recommendations, information regarding climate change-related risks and opportunities, governance and management was reported. As part of its climate strategy, the ZF Group is currently refining its management approach and corresponding reporting.

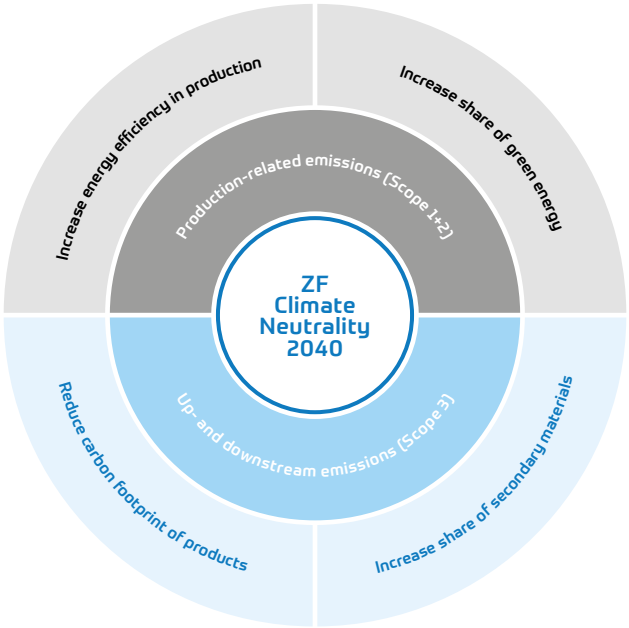
Risks and opportunities due to climate change

A key development in the analysis of risks is the intensified consideration of climate change impacts. In this connection, we follow the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The further integration of the TCFD recommendations is performed in parallel with the further implementation of ZF's climate neutrality strategy. As part of these efforts, we intend to conduct a scenario analysis for the ZF Group in 2022. For more information regarding the adaptation of ZF's product portfolio to climate change-related impacts, please refer to the Sustainable Products chapter. ↘ **Sustainable Products**

Production-related emissions (Scopes 1 and 2)

To achieve the decarbonization of its locations, ZF focuses on two main levers: energy efficiency and the switch to green energy. The Group includes all production, administrative and research locations in its efficiency programs. In early 2021, the new target was set: By 2030, Scope 1 and Scope 2 emissions are to be reduced by 80%, as compared to 2019, and 100% of the required electricity is to be procured from renewable sources (Green Power Roadmap). Together with the energy purchasing department, the ZF Green Power Guidance Document was developed that defines what ZF accepts as "green power". ZF focuses on technical green energy solutions that ensure real additionality. Particular attention is paid to the generation of electricity by wind turbines using ZF technologies.

Climate strategy and implementation (Scopes 1, 2 and 3)



CO_2 emissions in figures

The intensity of ZF's GHG emissions results directly from the energy intensity and footprint of each country in which energy is purchased and used (location-based). In addition, the production footprint is strongly influenced by customer needs as well as national production and purchasing requirements (market-based).

Achieving climate neutrality by 2040 is part of ZF's Next Generation Mobility strategy. ZF pursues the Sustainability Ambition Initiative to implement its climate protection strategy in all corporate processes, taking ESG requirements into account. In this connection, the accounting and recalculation processes were reviewed in the course of the SBTi validation in order to meet future auditability criteria. This led to a change in the CO_2 footprint calculation for power plants. For this reason, the figures in this report that deviate from the data provided in the 2020 ZF Sustainability Report apply. The figures also include the consolidated activities of the Commercial Vehicle Control Systems Division.

Absolute CO_2 emissions[1)]

in million tons	2021	2020	2019
Scope 1	0.416	0.384	0.406
Scope 2			
location-based	1.377	1.323	1.437
market-based	0.941	1.130	1.371
Total[2)]	**1.357**	**1.514**	**1.777**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division
2) The total quantity was calculated based on market-based emissions

Absolute direct emissions (Scope 1) increased from 0.384 million tons in 2020 to 0.416 million tons in 2021. Absolute indirect emissions (Scope 2) fell from 1.130 million tons in 2020 to 0.941 million tons in 2021. The difference between market- and location-based emissions mainly results from the actual contractually creditable emission qualities.

Other air emissions

As part of the climate neutrality strategy, CO_2 emissions will be substantially reduced, which is why the significance of other emissions will increase proportionally. Although the absolute emission volume is not increasing, ZF is working on recording at Group level in order to identify further reduction potentials.

In accordance with the precautionary principle, ZF applies the Montreal Protocol for the protection of the ozone layer. This is why ZF uses small quantities of hydrofluorocarbons and, to a very limited extent, perfluorocarbons as alternatives to ozone-depleting substances. These are required, among other things, for refrigeration and air conditioning, firefighting or explosion protection.

So far, all ZF locations manage these emissions at a local level in line with the ZF environmental management system and according to local legal requirements. To ensure appropriate handling, ZF locations engage qualified contractors for the maintenance of the corresponding equipment. As these substances are used in closed systems, they are only climate-relevant in the event of possible leakages. The very small refill quantities required in such cases are currently not recorded at Group level.

Upstream and downstream emissions (Scope 3)

Since Scope 3 emissions are not within ZF's direct sphere of influence, the attainment of climate neutrality by 2040 along the entire value chain is one of the most ambitious targets in the automotive industry. The contribution of ZF's supply chain partners is key: Regarding upstream emissions, for example, aluminum and steel account for a majority proportion of procurement volumes. An effective reduction of emissions can only be achieved through major technological innovations in the production of these raw materials, e.g., the production of steel in electric arc furnaces powered by renewable energy, the introduction of nitrogen technology in blast furnaces or the use of green energy for smelting aluminum.

Absolute NOx and SOx emissions[1)]

in million tons	2021[2)]	2020	2019
SOx	2.818	3.445	3.730
NOx	2.233	2.274	2.431

1) Emission data include Scope 1 and Scope 2; SOx and NOx were calculated based on VDA emission factors
2) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

Concerning Scope 3 downstream emissions, ZF's electric powertrain solutions contribute to lower vehicle emissions. However, emissions during the utilization phase of an electric vehicle depend mainly on the energy mix available in the respective country.

Optimizing transports

Regarding procurement-related emissions, ZF's strategy, whenever feasible, is to make purchases in those regions where the supplied materials or components are needed. ZF therefore follows the "local for local" principle, which helps to reduce the negative impacts of transportation. To this end, ZF decided to assume responsibility for all transport carried out from suppliers to ZF plants. This is the most effective way to ensure that transportation is organized efficiently and that environmental factors are systematically taken into account.

Of all production materials, 51% (2020: 56%) were procured locally. In this context, "local" means that the supplier is located in the same country as the receiving ZF location. As for non-production materials, 83% (2020: 84%) of the global spend excluding investments was sourced locally.

As part of its freight management, ZF is making an effort to pool transport capacities and increase its full truck load (FTL) quota to prevent unnecessary transport runs. Additionally, all FTL and inbound plant transportation requires EURO 6 or the use of gas (LNG/CNG) as fuel. In the future, hybrid vehicles and electric vehicles will also be employed – with the aim of decreasing ZF's gas transport share. Should gas rates be cheaper or nearly identical, ZF will always focus on gas technology to reduce its CO_2 footprint. Transport powered by liquid or compressed natural gas significantly reduces CO_2, NOx and exhaust particle emissions as well as noise. By 2025, ZF plans on using some 200 gas-powered trucks for local and long-distance logistics services among its plants.

Supply chain decarbonization

In the course of the implementation of ZF's 2040 climate neutrality strategy, the focus of 2021 was to establish a systematic framework for the decarbonization of the supply chain. For this purpose, ZF Materials Management identified central levers and started improving the transparency of the supply chain. In the year under review, one main activity in the context of the decarbonization effort was the analysis of potentials in materials purchasing. In cooperation with external experts, we identified and evaluated corresponding levers.

Based on the results, we launched pilot projects for the calculation of the product carbon footprint (PCF)

of products representing the key technologies in each division. Here again, we focused on exchanging information with the suppliers of these products in order to be able to calculate the PCF more precisely based on primary data. Furthermore, we launched a campaign in 2021 in order to identify the top suppliers for each commodity that make the largest contribution to ZF's carbon footprint. The next steps implemented at ZF were:

- determining the maturity level of the suppliers with regard to the levers "share of green energy", "share of recyclates" and "energy efficiency" through a supplier query;
- carrying out a quality-based evaluation of the feedback and comparing it with the expectations ZF communicated to its suppliers in 2020;
- deriving action plans in case of noncompliance with ZF expectations.

Based on the insights gained, the campaign will be expanded to include the majority of ZF's production materials suppliers in the coming years. In the first half of 2022, we will focus on obtaining green electricity roadmaps from the suppliers and on evaluating these roadmaps.

In addition, the results will also be integrated into existing materials management processes – the supplier release process and the procurement process, in particular. This is to ensure that the planned roadmap for reducing Scope 3 upstream emissions supports the Group's overall target of achieving climate neutrality by 2040. Furthermore, the PCF will be introduced step by step as a mandatory element for sourcing decisions in the Sourcing Decision Board starting in 2022.

In cooperation with several sustainability leaders – suppliers representing various industries –, ZF also launched the ZF Decarbonization Dialogues. The objective of this format is to exchange information and knowledge regarding the application of strategies, methods and technological possibilities. The Decarbonization Dialogues are the starting point for various campaigns and concrete projects.

In the year under review, ZF started a training initiative that encompasses web-based training, webinars and/or Q&A sessions to qualify both our employees and relevant suppliers. The contents are the basics of sustainability, ZF's requirements in terms of human rights and sustainability, decarbonization and changes in the procurement process through the recording and/or use of the PCF.

Reducing energy consumption

Energy management is a top priority for an industrial company such as ZF and a core element within ZF's EHS management system. This means that all locations regularly evaluate their energy profiles and

Scope 3 emissions in accordance with GHG categories[1)]

in tons of CO_2e	2021	2019
1 Purchased goods and services	18,993,700	21,688,441
2 Capital goods	1,188,373	1,485,421
3 Fuel- and energy-related emissions (not included in Scope 1 or 2)	235,914	221,757
4 Upstream transportation and distribution	1,356,756	1,126,644
5 Waste	135,919	131,469
6 Business travel	20,874	112,540
7 Employee commuting	145,280	149,394
9 Downstream transportation and distribution	499,471	414,759
10 Processing of sold products	59,510	59,510
11 Utilization phase	68,935,007	77,234,947
- Direct	3,905,942	8,414,179
- Indirect	65,029,065	68,820,768
12 End-of-life treatment of sold products	94,367	71,325
15 Investments	7,056	22,460
Total	**91,672,228**	**102,718,667**

1) The figures include the new Commercial Vehicle Control Systems Division

energy-related activities. This includes conducting audits, identifying potential for improvement and defining measures for increasing energy efficiency and reducing consumption. In addition to ZF's EHS management, all German and European locations regularly undergo external audits to meet the European Directive 2012/27/EU (Energy Efficiency Directive, EED).

As an integral part of the company's energy management system, locations define specific local targets on an annual basis to increase energy efficiency and take appropriate action.

In the course of ZF's Sustainability Ambition Initiative and the further development of its decarbonization strategy, all subgoals contributing to the reduction of CO_2e emissions were adjusted and updated. At the end of 2020, the new target to reduce the energy consumption related to ZF Group production by 20% by 2030 – relative to value added and as compared to 2019 – was defined.

A cross-functional task force, under the leadership of the Operations Domain Function and with the participation of real estate management and EHS, works on increasing energy efficiency. The task force manages a corresponding program and reports to divisional Production Management and the Group. Target achievement and individual projects are monitored and controlled through KPIs within the environmental and energy management system in conformity with ISO 14001 and ISO 50001.

The ISO 50001 Corporate Energy Management Scheme covered 86 locations in 2021 (2020: 76 locations); eight locations gained individual certification according to ISO 50001. Of overall energy consumption, about 50% occurs at locations that are ISO 50001 certified. Further European locations conducted external audits to fulfill the European Energy Efficiency Directive (EED) based on country-specific options such as EN 16247 or ESOS (UK).

Detailed energy programs, such as the ZF Energy Basics, help the ZF locations achieve their targets. These include the core elements of behavioral changes, energy supply management, energy data management as well as organizational and technical energy efficiency programs.

Campaigns to increase efficiency and reduce energy consumption are planned and implemented at all locations, according to the local consumption and target achievement. These measures, in conjunction with the energy management system, considerably improve energy efficiency worldwide.

Energy consumption

Energy is mainly used for production processes, especially heat treatment, surface treatment and compressed air. Another significant area of energy use is associated with building and infrastructure management. This includes heating, lighting, air conditioning and ventilation. Furthermore, natural gas – and at one location, methane – is used at several locations in combined heat and power plants to generate electricity and heat for ZF's own facilities. Due to the huge variety of production processes within ZF, the share of energy use varies greatly among locations.

Based on measured overall consumption, 57% of the energy consumed at ZF comes from additionally purchased electricity. Energy procurement and consumption are therefore mainly characterized by the demand of ZF production locations. Natural gas accounts for 42% of ZF's energy consumption and is mainly used for heating and hardening processes and partially for on-site combined heat and power (CHP) plants. In connection with the SBTi validation of the CO_2 targets, the carbon footprint calculated for the Saarbrücken power plant was adjusted, with gas consumption recorded as required for low-carbon electricity generation. The remaining 7% comprise energy from diesel, gasoline, oil, district heating, liquid gas, acetylene and biogas. About 6% of the energy that ZF did not use for its own consumption was sold.

Renewables accounted for 14% of the total purchased electricity (2020: 5.7%) in 2021 – under guaranteed certified green power contracts. This change is a result of the initiatives and contract amendments within the ZF Green Power Roadmap. By 2030, the additionally purchased electricity shall be procured from purely renewable sources. The share of the Group's own production of renewable energy remains low at 0.02%; in absolute terms, however, the value was increased fivefold compared to the previous year.

Special programs and actions at location level have brought about a constant improvement in energy efficiency. Overall, a total of 555 projects (2020: 412) were implemented or initiated, which led to more than 86.4 GWh in energy savings (2020: 39 GWh). This corresponds to the electricity consumption of 20,000 average households and the avoidance of 40,800 tons of CO_2 emissions.

As part of the ZF Energy Basics Program, each location is expected to establish and maintain standards to improve employee awareness and to promote behavioral changes as well as standards for demand or peak-load

Absolute energy consumption[1]

in gigawatt hours	2021	2020	2019
Electrical current	2,568	2,319	2,559.
Natural gas	1,871	1,709	1,850
Other[2]	331	297	265
Energy sold	–269	–187	–188
Total	**4,500**	**4,139**	**4,486**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division
2) Fuels (e.g., diesel, gasoline), oil, district heating, liquid gas, acetylene

Specific energy consumption[1]

in MWh per € million of added value	2021[2]	2020	2019
Total	**301**	**345**	**316**

1) Including fuels (e.g., diesel, gasoline), oil, district heating, liquid gas, acetylene
2) Including the new Commercial Vehicle Control Systems Division as of 2021

management. For each aspect, a guidance document was added to the ZF EHS management system. In the field of compressed air, a joint campaign implemented by Spare Parts Procurement, Machine Inventory and EHS to standardize technology resulted in an energy-optimized compressed air management scheme. To further reduce energy consumption for heat generation, ZF continues to recover heat from industrial and washing processes.

The economic recovery caused by the decreasing number of Covid-19 cases in the summer of 2021 led to an increase in production in the plants. This was also reflected in an increase in energy consumption as compared to the previous year – at 4,500 GWh, the consumption was higher than in 2019. Energy intensity, measured in megawatt hours per million euros of added value, decreased by about 13% compared to 2020.

Water consumption

The Group considers water consumption for production at all ZF locations a major environmental issue since the use of freshwater will become increasingly restricted in the future. Water is used for production, e.g., for surface treatment processes, washing, rinsing as well as cleaning and as a coolant. It is also required for non-production purposes, such as sanitation and construction projects and as drinking water used in the cafeteria.

Some of ZF's production locations, e.g., in Brazil, Mexico, India and China, are located in areas with significant water stress. In these areas, permits for water withdrawal for production purposes are occasionally restricted. If water scarcity persists, this situation could worsen or affect further regions. This may result in a need for increased investment or expenses to cover the technical modernization of production equipment.

In 2020, all ZF locations were assessed for their water risk using the WWF Water Risk Filter. 22 locations were identified as possibly being located in high or medium water scarcity areas due to their geographical position. In the first quarter of 2021, nine of these plants were verified by means of the WWF questionnaire. The data of the production sites surveyed

Abstraction in water-scarce areas[1]

in cubic meters	2021	2020	2019
Surface water	0	**0**	**0**
Water from third parties	66,647	72,268	81,540
Groundwater	990	1,054	1,179
Total	**67,637**	**73,322**	**82,719**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

Absolute water abstraction[1]

in million cubic meters	2021	2020	2019
Surface water	5.26	4.96	6.03
Water from third parties	3.67	3.45	4.04
Groundwater	0.84	0.76	0.68
Total	**9.77**	**9.17**	**10.75**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

Specific water consumption

in cubic meters per € million of added value	2021[1]	2020	2019
Surface water	389	413	424
Water from third parties	259	277	273
Groundwater	58	60	45
Total	**706**	**750**	**742**

1) Including the new Commercial Vehicle Control Systems Division as of 2021

showed a water utilization profile of 1 to 2 (on a WWF scale of up to 5). Increasing the water consumption intensity by 2% per year at these locations is a priority.

The ZF water management objective goes beyond reducing consumption in risk areas: The goal is to continuously reduce water use and consumption throughout the Group. The previous Group-level target to lower water consumption relative to sales compared to the previous year was not met because of the substantial Covid-19-related economic downturn in the prior year. In the year under review, the production was subject to minor restrictions. New targets were adopted in 2021: By 2025, the Group will reduce water consumption at ZF locations in areas where water scarcity determines public life by 2% annually relative to value added. For all other locations, a 1% reduction is being targeted on an annual basis. The base year for both targets is 2019.

All water sources will be considered when assessing target achievement. Location-specific projects are focusing on water reuse as well as water conservation when it comes to the use of freshwater. Progress is monitored and managed in line with ZF's environmental management system at individual location and Group level.

The water supply at ZF locations is adapted to local circumstances and mainly comes from untreated sources. At some locations, water from rivers or groundwater is used for cooling processes without any chemical change. The specific abstraction was significantly improved compared to 2019.

In addition to the various projects aimed at reducing overall water consumption in production, other measures to reduce water needs, such as the modernization of water supply at the locations by renewing piping or through monitoring concepts to quickly determine leakages, were also implemented. ZF makes use of available water treatment and reuse technologies to reduce freshwater consumption, in particular with regard to sanitary water.

Recycled/reused water[1)]

in million cubic meters	2021	2020	2019
Recycled/reused	3.8	2.73	0.13

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

ZF implements various methods for saving water in production processes, such as cascade rinsing systems for cleaning processes or process water recycling. The significant increase in the amount of water recycled and/or reused (absolute and specific) demonstrates the positive impact of ZF's efforts to reduce water consumption.

Thanks to the use of water treatment technologies, ZF not only uses less freshwater but also produces less wastewater. Production processes then use the recycled water for washing, rinsing and cleaning operations and for the application of cooling lubricants.

Wastewater at ZF is usually discharged into the public sewer system and treated at local wastewater treatment plants. Direct drainage into surface water only occurs at a few locations where public infrastructure is lacking and where ZF is allowed to use the corresponding surface water for cooling purposes. In these cases, water is treated using state-of-the-art technology and drained directly only if approved by the authorities. Threshold values are strictly monitored by ZF and the authorities.

ZF is committed to installing water-saving equipment that exceeds these statutory requirements. The target is a continuous year-after-year reduction of wastewater (relative to sales).

As a result of increasing production in 2021, the amount of wastewater at ZF locations has also increased. Wastewater discharge only takes place in line with approval by authorities. In the year under review, no bodies of water were negatively affected and no significant environment-impacting spills were reported.

Relevant processes at ZF with the potential risk of releasing hazardous substances include surface treatment, machining with cooling lubricants and painting. Preventive technical measures in place at the locations ensure that hazardous substances cannot seep into the ground and endanger groundwater, even in the event of a release resulting from an incident. A Group-wide

Wastewater[1)]

in million cubic meters	2021	2020	2019
Discharge into sewerage	3.32	3.25	2.59
Discharge into surface water	4.99	4.67	5.67
Total	**8.31**	**7.92**	**8.26**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

reporting obligation has been introduced to cover the eventuality of such a release.

Wastewater loads are managed at local level, with relevant deviations from legal requirements and permissions being reviewed at Group level through audits and management reviews.

Materials and resource efficiency

With raw materials increasing in scarcity and price, their efficient use is becoming more and more crucial. To this end, materials must conform to stringent quality and safety, as well as environmental and social, standards.

Product-related environmental protection begins with responsible material selection. During the product development phase, ZF already considers the total life cycle of a product, including factors such as the materials required to manufacture the product, its utilization phase, its disposability and recyclability. ZF continuously increases the recyclability of its products by, for example, keeping the variety of materials to a minimum and being consistent in the materials used to ensure that they can be easily separated.

Regarding the control of prohibited and regulated substances, the ZF 9003 technical standard as well as international laws and regulations apply. These requirements are tracked in the ZF supply chain in order to ensure their conformity.

ZF has started the implementation of the ZF Materials Warehouse (ZFMW) to support the Group's overall materials management. In light of the Covid-19 pandemic, its introduction in various business units has been postponed, with a finalization expected in the first half of 2022. The ZFMW supports the screening and classification of materials into non-approved, approved and preferred materials, according to conformity with predefined requirements. In addition to enabling material release, ZFMW also makes it possible to select and change materials. Not only does early analysis of materials ensure compliance with technical standards and country-specific laws, it also offers the possibility of managing several material variants. At the same time, supplier management and material provision efforts are limited to a manageable degree, with the materials portfolio remaining manageable as well.

Material usage and waste management

As far as raw materials are concerned, steel and aluminum represent the largest share in the purchasing portfolio. Every year, the ZF Group purchases approximately 310,000 tons of aluminum and 2.78 million tons of steel including cast iron, not including directed buy volumes, for which ZF's customers define which subsuppliers are to be subcontracted.

In addition to raw materials, ZF also purchases large volumes of assembled parts and products that consist of a mixture of different materials. Therefore, figures on specific materials are not readily available. ZF also uses recycled materials in production. In terms of weight, steel and aluminum recyclates including steel and aluminum scrap constitute the largest share of recycled materials.

ZF channels a high percentage of waste from production processes back into the external cycle of recycling processes. This mainly applies to scrap metal and metal chips, waste oil, paper and cardboard, wood and demolition waste. As a result of their material composition and design aspects, ZF products have a higher recycling rate, resulting in a disproportionately high contribution to meeting the recycling quotas stipulated in the EU End-of-Life Vehicles Directive.

ZF's environmental management system is aimed at continuously reducing the amount of waste generated. To support the circular economy and close material circuits, ZF set itself a new waste reduction target in 2021: Locations are expected to reduce waste for disposal relative to value added by 1% annually, with 2019 as the base year. Since ZF, as a Tier 1 supplier, has little influence on the materials to be used in most products, the company focuses particularly on improving the remanufacturing capability of products and on increasing the use of secondary materials.

Reducing hazardous waste is a general target in waste management. ZF therefore continues to work towards decreasing the volume of waste to be disposed of, as well as hazardous waste. For this purpose, the Group changes processes, optimizes procedures and replaces hazardous substances used in operations. In order to avoid any transport risks, ZF does not export hazardous waste from one country to another and organizes waste disposal locally.

In 2021, the total amount of waste increased by 16.8% as a result of increased production. The specific waste amount was again lower in 2021 than in the previous year. The recycling rate was 90%, on the same level as in the years before.

In the year under review, the holistic approach was implemented at two airbag-manufacturing locations in Mexico, among others. Several projects were launched to reduce the volume of waste generated during production, to increase the recyclability of the waste produced and to process waste internally so that it can be reused in the plant before it is disposed of.

The airbag cushions are mainly made from nylon and polyester. The manufacturing process at the Gomez Palacio (Mexico) location was optimized to enable easier separation and recycling of cutting waste by type. While in the past all mixed cutting scraps were disposed of, the new project makes it possible to recycle approximately 60% of them annually, resulting in a waste volume reduction of 350 tons per year. The Chihuahua location has also developed new solutions for used airbag materials, thus winning the ZF Excellence Award in the Sustainability category in the year under review. For further information, please refer to the Magazine for Fiscal Year chapter. ↘ **Magazine for Fiscal Year**

Absolute waste[1)]

in tons	2021	2020	2019
Recycling	533,850	**457,768**	**566,141**
thereof non-hazardous	504,367	428,832	532,330
thereof hazardous	29,483	28,936	33,811
Disposal	60,831	**51,071**	**61,792**
thereof non-hazardous	35,666	25,553	29,852
thereof hazardous	25,165	25,518	31,940
Total	**594,681**	**508,839**	**627,933**

1) All figures were adjusted to the 2020 report by the values of the new Commercial Vehicle Control Systems Division

Specific waste

in tons per € million of added value	2021[1)]	2020	2019
Recycling	35.77	**37.1**	**38.8**
thereof non-hazardous	33.8	36.7	36.4
thereof hazardous	1.97	2.39	2.36
Disposal	4.08	**4.06**	**4.12**
thereof non-hazardous	2.39	2.07	2.03
thereof hazardous	1.69	1.99	2.09
Total	**39.85**	**41.16**	**42.92**

1) Starting with 2021 including the new Commercial Vehicle Control Systems Division

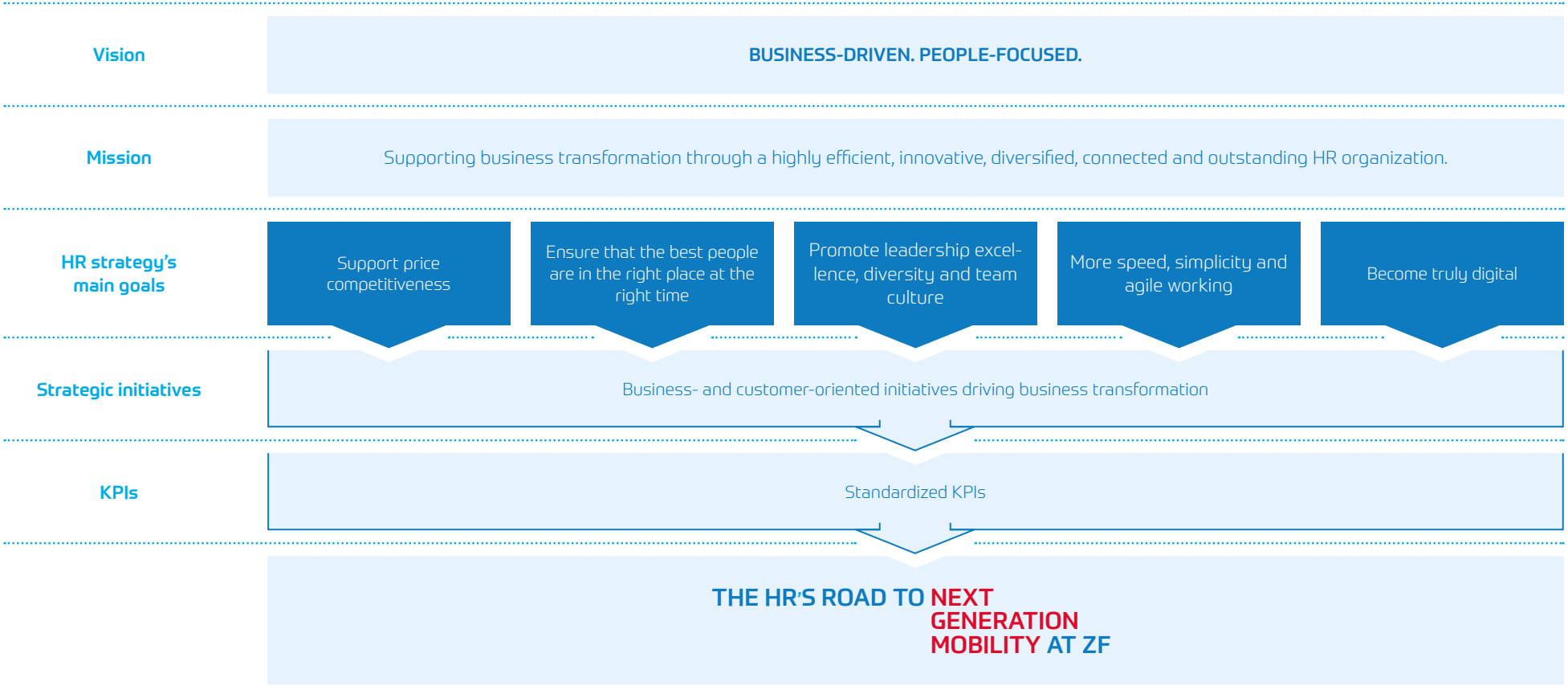
EMPLOYEES, PARTNERS AND SOCIETY (SOCIAL)

Responsibility and commitment are the watchwords that characterize what ZF wants to stand for as an employer. For this purpose, we create a corporate culture that strengthens cooperation, leadership and responsibility and a working environment that rewards high performance and teamwork.

At the same time, the company sees itself as a conscientious and supportive partner of its employees. Fairness means benefits for employees and employers alike. We are convinced that this approach promotes commitment and hard work, ultimately improving economic results.

With regard to our customers, the Group's Next Generation Mobility strategy aims at ensuring clean, safe, comfortable and affordable individual mobility – for everyone and everywhere. It is the answer to the current transformation of the automotive industry. We rely on the openness and enthusiasm of our employees

HR Strategy



to actively co-shape the future of mobility. This applies both to our everyday work in the company and to our contacts with potential new employees and tech communities outside ZF.

An innovative and efficient HR organization supports our employees in this. The HR strategy defines five objectives required to fill this vision with life:

- Ensure that the best employees are in the right place at the right time
- Foster leadership qualities, diversity and team culture
- Support the Group's cost competitiveness
- Promote speed, simplification and agile working
- Continued digitalization

Several business and customer-oriented initiatives, such as the E-Cademy, the further development of our shared services as well as the new "Project is the Boss" approach cater to these goals and are implemented by means of targeted projects.

THE ZF WAY

In more than one hundred years of company history, ZF has developed a unique corporate culture. It is based on the entrepreneurial spirit of its founders and has always been highly innovation-oriented. We refer to this culture as the ZF Way. It shows both the origin of the company and the direction of its continuous development. The ZF Way offers orientation and a clear direction in the midst of an industry transformation that is more dynamic and, in certain areas, more fundamental than ever before. The ZF Way is based on three pillars:

1. ZF strategy: "Next Generation Mobility"
   ZF's mission is to enable clean, safe, comfortable and affordable mobility for everyone, everywhere. The resulting Next Generation Mobility strategy is a guideline for how the company intends to master future challenges, respond to industry developments and face a constantly changing environment. In this connection, targets and KPIs are continuously updated to meet changing requirements.

2. ZF Way
   The ZF Way principles illustrate how ZF shapes cooperation and leadership. Every employee should be able to identify with these principles and put them to use in their everyday work. These principles also provide the framework for a successful implementation of the corporate strategy. The equally ranked five principles are:

   - Passion
   - Anticipation
   - Diversity
   - Empowerment
   - Accountability

3. Operating model
   The operating model is based on three pillars: the divisions, functions and regions. It defines how ZF serves its customers. For this purpose, it summarizes processes, structures and directives. At the same time, the operating model serves as a framework for global cooperation characterized by the ZF Way principles.

More information on the ZF Way is available at **www.zf.com**

RELATIONS BETWEEN EMPLOYERS AND EMPLOYEES

ZF strives for respectful cooperation at all levels and attaches great importance to open communication among its employees. The company respects the right of its employees to join or support a labor union or works council, or refrain from doing so, as consistent with applicable law. Under no circumstances may employees or employee representatives be subject to disadvantages.

In Germany in particular, trust-based cooperation under the Works Constitution Act is an integral part of our corporate culture. This applies to all employee representative bodies, such as members of the works council and committees, the European Works Council, the Group Works Council and the corresponding employer representatives. Employee representatives must be informed comprehensively and in good time about any changes in the company. Important corporate development issues are discussed in communications and meetings. Approximately 70% of all employees worldwide have employee representatives or are subject to collective agreements.

For more information about the participation of employee representatives in health and safety committees, please refer to the Occupational Safety and Health chapter. ↘ **Occupational Safety and Health**

EMPLOYMENT

As a company with a long-term strategy and a strong focus on people, ZF is committed to the long-term employment of its staff. However, the number of employees must be in line with the future product portfolio and future customer requirements so that the company remains competitive. In addition to new hires and programs for further training, the Group relies on natural fluctuation, early retirement programs and the reduction of external staff. The termination of existing employment relationships is always regarded as a last resort.

To be more flexible and attract the required skilled talent, ZF employs temporary workers at a large number of plants. We make sure that the working conditions are also appropriate and fair for external employees. For example, external employees are included in all regular employee communication activities, they are subject to the same rules for occupational safety and health and have the same access to plant facilities such as cafeterias.

Cooperation with recruitment agencies is regulated Group-wide by standardized supplier agreements. They contain strict requirements in line with our Code of Conduct and our business ethics. If recruitment fees apply, they are paid by the company and not the candidate.

Employees at ZF

	2021[1)]	2020	2019
ZF Group (total)	**157,117**	**141,346**	**147,797**
Europe	92,393	86,832	88,304
thereof Germany	52,700	50,073	50,864
North America	34,027	30,767	34,785
South America	5,365	4,950	5,322
Asia-Pacific	24,736	18,209	18,759
Africa	596	588	627
Employee category			
Direct	76,185	70,238	74,442
Indirect	80,932	71,108	73,355
Employment contracts			
Permanent	146,645	135,684	142,068
Fixed-term	10,472	5,547	5,729
Full-time	151,744	137,684	144,246
Part-time	5,373	3,663	3,551
Apprentices and temporary workers			
Apprentices	2,454	2,315	2,540
External agency workers	14,660	15,354	12,429

1) Including the new Commercial Vehicle Control Systems Division as of 2021. Rane TRW Steering Systems Private Limited Legal Entity in India (432 employees), which was first included in the consolidated financial statements as of December 31, is not covered. The employee figures presented in the Sustainability chapter differ therefore from those in the Group Management Report

As of December 31, 2021, ZF employees worldwide numbered 157,117. Including the new Commercial Vehicle Control Systems Division, this corresponds to an increase of approximately 11.2% compared to 2020. By the end of 2021, ZF had hired a total of 29,145 new employees, of which 10,916 were women, 18,221 were men and 8 were listed as diverse. Almost half of them were hired in North America (45%), followed by Europe (32.4%).

In the year under review, some 585 people started an apprenticeship or dual work-study program at ZF in Germany. By the end of 2021, our apprentices and students completing a dual work-study program numbered 2,454 worldwide. Apprentices can choose from 35 different apprentice professions and dual work-study courses. ZF Germany usually offers regular employment contracts to its apprentices. As a result, ZF hired around 585 former apprentices as new employees in 2021. More information on career opportunities at ZF is available at **www.zf.com**

New hires by region

	2021[1)]	2020
Europe	9,441	6,109
thereof Germany	1,505	1,621
North America	13,126	3,232
South America	768	350
Asia-Pacific	5,640	2,810
Africa	170	11
Total	**29,145**	**12,512**

1) Including the new Commercial Vehicle Control Systems Division as of 2021

Employee turnover

as a percentage of all employees	2021[1)]	2020	2019
Europe	3.8	2.2	2.5
thereof Germany	1.9	1.2	1.2
North America	21.9	17.1	31.9
South America	3.0	1.3	1.4
Asia-Pacific	11.7	6.6	5.4
Africa	6.1	1.4	0.7
Total	**8.8**	**6.1**	**10.1**

1) Including the new Commercial Vehicle Control Systems Division as of 2021

HR DEVELOPMENT

Education and further training of our employees are an essential part of HR development at ZF; after all, they are a central element of long-term success because the better a company's employees are qualified, the greater the company's power of innovation. This is particularly true for the automotive industry in its current transformation phase. ZF therefore uses a holistic HR development approach: It places its employees at the core of its activities in order to attract the best talent, to promote education and further training and to increase employee loyalty.

As a company operating in 44 countries worldwide, internationalizing training is important to us. In order to prepare apprentices for increasing digitalization and networking in production, the Training 4.0 project was continued in 2021. It aims to further qualify IT specialists, electronics technicians, production technologists and Bachelor graduates across professional groups. In Germany, ZF also launched the Training 2030 project with a view to creating a training network, making greater use of new ways of learning and further developing future technologies.

Promotion of talent

Promoting young talent is an integral part of the ZF Global Trainee Program. In 2021, the content of this program was further developed and it became more global, digital and focused on the Group's requirements. The new program structure prepares the trainees even better for their position after completing the trainee program. The first talented trainees are already on board. In 2022, this program will be introduced under the name of "tranZForm".

We also search for and promote talents among our existing employees. To do this, we launched a new talent program called “mobilize ZF” in 2021. It offers a small, select target group of employees the opportunity to undergo intensive development for one year, establish new contacts within the Group, focus on trend topics and increase their own visibility.

This group of talented employees is just one example of internal talent pools that receive special support from the company. Furthermore, ZF intends to support, develop and position the most different groups of talented employees that show success-critical skills or could occupy important positions in the future.

Cooperation with universities

In higher education, ZF finances endowed professorships across the globe. In 2021, ZF established three additional endowed professorships at Zeppelin University in Friedrichshafen to promote scientific research in the areas of artificial intelligence (data science), digitalization and virtual reality.

Collaborations with globally renowned universities such as RWTH Aachen University, University of Michigan and Tongji University in China contribute to the promotion of young talent. In the field of research and development, ZF is involved in more than 120 cooperation projects with universities worldwide that also aim at promoting researcher and student networks.

The specially developed Feel the Energy campaign places electric mobility at the core of employer branding. ZF intends to position itself as a top employer and raise awareness of exciting career opportunities among the corresponding target groups.

Furthermore, ZF supports several Formula Student teams worldwide. As part of this engineering design contest, international students compete against each other in various disciplines using race cars they have built themselves. In addition to sharing its expertise, ZF has been supporting this young talent with high-tech racing products, financial assistance and team-building activities since 2002. In 2021, ZF sponsored a total of 31 Formula Student teams. Due to the Covid-19 pandemic, the events planned in connection with ZF’s sponsoring activities took place virtually. Thanks to good preparation, all feedback received from the participants was positive.

To shape future mobility and support talent, ZF also partners with the Carolo Cup in Germany. This competition provides student teams with a platform for designing and implementing autonomous radio-controlled cars. The main challenge is to implement cutting-edge algorithmic solutions for vehicle control and environment perception, based on a realistic application scenario.

New ways of learning

The Covid-19 pandemic has pushed new ways of working and digital learning even further. In recent years, however, ZF had already begun to integrate state-of-the-art ways of working and learning into its further training portfolio. Furthermore, this portfolio was continuously expanded into an attractive digital and cross-format learning offer. Today, it allows for workplace-integrated learning by means of shorter digital training sessions, such as videos, tutorials, social learning elements and live online training. Approximately half of the content is available digitally. The offer is supported by training experts who are not just proficient in their respective area of expertise but also in designing and delivering digital learning formats.

Specific initiatives and measures are being implemented to support the digital transformation at the company and make the learning culture more open, connected and collaborative. At the same time, training-led offers are increasingly replaced by interactive learning communities and self-directed learning elements.

The objective of these different learning formats is to offer our employees and managers cross-functional qualification opportunities and to create a Group-wide consistent standard of knowledge and expertise. In order to create tailor-made training content, our training programs are systematically evaluated. For this purpose, participants and trainers submit assessments after each event. These are the basis for regular reviews and revisions, if necessary, with the aim to maintain the high level of the qualification standard and at keeping this standard up-to-date.

In addition, we founded the E-Cademy in 2021 and offered approximately 30,000 employees the chance to further develop their expertise with regard to important electromobility topics. This offer includes basic electromobility knowledge and relevant skills (reskilling) taught, among other things, in live sessions with internal and external experts or by means of digital formats, videos and articles. The E-Cademy is one of several strategic measures implemented to cope with the ongoing fundamental industry transformation. It is the most comprehensive qualification initiative in ZF’s history to date.

Feedback as a basis for professional development

The starting point for all leadership development activities is the Performance Potential Succession process – PPS for short. The performance and potential assessment of all ZF managers is at the core of the PPS. Another key element is the dialogue between the manager and the corresponding next higher-level manager aimed at discussing performance and potential. It is followed by development conferences. Here, the results are reviewed within the respective leadership teams and specific individual development measures are discussed and agreed on.

In preparation for the dialogues, all ZF managers were invited to attend feedback training sessions in 2021 to foster open and trusting dialogue and to establish a positive mindset supporting ZF's feedback culture. Approximately 5,825 managers (2020: 5,800) participated in this process and received feedback on their professional performance and development.

Leadership training

The Covid-19 pandemic has forced all employees to adapt to significantly different working environments at very short notice. At the same time, managers also had to question how they lead and cooperate.

In the course of this transformation, ZF also revised its training landscape for managers. The Next Generation Leadership initiative focuses on supporting newly appointed managers in their new role. The manager development program #LeadershipSafari piloted in 2020 was redesigned at the beginning of 2021, extended to include middle management and further developed on the basis of feedback received from the participants. The final program was launched in the fall of 2021 with more than 300 participants. It supports ZF managers in gaining a common understanding of leadership, transferring the corporate strategy to their field of responsibility and shaping their leadership behavior in a future-oriented manner. To optimally benefit from the program, participants are enabled to further customize their individual learning journeys to suit their specific business needs and challenges. The digital training platform provides orientation, allowing participants to discover, exchange and deep-dive into learning content.

The Pathways program also features a new concept. It is aimed at senior-level managers in a new position and provides impetus on different leadership issues using various formats. The pilot project launched at the end of 2021 is to be continued in 2022 with a larger group of participants.

The groundwork of all activities has been laid by the Leadership Pioneer Group, a team of globally active managers. Acting as an innovation lab, the team discusses, challenges and tests new leadership approaches and tools, thereby actively shaping leadership at ZF. In 2021, the members of the Leadership Pioneer Group developed key elements for the introduction of the ZF Way and participated in the implementation as multipliers. One example of their activities would be the related discussion in Executive Management Group (EMG) meetings, the EMG being the highest-level management committee below the Board of Management. The Leadership Pioneer Group also played an important role in the redesign of the management development landscape and provided important input in this regard. The introduction of the 360° Feedback program started with the Pioneer Group that again contributed important information for the rollout that started in 2021 for managers of the two upper management levels.

THE GROUP AS A LEARNING ORGANIZATION

ZF considers itself a learning organization, facilitating employee learning at all levels. In addition to a comprehensive training landscape, this requires, above all, different types of cooperation that actively promote change. The key prerequisite for this is an open communication and feedback culture based on mutual trust. Knowledge and idea management promotes the professionalization of existing and the establishment of new activities in this area. Employees are also regularly encouraged to share their ideas and knowledge with others.

One key objective is the conscious, responsible and systematic handling of knowledge as a resource. To achieve this, collaboration rooms and virtual tools are available to facilitate joint work and idea management. Best practice databases store valuable practical experience and make it available at all times. Expert forums ensure the targeted exchange of knowledge and experience.

In addition, the corporate suggestion management scheme enables all employees in Germany to submit ideas for improvement. This facilitates the implementation of new, practical ideas and promotes innovation. In some years, more than 20,000 ideas aimed at improving cooperation and optimizing operating processes are submitted.

Preserving knowledge

In order to retain the knowledge and experience of experts and managers leaving the company, ZF has created knowledge batons through which employees document their practical knowledge in a database to make it available to the organization.

Additionally, ZF has a program in place enabling former employees to share their valuable experience and extensive project knowledge. These senior professionals contribute to projects in order to support the expert departments for a limited period of time. However, due to the Covid-19 pandemic, it was only possible to make use of this program to a limited extent. In the year under review, 36 assignments with 286 registered experts were recorded.

FAIR REMUNERATION

ZF uses special remuneration structures to make sure remuneration is fair throughout the Group. The remuneration of managers is based on a global job evaluation system and a benchmark of remuneration data. Below the management levels, remuneration takes place within the scope of various collective agreements or local job classification systems and is based on a remuneration benchmark. Job evaluation, classification systems and collective agreements are to ensure fair treatment of employees, including gender equality regarding remuneration.

ZF offers all managers a short-term incentive (STI) to promote the company's power of innovation and employee commitment. The STI is based on financial performance indicators that aim to promote collaborative behavior and the alignment of all managers with the Group's strategic objectives. The process is transparent and defines a framework for measures and priorities within the company.

ZF employees with part-time, full-time, permanent or fixed-term employment contracts all have access to the benefit programs. These programs are set up locally and follow local regulations and market practices. Health and insurance benefits play a key role. Benefit programs for contract workers and agency-based temporary workers are treated according to the type of contractual engagement they have with ZF and are subject to local regulations.

In 2021, the ZF Group took a major step towards digital transformation, introducing a globally harmonized, system-based Annual Salary Review (ASR) process for ZF managers and employees. This process applies to all whose remuneration is not based on a collective agreement. So far, it has been rolled out to include approximately 28,000 employees in 13 countries.

Since ZF is a foundation-owned corporation, neither employees nor managers receive shares of ZF Friedrichshafen AG. For more information on the topic, please refer to the Notes to the Consolidated Financial Statements.

↘ **Notes to the Consolidated Financial Statements**

DIVERSITY AND EQUAL OPPORTUNITY

The ZF Group regards diversity as a key to business success. The company is committed to its diverse workforce. It constantly strives for an inclusive culture where all employees develop a sense of belonging while actively helping to shape ZF's success. A diverse workforce is a driver of innovation and the company's most important factor to be successful as a business and in its business transformation.

We foster the exchange of thoughts, ideas and methods between different cultures and people in the company. And: The ZF Code of Conduct states clearly that discrimination – whether based on skin color, gender, age, nationality, religion, social background, disability or sexual orientation – will not be tolerated in business conduct. This applies, for example, to the recruitment of new employees, existing employment relationships and professional advancement in the company. The only characteristics that matter are performance, personality, qualification and behavior. The company has set up the ZF Trustline so that any violations of these principles can be reported. There were no confirmed incidents of discrimination in 2021. For more information on the topic, please refer to the Compliance chapter. ↘ **Compliance**

Managing diversity, equity and integration

Diversity, Equity & Inclusion (DEI) are not only part of the HR strategy but also reflected in the ZF Way and therefore one of the five principles that guide the company's actions. The Group's DEI activities are built along the four building blocks of the DEI strategy: building awareness, attracting and retaining diverse talent, promoting diversity in leadership teams and increasing commitment, motivation and productivity thanks to diverse teams. In 2021, the establishment of a global diversity team created an official structure in the company. The team is tasked with further developing the strategy and implementing global and regional activities and initiatives. It is supported by committed diversity managers, experts and various employee initiatives worldwide.

ZF focuses on particular dimensions to meet strategic challenges and contribute to enhancing the Group's future competitiveness. These dimensions include a balanced gender ratio, aspects such as the workforce's cultural background and internationality, a wide range of experience and expertise as well as responses to demographic change. All of these factors are systematically analyzed and processed on a regular basis, and the results are reported to the Board of Management. In 2020, the Board of Management set the target of increasing the share of female managers in the Group to 20% in the medium term. The Diversity Team and the Global Talent Acquisition Team therefore worked together in 2021 to ensure that the recruitment process is objective and free from prejudice.

Furthermore, ZF aims at building more ethnically diverse international leadership teams, that better reflect diversity and ZF's customer base at a global level. This does not exclude further focus areas, but rather serves as an example for a strong emphasis on employee diversity and inclusion – regardless of their background, experience and abilities. Numerous events in 2021 explored different diversity perspectives in order to promote and strengthen diversity in the company. Corresponding activities included, for instance, the celebration of the Diversity Day, the Global Diversity Guide and employee-driven communities such as the North American Diversity Council.

ZF adheres strictly to the diversity and integration requirements that are firmly anchored in legal and regulatory frameworks in several countries in which ZF operates.

ZF DEI activities in 2021

Diversity Day

Living diversity at ZF also means managers and employees acting as ambassadors and leading by example. In May 2021, ZF held its third Diversity Day at various locations around the world. Due to the Covid-19 pandemic, this day was celebrated virtually, and a wide variety of activities were offered. Employees actively participated in a Group-wide campaign by sharing their own diverse backgrounds, thoughts and views.

ZF Way: diversity principle

In April and May 2021, the Global Diversity Team focused on raising and promoting awareness of the topic of diversity as part of the ZF Way Initiative. In addition to exchanging information on the company's DEI strategy, the team offered various activities, including LinkedIn Learning training playlists on unconscious bias and other diversity topics, courageous conversations and regional discussion rounds. The common objective was to encourage participation in honest and open dialogues with employees, their managers and external diversity experts.

Diversity at top management level

In order to ensure the involvement of managers, their commitment and feedback on new pilot programs, the Diversity Team set up a diversity community at top management level. This enabled managers to learn, contribute to and share proven DEI practices. As a result, the members of this community participated in several regional and global panel discussions on the topics of inclusion, mental health and the ZF Way diversity principle. In addition, managers used their reporting line to test development programs for female managers as well as workshops on unconscious bias.

Employee Resource Groups

Networking and sharing experience are important success factors. ZF fosters collaboration among employees from different departments, areas of expertise, countries and backgrounds. In short, this is the best way to promote new ideas and innovative solutions. Through Employee Resource Groups (ERGs) in ZF's social intranet, expertise in various areas of interest can be built, thereby strengthening networked cooperation. These groups include (Wo)men@ZF, Pride@ZF, Diversity@ZF and the ZF North America Advocacy Council.

Expanding external networks

ZF is proud to be a corporate partner of the Femtec university network, whose female students seek to become highly qualified, internationally experienced STEM graduates with access to prime entry positions. The Femtec association was founded by the EAF Berlin and the Technical University of Berlin in 2001. It is an international career platform for women in the fields of natural science and engineering. The organization recruits talented young female students, qualifies excellent candidates for a management career and offers distinguished career perspectives in cooperation with partner companies. Through its involvement in the Femtec network, ZF is able to offer a glimpse into the working world at a technology company. Plant tours,

internships, graduate positions or specific projects are part of the agenda.

In 2021, ZF also strengthened its external DEI commitment through partnerships with the PrOut@ Work Foundation and the Center for Automotive Diversity & Inclusion Advancement (CADIA). PrOut@Work is a think tank that contributes to the exchange of information on LGBT*IQ topics at the workplace and offers corresponding consultancy. CADIA offers best practices developed by industry leaders as well as training and consultancy. With its expertise, experience and achievements in the industry so far, CADIA strives to double diversity among managers in the automotive industry by 2030. This is a mission to which ZF would like to contribute in its role as one of the industry's leading companies.

Promoting equal opportunity

Facilitating the compatibility of work and family is an important driver for promoting equal opportunities and employee satisfaction. Since 2006, the ZF location in Friedrichshafen, Germany, has been certified as a family-friendly company. As part of the "work&family" ("berufundfamilie") audit, family-related targets and measures have been firmly established. The audit is widely recognized and an excellent instrument to increase employer attractiveness and employee commitment. It provides ZF employees with a framework that allows them to reconcile their work, family and private life. A culture of cooperation and partnership for all parties concerned is of great importance to ZF and allows them to equally benefit from this certification.

Since 2018, the existing audit has been extended to include other major locations in Germany: Besides the Friedrichshafen location, Schweinfurt, Lemförde, Passau and Saarbrücken also participated and received the certificate. The major ZF locations are currently undergoing a joint re-certification process. In future, additional locations will implement corresponding minimum standards.

The fact that both parents can devote time to the family is an important component in promoting equal opportunities. At the end of December 2021, a total of 509 employees were on parental leave in Germany (2020: 449), with 20 of them being male (2020: 9) and 489 female (2020: 440). A total of 244 women (2020: 218) and 1,891 men (2020: 1,751) took parental leave of up to one year in 2021. In the year under review, 2,148 employees (2020: 1,943) returned from parental leave in Germany; of these, 330 were female (2020: 252) and 1,818 male (2020: 1.691).

Diversity figures

ZF reports and reviews diversity figures on a regular basis to identify a potential need for action. Major diversity figures focus on age, gender and physical abilities.

When it comes to age diversity, demographic change takes many different forms in different regions of the world. While western industrialized countries are primarily confronted with the challenges of an aging population, developing and newly industrialized countries have far younger populations. ZF is represented at 355

Average age of employees by region

	2021[1]	2020
Europe	42.6	42.4
thereof Germany	43.8	43.7
North America	38.3	38.5
South America	38.0	38.0
Asia-Pacific[2]	34.4	36.1
Africa	39.4	39.7
ZF Group	**40.2**	**40.5**

1) Including the new Commercial Vehicle Control Systems Division as of 2021
2) Including India as of 2021

Employees by gender[1]

	2021[2]	2020	2019
Men	115,352	104,049	108,424
Women	41,749	37,707	39,373
Diverse[3]	16	9	–

1) The figures for 2019 include the Active & Passive Safety Technology Division; the figures for 2020 do not take into account the CVCS Division – formerly WABCO
2) Due to the newly introduced SAP SuccessFactors tool, the figures for 2020 deviate slightly from the figures in the ZF Annual Report 2020
3) A number of employees chose not to reveal their gender and are therefore listed as diverse

locations in 44 countries. Therefore, the age structure of the workforce is very heterogeneous and strongly influenced by the respective locations. The percentage of older employees is much higher in Europe, where the average age is about 43, whereas the workforce in other regions tends to be younger on average. In India, for example, the average age is 30.

Among the various regions, there is also a large spread regarding the proportion of women and men employed at ZF. While approximately 40% of employees in North America are female, women make up 23.2% of the European workforce. Germany shows an even lower percentage, at 14.4%.

Since 2006, ZF Friedrichshafen AG has been compliant with the statutory requirements for employees with disabilities and has met the required rate for Germany. Accordingly, ZF also implements the necessary measures to integrate employees with disabilities. These employees are supported by a global EHS team (environment, health and safety). In 2021, the proportion of employees with disabilities again amounted to 5.9% (2020: 5.9%). This level exceeded the minimum 5% stipulated by legislation.

In 2021, 73.4% (2020: 73.4% or 104,049) of the total workforce were men and 26.6% (2020: 26.6% or 37,707) were women. For more information on men and women in senior management positions, please refer to the Basic Principles of the ZF Group chapter.

↘ **Basic Principles of the ZF Group**

Employees by region and gender[1) 2)]

	Women			Men		
in %	**2021**	2020	2019	**2021**	2020	2019
Europe	**23.2**	23.5	22.9	**76.8**	76.5	77.1
thereof Germany	**14.4**	14.2	14.1	**85.6**	85.8	85.9
North America	**41.0**	39.5	40.4	**59.0**	60.5	59.6
South America	**15.0**	13.8	13.6	**85.0**	86.2	96.4
Asia-Pacific	**21.6**	25.0	21.7	**78.4**	75.0	78.3
Africa	**30.5**	28.0	28.4	**69.5**	72.0	71.6
ZF Group	**26.6**	**26.6**	**26.6**	**73.4**	**73.4**	**73.4**

1) Including the new Commercial Vehicle Control Systems Division as of 2021
2) The figures for 2020 and 2021 were calculated including employees of diverse/unspecified status

Management diversity by age[1)]

	Managers of the top three management levels below the Board of Management			All other management levels		
in %	**2021**	2020	2019	**2021**	2020	2019
< 30 years	**0.0**	0.0	0.0	**0.2**	0.2	0.2
30 to 50 years	**29.9**	39.9	38.5	**54.0**	59.2	61.1
> 50 years	**70.1**	60.1	61.5	**45.8**	40.6	38.7

1) The figures do not include the new Commercial Vehicle Control Systems Division

OCCUPATIONAL SAFETY AND HEALTH

Effective health protection and accident prevention policies can protect employees from a variety of hazards and health risks in the workplace. At ZF, the safety, health and well-being of all employees are core values integral to the corporate culture. This applies regardless of whether they are employed directly by the company or as temporary workers.

Organizational structure and management

The environment, health and safety (EHS) organization of ZF comprises the following elements:

- Centers of excellence focusing on program elements such as Safety Excellence or Safety Leadership.
- Regional teams focusing on service and legislation.
- Divisional EHS professionals acting as business partners and coordinating all EHS aspects of the division or business unit.
- Local experts who ensure EHS management and work on compliance issues at ZF locations. They are guided, supported and checked on by the above-mentioned expert teams.

For more information on the EHS organization, please refer to the Environment chapter. ↘ **Environment**

According to the management system, occupational health expertise is required in order to

- be able to advise management on all health protection issues,
- assess the operational situation with regard to various health risks,
- support improvement measures and provide occupational health services to employees.

The qualification requirements for occupational health professionals have been defined at the Group level in order to guarantee the necessary quality standards.

To ensure continuous improvement, all ZF locations use an internal EHS management system. In addition to this system, the locations can voluntarily, or at the customer's request, get certified in accordance with the international ISO 45001 standard. This is primarily performed through a matrix certification procedure in order to guarantee a uniform application of ZF standards. In 2021, 88 locations (2020: 76) used a matrix certification and 30 locations an individual certification. Certified locations check the effectiveness of the ISO management system through internal audits and report major deviations to the Global Domain Function every six months, which in turn implements corrections in the internal EHS management system.

The Group has defined specific targets to further preserve, protect and promote its employees' health, well-being and satisfaction. The following targets were released by the Board of Management in January 2021 and communicated company-wide:

- Reduce the Group's Lost Time Accident Rate (accidents with working days lost per one million working hours, LTAR) to 2.0 (by 2025) in order to achieve an industry-leading performance.
- Reduce the severity rate of accidents to 8 (working days lost per accident) by 2025 by increasing the focus on injuries and near misses with a high severity rate or a high severity potential.
- Low ergonomic risk profile for 90% of the workplaces by 2025. Hazard assessments and improvement measures are to be implemented according to global standards.
- Each location must appoint local occupational health professionals to ensure that occupational health expertise is available at all times.

The EHS management system focuses on the prevention and minimization of environmental, health and safety risks. Managers, supported and trained by EHS specialists, regularly carry out risk assessments regarding the risk level. To this end, methods such as the failure mode and effects analysis (FMEA) are applied. Based on the results, preventive measures are implemented according to the STOP principle: The first step is to eliminate hazards. If this is not possible, technical protective measures are developed to mitigate hazards. Ultimately, organizational measures or personal protective equipment (PPE) are introduced. Reassessments are performed to confirm the effectiveness of these measures. Systematic risks are reduced in the annual EHS management system update by means of binding measures and requirements in order to continuously improve workplace safety. The risk assessment of work-related hazards is carried out for all workplaces

and activities, regardless of whether the employees concerned are ZF employees or temporary workers.

Most serious accidents occur during non-routine or unplanned activities. These are systematically investigated through a quick hazard assessment.

When procuring machinery, key occupational safety and health criteria are taken into account with the goal of establishing a global standard for machine safety. A Group-wide machine safety expert team and an interdisciplinary team from production, purchasing and EHS which defines the technical delivery specifications are responsible for this task.

Incidents causing injury and near misses with the potential to result in severe accidents or fatalities are thoroughly investigated using root cause analysis, with the 5 Whys technique or 8D method. To prevent future accidents within the Group, online safety alerts are sent via the EHS intranet, with a summary of the event, its root causes and the preventive measures taken.

ZF was able to maintain its high EHS performance standard along the entire supply chain. This applies above all to suppliers providing services at the locations. Contractors are selected based on their proven ability to perform safety-critical activities. Close cooperation between trained ZF supervisors and contractors, such as discussing contractors' risk assessments and control measures, proved to be an important factor for improving the safety of contract employees.

Health and safety committees

About 72% of ZF employees worldwide are covered by national, regional or local collective agreements. In the company, they are represented either by trade unions, works councils or both. Temporary workers or service providers are subject to their employers' collective agreements, in which they are represented by employee representatives such as works councils, if applicable.

The EHS management system stipulates that the location management is to actively approach employees and their representatives and encourage them to participate in EHS initiatives and decision-making processes. Management is to define the scope of this participation to meet any applicable legal requirements and to benefit from employee participation in the best possible way. Employee participation in EHS programs is to be supported in activities, teams and initiatives, such as EHS committees and councils. All locations confirmed in their 2021 management reviews that they had complied with this requirement.

The German Occupational Health and Safety Act stipulates that occupational health and safety committees are to be organized at all German locations. Members of works councils are also to be represented on these committees. Prior to the committee meetings, occupational safety and health specialists, company doctors, works council representatives and responsible managers carry out inspections and audits. The objective is to gain insight into the current status and requirements for change.

The principle of codetermination also applies to occupational safety and health at ZF's German locations. The works councils of the locations and the Group Works Council cooperate closely with regard to these issues. Employee representatives in Germany, for example, have a right to codetermination when it comes to certain occupational safety and health regulations. In other countries, various local rules on occupational safety and health must be taken into account.

Employee involvement

All employees and their representatives are involved in the continuous improvement of occupational safety and health and are subject to regular qualification measures. Employees are encouraged to report near misses and unsafe situations and to participate in activities such as risk assessments, kaizen workshops and suggestion schemes. ZF has established a policy against reprisals and employees receive feedback as to how their reported information is handled. The general ZF Trustline is also available to report complaints regarding occupational safety and health issues. These reports are treated with strict confidentiality.

As required by the EHS management system, many locations have developed employee reward schemes to recognize their employees' contributions to improving safety. The implementation of employee participation and reporting is also subject to internal audits. Employee statements made in this context are also treated confidentially.

Should unacceptable risks arise, employees have the right to stop working to speak to their supervisor or safety officer. As part of the Safety Leadership Program, all managers are made aware of this possibility and are trained in how to respond appropriately. ZF also applies a behavior-based safety (BBS) program.

Continuous improvement of functional EHS programs

The backbone of the continuous improvement program is the EHS management system. It aims to implement the EHS policy's contents regarding EHS legislative compliance, risk minimization and safety improvement. It is also expected to consider the stipulations of all relevant international standards in this area. The EHS management system comprises 15 elements and includes 15 procedures, 27 specific mandatory requirements and guidelines addressing environmental, occupational safety and health management issues for all ZF locations. The improvement program promotes cooperation between different business units and is regularly updated taking into account stakeholder feedback, legislative changes and customer requirements.

Progress is being evaluated through self-assessments and as part of the EHS Corporate Audit Program. The audit program also includes an evaluation of legal compliance, performed by a third party.

Safety Excellence Program

The Safety Excellence Program comprises three key areas: leadership in the area of occupational safety and health (Safety Leadership), employee involvement (Behavior-Based Safety) and the continuous improvement of the EHS management system that also includes additional programs.

The program is based on face-to-face workshops. However, the Covid-19 pandemic made the organization of such events all but impossible. Thanks to the good progress of vaccination drives and the associated decline in incidence figures, some countries started organizing workshops again in the second half of 2021.

Safety Leadership Program

Safety Leadership is a global program whose objective is to improve managers' awareness of occupational safety and health. It promotes a sustainable safety culture, helping managers identify influencing possibilities for the improvement of occupational safety and health and showing them how to fulfill their role model function.

The content of the workshop modules is as follows: Module 1 focuses on the transformation leading to a sustainable safety culture and presents nine Safety Leadership elements. Module 2 focuses on methods and instruments for identifying and assessing hazards and for understanding and analyzing causes (ABC analysis).

In 2021, the ongoing implementation of the program continued to be highly impacted by the Covid-19 pandemic. Travel restrictions and social distancing again resulted in a suspension of the Safety Leadership workshops in the first half of the year. In the second half of the year, 25 Module 1 Safety Leadership workshops were held at locations with a low risk of infection. Until the end of the pandemic, the risk-based planning and implementation of face-to-face workshops will continue.

Behavior-Based Safety Program

Behavior-Based Safety (BBS) is another program implemented by ZF in this connection. It aims to increase employee involvement in safety by making employees aware of how every individual's behavior at work plays a large role in determining safety outcomes. Approximately 130 (2020: 125) locations have introduced corresponding safety coachings where employees support their colleagues in improving occupational safety and health. Due to the Covid-19 pandemic, the introduction again had to be postponed at many locations in 2021. However, most locations were able to carry on with the BBS coachings with adequate protective measures.

Ergonomics

As musculoskeletal disorders (MSDs) significantly contribute to ZF's accident/illness rates, locations continue to be added to the Group's software-based ergonomics program. Initial introduction workshops were held – some of them virtually due to Covid restrictions. The program includes e-learning, ergonomic hazard assessment and best practice solutions. In the middle of 2021, a video analysis tool was added for support.

The workplace hazard assessments are performed by members of a trained ergo team at each location. The goal of performing approximately 1,500 new ergo assessments across the locations has been met. The Group's target is to eliminate workplaces with a high level of ergonomic risk and reduce the share of workplaces with a medium level of risk to less than 10% by 2025.

Managing health protection

The ZF EHS management system includes a standardized element concerning occupational health. The procedure is aligned with the ISO 45001 standard and covers both core medical issues and health-related interdisciplinary matters. Based on the results of the self-assessments, ZF introduced a continuous improvement program in this context as well.

All ZF locations are obliged to implement at least one health promotion campaign per year. In 2021, such campaigns often focused on Covid-19 prevention measures. The training sessions on the topic of leadership and health held in Germany were continued for newly appointed managers. Due to the pandemic, the trainings were largely held virtually. In October 2021, ZF launched a virtual campaign week on the prevention of work-related musculoskeletal disorders.

Health protection in times of a pandemic

Like everyone else, ZF had to face the enduring impact of the Covid-19 pandemic in 2021. This is particularly true in the area of health protection. Developments were continuously monitored and corresponding recommendations for action were drawn up. Based on defined processes, ZF is able to recognize and interrupt possible chains of infection at an early stage. The Board of Management received regular reports from national and international task forces.

Effective health management with interdisciplinary teams has so far successfully prevented the development of major chains of infection in ZF operations. With repeated campaigns, the Group informed employees about the dangers of SARS-CoV-2 and effective protection against infection. Managers were regularly provided with advice and specialist information in order to enable them to create framework conditions with the lowest possible health risk for employees during the pandemic situation.

The interdisciplinary cooperation of all specialist functions and the consistency and discipline of the employees made it possible to provide the necessary health protection in the company, even in the midst of the pandemic.

One focus during the Covid-19 pandemic in 2021 was the preparation, organization and implementation of vaccination campaigns at the locations. ZF made timely preparations, allowing company doctors to offer vaccinations early on. As a result, it was possible to vaccinate employees and, in some cases, also their relatives at all locations where this was permitted under local law. To this end, ZF even set up company-owned vaccination centers at some of the plants.

The ZF vaccination campaigns made an important contribution to fighting Covid-19. In countries with a rather low national vaccination rate, in particular, it was possible to improve the vaccination rates among the workforce by offering vaccination at the company. For example, almost all employees at the locations in India were vaccinated in the course of company vaccination campaigns.

Vaccination continues to be of great importance for ZF as a pandemic management measure. ZF actively promotes and provides information on vaccination – in 14 languages. Company vaccination campaigns will continue in 2022.

Accident rate and collection of health data

To monitor safety performance, work-related accidents resulting in lost time are recorded and analyzed. This data also includes data for temporary workers. However, their injury rates could not be disclosed separately due to the current database structure. The introduction of a new database to provide more detailed information was postponed to the beginning of 2022 due to both the Covid-19 pandemic and the new EU Data Governance Act.

The most frequent types of injury in the year under review involved fingers and hands and were sustained in the assembly and machining areas. In 2021, no employee or temporary worker experienced a fatal work-related accident within the ZF Group.

For work-related accidents resulting in lost working days, ZF's lost time accident rate (LTAR) – accidents per one million working hours, based on 308 million hours worked – amounted to 3.0. Including the locations of the new Commercial Vehicle Control Systems Division, the Group was therefore able to achieve a 9% improvement compared to the previous year. As in previous years, the regions outside of Europe have made significant progress and already achieved their goal for 2025.

In Europe, there is still room for improvement. Data shows that 70% of ZF's nearly 450 reporting units are achieving a good LTAR performance (lower than 2.5). The Group's main focus now is on the 8% of the reporting units with an LTAR above ten. The number and rate of high-consequence work-related injuries as well as recordable injuries, such as cases of reduced working capacity or injuries beyond first aid, will also be recorded in the new database.

The severity rate (lost working days per lost time accident) in 2021 was 22.5 (2020: 17.6), which is a 28% increase.

ZF has set itself the goal of reducing the accident severity rate. This is to be achieved through a more detailed investigation of accidents or near misses with a high severity potential. This analysis will also be supported by the new database.

Rate of accidents (LTAR)[1]

Accidents with working days lost per one million working hours[1]

	2021[2]	2020	2019
EMEA	5.5	5.7	6.5
thereof Germany	7.5	7.9	8.6
thereof Europe (excluding Germany)	3.1	3.3	3.9
North America (including Mexico)	1.4	1.3	1.5
South America	3.0	2.8	2.9
Asia-Pacific	0.4	0.5	0.6
ZF Group	**3.0**	**3.3**	**3.8**

1) The figures include temporary workers, interns and student trainees
2) Starting with 2021 including the new Commercial Vehicle Control Systems Division

The results of the initial global survey of the occupational disease situation were evaluated and analyzed with the objective of continuing to prevent work-related illnesses as much as possible in the future. As a result, a total of 97 cases of recognized occupational diseases were identified for 2020. Following the now annual survey, the number of recognized occupational diseases increased to 113 in 2021. For improved comparability and analyzability, all occupational diseases worldwide were classified according to the International Labor Organization's (ILO) List of Occupational Diseases. However, due to increasing data privacy requirements, there is a certain lack of clarity regarding the allocation to specific occupational disease codes.

Since ZF has only been monitoring the occupational disease situation worldwide for two years, it is hardly possible to make any claims about the trends and developments so far. However, priorities can already be identified for individual groups of occupational diseases. The group of musculoskeletal disorders (ILO code 2.3. Musculoskeletal disorders) accounts for 50% of occupational diseases and is therefore the most significant. Accordingly, ongoing programs and activities to improve ergonomics in the workplace and promote health continue to be of great importance.

The information collected in 2021 is also analyzed and evaluated. If necessary, additional preventive measures will be initiated in coordination with responsible occupational health professionals worldwide and responsible players within the organization.

SUPPLY CHAIN

A steady supply of good materials and components lays the foundation for high-quality products and thus for customer satisfaction. A trusting and reliable collaboration with its suppliers is therefore of utmost importance to ZF. Only professional supply chain management can ensure the high quality and timely delivery of ZF's products.

ZF's suppliers tend to be contractors who procure the raw materials or basic components for the products ordered, manufacture them and, in some cases, design the products, too.

For production materials, ZF maintains a worldwide network of approximately 10,000 suppliers, ranging from small family businesses to large corporations. These include approximately 1,000 strategic suppliers. Furthermore, ZF cooperates globally with about 53,500 suppliers of non-production materials. The purchasing volume for production materials increased to €21.6 billion in 2021 (2020: €16.3 billion), including directed buy volumes, for which ZF's customers define which subsuppliers are to be subcontracted. The purchasing value of non-production materials amounted to €5.7 billion in 2021 (2020: €4.6 billion). These significant increases in comparison to the previous year resulted especially from the diminished impact of the Covid-19 pandemic and the integration of WABCO as the new Commercial Vehicle Control Systems Division.

Business Partner Principles

All new and existing suppliers are required to endorse ZF's Business Partner Principles (BPP). They represent the key values that are indispensable for ZF. Compliance with national and international laws and regulations at all locations worldwide is considered the minimum requirement. The BPP also conform to various principles and conventions, such as the principles of the UN Global Compact, the OECD Guidelines for Multinational Enterprises, the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights and relevant conventions of the International Labour Organization.

More precisely, these principles contain guidelines specifying fundamental requirements for collaboration with ZF's business partners. They address topics such as human rights, labor standards, occupational safety and health, environmental protection, business ethics and compliance. In particular, business partners are expected to reject any form of slavery, forced labor or child labor. ZF also expects them to respect freedom of association and the right to form interest groups, to provide fair and appropriate remuneration and working times in accordance with applicable law and to promote the qualification of their employees. The BPP also expect suppliers to ensure that these values are respected in their supply chains.

In Germany, external service providers must sign an additional declaration of compliance to collective agreements guaranteeing fair wages, normal working hours and the rejection of unregistered labor and tax evasion. This declaration also applies to subcontractors engaged by ZF and includes the provision that ZF may check compliance at any time.

The acceptance of the BPP is taken into account for new awardings to existing suppliers and for the registration of new suppliers. ZF reserves the right to scrutinize business relations and take appropriate action if deviations or violations are identified. The document can be found at **www.zf.com**

Procurement practices

As part of the Group strategy, ZF pursues the Advanced Procurement Strategy (APS 25) with the objective of establishing an effective and efficient value-added chain. It is based on the ZF Environmental Policy, the ZF Principles of Social Responsibility and the UN Global Compact and is aligned with the following subordinate goals: total quality management, standardization and the increase of return on capital employed (ROCE). The implementation of the Advanced Procurement Strategy is designed to ensure that procurement decisions are made based on total cost of ownership criteria.

To ensure responsible procurement practices, the Group has appointed a cross-functional Sourcing Decision Board (SDB). It is the highest decision-making sourcing body at ZF and ensures that the selected suppliers equally fulfill environmental, quality, technical, logistics and pricing requirements. Target conflicts are also solved within the SDB.

In order to strengthen all sustainability-relevant activities within the supplier base, ZF Materials Management has also set up a team for sustainability in the supply chain. In 2021, this team developed a decarbonization roadmap based on the goal of achieving climate neutrality by 2040. The corresponding expectations were already communicated to the suppliers at the digital Global Supplier Summit in 2020. In addition, individual information letters were sent to each supplier.

On this basis, ZF launched 2021 a new campaign in order to identify the ten suppliers causing the largest amounts of greenhouse gases (based on the CO_2 equivalents or CO_2e) for each product category. Subsequently, the maturity level of the individual suppliers was considered in terms of their respective climate management, use of recycled materials and energy efficiency. Suppliers with a below-average valuation agreed with ZF on selected measures, with the focus being on CO_2e reduction. For information on the definition of CO_2e, please refer to the ZF Climate Neutrality Strategy chapter. ↘ **Environment**

The Sustainability Criterion, the Self-Assessment Questionnaire on Sustainability, must be applied when selecting and registering new suppliers. It covers the topics of climate footprint, human rights and compliance, as well as environment, health and safety (EHS). Regarding the environmental management of its suppliers, ZF reviews in particular energy consumption, water usage, air emissions, waste management and the handling of restricted substances and chemicals. A corresponding questionnaire based on the Self-Assessment Questionnaire on CSR and Sustainability developed by the Drive Sustainability initiative is available for this purpose. If a supplier does not provide a completed questionnaire, if the score achieved lies below 25% or if the ZF Business Partner Principles are not accepted, the supplier will be rejected and/or the sourcing case will not be processed.

As part of the continuous development of our approach, ZF decided in 2021 to gradually replace its Self-Assessment Questionnaire. In future, we will request that our suppliers submit the standardized, industry-specific Self-Assessment Questionnaire (SAQ) via the global NQC platform. The use of standardized tools makes processes more efficient for ZF and its suppliers. At the same time, subcontractors get an overall impression of the Group's sustainability expectations. This makes it possible to prioritize key topics more effectively. Following a successful pilot project, our goal is to complete the rollout with approximately 2,500 suppliers by the end of 2022.

Furthermore, product-related environmental protection aspects are addressed in the Supplier Quality Directive (QD83) and the annual Conflict Minerals Report. These documents also apply to subcontractors and cover guidelines such as the EU Chemicals Regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals or REACH) as well as logistics and packaging specifications.

Risk assessment and management

ZF uses a risk management process to systematically analyze and evaluate its supply chain with regard to compliance with social and environmental standards and to identify risks early on. For its existing supplier base, ZF carried out an initial risk assessment and prioritization of direct suppliers (Tier 1) for production materials and non-production materials based on country and product-specific risks as well as the annual purchasing volume. This assessment covers approximately 2,000 suppliers or about 90% of the procurement volume. It helped us to identify suppliers with a potential risk of violating sustainability standards. To achieve transparency and obtain the required information, we therefore request that these suppliers complete the Self-Assessment Questionnaire via NQC Ltd. After verification of the questionnaire, ZF supplements the result with additional information on the sustainability performance of the suppliers using its own systems. This results in an internal risk assessment for the supplier location. The next step is to agree on measures for improvement – depending on the risk category – with the respective supplier. Following a pilot project with suppliers for the newly founded Electrified Powertrain Technology Division in the year under review, work on the rollout to the entire ZF Group will be on the agenda for 2022.

Promoting sustainability in the supply chain

ZF manages sustainability-relevant supplier documents and information in a digital supplier portal. A managed service ensures that all suppliers are included in the portal. Suppliers are expected to maintain a supplier profile with up-to-date information. If this is not the case, the managed service asks the supplier to update information and expired certificates.

ZF then consolidates all internal data at plant level via a supplier scorecard consisting of the dimensions General, Performance, Purchasing and Risk. Consolidation of all sustainability-related aspects in a Sustainability Score at supplier level is planned for 2022.

In 2021, all of the approximately 550 new ZF suppliers of production materials and all Sourcing Decision Board supplier awardings – approximately 500 in total – underwent a self-assessment in accordance with the ZF Sustainability Criterion. No indications of infringement of ZF principles regarding environmental protection, human rights, labor practices, forced labor, child labor or freedom of association were identified. In addition to corporate communication, ZF has established a digital reporting system available in German, Chinese, Portuguese, Spanish, Polish and English. Known as the ZF Trustline, it is open to all employees and business partners and can be used to anonymously report suspected violations of guidelines, regulations or laws. Feedback on other critical issues in the supply chain, such as child labor, human rights violations or environmental protection can also be communicated via the ZF Trustline. The ZF Trustline can be found at
www.zf.com

Developing skills – ZF Supplier Academy

With the Supplier Academy, ZF has created a platform to support cooperation with production materials suppliers and, at the same time, promote supplier qualification in the area of sustainability. ZF suppliers are given the opportunity to take part in seminars held in their regions. Participation provides suppliers with in-depth training on ZF requirements and standards in the areas of environmental issues, human rights and EHS and on corresponding guidelines and procedures.

A special training module on the topic of sustainability was developed in 2021. It summarizes the information already available and was supplemented to cover additional aspects such as decarbonization. As a first step, all suppliers of production materials received an invitation for a training date.

Conflict minerals

Gold, coltan, cassiterite, wolframite and its derivatives such as tantalum, tin or tungsten are referred to as conflict minerals because mining and trading of these minerals in the Democratic Republic of the Congo and adjacent countries also serve to finance armed conflicts. However, they are indispensable for numerous products – also at ZF. Although ZF is not subject to the regulations of the "Dodd-Frank Act" (Sec. 1502) and EU Regulation 2017/821 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores and gold originating from conflict-affected and high-risk areas, we take our responsibility seriously and commit ourselves to responsible 3TG procurement.

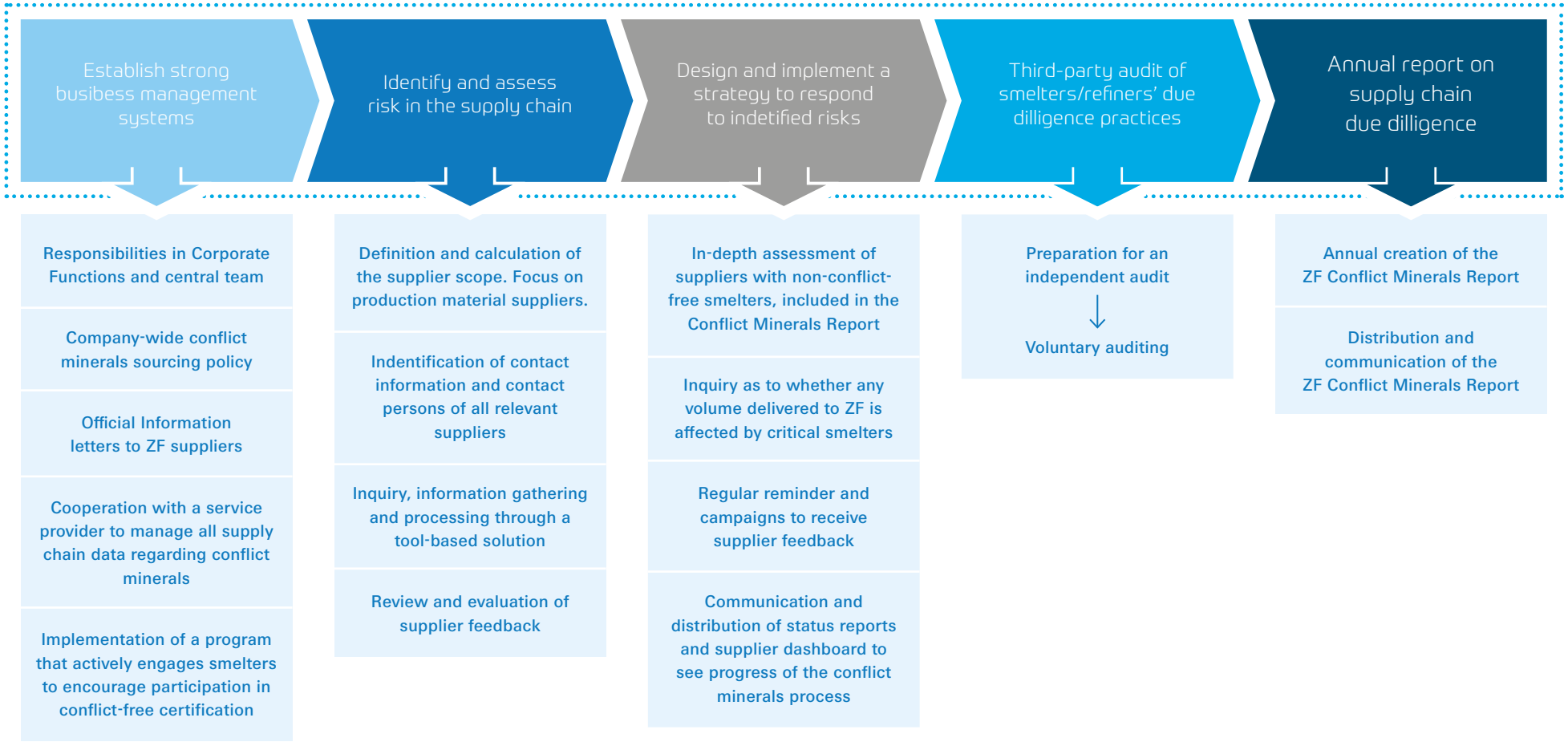
To this end, ZF requested that all relevant suppliers of production materials disclose the origin of their resources. The selection of relevant suppliers is based on a due diligence process aligned with ZF's corporate sustainability team and follows the OECD 5-step approach. After the acquisition of WABCO and its integration into the ZF Group, we were able to successfully harmonize our due diligence process for conflict minerals for the reporting year 2021. Based on the relevant raw materials, regions and effects as per purchasing volume, approximately 2,000 (2020: 800) suppliers currently participate in the annual reporting on conflict minerals. Thanks to the successful integration of WABCO, the supplier scope was expanded, leading to a significant increase in the number of suppliers included in the survey.

ZF uses a web-based solution for identifying and reporting conflict minerals throughout the entire supply chain. All relevant suppliers receive written communication explaining the fact that ZF is committed to eliminating critical smelters from its supply chain.

With the integration of WABCO as the Commercial Vehicle Control Systems Division, the number of suppliers who participated in the survey in 2021 has doubled. The response rate decreased to 63% (2020: 73%). ZF intends to increase the feedback rate from suppliers in this year.

Although these minerals are necessary for technical functions in some of the company's products, ZF is fully committed to avoiding sourcing from potentially critical smelters. ZF requests that all suppliers indicating potential high-risk smelters in their supply chain remove such critical smelters from their supply chain.

ZF approach in line with the OECD Due Dilligence Guidance for Minerals



SUSTAINABLE PRODUCTS

The ZF Group's Next Generation Mobility strategy aims at ensuring clean, safe, comfortable and affordable mobility – for everyone and everywhere. ZF's technology strategy is characterized by this vision. For further information, please refer to the Management chapter and the Basic Principles of the ZF Group chapter (Innovation). ↘ **Management** ↘ **Innovation**

The safety of products and services requires careful consideration when it comes to choosing the right materials, suitable design, usability and operational reliability. In product development, the impact on the environment represents another key criterion. ZF is continuously working on delivering high quality and reliability.

New products and applications

Thanks to the technology enablers described in the Innovation chapter, we were able to develop further innovations in our 4+1 strategic technology fields of Automated Driving, Electric Mobility, Vehicle Motion Control, Integrated Safety as well as Digitalization and Software. A constant key aspect in this connection is that new products and applications contribute to ZF's sustainability performance. The most important new products and applications in the year under review include the following:

Automated Driving

In specific highly automated driving use cases, the system assumes complete control over the task of driving. This includes the highway pilot, even if the driver has to be able to take control of the vehicle again. Automated Valet Parking is one of the first functions of fully automated driving where the system retains control even in case of system faults or when system limits are reached, reliably switching the vehicle to a safe state. The autonomous emergency braking system OnGuardMAX allows commercial vehicles to detect, evaluate and react to independently driving and stationary obstacles such as vehicles, motorcycles, bicycles and pedestrians.

Electric Mobility

ZF promotes modular solutions for electric mobility. Energy efficiency and 800V solutions that enable fast charging have the highest priority. ZF not only improves driveline efficiency, but also develops new efficient driving strategies to increase the range. The new "Green ACC" function enables an energy savings increase of up to 13% compared to other solutions available in the market.

Vehicle Motion Control

The central software control app cubiX was successfully developed further. cubiX is the networking and intelligent control of all longitudinal, transverse and vertical dynamic systems in the vehicle, e.g., steering or braking systems. This Vehicle Motion Control Coordinator is sponsored by the German Federal Ministry of Economic Affairs and Climate Action and is accompanied by a consortium consisting of partners from industry and research.

Integrated Safety

In the field of Integrated Safety, progress was made in the area of pre-crash systems with regard to both sensors and algorithms. This technology enables improved occupant protection by understanding and evaluating how exactly the impact will occur in case of an unavoidable crash. Within milliseconds, the best responses are determined and implemented. For this purpose, interior monitoring systems were further developed in the direction of 360-degree system monitoring. Precise knowledge with regard to occupants and occupant activity makes it possible to further increase their safety and comfort.

+1 Digitalization and Software

Data will play an increasingly important role in the future and will also contribute to product marketing. Corporate R&D is working intensively on the use of data, for example in connection with the ADAS.AI project. This project uses artificial intelligence in order to significantly increase the efficiency of test data use and reduce testing expenses.

With ZF middleware, ZF continues to work on a central software platform for software-defined vehicles. It acts as an intermediary between the software functions and also includes electronics hardware. This makes it possible to decouple software and hardware, which is a decisive step in the development of more complex hardware-independent functions.

Safety as a core competency

Active safety systems can prevent accidents or mitigate their consequences. The active safety systems portfolio includes, for example, systems that warn the driver when the car departs from the lane or help the driver remain within the lane as well as automatic emergency braking systems. They assist drivers in monitoring the vehicle, issue warnings and provide assistance in adjusting the vehicle's speed and trajectory.

ZF braking and steering products implement these actions, while camera, lidar and radar systems contribute to object recognition and collision warning. Our brake control systems, for instance, control vehicle stability and steerability and enable short stopping distances. Airbags protect vehicle occupants and our camera, radar and lidar systems monitor the environment and detect obstacles.

In the area of system interaction, we are developing a constantly growing number of accident prevention functions. Passive safety systems such as pretensioners and airbags are primarily used to reduce the severity of injuries resulting from an accident as much as possible.

We increasingly integrate the control of these individual systems into overall functions that regulate the vehicle's driving dynamics across the board. To this end, we are also developing systems for autonomous driving, used, for example, in our "2getthere" shuttle.

ZF systems are developed according to current safety standards – in particular the ISO 26262 standard for functional safety in road vehicles. We committed ourselves to their implementation in a corresponding internal directive. This also requires the performance of various hazard, error and risk analyses by safety managers. The objective is always to be able to present a reliable safety case so that a vehicle with the tested products installed will also receive the required road release.

In product development, we also consider the Safety of the Intended Function (SOTIF) requirements according to the ISO 21448 standard. For us, these requirements are particularly relevant for highly complex sensors and autonomous driving.

Our product development is regularly reviewed against the relevant standards to check compliance. To this end, we cooperate with renowned inspection agencies. Furthermore, we have set up an internal governance department that, independently of product development, carries out reviews of safety plans, analyses and verifications and participates in the release of safety reports. This Group-wide governance department also coordinates the further development of the processes involved and reports on the functional safety status in product development. It represents ZF in associations and actively contributes to the further development of, among other things, the ISO 26262 and ISO 21448 standards.

In the event of field failures, ZF has internal processes in place to quickly evaluate the situation in a legally compliant manner, clarify questions and inform customers and, if necessary, the responsible authorities. Our employees are regularly trained to ensure that these processes are initiated immediately as soon as noticeable problems are reported or if such problems become known to our employees in other ways. These processes have proven their effectiveness over time, meaning that they can also be used for handling possible cybersecurity incidents.

Our employees working in the field of safety are trained at an internal training academy. In 2021, a comprehensive training program was added to the training portfolio. The objective is to refresh and deepen knowledge in growing technology fields such as functional safety. We established a functional safety expert team at Group level that organizes the further development of processes and a company-wide exchange of information. Since 2021, the expert team has had a working group for autonomous driving safety and SOTIF.

Cleaner mobility

With its Next Generation Mobility strategy, ZF pursues a global approach to achieve cleaner mobility. ZF's medium-term goal is to significantly lower mobility-related carbon emissions and specific product-related emissions. The specific target defined in this connection is to implement a 40% reduction of Scope 3 emissions (in CO_2 equivalents per sales) by 2030 compared to 2019.

Both the Product Development / Engineering and the Purchasing / Supply Chain departments are jointly responsible for this product-related goal. Key performance indicators (KPIs) include:

- Product-related CO_2e reduction
- Product carbon footprints

In this connection, ZF focuses on the following three key areas:

- Reduction of resource consumption by focusing on process efficiency at suppliers and ZF-owned companies
- Increased use of recycled materials
- Expansion of ZF's range of remanufactured products

One focus for reducing product-related emissions is the increased use of materials with a higher recycling material share. To contribute to a circular economy and achieve the long-term goal of climate-neutral products, ZF analyzed all material classes with regard to overall volumes and the corresponding share of recycled materials in 2021. Based on this analysis, technological measures were developed to increase the share of recycled materials. Their applicability to ZF products was then evaluated. As a result, ZF now has an action roadmap for materials that also indicates the corresponding profit relevance.

Furthermore, ZF participates in various projects aimed at promoting the circular economy. Among other activities, studies on the impact of the use of polymer recyclates on the performance of oil pans were carried out. The promising results led to the launch of an extensive basic development project in 2021 aimed at investigating the usability of a wide range of polymers from various recycling routes for ZF products. This study focuses on both materials from in-house production, such as production scrap, and post-consumer materials. Further increasing recyclate content in metal alloys was the focus of another extensive development project launched at the end of 2021. Both projects require the use of large capacities and intensive cooperation with the suppliers and will have a minimum term of two years.

And last but not least, ZF is participating in the EU SUSMAGPRO project with the objective of producing at least 25% of rare-earth magnets in Europe from recycled materials by 2027.

Further expansion of ZF remanufacturing

Regarding its products, the ZF Group has been using remanufacturing procedures for decades and has therefore established a global return system. Various parts such as torque converters, ConAct® and dual-mass flywheels are remanufactured for industrial use. Remanufacturing reduces ZF's demand for raw materials by up to 90% while saving about 90% in energy compared to manufacturing a new product.

Industrial remanufacturing is currently implemented at 15 ZF locations. The Bielefeld (Germany) location alone sorts and remanufactures around 50 tons of cores per day. In total, several thousand products of all kinds – from automatic transmissions to various types of mechatronics and hydraulic control units – are remanufactured every year. This does not only prevent many components from being scrapped too early. Their remanufacturing also extends the service life of many vehicles that have long since been phased out of volume production.

Within the new ESG strategy, the remanufactured ZF product portfolio shall be expanded in order to achieve a further reduction of product-related emissions. ZF's service strategy and the ZF Aftermarket portfolio consider various dimensions of the circular economy, such as product recycling, remanufacturing and CO_2 equivalents when evaluating total cost of ownership and serviceability.

Quality Excellence Strategy

Good quality management guarantees the implementation of the desired product characteristics. ZF therefore constantly strives to maintain the highest level of product quality despite increasing product complexity. This is supported by the certified ZF quality management system, consistent quality controls and regularly optimized processes. In addition, the company established a Product Safety and Regulatory Office. It analyzes, evaluates and tracks all relevant quality incidents and associated risks and reports its findings directly to the member of the Board of Management responsible for quality.

Within the framework of the DNA of Quality strategy, the Group promotes forward thinking at all levels, in all functions and associated processes. The DNA of Quality strategy is derived from the Group strategy and complements the ZF quality management system, which is based on the IATF 16949 framework for automotive quality management. The strategy's goal is to develop all business and production processes to a high level of maturity and to continuously improve them. This way, a high level of operational fitness can be reached, which is a major target of ZF's Next Generation Mobility strategy.

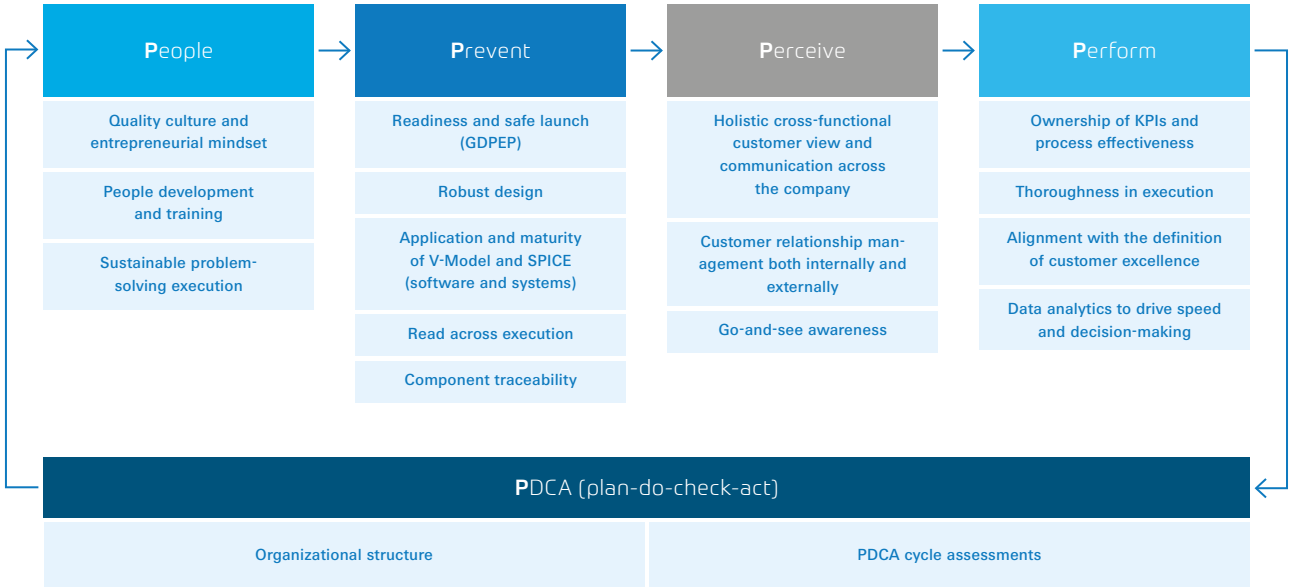
The core of this DNA consists of five principles which support a zero defects philosophy: People, Prevent, Perceive, Perform and PDCA ("plan-do-check-act"). Based on these principles, framework plans were created in cooperation with all divisions. These plans include individual excellence targets and related initiatives as well as a DNA of Quality assessment to determine the corresponding status of excellence.

The implementation of the quality excellence strategy is supported by a training portfolio jointly created by the Quality Function, the HR Department and the Q Academy. In 2021, measures focused on technical quality. Initial self-assessments based on the DNA of Quality approach were carried out.

Cybersecurity for ZF products

Due to the marked increase in vehicle connectivity and the introduction of autonomous driving functions, cybersecurity has become more and more important for ZF. In accordance with legislation and new standards, security aspects must be taken into account in product development. As a current example, the newly applicable UN Regulation No. 155 on cybersecurity and cybersecurity management systems will, after a transition phase starting in 2022, oblige vehicle manufacturers in Europe and other countries to implement a cybersecurity management system as of 2024. As a supplier, ZF is prepared for this: An internal product cybersecurity process implements the requirements of the ISO/SAE 21434 standard. Since 2019, the core work packages of this cybersecurity process have been taken into account in the comprehensive product evolution process GDPEP (Global Development and Product Evolution Process). The ZF Security Policy illustrates the management's commitment to a particular focus on cybersecurity also in product development. The corresponding product development goal is to implement technology measures that prevent cyber attacks on ZF products or make the perpetration of such attacks significantly more difficult. This applies primarily to potential attacks via the internet.

ZF DNA of Quality – Guiding principles



As part of the product cybersecurity process, ZF conducts, among other activities, threat and risk as well as vulnerability analyses. Depending on the identified risk, appropriate measures are then implemented. These include:

- Checking the control unit software signatures to ensure that they originate from an authorized source.
- Authentication of diagnosis access to the control units, e.g., in workshops, by product development employees or for the analysis of return parts.
- Access-proof filing of key and certificate material within the units.
- Authentication of vehicle-internal data communication. To this end, ZF also uses microprocessors featuring co-processors with a specific focus on cryptography.

The effectiveness of the measures is confirmed by comprehensive security testing of individual computers or networks.

Electronic ZF products usually support software updates in order to be able to carry out troubleshooting in the field. The company also increasingly offers online updates that are integrated into the vehicle architecture in order to avoid workshop visits. For online updates in particular, the update process must be protected by cryptography-based safeguards to ensure that only authorized software is used on the control units.

In addition to the product evolution process, ZF has established a continuous event monitoring and incident response process in order to be able to respond quickly and in a legally compliant manner to possible attacks on systems. Through its membership in the Automotive Information Sharing and Analysis Center, ZF regularly receives new information about hacker attacks on products or technologies that are relevant to the company. Participation in conferences also provides information on the state of the art of cybersecurity. ZF also made research contributions to the EU SECREDAS project that ended in 2021. In addition, ZF participates in various working groups on the topic of product cybersecurity. Examples of organizations that have set up corresponding working groups to which ZF contributes are the International Organization for Standardization (ISO), the Society of Automotive Engineers (SAE) with its TEVEES18A working group "Vehicle Cybersecurity Systems Engineering Committee" and the German Association of the Automotive Industry (Verband der Automobilindustrie, VDA).

In the event that third parties identify possible weaknesses in our products, ZF has set up an e-mail address that can be used to notify the Product Security Incident Response Team. In an in-house Red Team launched in 2021, ethical hackers working for the company can attack our own products in order to find weak points or simulate external attacks. If the suspicion that one of our products may have a weakness is confirmed, this will trigger the corresponding response processes already familiar from our product security activities that allow us to quickly respond in a legally compliant manner, inform customers and, if necessary, the responsible authorities.

Since 2021, ZF has had a central team of cybersecurity assessors. They check the security certificates required for product release and can independently confirm their compliance with ISO/SAE 21434. In 2021, ZF also successfully underwent several assessments by external companies in the area of product cybersecurity confirming that ZF is well positioned compared to other companies in the industry.

ZF has established an extensive internal training program on product cybersecurity processes and technologies which is continuously expanded and integrated into ZF's further training systems. Employees are also regularly informed about cybersecurity threats, for example through the Security Awareness Week. Related topics such as technology subject to export controls, including cryptography, are also part of widely rolled-out training measures.

Digital Responsibility

At ZF, digital responsibility unites the aspects of product cybersecurity, production IT security (OT), enterprise IT, information security and data protection in the company's business processes. The objective is to ensure the availability, confidentiality and integrity of ZF products, services and infrastructures. The same applies to the protection of data owned by partners, employees and ZF – regardless of storage locations such as cloud solutions or in-house infrastructures. Furthermore, the goal is to prevent external and internal cyber attacks such as information theft, manipulation and sabotage, and to increase the resilience of the supply chain against attacks.

To this end, ZF has adopted binding guidelines for every aspect and for all employees. In addition, technical, organizational and process measures such as security by design have been defined and established in the various business areas. ZF's culture of information security is characterized by regularly recurring measures such as awareness weeks aimed at increasing awareness of the issue as well as mandatory employee training on data protection and information security.

An information security management system defines rules and procedures to improve information security. ZF's information security management system is in accordance with the ISO 27001 standard and is applied throughout the Group. The system undergoes a variety of independent tests at regular intervals. More than 50 locations worldwide are TISAX-certified (Trusted Information Security Assessment Exchange). TISAX is

based on the ISO 27001 standard and is specifically aligned with the security requirements of the automotive industry. The number of certifications is expected to increase continuously until 2024.

Data protection at ZF refers to the protection of personal data in all areas – regardless of whether the data is owned by employees or end customers. All data protection tasks are covered. These include:

- Implementation of data protection functions in digital ZF products and services (privacy by design & default).
- Conclusion of contracts including provisions regarding technical and organizational measures, provided personal data is processed by third parties such as cloud providers.
- Design of training measures for the legally compliant handling of personal data and related topics.
- Extension of ZF contracts for order data processing by additional guarantees and new contract modules (e.g., the new standard contractual clauses in accordance with the decisions of the European Commission) in accordance with the new legal provisions on international data traffic
- Appointment of EU data protection coordinators as contacts for data protection officers and establishment of EU data protection contacts in ZF EU subsidiaries.
- Adoption of further data protection guidelines for the standardized protection of personal data and definition of clear responsibilities in ZF EU subsidiaries.
- Performing internal audits to ensure a high level of data protection.
- Drafting and introduction of internal data protection controls.

The Group is also committed to contributing to the joint data platform of the automotive industry: Catena-X is an alliance of companies that uses a cloud to enable transparent, standardized and cross-company data exchange and to create a closely cooperating manufacturer and supplier network. ZF is represented on the Board of Management of Catena-X Automotive Network e. V. and the company's experts actively participate in various working groups.

Group Management Report

Contents of Management Report

BASIC PRINCIPLES OF THE ZF GROUP

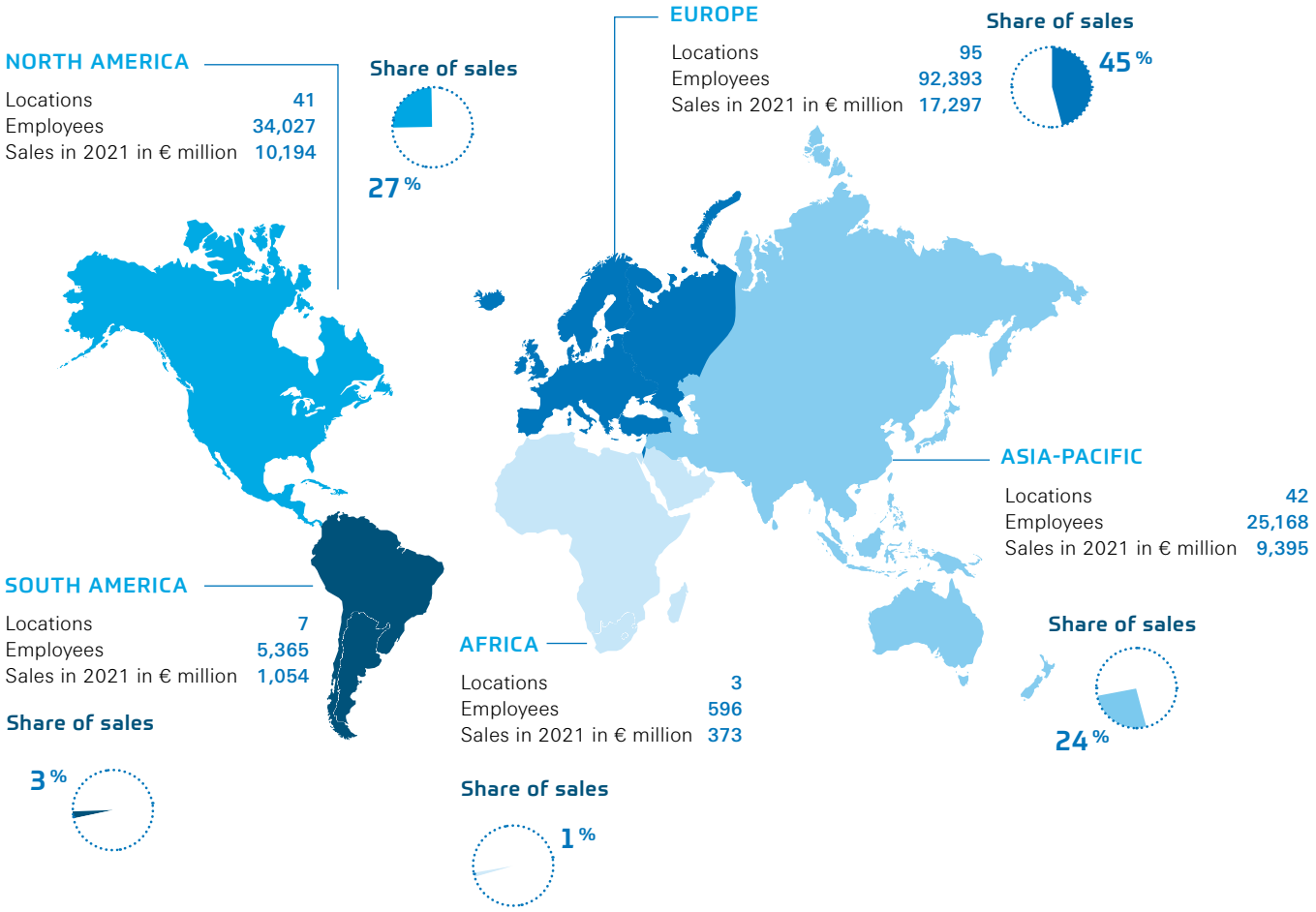
OPERATING ACTIVITIES AND STRUCTURE

Global technology solutions provider focused on mobility

ZF is a global technology company supplying advanced mobility products and systems for passenger cars, commercial vehicles and industrial technology. Our comprehensive product range is aimed primarily at established vehicle manufacturers, mobility providers and start-up companies in the fields of transportation and mobility. ZF electrifies a wide range of vehicle types. With its products, the company contributes to reducing emissions, protecting the climate and enhancing safe mobility. Alongside our core markets – passenger cars and commercial vehicles – we also serve market segments such as construction and agricultural machinery, wind power, marine propulsion, aviation technology, rail drives, special drives and test systems. We sell our products under the brands of ZF, Lemförder, Sachs, TRW, WABCO and Boge.

At the end of 2021, ZF employees worldwide numbered around 157,500. The ZF Group is represented with 188 production locations in 31 countries. Our main sales markets are Europe, North America and the Region of Asia-Pacific, with China as the core market and India as the growth market.

G. 01 ZF worldwide



188 production locations in **31** countries
18 main development locations in **8** countries
Global service network with more than
15,000 workshop partners

A focus on four technology fields

We strategically focus on four technological fields, systematically combining them through integrated solutions: Automated Driving, Electric Mobility, Vehicle Motion Control and Integrated Safety. These fields are supplemented by digitalization and software that connects our products in a network.

Corporate structure

ZF Friedrichshafen AG is a corporation headquartered in Friedrichshafen (Germany). The Zeppelin Foundation owns 93.8% of the company. These shares are managed by the city of Friedrichshafen. The remaining 6.2% is owned by the Dr. Jürgen and Irmgard Ulderup Foundation, Lemförde (Germany). The shareholders exercise their voting rights at the annual shareholders' meeting.

In order to manage our business activities in a way that is as customer-oriented, market-specific and innovative as possible, we are working in a global network consisting of divisions, regions and corporate functions. The corporate functions and divisions are managed by the Board of Management. The same applies to the responsibilities with regard to the Regions of North America, South America, Asia-Pacific and India. The regions provide local guidelines as well as corresponding services for the local business activities.

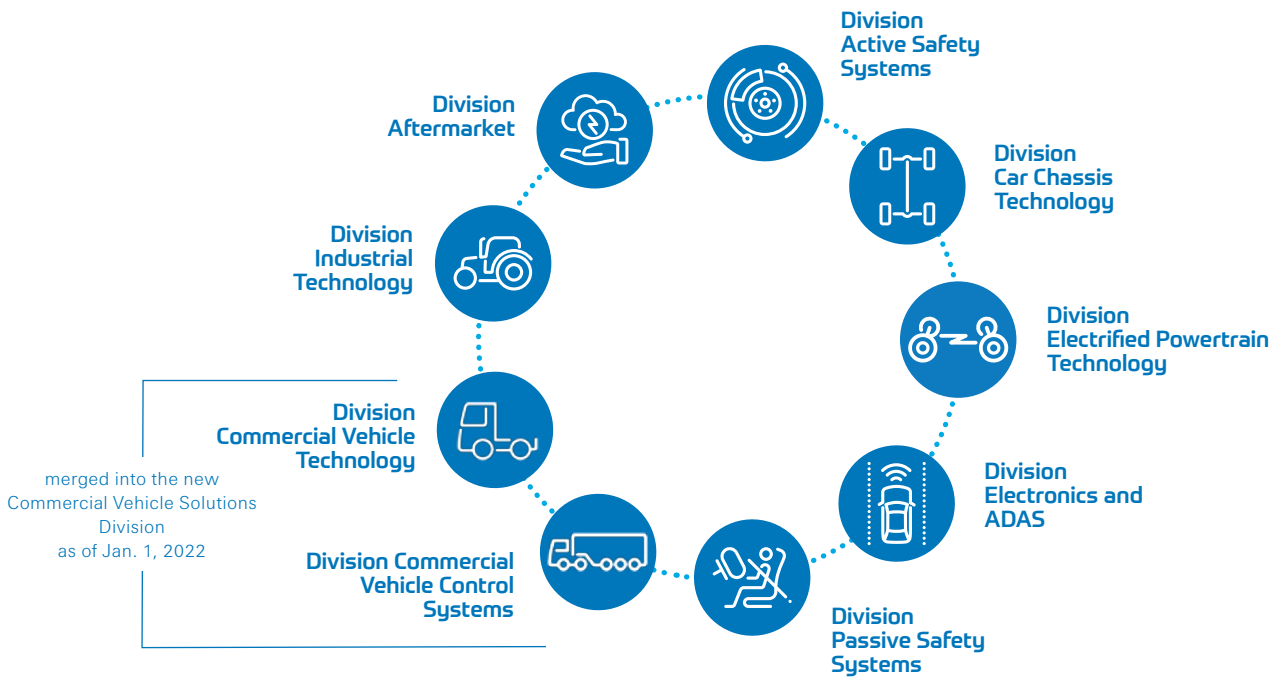
In the ZF Group, business activities by product segments are organized by divisions. The divisions Active Safety Systems, Car Chassis Technology, Electrified Powertrain Technology (established through the merger of the Car Powertrain Technology Division and the E-Mobility Division as of January 1, 2021), Electronics and ADAS as well as the Passive Safety Systems Division operate in the passenger car sector.

As of January 1, 2022, the Commercial Vehicle Control Systems Division was merged with the Commercial Vehicle Technology Division to form the new Commercial Vehicle Solutions Division. Thus, ZF has positioned itself as a global systems supplier in the commercial vehicle market.

Activities in the area of industrial applications are pooled in the Industrial Technology Division and include market segments such as construction and agricultural machinery, wind power, marine propulsion, aviation technology, rail drives, special drives and test systems.

The Aftermarket Division makes our OEM expertise available to the aftermarket, drawing on a global service network of more than 15,000 workshop partners. Our offers include services for fleets, exchange units and maintenance, as well as intelligent connectivity solutions plus upgrades and retrofits for more efficiency, comfort and safety. In addition, we develop workshop concepts that provide the technical know-how needed for the diagnosis, maintenance and repair of our components.

G. 02 **Divisions**



CORPORATE MANAGEMENT

Board of Management

ZF Friedrichshafen AG and the ZF Group are led by the Board of Management, which runs the business independently and sets the company's strategic direction. The strategy is implemented in close coordination with the Supervisory Board, which monitors the Board of Management's activities and receives regular management updates concerning business performance, strategy and opportunities and risks.

In line with our matrix organization, in addition to strategic and functional management, the Board of Management has responsibility for the divisions and regions.

In the 2021 fiscal year, the Board of Management comprised seven members: Chief Executive Officer Wolf-Henning Scheider, Dr. Konstantin Sauer, Dr. Martin Fischer, Sabine Jaskula, Dr. Holger Klein, Wilhelm Rehm and Stephan von Schuckmann.

Supervisory Board

The Board of Management is overseen by the Supervisory Board, whose members are appointed with equal representation. In the fiscal year, the Supervisory Board comprised 20 members under the leadership of Dr. Franz-Josef Paefgen, who stepped down from office on December 31, 2021. Dr. Heinrich Hiesinger was elected new Chairman of the Supervisory Board and has been holding this position since January 1, 2022. The Supervisory Board is supported by an Executive Committee and an Audit Committee, which are both composed of members of the Supervisory Board.

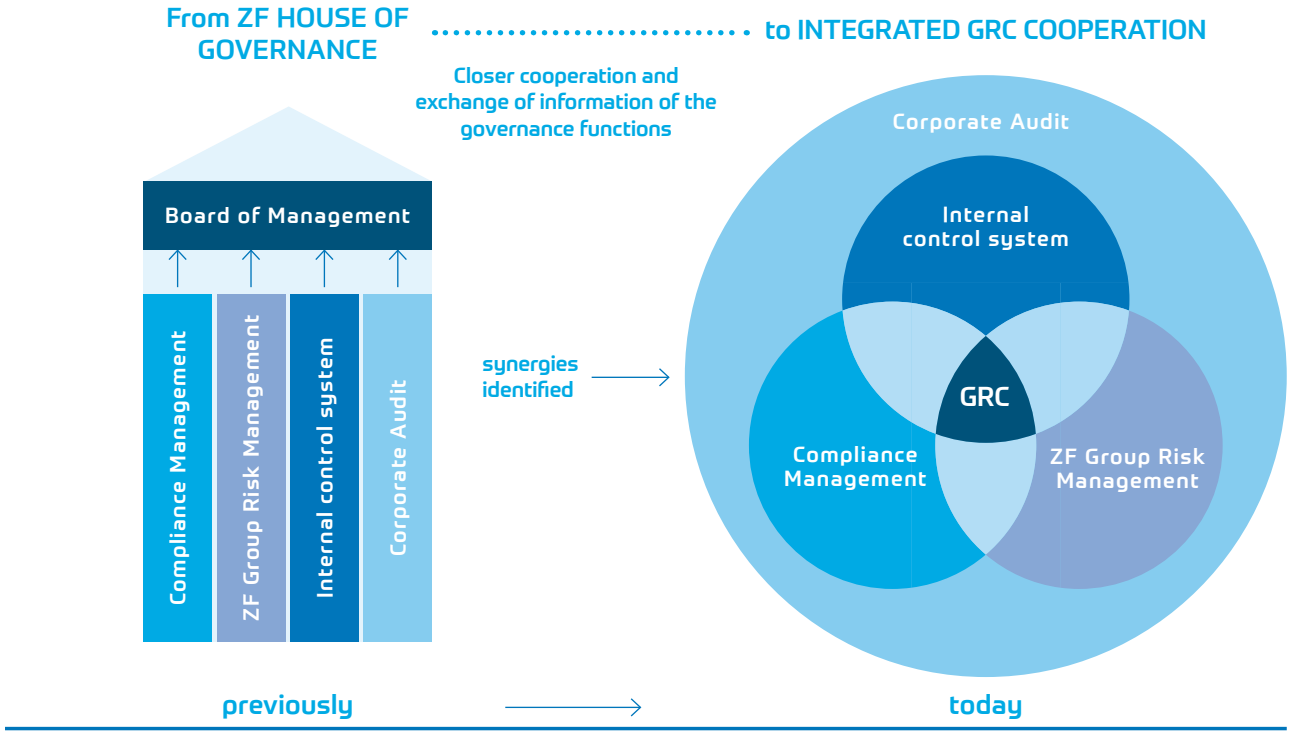
Corporate Governance

The Board of Management and the Supervisory Board are committed to managing and monitoring the company responsibly in accordance with the principles of good corporate governance. These are a prerequisite for sustainable business success and the fundamental standard on which our day-to-day management is based. The Board of Management and the Supervisory Board share a firm conviction that acting according to the principles of responsible corporate management geared to sustainable value creation is an all-encompassing requirement across the whole business.

Enterprise Risk Management

The risk management of ZF Friedrichshafen AG standardized throughout the Group is implemented as part of an integrated governance, risk and compliance (GRC) approach. The aim of the integrated GRC approach is to synchronize and promote the activities and cooperation of the core governance functions. In addition to Group Risk Management, this system includes the Compliance organization, the internal control system, and as an independent supervisory body, Corporate Audit. Our risk situation is now more transparent. We document, monitor and manage risks

G. 03 Integrated Governance, Risk & Compliance (GRC)



in a structured way, taking account of both strategic and operational risks and aggregating the overall risk landscape.

Compliance

Compliance is an integral part of our corporate culture and forms the basis for the trust that customers, business partners and the public put in us. The Board of Management and all employees of the ZF Group are obliged to behave responsibly and to comply with applicable regulations. We expect such behavior also from our business partners along the entire value-added chain.

ZF's Code of Conduct lays down principles of correct, legally compliant and ethical behavior that are mandatory for the ZF Group. The Code of Conduct represents the basic requirements for each individual to act with integrity and summarizes the ZF Group's understanding of values.

The ZF Compliance Management System ensures lawful action by the bodies, executive managers and employees at all corporate locations. The focus is on measures preventing corruption, fraud and money laundering risks. These activities include internal compliance regulations, communication and training measures, complaint and case management and a compliance reporting system.

Internal control system

ZF's internal control system (ICS) aims to guarantee that we achieve our objectives in terms of relevant business activities (effectiveness/efficiency), reliable financial reporting and compliance. The internal control system standardized throughout the Group is implemented as part of the integrated governance, risk and compliance (GRC) approach. The direct reference of the ICS to the ZF risk catalog enables us to ensure and further develop the ICS coverage in a targeted manner. Our standardized ICS method applies company-wide and has been implemented throughout the Group. It is based on the tenets of transparency, the four-eyes principle and the separation of duties. Through regular analysis and reporting to the Board of Management and the Supervisory Board as part of the integrated GRC report, ZF's Corporate Risk & Control Management Function helps to monitor control procedures and documentation and takes prompt corrective action if weaknesses come to light.

Equality and equal opportunities

Equality and equal opportunities are vital for our company's success. We support the wide variety of social cultures in our company and nurture our employees regardless of their personal attributes. ZF promotes an integrative working environment and an open work culture that respects, values and encourages individual differences.

With due consideration for German legislation governing equal representation of women and men in managerial positions in the private and public sectors, ZF Friedrichshafen AG has discussed and set targets for the relevant managerial levels to be achieved by June 30, 2022:

- For appointments to the Supervisory Board, a target quota of 20% female Supervisory Board members was set. The quota is currently 15%.
- For appointments to the Board of Management, a minimum quota of 10% female Board of Management members was set. With the appointment of Sabine Jaskula as member of the Board of Management for the HR and Legal Corporate Function, this target has been met.
- At the first managerial level (Executive Vice President / Senior Vice President) below the Board of Management and the second managerial level (Vice President), the percentage of women is planned to increase to a minimum of 15% each.

↘ **For further information, refer to the Sustainability chapter.**

INNOVATION

Our objective: new mobility

Despite Covid-19-related restrictions, ZF successfully pursued the projects planned for the implementation of the Next Generation Mobility corporate strategy in 2021. To this end, the Group invested in the future sectors of new vehicle functions, software, artificial intelligence and efficient, electrified drive systems in particular.

The defined four enablers for the implementation of our technology strategy remain unchanged:

- Vehicle System & Functions: Vehicles will be increasingly controlled by system functions. This cluster is developing the necessary architectures and software methods as well as the structure of these system functions.
- Data Handling & Analytics: This cluster focuses on connectivity and communication, both between vehicles and with the infrastructure, from embedded components to the platform necessary for data analysis and algorithms for data analysis, including artificial intelligence.
- Efficient Energy Conversion: We are researching and developing the efficient storage and conversion of electrical energy as well as systematic algorithms for optimized vehicle control. We are working on efficient drives and efficient energy management. We see great potential for new semiconductors, especially in power electronics.
- Advanced Base Technology: This cluster deals with basic technologies that make complex vehicle functions possible, including modern, high-resolution sensors, artificial intelligence, powerful central electronic controls and cutting-edge materials for efficient power electronics.

Within these four technology enablers are 19 core topics (focus topics) that we are pursuing in global research and development. “Energy accumulators” make up a new core topic, with a focus on hydrogen technology and fuel cells.

R&D expenditure increases

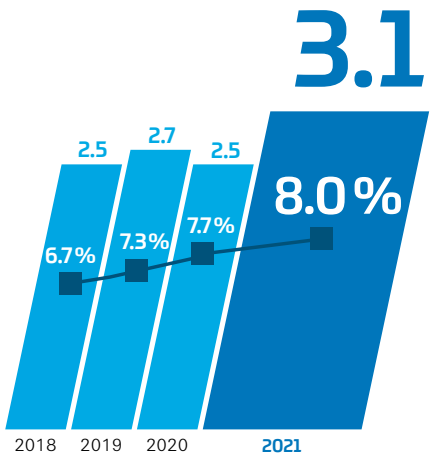
In the fiscal year 2021, we invested €3,060 million (2020: €2,516 million) in research and development. This corresponds to a sales share of 8.0% (2020: 7.7%). Research and development expenditure is defined as research and development costs in accordance with the statement of profit or loss, plus capitalized development costs, less their depreciation.

In the past fiscal year, the Group employed around 23,750 people in research and development (2020:

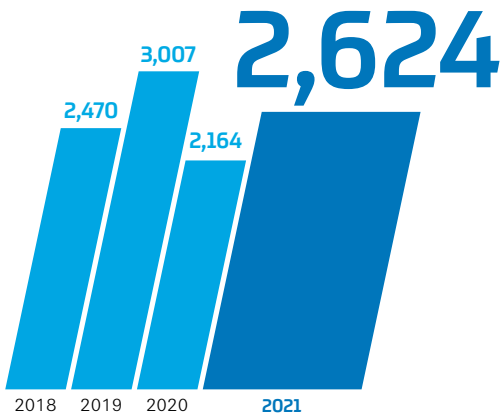
T. 01 Research and development figures

	2021	2020	Change
R&D expenditure in € million	3,060	2,516	+21.6%
R&D expenditure ratio in %	8.0	7.7	+0.3% pts.
Number of invention disclosures	2,624	2,164	+21.3%
Number of R&D employees	23,750	21,797	+9.0%

G. 04 R&D expenditure
in € billion / share of sales in %



G. 05 Invention disclosures



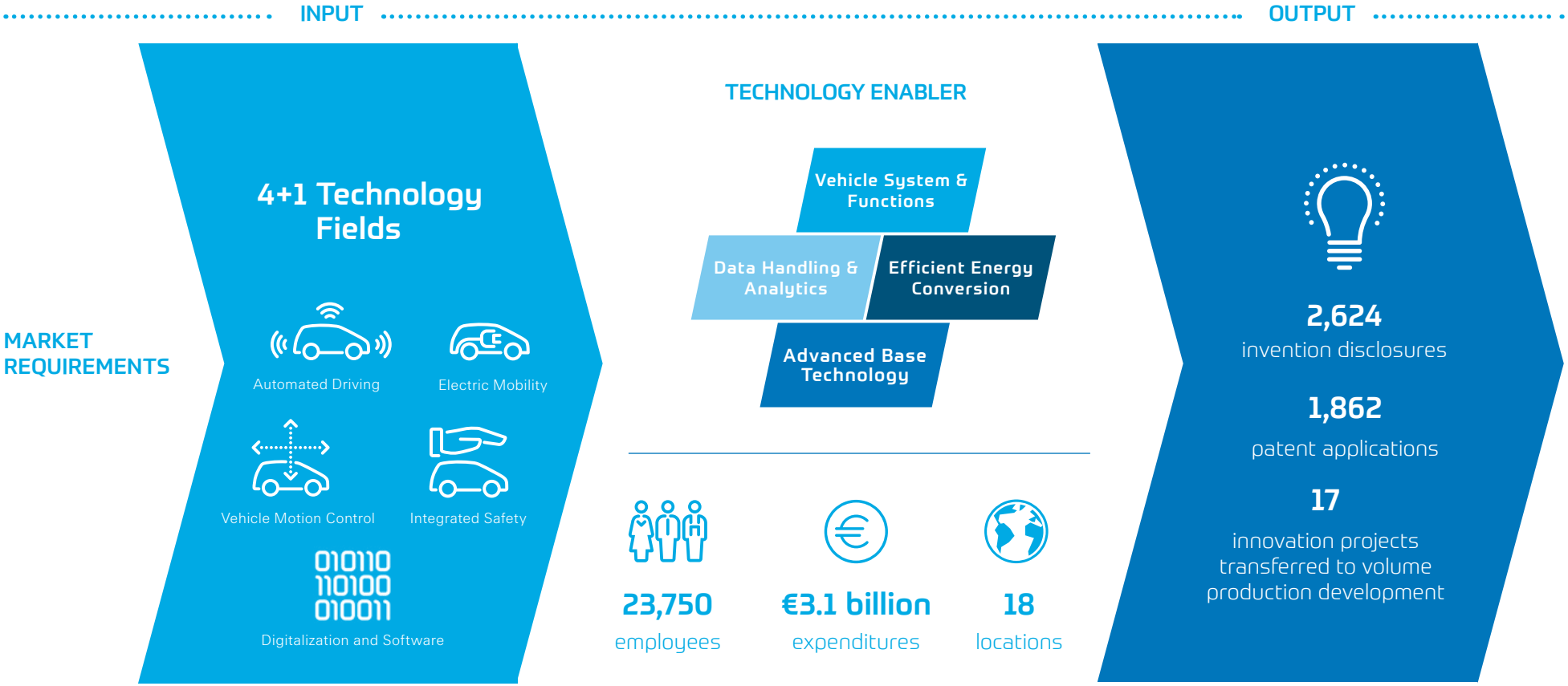
around 21,800). Around 4,400 (2020: 3,300) employees work in the Group's basic research and divisional project development departments. ZF has 18 main development locations worldwide. In addition to Friedrichshafen, Koblenz, Schweinfurt, Alfdorf, Hanover, Düsseldorf, Dielingen, Passau and Auerbach in Germany, these are in Hyderabad and Chennai (India), the Detroit metropolitan area (USA), Shanghai (China), Częstochowa and Wrocław (Poland), Plzeň (Czech Republic), Solihull (UK) and Yokohama (Japan).

Furthermore, new multidivisional development locations were established in Guangzhou (China), Timisoara (Romania) and Monterrey (Mexico).

Again numerous patent applications

In the year under review, a total of 2,624 invention disclosures (2020: 2,164) were filed by the Group. The filings led to 1,862 (2020: 1,264) new patent applications.

G. 06 Technology strategy



Increasing R&D efficiency and accelerating the path from innovation to volume production

In the year under review, a focus was placed on intensifying lateral, project-based development with the involvement of one or more divisions as well as Corporate Research and Development. For this purpose, we defined a global "ZF R&D System" with corresponding objectives, initiatives and metrics together with all parties involved and have started implementing it.

Technology development is implemented in the interconnected process from trendscouting in the Innovation Factory to technology evaluation and accelerated agile advanced engineering through to initial business contact. In this context, more than 15 innovation projects were successfully transferred to the divisions in 2021.

The objective of efficiency in Research and Development was further advanced primarily by the PRISMA corporate project. Here, the Corporate Research and Development Function contributes to optimizing the functional efficiency of the Group with annual cost optimizations in the three-digit million euro range. This is achieved via four levers: optimized research and development footprint, improved supplier management, digitalized processes and consistent standardization.

In 2021, we again focused on digitalization and software development. The course was set to further expand the business models for digital products and services as well as for pure software products. In addition to the further expansion of the global centers for the core competencies of software development, artificial intelligence (AI), cyber security and system development, also the newly established DVACCs (Digital Vertical Accelerators) – resembling start-up companies with lean organization structures – are to speed up the project implementation process.

In software development, two important partnerships were established in the field of the new software architectures: A development partnership on reusable software components for the AUTOSAR standard was concluded with the KPIT company. As for the ROS standard, an interest in the APEX.ai company was acquired. Both partnerships contribute to the development of the ZF middleware product. This product allows for a quick and safe integration of software functions into performance platforms, be it ZF or customer platforms. Internally, the rollout of the development process towards cloud-based engineering and DevOps is advancing.

Further digitalization in the product evolution process and the introduction of virtual validation methods with the help of digital product twins support research and development efforts. Last year, for example, we were again able to reduce the number of physically driven test kilometers required for the release of ADAS functions. In validation, this not only saved time but also money in the higher double-digit million euro range.

EMPLOYEES

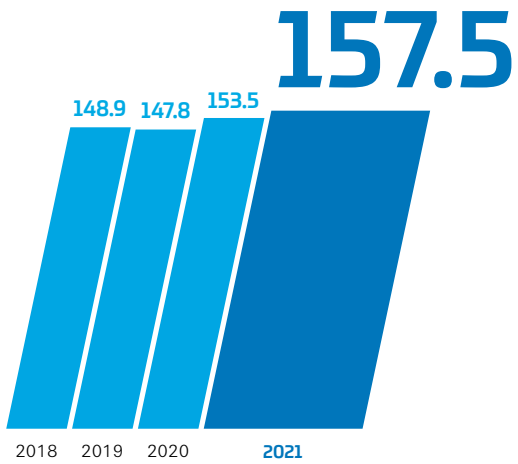
Number of employees increases by 2.6%

As of December 31, 2021, ZF had a global workforce of 157,549 employees (2020: 153,522). Approximately 60% of the employees (92,393) work in Europe, most of them in Germany (52,700). In 2021, capacity adjustments particularly took place in production and production-related areas following the decline in the coronavirus year 2020. Furthermore, human resource capacities in the area of research and development were further developed. In the India Technology Center in particular, the number of employees was increased by 757 in 2021.

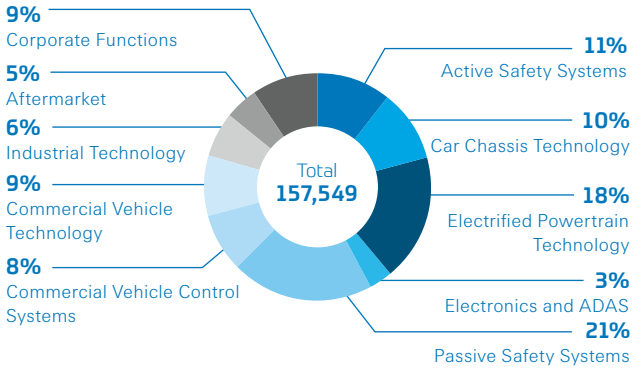
↘ **For further information, refer to the Sustainability chapter.**

G. 07 Employees

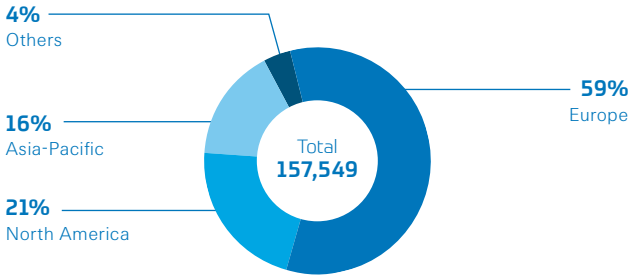
in thousand



G. 08 Employees by division



G. 09 Employees by region



ECONOMIC REPORT

MARKET AND INDUSTRY ENVIRONMENT

Gradual economic recovery after historic crisis

In the second year affected by Covid-19, economic recovery varied widely by region and sector. Regions such as North America, China and to some extent Europe achieved noticeable growth again, also because there were lower restrictions on economic activities compared to the first infection waves in 2020. In particular in trade and industry, the development was positively influenced by the fact that borders were no longer closed for longer periods of time and other pandemic-related restrictions were not imposed. In addition, private demand picked up again after several months of, in some cases, considerable restrictions on consumption opportunities. Government investment and support programs as well as the continuously low interest rate levels set by the central banks in many countries additionally supported the recovery after the restrictions of the first coronavirus waves. Nevertheless, many countries have not yet been able to fully compensate the massive slumps from 2020. Also, due to supply bottlenecks – mainly in the field of semiconductors – and massive increases in raw material prices especially in the manufacturing sector, it was not possible to fully exploit the growth potential. For several months, this trend has caused significantly increasing inflation rates.

Based on initial positive trends observed at the end of 2020, robust growth rates of 5.7% in the USA, 8.5% in China and 5.2% in the eurozone were achieved in 2021. Meanwhile, major emerging economies such as India (8.2%) and Brazil (4.8%) also achieved strong catch-up effects, despite in part very drastic coronavirus waves. By contrast, Germany lagged somewhat behind with a comparatively weak recovery of 2.8%, while the UK, France and Italy were able to stand out with growth rates of 6% to 7%.

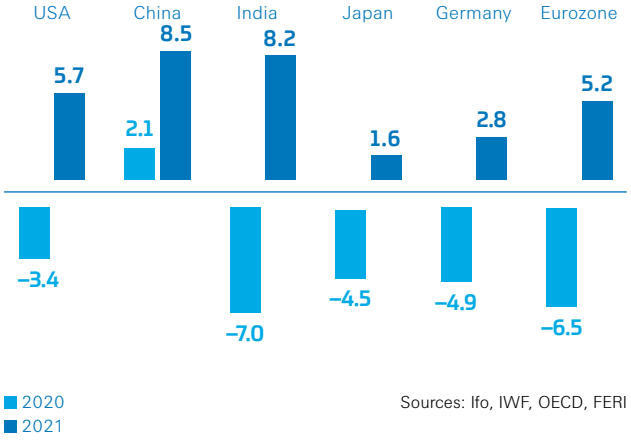
Pandemic and semiconductor bottlenecks slow long-term recovery of ZF markets

At around 77 million vehicles, the global market for **passenger cars and light commercial vehicles** remained almost at the very weak level of the previous year that had been caused by the crisis (+3% after −16% in 2020). In many regions, the first half of the year saw a clear recovery from a very weak first half of 2020. However, as of summer, the semiconductor bottleneck slowed down a long-term recovery and the monthly figures were often below the previous year's comparative figures. In Europe, the market actually contracted by a further −5% over the year as a whole, following a slump of −22% in 2020. With about 15.5 million vehicles built, Europe was even below the crisis year of 2009. By contrast, North America was able to stabilize at the low level following the −20% decline in the previous year. China was able to at least slightly escape the downward trend and reported a minor increase in vehicle production of +5%. Some emerging markets showed positive developments: Emerging from the deep crisis in 2020, South America realized an increase by approximately 10%, India even by more than 20%. However, these markets also remained significantly below the pre-pandemic volumes.

In the market for **heavy commercial vehicles over six tons,** global production volumes remained at the prior-year level. Strong differences can be identified between individual regions, though: While China had completely decoupled itself from the Covid-19 crisis in 2020 and was even able to achieve an increase of

G. 10 GDP growth 2020–2021

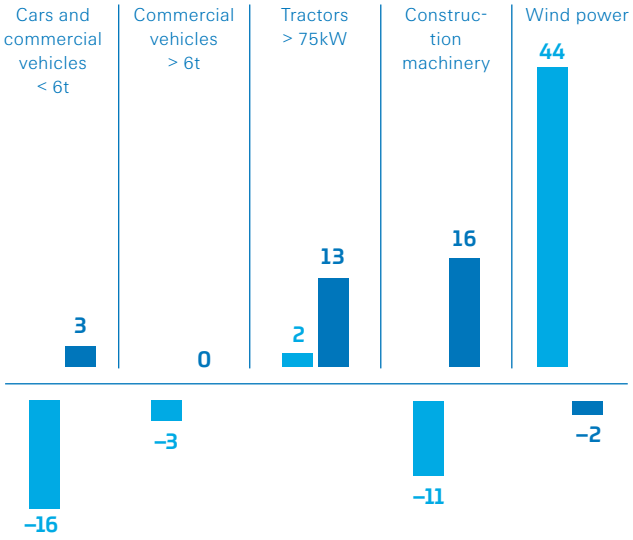
in %



Sources: Ifo, IWF, OECD, FERI

G. 11 Development of ZF's industries 2020–2021

in %



Sources: Ifo, IWF, OECD, FERI

30% as part of an unexpected upturn in demand, the necessary correction of –20% took place in 2021. All other markets experienced the opposite trend: Massive slumps in 2020 in some major markets in the range of –20% to –30%, in the case of India even of –52%, were followed by the hoped-for recovery in 2021. In the fiscal year, these markets defied all odds and achieved double-digit growth: Europe 17%, North America 12%, South America 59% and India even 81%.

The industrial sectors were not as volatile as the automotive markets, but also subject to major fluctuations. The **agricultural machinery** industry in the tractor segment above 75kW was able to increase output volumes by 13% after a slight period of weakness in some markets in the previous year. The major markets showed growth rates, Europe 5%, North America 15%, China 20% and South America even more than 30%. After a significantly weaker 2020 with –11%, the **construction machinery** sector, by contrast, was somewhat more affected by the fluctuations, achieving a plus of 16% in 2021. The core markets of Europe and North America even achieved growth rates of 20% and above, after slumps of a similar dimension in the previous year. China, the world's largest construction machinery market, showed stable positive development, though. Both in 2020 and 2021, volumes increased by 7% to 8%. By contrast, the **wind turbine** business experienced a downward correction of –2% in the fiscal year following the exceptional boom in the previous year: In 2020, gigawatt production worldwide had increased by more than 40%. The United States with corresponding programs and China were the driving forces behind this increase.

OVERALL DEVELOPMENT OF THE GROUP

Overview of the business trend and Board of Management overall statement on business performance

2021 was characterized by the continued recovery of the markets after the pandemic-related lockdowns in 2020 and the overlap of this trend with bottlenecks in the procurement of semiconductors as well as material price increases. After a pleasing first half of the year, the volatility of the markets caused by the semiconductors and the material price increases had an impact on sales and results, mainly in the second half of the year and here predominantly in the third quarter.

Fiscal year 2021 was the first year that WABCO, which was acquired on May 29, 2020, was included in the ZF Group's business figures for a full year. In the Commercial Vehicles segment, this acquisition was an important building block in realizing our corporate strategy "Next Generation Mobility". The integration is proving successful and continues to be pushed forward rapidly. In 2021, major milestones of the integration were achieved. In July of that year, the management of the joint Commercial Vehicle Solutions Division was nominated. As of January 1, 2022, it will bundle the activities of WABCO and ZF in the commercial vehicles sector in one division.

Despite challenging market conditions in the automotive supplier industry, the ZF Group achieved the 2021 sales forecast (of between €37 and €39 billion) given at the start of the fiscal year. Especially the shortages in the supply of semiconductors led to a volatile sales development over the course of the year and slowed down sales growth in the second half of 2021. In total, sales increased by 17.5% from €32.6 billion to €38.3 billion. Adjusted for exchange rate effects and M&A activities, sales increased by 14%, which means the company was stronger than the market.

The adjusted EBIT of €1.9 billion (2020: €1.0 billion) is mainly influenced by sales growth and negatively affected by the significant increase in raw material prices and freight costs. In this challenging year, ZF still consistently continued the Next Generation Mobility strategy and increased research and development costs to €2.6 billion. These advance investments for the transformation towards electrification, software-defined vehicles and autonomous mobility also had an impact on the result in 2021.

The adjusted EBIT margin of 5.0% is within the forecast range (between 4.5% and 5.5%).

The adjusted free cash flow amounted to about €1.0 billion and was therefore also within the forecast (between €0.8 and €1.2 billion).

In 2021, the focus was on stabilizing income against the background of the bottleneck in the procurement of semiconductors, higher material prices and increased research and development costs. In addition, the long-term restructuring program which was launched in the prior year was continued. With this program, ZF intends to further advance the transformation process towards future technologies and the digitalization of processes as well as the structural alignment of the Group with the new market conditions.

Another focus was placed on continuing to reduce debt as well as actively shaping the maturity profile of the ZF Group's financial liabilities. The increase in equity based on the net profit after tax as well as positive valuation effects, which had reduced equity in recent years, led to an increase in the equity ratio by seven percentage points to 19% at the end of the fiscal year. The ZF Group rests on a solid financial

foundation thanks to its long-term oriented and diversified financing as well as cash and cash equivalents of more than €2.3 billion and an unused credit line of €3.0 billion at Group level.

Against the backdrop of a stable liquidity and financing basis as well as a positive business performance, the Board of Management is confident with regard to the future economic situation of the consolidated ZF Group.

RESULTS OF OPERATIONS, NET ASSETS AND FINANCIAL POSITION

Results of operations

The acquisition of WABCO was successfully completed on May 29, 2020. As a result, 2021 was the first fiscal year in which the relevant figures were included in the ZF consolidated financial statements for a full year. Therefore, a comparison of the figures of the fiscal year 2021 with those of 2020 is only possible to a limited extent.

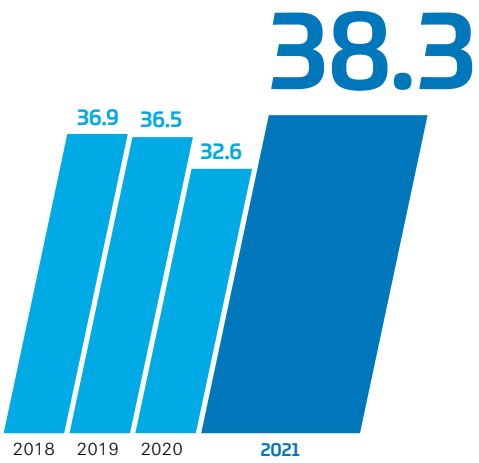
Sales growth stronger than market recovery

The sales development in 2021 showed significant growth, especially due to the increase in demand in the first half of the year compared to a low comparative basis in the previous year. After a sales growth of around 43% in the first half of 2021, bottlenecks in the supply chain, especially with regard to semiconductors, led to a decline in the sales volume, and this despite the high demand. In fiscal year 2021, the ZF Group achieved sales of €38,313 million (2020: €32,611 million), which corresponds to an increase in sales of around €6 billion compared to the prior year. Adjusted for M&A activities that include the WABCO acquisition as well as negative exchange rate effects, this results in an organic sales growth of 14%.

T. 02 Statement of profit or loss

in € million	2021	%	2020	%
Sales	38,313	100%	32,611	100.0%
Cost of sales	–31,779	–82.9%	–27,668	–84.8%
Gross profit on sales	**6,534**	**17.1%**	**4,943**	**15.2%**
Research and development costs	–2,596	–6.8%	–2,168	–6.7%
Selling and administrative expenses	–2,936	–7.7%	–2,700	–8.3%
Other income and expenses	194	0.5%	–162	–0.5%
Net result from participations	225	0.6%	–124	–0.3%
EBIT	**1,421**	**3.7%**	**–211**	**–0.6%**
Net financial result	–339	–0.9%	–534	–1.7%
Net profit or loss before tax	**1,082**	**2.8%**	**–745**	**–2.3%**
Income taxes	–299	–27.6%	4	–0.5%
Net profit or loss after tax	**783**	**2.0%**	**–741**	**–2.3%**

G. 12 Sales development
in € billion



Development of the divisions

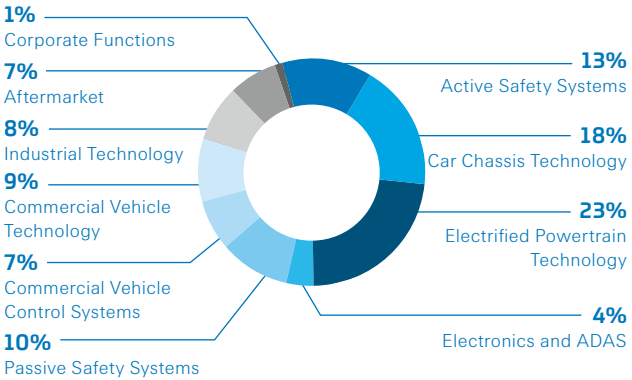
The different development of the divisions can be traced back to their individual regional presence and customer base. However, it is also visible that the transformation in the automotive industry has influenced growth – especially in the area of electric mobility and automated driving.

The Active Safety Systems Division, which was most severely affected by the shortage of semiconductors, achieved a sales increase of 6.2% to €5,298 million. Growth was mainly achieved through the high demand for Brake Controls solutions.

T. 03 Sales development by division

in € million	01–12/2021	01–12/2020	Change
Active Safety Systems	5,298	4,987	311
Car Chassis Technology	7,294	6,680	614
Electrified Powertrain Technology	9,553	8,004	1,549
Electronics and ADAS	1,835	1,561	274
Passive Safety Systems	3,804	3,503	301
Commercial Vehicle Control Systems	3,052	1,539	1,513
Commercial Vehicle Technology	3,888	3,307	581
Industrial Technology	3,164	2,687	477
Aftermarket	3,007	2,522	485
Corporate Functions	325	262	63
Consolidation	–2,907	–2,441	–466
Total	**38,313**	**32,611**	**5,702**

G. 13 2021 sales by division



Sales in the Car Chassis Technology Division amounted to €7,294 million (2020: €6,680 million). This corresponds to a sales increase of 9.2% compared to the previous year.

Since January 1, 2021, the Electrified Powertrain Technology Division pools all activities in the field of car powertrain technology and comprises the two divisions Car Powertrain Technology and E-Mobility, which had so far been reported separately. Sales in the new division amounted to €9,553 million (2020 adjusted: €8,004 million). The increase in sales amounted to 19.4% and thus significantly exceeded the overall market. Here, we were able to benefit from the strong growth of electric mobility with battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).

With sales of €1,835 million (2020: €1,561 million), the Electronics and ADAS Division achieved a sales growth of 17.6%.

The sales growth in the Passive Safety Systems Division amounted to 8.6%. Total sales amounted to €3,804 million (2020: €3,503 million).

The Commercial Vehicle Control Systems Division, which, for the first time, is reflected in Group sales over a full twelve-month period, achieved sales of €3,052 million.

Sales in the Commercial Vehicle Technology Division amounted to €3,888 million (2020: €3,307 million), which corresponds to 17.6% growth. The main driver was the market recovery in Europe, Brazil, India and the USA. Due to the high demand for our TraXon product, sales in China increased, in contrast to the general market development.

In fiscal year 2021, sales of the Industrial Technology Division amounted to €3,164 million, which corresponds to an increase of 17.8% (2020: €2,687 million).

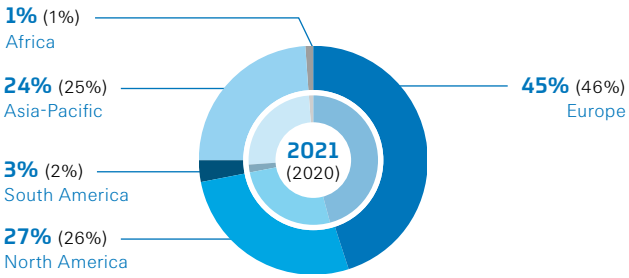
In the past fiscal year 2021, sales of the Aftermarket Division also increased by 19.2% to €3,007 million (2020: €2,522 million).

T. 04 Sales development by region[1]

in € million	2021	2020	Change
Europe	17,297	14,810	16.8%
North America	10,194	8,587	18.7%
South America	1,054	752	40.2%
Asia-Pacific	9,395	8,147	15.3%
Africa	373	315	18.4%
Total	**38,313**	**32,611**	**17.5%**

1) Sales by target country

G. 14 Sales by region[1]



1) Sales by target country

Regional sales distribution

Compared to the previous year, the market recovery in 2021 was clearly visible in all regions, but at varying degrees of intensity.

At €9,395 million, sales in the Region of Asia-Pacific were above the prior-year figure (2020: €8,147 million). In fiscal year 2021, sales in North America amounted to €10,194 million (2020: €8,587 million), which corresponds to a growth rate of 18.7%. For the whole year, sales in Europe amounted to €17,297 million, which is 16.8% above the prior year's level.

Sales increases were also recorded in the Regions of South America and Africa. Sales amounted to €1,054 million at the end of the year in South America and to €373 million in Africa.

The distribution of sales by region resulted in the following picture: The top-selling region was again Europe, accounting for 45%, followed by North America with 27% and Asia-Pacific with 24%. The Region of South America and the Region of Africa have a sales share of 3% and 1%, respectively.

Gross margin at 17.1%

Gross profit on sales amounted to €6,534 million (2020: €4,943 million), which is equivalent to a gross margin of 17.1% (2020: 15.2%). This increase is mainly due to the market recovery and the resulting sales increases. High material costs, on the other hand, put a heavy strain on gross profits, especially in the second half of the year. Research and development costs amounted to €2,596 million (2020: €2,168 million), representing 6.8% of sales after 6.7% in the prior year. With this, ZF highlights the consistent implementation of the corporate strategy to strengthen the defined future technologies, especially against the backdrop of the accelerated transformation in the automotive industry.

Sales and administrative expenses amounted to €2,936 million (2020: €2,700 million). In relation to sales, this corresponds to a decline of 0.6% despite increased outgoing freight.

Adjusted EBIT margin of 5.0%

EBIT totaled €1,421 million in the year under review (2020: −€211 million). Adjusted for the expenses for the purchase price allocation for company acquisitions in the amount of €624 million, restructuring expenses in the amount of €84 million as well as the positive balance from M&A activities and one-off effects in the amount of €219 million, the adjusted EBIT margin amounts to 5.0% (2020: 3.2%). The driver of the improvement is the sales recovery in 2021 after the pandemic-related sales decline in 2020. However, the scarcity of semiconductors as well as rising material and freight costs significantly influenced the adjusted EBIT in the second half of the year. At 5.0%, we were nevertheless within the forecast range of 4.5% to 5.5%.

In the past fiscal year, the net financial result amounted to −€339 million after −€534 million in 2020. The main reasons for this increase were the improved currency and hedging results as well as lower write-downs of financial receivables.

Income tax expenses amounted to €299 million in fiscal year 2021 (2020: income tax income of €4 million). The income tax rate is 27.6%.

Net assets and financial position

Increase in total assets

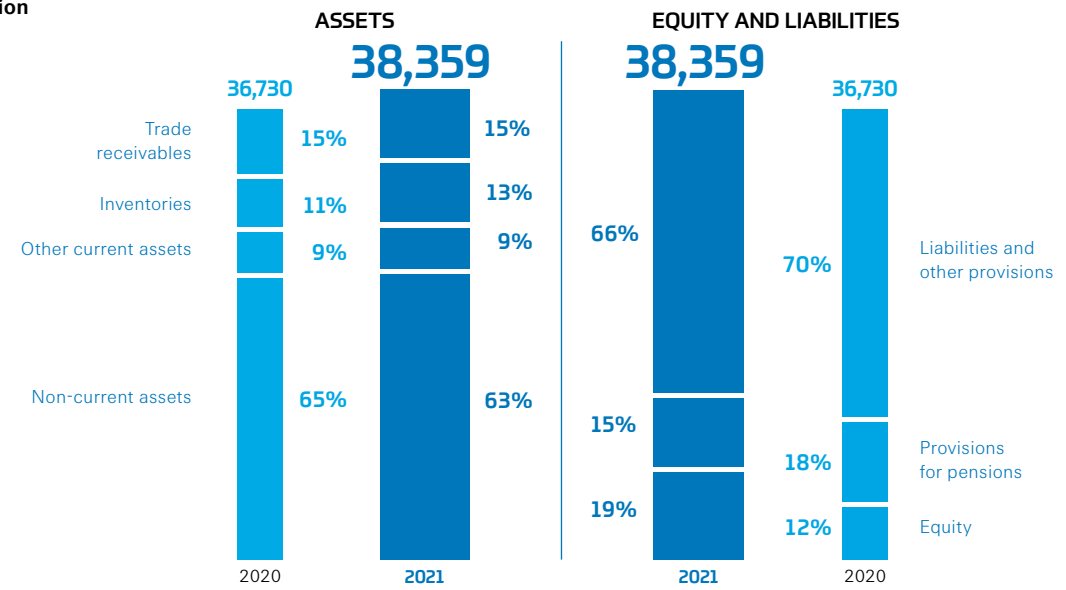
Compared to the prior year, total assets increased by €1,629 million to €38,359 million (2020: €36,730 million).

Current assets, including assets held for sale, increased by €1,346 million to €14,254 million (2020: €12,908 million), mainly due to the increase in inventories. The increase in inventories by €822 million to €4,993 million (2020: €4,171 million) is mainly due to increased material costs and the safety stocks maintained for securing the supply chain.

Non-current assets increased only marginally from €23,822 million by €283 million to €24,105 million.

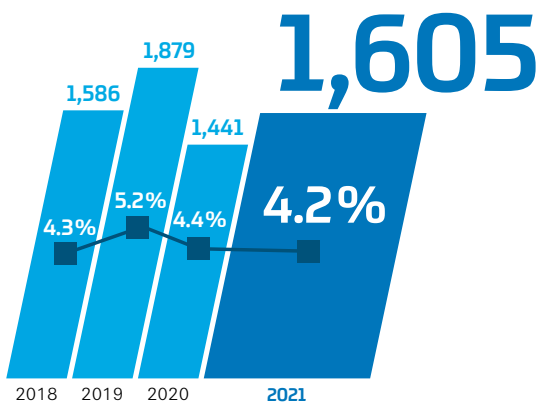
G. 15 Consolidated statement of financial position

in € million



G. 16 Investments and investment ratio

in € million / share of Group sales in %



Investment ratio

In the past fiscal year, investments in property, plant and equipment amounted to €1,605 million (2020: €1,441 million). Due to the continuing global challenges resulting from the shortage of semiconductors, the investment rate of 4.2% of sales was slightly below the prior-year level of 4.4%.

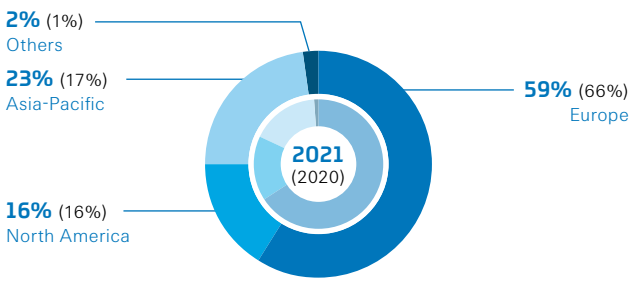
Of the capital expenditure, 45.6% was spent on payments in advance and construction in progress, 35.7% on technical equipment and machines, 8.5% on land and buildings and 10.2% on other equipment, factory and office equipment.

In geographical terms, capital expenditure focused on Europe (59%), followed by Asia-Pacific (23%) and North America (16%).

Capital expenditure related to the expansion of capacities for existing products and the ramp-up of new productions.

It also related to transmission applications (including hybridization), chassis systems, electronics, damper modules, brakes, steering systems and other safety technology as well as to new technological fields such as electromobility and autonomous driving.

G. 17 **Investments by region**



Reduced gross debt

Current and non-current financial liabilities amounted to a total of €12,591 million as of December 31, 2021 (2020: €13,317 million). Without considering the change of derivative financial instruments, there was a year-on-year reduction in gross debt by €752 million.

The financial liabilities assumed as part of the inclusion of WABCO at the acquisition date were further reduced in the year under review. A mandatory offer for early repayment of bonded loans submitted as part of the acquisition was thus repaid with a nominal amount of €165 million in the first quarter of 2021. Another €12 million in bonded loans were refinanced as part of an exchange offer in September 2021.

To finance the WABCO purchase price, bonded loans with a total nominal volume of €2.1 billion were taken up in 2019 and 2020. The tranches have both fixed and variable interest rates with maturity periods of three, five, seven and ten years from disbursement. Of the tranches with variable interest rates, €410 million were already repaid in the year under review. In addition, a credit limit at ZF's core banks of a total of €2.5 billion was used for the company acquisition. The variable interest-bearing loan included two tranches of €1.0 billion (maturity period until 2022) and €1.5 billion (maturity period until 2024). The tranche due in 2022 was completely repaid in the year under review, after an amount of €500 million had already been returned in fiscal year 2020. Furthermore, the tranche due in 2024 was reduced by €300 million. In addition to the bonded loans described above, to finance the purchase price for WABCO, Euro bonds with a total volume of €2.7 billion were issued already in fiscal year 2019. The bonds have maturities between 2023 and 2029 and have fixed interest rates.

ZF was the first automotive supplier in Germany to issue a green bond under the Debt Issuance Program (DIP), for the first time in April 2021. It is based on ZF's Green Finance Framework. The fixed-interest green bond has a nominal volume of €500 million and a maturity period of six years. The proceeds are used on the one hand for the development, production and sale of products for battery electric vehicles (clean transportation) and on the other hand for the development, production and sale of gearboxes for wind turbines (renewable energy). In November 2021, another transaction followed with a fixed-rate individual tranche of €500 million and a maturity period of six and a half years. ZF will publish its first ZF Green Finance Report in April 2022. ZF launched the DIP for the first time in September 2020 in order to increase the flexibility of borrowing funds on the capital market. Potential issuers are ZF Friedrichshafen AG or its 100% subsidiary ZF Finance GmbH. The DIP has a potential total volume of €7.5 billion. In September 2020, ZF completed an emission under the DIP for the first time. The bonds issued are divided into two fixed-interest tranches with a volume of €750 million each and have maturity periods of five and eight years. In November 2020, another transaction followed with a fixed-rate individual tranche of €500 million and a maturity period of six and a half years. The bonds were issued by ZF Finance GmbH under the guarantee of ZF Friedrichshafen AG.

The remaining financial liabilities primarily result from financing the acquisition of TRW in 2015. In November 2021, a payable U.S. dollar denominated bond with a residual amount of $622 million due in April 2022 was repaid as part of a make-whole call. The financial instruments remaining in this context are euro and U.S. dollar denominated bonds with final maturities from 2023 to 2025 and a nominal amount outstanding as of the reporting date of €1,075 million for the euro bonds and $1,077 million for the U.S. dollar bonds (2020: €1,075 million and $1,699 million, respectively) and a bonded loan with final maturity in 2022 and an outstanding nominal amount of €345 million (2020: €345 million). Both the bonds mentioned and the bonded loan bear fixed interest. In addition, a variable interest-bearing loan in the amount of €500 million was taken out at the European Investment Bank. The loan has to be repaid in 2024 at the latest. The syndicated loan that was refinanced in 2016 and had a remaining amount of €3.0 billion in the form of a revolving credit line was unused as of the reporting date. The credit line has a residual term until July 2023.

Against the backdrop of the corporate goal to be financially independent, ZF is aiming for a stable investment grade rating. As of the reporting date, ZF had company and bond ratings of Ba1 with a negative outlook from Moody's and BB+ from Standard and Poor's, also with a negative outlook. Compared to the previous reporting date, the ratings have not changed.

Trade payables amounted to €5,885 million as of the reporting date (2020: €5,626 million). Provisions for pensions amounted to €5,680 million as of December 31, 2021 (2020: €6,735 million). The significant decline mainly resulted from the adjustment of the discount rate to be applied for the valuation of pensions in Germany to 1.2% (2020: 0.7%).

As of the reporting date, the Group equity including non-controlling interests amounted to €7,123 million (2020: €4,443 million). The increase of €2,680 million mainly resulted from the profit after tax and from foreign currency translation. In addition, actuarial gains from the adjustment of the discount rates to be applied for the valuation of pensions had an equity-increasing effect. In addition, Group equity increased as a result of the sale of shares in WABCO India Ltd., which previously had to be offered as part of a mandatory offer in the context of the acquisition of WABCO. The distributions to non-controlling shareholders made in the year under review (€59 million; 2020: €55 million) had an equity-reducing effect.

Due to the described development of equity in combination with the increase in total assets, the equity ratio increased to 18.6% (2020: 12.1%).

Adjusted free cash flow at €991 million

Taking into account the effects of exchange rate changes at the end of the year, the cash position of the year under review is almost at the prior-year level with €2,332 million (2020: €2,341 million).

The cash flow from operating activities increased to €2,419 million (2020: €2,223 million). The increase in operating cash flow was driven in particular by the net profit before income tax in the year under review. The increase in inventories to secure supply chains as a result of the semiconductor crisis had a negative effect in particular.

The cash flow from investing activities amounted to −€1,005 million (2020: −€4,507 million). The higher investments in property, plant and equipment and intangible assets, which were reduced in fiscal year 2020 as a measure to ensure liquidity during the pandemic, had a negative effect. Above all, the cash inflow from the sale of shares in WABCO India Ltd. has had a positive effect on the cash flow. The prior-year value was mainly strongly influenced by the acquisition of WABCO.

As a result, the free cash flow amounts to €1,414 million compared to −€2,284 million in 2020. The free cash flow, adjusted for cash inflows and outflows in connection with M&A activities, amounts to €991 million (2020: €994 million) and is thus within the forecast range of €0.8 to €1.2 billion.

The cash flow from financing activities amounted to −€1,539 million in the past fiscal year (2020: €2,328 million). The balance from repayments and new borrowings of financial debt amounted to −€1,128 million (2020: €2,790 million).

The net financial position decreased by €735 million and amounted to −€10,107 million (2020: −€10,842 million) as of the reporting date. It consists of current and non-current financial liabilities excluding derivative financial instruments, less cash and cash equivalents as well as securities recorded as financial assets.

T. 05 Consolidated statement of cash flows

in € million	2021	2020
Cash flow from operating activities	2,419	2,223
Cash flow from investing activities	−1,005	−4,507
Free cash flow	**1,414**	**−2,284**
Cash flow from financing activities	−1,539	2,328
Net change in cash	**−125**	**44**
Cash position at the beginning of the fiscal year	2,341	2,402
Changes in cash position from exchange rate effects	116	−105
Cash position at the end of the fiscal year	**2,332**	**2,341**

OPPORTUNITIES AND RISKS

OPPORTUNITY AND RISK MANAGEMENT

Opportunity and risk management system

ZF defines risks as any internally and externally occurring event or development that may result in a negative deviation from the business plan, whereas opportunities may result in a positive target deviation.

The ZF risk management system covers the whole Group and involves all operational reporting units and corporate functions via established processes and contact points in order to utilize the strength of the ZF Group matrix organization. The objective of our risk management system is to identify, analyze and evaluate risks and opportunities early on and to take measures to manage risks and seize the opportunities associated with them.

Group Risk Management in its role as governance and assurance function coordinates the risk management process at Group level, provides the structures, methods and processes and ensures the implementation of the ERM Directive. The ERM Directive is aimed at all employees and calls upon them to proactively participate in identifying and handling risks.

The Board of Management bears overall responsibility for the risk management system. It informs the Audit Committee and the Supervisory Board on a regular basis, promptly – at least every three months – and comprehensively about the opportunities and risks of the ZF Group and the respective control measures initiated and planned. The risk report is part of the integrated GRC report, which is prepared three times a year by the GRC core functions and presented to the Board of Management and the Audit Committee.

At Group level, the Risk Committee, chaired by the board member responsible for Finance, IT and M&A, is tasked, among other things, with regularly reviewing and evaluating ZF's risk situation on a cross-divisional and cross-functional basis, as well as ad hoc, if required. Continuous further development and improvement of risk management governance is also part of the Risk Committee's tasks.

G. 18 **ZF Group risk management**

The effectiveness of our risk management system is checked regularly. Within the scope of its control obligation, the Supervisory Board deals at least every six months with the effectiveness of the risk management system established by the Board of Management. Among other things, Corporate Audit is responsible for regularly checking and evaluating the implementation of our ERM Directive and the efficiency of the risk management system. Within the context of the annual or consolidated financial statements audit, the auditor appointed by the Supervisory Board also assesses whether the Board of Management has set up suitable measures for the establishment of a monitoring system in order to detect early on whether there is any development that may threaten the existence of the company. Insights from these regular audits are integrated into the continuous further development of our risk management system. An aggregation of the overall risk landscape ensures that ZF's risk position does not exceed its risk-bearing capacity.

Risk management process

At least every three months and ad hoc, if required, the corporate functions and operational reporting units identify, assess, and report operational risks. All risks are assigned to risk categories in the ZF risk catalog to enable all types of risks along the value chain to be recognized. Once a year, strategic risks that have a long-term impact on ZF are assessed. Significant risks for the Group are identified by means of thresholds

defined by the Board of Management with regard to probability of occurrence and potential extent of damage. Within the scope of Enterprise Risk Management, we include opportunities if they have a direct material link to a risk.

Risks and their impacts are chiefly assessed using quantitative criteria differentiated according to their gross risk value (before risk treatment) and net risk value (after risk treatment). With the possibility of a qualitative risk assessment using our GRC consequence matrix, also non-quantifiable or difficult-to-quantify risks in our risk landscape are considered and managed.

Based on the risk assessment, we strive to reduce or completely avert risks by means of appropriate countermeasures and to seize associated opportunities. For each individual risk classified as major, the responsible risk managers initiate measures. These are also documented and tracked in the Group's reporting. Interdependencies between risks and aggregation effects are taken into account. The Board of Management and the Risk Committee continuously monitor ZF's opportunity and risk situation. Group Risk Management is tasked with continuously tracking the development of all identified major risks and the status of the risk treatment measures initiated. The aforementioned activities ensure that risks and opportunities are continuously analyzed throughout the Group. In this way, we want to increase risk awareness inside our organization and establish the framework for further developing our corporate risk culture.

KEY RISKS COMMENTARY

Based on our current assessment, the risks classed as significant to the future development of the company are described below. The reporting here generally covers a whole year. Risks that are subject to regular reporting essentially arise in the areas of quality, supply chain and sales. Risks that arise out of transactions relevant under taxation law and other legislation are also reported.

Industry environment risks

As a global player we face location- and country-specific risks arising, among other things, from overall economic developments.

The further spread and consequences of the Covid-19 pandemic continue to pose a major risk to the global economy. Due to new virus variants, there is still considerable uncertainty about the future occurrence of infections. The further development depends heavily on the progress and success of the ongoing vaccination campaigns. In 2021, our company doctors offered first, second and booster vaccinations – a clear commitment to solidarity and protection at the workplace. Our pandemic task force monitors the developments from a medical point of view to evaluate the situation for the health of our employees, to derive precautions and ensure that these are followed at all locations.

Due to the pandemic development, negative sales effects were noticeable in almost all major markets. Although economic growth in 2021 has increased compared to last year, we still expect negative impacts due to the pandemic situation in the upcoming years. Thanks to the continuation and availability of the specialized task forces established at the beginning of the pandemic, as described above among other things, to monitor the development of infections and protect our employees, ensure liquidity, secure customer supply and to control production, we were able to handle the waves of the pandemic in 2021 and limit the pandemic effects on our value chain and the company's success.

Diplomatic tensions and protectionist tendencies between individual countries, such as the aggravation of trade relations between the USA and China, can lead to volatile financial markets as well as unfavorable global market developments. ZF is closely monitoring the situation in Ukraine. A cross-functional and cross-divisional task force has been launched to assess the risks and develop measures in order to ensure compliance with applicable regulations. In this context, we are also monitoring the development of inflation rates as well as energy and material prices in the eurozone to be able to respond promptly with measures.

Tariffs on vehicle and parts imports from global markets may significantly affect our value chains as well as those of our customers and suppliers, which could be detrimental to our sales, profitability and financing conditions. Although a general relaxation of U.S. foreign policy relations was expected due to the outcome of the U.S. election in 2020, we still see the trade conflicts between the USA and China as major risks.

Moreover, fiercer competition may also adversely affect sales development and sales prices, especially in our key sales markets in Europe, the USA, India and China. We are also seeing continued protectionist measures in individual countries trying to protect and/or improve their competitiveness on the global markets, such as the introduction and expansion of firm market access barriers, industrial policies and additional certification processes.

With regard to the economy as a whole, we continued to observe a stable low-interest rate environment in 2021 despite massive borrowing from governments and companies due to the pandemic. The ongoing expansive monetary policy results in positive financing conditions. We are observing that the recovery of the technology sector from the global recession is faster in China than in Europe or the Americas.

In addition to activities in the traditional markets, we want to proactively position ourselves in growth markets. Structural deficits and economic downturns in the relevant countries – especially Argentina, Brazil, Russia and India – may lead to declining sales and payment defaults. ZF counteracts market slowdowns in individual regions and countries by volume shifts to other markets. The strategy of diversifying and expanding our product portfolio in the area of electric and automated or autonomous driving as well as the organically and inorganically strengthened power of innovation in all our products contribute to limiting negative impacts of market risks for ZF.

Sales risks

Global economic conditions and developments decisively determine the demand for our products and services. As a global supplier, especially for the automotive and industrial sectors, we are furthermore subject to cyclical demand fluctuations. Therefore, there is a general possibility for all our business units and divisions that markets or market conditions develop more favorably or unfavorably and thus lead to positive or negative deviations from operational planning. Our logistics early-warning system and requirements-oriented production planning enable us to respond flexibly to fluctuations in demand. In addition to the current pandemic situation, the large number of economic factors influencing automotive demand still exposes global production to high volatility. This makes it particularly difficult for us to accurately predict our sales volumes. If markets and consequently our sales develop differently than expected in our planning, our production facilities may be left underutilized, resulting in idle costs, impairment losses and falling sales prices. Thus, mergers of OEMs can lead to increased margin pressure due to transparency regarding prices and costs as well as the bundling of purchasing volumes. Through market research activities and our continuous monitoring of sales markets, we strive to identify changes in market structures and consumer behavior at an early stage and thereby proactively combat the associated sales risks. In addition, we promote the exchange with regional and local contacts on the global markets.

Risks may ensue not only from the various market developments in the product segments and regions, but also from the ramp-up of new products and the breakthrough of disruptive technologies. As an automotive supplier, we continue to be faced with high capital investments and intensive price pressure from vehicle manufacturers. We want to respond to these market and customer risks with our diversified customer and product portfolio as well as our global market presence.

In the area of mobility, stricter regulations on exhaust gas and consumption values of vehicles in the EU and Asia lead to changes in consumer behavior. We expect the share of hybrid and battery electric vehicles to continue to increase, which will have a negative impact on the sales of combustion vehicles and their components. As announced in 2020, ZF will no longer develop driveline components for pure combustion engine vehicles.

With the acquisition of brake specialist WABCO in 2020, we expanded our commercial vehicle expertise as well as our technical aftermarket portfolio. The integration into our organization and processes as the new Commercial Vehicle Control Systems Division was implemented consistently in 2021. We have thus created the prerequisites for the merger of this division with the Commercial Vehicle Technology Division, which will become effective at the beginning of 2022. By joining forces in the newly created Commercial Vehicle Solutions Division, we want to position ourselves even better as a systems supplier in the commercial vehicle sector and significantly expand our portfolio to include advanced driver assistance systems and autonomous functions for commercial vehicles which will be decisive topics for the future.

Moreover, by means of structural changes, ZF continues to adapt capacities worldwide to adjust to weaker

demand and to anticipate the ever faster transformation to electromobility. Through a network of partnerships and alliances, we continue to adapt our product range to market conditions and expand our activities in pioneering fields.

Quality risks

We take responsibility for our products and thus for their impact on society, our business partners and the environment. ZF established a certified quality management system according to IATF 16949 with standardized and consistent quality controls as well as regularly optimized process workflows in order to maintain our product quality at the highest level despite the increasing product complexity. Through close cooperation between our Product Safety and Regulatory Office, Quality Assurance and the Corporate Research and Development Department, relevant quality incidents can be identified and tracked as early as possible, e.g., already in the development process, and the risks associated with them can thus be promptly addressed, reported and mitigated.

For us, defective products can lead to a sales decline, customer withdrawals and loss of market acceptance, especially in light of the fact that many of our products are important components that contribute to the overall safety, durability and performance of our customers' final products. For products that do not comply with customer specifications or (supposedly) exhibit malfunctions, ZF may incur significant costs due to warranty and product liability claims. Quality problems in our products can also be attributed to faulty or regulatory non-conforming components from our suppliers that we install in our products. This can result in technical modifications and rework and therefore also entail significant financial burdens for ZF. Through a Product Compliance Management System, we want to ensure that products entering the market meet all legal and contractual requirements.

Procurement risks

To produce our products, we need significant quantities of raw materials and energy. Although our general procurement policy envisages procuring raw materials from a variety of different suppliers in different regions, we cannot always avoid the dependency on individual suppliers, and consequently on their financial stability. Delays in delivery and cancellations (e.g., due to force majeure, the current Covid-19 pandemic, capacity bottlenecks with forwarding agents, financial problems and even insolvency of subcontractors), the consequences of strikes or insufficient quality can lead to production interruptions, negative effects on our production capacities and an underutilization of our production locations. This could in turn cause delays in the delivery of products to our customers.

In addition to continuing work under pandemic conditions, the fiscal year 2021 was characterized by effects such as the semiconductor shortage and interrupted supply chains, as well as price increases for raw materials and logistics services. ZF has therefore partly re-adjusted its supply chains and shortened them by increasingly involving local suppliers. In the fourth quarter, there was also a worldwide increase in energy prices.

We respond to these special challenges by continuously monitoring the procurement situation and staying in close contact with our customers. A suitable bottleneck control system is intended to minimize or ideally prevent negative impacts, such as ZF or customer production downtimes.

Political developments in countries where we operate can pose potential risks to ZF in the form of additional or increasing customs duties and thus costs for products and parts. Unless we compensate for this by improving productivity and establishing synergies, demand for ZF products may decline for price reasons.

Our Supplier Risk Management systematically works to avoid interruptions in deliveries due to financial instability or market introduction, quality and logistics problems at suppliers and to reduce our procurement risk position to a minimum by identifying supply alternatives. Moreover, continuous market investigation, regular review of key suppliers and targeted analyses enable us to respond adequately and early to unfavorable developments on the raw materials and energy markets. The expected commercial risks were evaluated with regard to customer, market and legal aspects, taking into account the required assumptions and estimates, and were recognized accordingly in the planning.

Research and development risks

The automotive industry in particular and, with it, our business with OEM customers are currently subject to market trends and technical developments to which we must react. This entails operational and strategic development and technology risks. The ability to anticipate technological trends and to respond early to customer needs by developing innovative solutions promptly is crucial for our business.

The research and development risks we face include stricter emission regulations combined with increasing environmental awareness on the customer side, the resulting uncertainty about the speed of decline of the traditional combustion engine as well as associated unknown legal implications. We are currently achieving a significant share of our sales with products based on the combustion engine driveline. Advancing electrification in the field of passenger car and commercial vehicle drives as well as other technological changes could jeopardize our market position if we are not successful in expanding our expertise and developments in these new technology fields.

Moreover, we are seeing an increasing demand for active driver assistance functions up to and including automated driving and the associated future mobility concepts. Due to the transition from hardware- to software-defined technologies, electronic architectures are currently subject to a significant change.

Both product development and product optimization processes generally involve a number of risks. These include, above all, possible delays, especially in the increasingly interconnected supply chains. It is also necessary to exclude possible intellectual property infringements. Furthermore, cost deviations from the original plan can occur, especially within long-term development projects.

In order to address development and technology risks, we rely on a modular design concept, the establishment of strategic partnerships and the acquisition of company participations in the area of future technologies. Since 2019 we have been aligning our skills and capabilities across the Group with four technology fields. At the same time, we are operating cross-divisionally via agile competence centers and system houses. This allows us to provide both established and new customers with system solutions for any application in line with their needs and market requirements. Despite strong margin pressure, resulting from a cost increase caused by various reasons, such as high material and energy prices, we maintain or even increase our investments in machines and systems as well as in research and development.

Cyber and information technology risks

Our comprehensive cyber security strategy aims at protecting people, business and personal information and data as well as our physical and intangible assets in cyberspace. The progressing digitalization of our processes and products as well as the increasing technical interconnection of machines, products, systems, services and partners lead to risks in the area of information processing and technology. Our integrated Information Security Management System (ISMS) certified according to ISO 27001 covers not only IT but also development, production, staff security, compliance, physical safety and legal and customer requirements. Corporate Security advises and supports the business and cross-sectional functions in implementing and enhancing our ISMS. The ISMS is regularly checked and certified by independent authorities.

Through technical and organizational measures, we protect data streams and processing in our production, development and IT infrastructures, both on-premise (on-site operation) and off-premise (e.g., in the cloud). Alongside these measures, ZF's security culture plays a key role in the company's resilience. Consequently, we perform regular, mandatory awareness-raising measures with our workforce worldwide. Partners and suppliers handling ZF information are committed to comply with our security policy and to provide proof of a mature ISMS (TISAX). We use internal and external sources of information to monitor the global cyber security situation. Alarm and emergency systems are in place for security incidents, enabling us to react immediately with corresponding contingency plans and clearly identified crisis response teams. The functioning of these processes is checked regularly. In 2021, a cross-divisional and Group-wide Cyber Security Advisory and Decision Panel was established that monitors and manages the cyberspace risk situation across all risk categories.

In the ZF Group, data protection has the highest priority in all (application) areas: The aim is to effectively and comprehensibly protect the personal data of our employees and partners in company-internal processes as well as in our products – from driver assistance systems and systems for autonomous or automated driving up to handling sensor and vehicle data.

In product development, a particular focus is given to the implementation of ISO/SAE 21434. Our cyber security development processes meet this standard and thus form a cyber security management system that enables our customers to homologate their vehicles according to UN ECE R155. A central team of cyber security assessors has been set up to support product releases. In addition, a Red Team monitors the automotive-specific threat situation and initiates

reactions to possible security incidents. In parallel, a Blue Team is working centrally on advance development for emerging technologies. A broad range of training courses supports the corporate cyber security culture.

Financial risks

As part of central financial risk management, we monitor and control liquidity, foreign currency, interest rate and counterparty risks as well as credit risks in order to safeguard our financial stability. Guidelines and provisions regarding the individual risk types have been put in place which determine how to assess and manage a particular risk. Where required, we hedge financial risks using appropriate instruments. Wherever possible and expedient, we use derivative financial instruments to manage interest and currency risks in particular, also in existing underlying or planned transactions. We also use hedge accounting if the prerequisites are met. As globalization grows, currency risks have increased in the long run. In order to manage these risks better, we have further developed and harmonized our strategy for safeguarding them. Since 2020, currency risks have been controlled and hedged at ZF with a standardized model to hedge underlying transactions in foreign currencies and a uniform system landscape.

Through active cash and cost management, we were able to limit the financial impact of the pandemic and stabilize our liquidity. A revolving loan of €3.0 billion is still fully available as a liquidity reserve. Central cash pooling with sufficient cash and committed credit lines with matching maturities guarantee the necessary financial flexibility.

Risks are associated with the syndicated loan agreement of ZF Friedrichshafen AG, the financing in connection with the completed acquisition of WABCO and the loan agreement with the European Investment Bank. Apart from other obligations, these agreements also comprise a financial covenant which has to be complied with at all times. A breach of this financial covenant would mean that, in the event of a respective claim, the creditor could demand immediate repayment of the loan or terminate the credit line. Thanks to the measures implemented to secure liquidity and adapt the financial covenant, ZF Friedrichshafen AG was always, even in times of the pandemic, able to comply with the financial covenant, also as of the reporting date. From a current perspective, ZF has no reason to believe that these obligations will be breached in the future.

In order to reduce counterparty risks within finance, we only transact with banks having first-class financial stability and within centrally stipulated limits. The credit rating of our suppliers and customers is continually checked in order to initiate measures to safeguard the supply chain or receivables where necessary. There are risks to recognize impairments on financial assets particularly in connection with ZF's investments in equity stakes in the area of future technologies as well as their financing.

Legal and other risks

Due to the complexity of our business model with economic activities on all continents, we are generally exposed to the risk of legal disputes in areas such as product liability, competition law, environmental protection and taxation. Particularly in the USA, we are involved in proceedings whose outcome may have a negative impact on our earnings. Accounting provisions for legal risks are made in accordance with the applicable accounting regulations. Furthermore, it cannot be completely ruled out that individual employees harm the company by violating applicable law in connection with their work activities, resulting in damage to our reputation, market position and earnings due to payment or other liabilities. In the event of investigations, we cooperate fully with the relevant authorities. However, in order to ensure as far as possible that the different country-specific legal provisions are complied with and to control and minimize legal risks, ZF has created provisions and corresponding structures. As part of a Compliance Awareness Campaign, the new ZF Code of Conduct was introduced in the year under review.

ZF is subject to high pension obligations, particularly in Germany. These pension obligations are covered to a varying extent completely or in part by plan assets. We invest the plan assets in a variety of asset classes that are exposed to corresponding fluctuations in value. A change in key parameters for pension obligations and plan assets, such as interest rates, could lead to negative effects on ZF's earnings and equity.

In the countries in which ZF operates, we are subject to global tax audits. In current or future audits, tax laws and relevant facts or circumstances could be interpreted and assessed in a different manner by local tax authorities than by ZF. This poses the risk of a claim for back taxes based on an adjustment to the tax base. Furthermore, tax law initiatives, to the extent that they have been transposed into national law, can influence future tax expenses or tax payments.

If company participations do not develop in accordance with our underlying business plan, we could be forced to make balance sheet depreciations, which in turn have a negative effect on our earnings and equity.

Sustainability is of strategic importance to ZF. We proactively assume responsibility for sustainable management in all three dimensions that measure sustainable development: environmental, economic and social. Sustainability was defined as a binding target in our Next Generation Mobility corporate strategy in November 2020. We will make significant investments that are required to improve our environmental performance and prepare for new regulations or customer expectations. ZF has been collecting and reporting non-financial information in detail for years and actively involves different stakeholders. Developments are recorded systematically and early on and taken into account when coping with the associated risks.

The Ahrweiler plant was severely affected by the flood disaster in July – all of our assembly facilities were destroyed. With the support of firefighters from other ZF locations, we quickly vacated and cleaned the plant. Afterwards, replacement production was set up. As a result of progressing climate change, natural disasters such as these may occur more frequently and have various effects on the ZF Group. For example, economic activity in an entire region can be negatively affected. For consumers, this would result in loss of income and imminent unemployment, which would have a negative impact on purchasing behavior and, consequently, business sales volumes. The ZF Group is preparing for various scenarios, integrating the opportunities and risks of climate change.

We closely monitor the development of the aforementioned risks within the context of our decentralized risk management approach in order to be able to react promptly to changes. Wherever possible, we implement preventive measures to avoid negative effects on ZF.

KEY OPPORTUNITIES COMMENTARY

Industry environment opportunities

Systematically seizing opportunities is an essential part of ZF's sustainable growth policy. In the partly disruptive industries in which we operate as a globally active company, we continuously see new opportunities that we take into account for our plans and forecasts, provided they have a sufficient probability of occurrence. Using our market investigation and environmental analyses in a systematical way and maintaining close contact with customers, we are continuously working on identifying opportunities and leeways with the potential to improve our products' design, production efficiency, market performance and cost structure. Innovation is our main driver, which is why research and development expenditure remained at a high level in the past two weaker fiscal years.

Thanks to our global market presence, we are able to pick up early on growth impulses in the markets that are recovering and to participate in their dynamic development through increased market cultivation. The Paris Climate Agreement has a noticeable accelerating effect on the transformation of the automotive industry towards electrification. Automation and safety-relevant product solutions are also gaining in importance.

Our business model and the strategy derived from it are leading to a raft of opportunities based on the highly diversified product groups and customer industries in the different regions.

Company-specific opportunities

With our Next Generation Mobility strategy, we have defined the Group's long-term orientation and formulated our goals. Legislators around the world are continuously tightening climate protection requirements for companies. Our competitiveness will be closely linked to CO_2 emissions. Accordingly, we have further refined our action plan to achieve carbon neutrality and embedded it in the corporate strategy. By 2030, ZF intends to achieve important milestones on the road to the climate target – climate neutrality by 2040. The target path is certified by the independent Science Based Targets initiative (SBTi) for conformity with the Paris Climate Agreement and the GHG Protocol. To this end, ZF not only focuses on its own plants and products, but takes the entire supply chain into account. This includes increasing the energy efficiency of our plants as well as promoting the transformation to green energy, offering sustainable products with a small carbon footprint and simultaneously reducing emissions in the supply chain.

Through the realignment, we see our company well prepared for the further tightening of regulations on fuel consumption and emission standards for motor vehicles. These stricter regulations will result in a higher demand for energy-efficient and low-emission drive solutions. Vehicle manufacturers are increasingly required to reduce fleet consumption through their mix of vehicles and drive systems. These factors are reinforcing the trend toward further electrification of vehicles. With our extensive portfolio, in particular of systems and components for hybrid and electric drives, we are already providing solutions that enable customers to comply with such changes to the legal framework. Hybrid drives and electric drives in particular have become important drive alternatives sooner than expected. This has positive effects on us as a systems supplier in the passenger car and commercial vehicle sectors. We are continuously examining possible inorganic growth through acquisitions and participations in order to supplement our organic growth.

Our sustainable actions are an important component of our financing strategy in cooperation with our banks and investors. The sustainability strategy has a direct effect on the valuation of our company by ESG rating agencies. Furthermore, sustainability criteria for financing and sustainable project financing can improve credit terms and broaden the investor base.

In addition, our customers have also set themselves ambitious sustainability goals, based on their own CO_2 emissions, but also dependent on those of their suppliers such as ZF. If we can prove that we are working successfully on our carbon footprint, this can lead to a competitive advantage which can be decisive for the future awarding of contracts.

Despite the continuing Covid-19 pandemic, our order situation continued to develop fairly well in 2021. We were able to win a number of important contracts in the areas of electric mobility, advanced driver assistance systems and the relevant connected sensors and actuators. Order intake for bus transmissions and electric bus drives as well as in the aftermarket is also developing positively. Our Wind Power Business Unit is also benefiting from strong market growth. There are further interesting developments especially in view of the increasing global interest in hydrogen energy and fuel cell technology.

By merging the divisions Commercial Vehicle Control Systems and Commercial Vehicle Technology, ZF secures its position as a technology provider in the commercial vehicle sector with the Commercial Vehicle Solutions Division. From the beginning of 2022, the new division will be able to offer a comprehensive product and system portfolio from a single source to serve truck, bus and trailer manufacturers as well as fleet operators on all continents.

In order to implement the Next Generation Mobility corporate strategy, the Group-wide ZF Way initiative was launched, which is aimed at all areas of the company and every employee. The initiative establishes working principles such as "Agile" and "Anticipation", providing a fast response and flexible adaptation to rapidly changing market requirements.

Research and development opportunities

Our Next Generation Mobility strategy aims at providing clean, safe, comfortable and affordable mobility for everyone and everywhere to fit people's current and future lifestyles, bringing us closer to the customer and opening up additional sales opportunities.

With our product mix, we strive to seize opportunities in CO_2 reduction, driveline electrification, in automated driving functions, future mobility concepts and the associated technologies. Our customers are increasingly focusing on their innovative mobility portfolio and the core functions required.

We are consistently driving forward the electrification of vehicles. With our Modular eDrive Kit, intended for electric drives, we see ourselves excellently positioned

for the comprehensive electrification of the passenger car portfolio. This innovation, the first of its kind, pools the comprehensive expertise of ZF's electric mobility team for system solutions, components and software control units in a flexible and modular platform. The energy efficiency of the Modular eDrive Kit can be increased by additional modules, such as ZF eConnect, a flexible solution for all-wheel drive vehicles. Major opportunities of the consistent modular approach result from shorter development times.

Together with our partners, we are also working on a fuel cell technology project of the German Federal Ministry of Transport. The objective of this project is to design and test a purely electrically powered coach. Here, we want to gain important insights for the optimal use of fuel cells in coaches. In addition, together with our partners, we are investigating further applications for the development of fuel cell solutions in the mobility sector and for industrial use in order to identify additional opportunities for ZF.

According to the Organisation for Economic Cooperation and Development (OECD), urban traffic accounts for about 40% of climate-damaging emissions caused by passenger transport worldwide. Both the number of city dwellers and their mobility needs will increase significantly in the coming decades. Apart from the consistent electrification of urban transport, intelligent mobility concepts are required for cities to be able to meet their climate targets and offer their inhabitants attractive living environments. In order to meet these increasing demands, we are expanding our range of autonomous and electric shuttle systems.

With the next generation of autonomous shuttles, ZF can cover additional applications – such as operating autonomous shuttles in specially designated lanes or as regular road users in general city traffic. With DB Regio, we won a partner in 2021 to provide municipal transport companies or regional transport associations with autonomous shuttles which cater to their demand and plans.

At the beginning of 2021, we established the Global Software Center (DIS). It develops Group-wide software systems for future architectures. The most important locations of the Global Software Center are Friedrichshafen (Germany), Pilsen (CZ) and Hyderabad (India).

Digitalization and information technology opportunities

Progressing digitalization and the internet of things (IoT) enable us to increase the connectivity between our mobility and industrial applications and to enhance our services so that in the future vehicles can see, think and act independently.

To achieve this goal, we are adding new digital products and services to our existing business model and are transforming existing processes. For this purpose, we are also expanding our internal resources through suitable partnerships. In a pilot project to introduce the cloud-based Digital Manufacturing Platform, the production processes at ZF's Diepholz plant in northern Germany are to be transformed and the insights then used throughout ZF. The project enables us to reduce our manufacturing costs, improve the inventory, performance and quality of the plant, and increase the efficiency of the workforce. Apart from efficiency and reliability, further advantages of intelligent factories comprise the digital cloud-based deployment and high adaptability of the platform, enabling fast process changes. In the future, not only other ZF plants but also other organizations will benefit from the findings of the digitalization of the Diepholz plant and the capabilities of the Digital Manufacturing Platform. They will be able to use proven solutions that improve reference models for production, effectively reduce maintenance costs, predict failures and optimize material availability.

As a mobility and technology company, we are creating an all-encompassing data and integration platform with the ZF Cloud in order to digitalize all industrial and operational production and business processes of ZF on the Microsoft Azure cloud platform. The new capacities will process the enormous data volumes of vehicles featuring ZF technologies to optimize the connectivity of ZF components and enable entirely new vehicle functionalities – for example for automated driving and autonomous shuttles. By leveraging Microsoft technologies for the cloud, artificial intelligence (AI), internet of things (IoT) and data technologies, ZF is turning into a cloud-based mobility service provider delivering clean, safe, convenient and affordable mobility solutions to its customers.

Today, vehicles are equipped with around 100 different electronic control units (ECUs) each of which has its own integrated piece of software. This decentralized system reaches its limits in light of the challenges of

automated and connected driving. Here, we use our new middleware to accelerate development processes and significantly reduce the complexity of integrating hardware and software. The ZF middleware constitutes the link between a vehicle's software applications and hardware components, so that only the middleware needs to be connected to the vehicle's operating system. This approach minimizes the number of interfaces, guarantees fast communication between all system parts and helps vehicle manufacturers to significantly reduce the complexity of system integration. The same applies to hardware: Here, too, middleware simplifies the integration into the vehicle. Together with our partner KPIT, we decided to jointly develop middleware for the mobility industry. With sophisticated, modular and integrated middleware, mobility providers should be enabled to handle the constantly growing software complexity more easily. The objective is an open and scalable software platform for vehicle manufacturers and mobility customers, which is an important prerequisite for developing vehicles within time and budget.

Data is the future of mobility. Therefore, even more business models will be developed in the future that use data collected by the software-defined car. Digital transformation at ZF is an important success factor here. In order to rise to this challenge, ZF founded the Data Venture Accelerator (DVACC). In close cooperation with the divisions, a model was developed that pools the technical and customer knowledge of the divisions and the digital competence of Corporate Development. The DVACC is focused, flexible and aims to achieve its goal quickly. The results-oriented approach of the globally distributed teams combines the traditional ZF strengths with the entrepreneurial spirit of a start-up.

OVERALL STATEMENT ON THE OPPORTUNITY AND RISK SITUATION

The ZF Group works to counter the above risks using a risk management system that is embedded in an integrated governance, risk and compliance (GRC) approach. It includes the global organization through a decentralized approach and equally covers divisions, cross-sectional functions and regions. Our decentralized risk management approach stipulates that risks are managed where they occur to ensure that those who have the best overview and know-how with regard to the respective risk category take action. The risk management system is integrated in our operational and strategic business activities. The risk management method is subject to a continuous improvement process. The Opportunities Report represents a consolidated observation of significant opportunities in the period under review. Wherever cost-effective and within the Group's sphere of influence, we do our best to develop these.

Based on currently available information as well as the individual risks illustrated in the financial statement and set out in this report, we can identify no additional market-related opportunities and risks which may substantially influence the ZF Group's results of operations, net assets and financial position in fiscal year 2022. The Group's financial situation is stable; the need for financial means is covered by existing liquidity and available credit lines.

Given our market position and the precautions we have taken, we are confident in our ability to control these risks and rise to the resulting challenges. When analyzing the overall picture of significant risks and opportunities, no risks can be identified which may jeopardize the company's continued existence, either alone or in combination with other risks.

FORECAST REPORT

INDUSTRY ENVIRONMENT TRENDS

Economic recovery expected to continue, but short of momentum

After the first catch-up effects in 2021, the situation remains volatile. It is probable that some governments will continue to provide fiscal support for the economy, with opportunities for favorable refinancing, and the economy will be boosted to some extent by continued high and partly pent-up demand. Existing supply bottlenecks, combined with high raw material prices and rising logistics costs as well as the resulting higher price levels, dampen growth expectations for 2022. Global economic growth is expected to be slightly above 4%.

While central banks continued to provide sufficient capital to the economy through low key interest rates during the first phase of the pandemic, it remains to be seen to what extent this trend will continue in view of the high inflation rates. Increases in key interest rates, especially in the USA, might slow down economic recovery in 2022. However, inflation rates are expected to decline in the medium term as demand and supply return to their long-term trends. The prediction for 2022 is positive growth of 3% to 4% in the industrialized countries. This applies to both the eurozone and the USA, both of which are expected to grow on this scale. Similar growth, with a slightly more positive trend, is also expected for China. During the pandemic, the economy there experienced only a slight crisis-related setback. Emerging economies such as Brazil, Turkey and Mexico are expected to make a disproportionately low contribution to global catch-up effects with growth rates ranging from 2% to 3% and India with up to 9%. The condition for this is that the respective vaccination rates get closer to those of industrialized countries and no further drastic restrictions on economic activity will be necessary. Other factors that will primarily influence the medium-term global economic development include the handling of the structural challenge that productivity continues to grow only slowly, the substantial increase in national debt during the Covid-19 crisis and the financing of necessary near-term investments in climate protection. On the positive side in terms of the overall economy, there is increasing digitalization as well as significant growth prospects, especially in sectors that contribute to the transition of the economy to climate neutrality.

Subdued upward trend in the industry sectors, continued impact of Covid-19 crisis and semiconductor bottlenecks

Especially the first half of 2022 will continue to be impacted by the still ongoing pandemic as well as the delivery bottlenecks for important components for vehicle production. High raw material prices as well as energy and logistics costs also lead to a subdued mood in the important ZF industries.

A possible normalization over the course of the year should allow for an increase in the production of passenger cars and light commercial vehicles. The worldwide production of these vehicles was at around 94 million units in 2017 and 2018, and had dropped to 75 million during the crisis. An upswing towards 84 million is becoming apparent, provided that the supply chains stabilize. Europe and North America might achieve double-digit growth rates. After the positive trend in the previous year, China is likely to be moving sideways. Due to regulations, trade conflicts, customs duties, the economic situation and competing technologies (gas, diesel, battery, hybrid, e-fuels, fuel cell), uncertainties remain also with end customers and lead in many regions to consumer restraints that, in the result, slow down market recovery.

The commercial vehicle industry is facing a somewhat weaker year: Global production is expected to slow down. China contributes significantly to this weak development since regulation measures led to a pull-forward effect in 2020. The expected growth in Europe, North America and India can only partially compensate for this.

Moderate growth rates are expected for the industrial markets. The agricultural machinery industry expects a recovery of approx. 3% worldwide. The construction machinery industry sees a similar upward trend with regional differences. While China is likely to experience a slight decline, Europe and North America are expected to recover. South America could even see

a double-digit percentage increase. The wind energy market, on the other hand, shows a rather weak trend. Again, another slight decline in the additional gigawatt output brought to the market compared to the previous year is expected here. In North America, a decline of more than one third is expected after the pull-forward effects in 2020. In the other regions, however, there are signs of slight growth.

DEVELOPMENT OF THE GROUP

Sales forecast

Assuming stable exchange rates and if the market recovers as predicted, ZF expects a moderate growth of Group sales in 2022 to more than €40 billion.

In the passenger car and light commercial vehicle sectors, we expect an increase in sales thanks to the market development and new product launches. The Electrified Powertrain Technology Division with its products for electric mobility contributes in particular to this. We also expect above-average sales growth for the Electronics and ADAS Division. Here, we anticipate a high demand, especially in China and North America. However, the continued semiconductor shortage in 2022 might slow down sales growth for mechatronic products.

As of January 1, 2022, the Commercial Vehicle Technology Division was merged with the Commercial Vehicle Control Systems Division to form the new Commercial Vehicle Solutions Division. For the new division, we expect sales growth above the market average. The main drivers will be the products in the areas of electric mobility, systems business, brakes, steering systems and transmissions.

For the Industrial Technology Division, we expect a sales increase in all business units in line with the market recovery both for existing and new technologies.

For the Aftermarket Division, i.e. spare parts and service business, we anticipate that sales will match the last year's level.

Adjusted EBIT margin

The overall positive sales expectations combined with the corresponding management of cost structures will presumably lead to an adjusted EBIT margin between 4.5% and 5.5%.

For the current fiscal year, we assume that the free cash flow adjusted for company transactions will be between €1 billion and €1.5 billion. The estimate is based on the planned development of the operational business, the intended investments as well as the continuation of consistent working capital management.

T. 06 Forecast

	FORECAST 2022	REPORTED 2021
Sales in € billion	> 40.0	38.3
Adjusted EBIT margin in %	4.5 – 5.5	5.0
Adjusted free cash flow in € billion	1.0 – 1.5	1.0

For the fiscal year 2022, we expect a slight increase in the number of employees, especially in Eastern Europe and the growth region Asia-Pacific.

Effects on the forecast with regard to the uncertainties caused by the Covid-19 pandemic, the continued delivery bottlenecks and the further rising inflation cannot be ruled out. In addition, our expectations are dampened by the current conflict between Russia and Ukraine.

ZF on the right track

The transformation in the automotive industry has continued to accelerate. In addition to the Covid-19 pandemic, this was mainly driven by the developments towards a sustainable economy with significantly reduced CO_2 emissions. At the same time, the general conditions will remain challenging in 2022. Against this backdrop, ZF is pushing investments in future-oriented technologies. We will further adapt our organizational and corporate structures to market developments in order to sustainably improve the quality of our company's results.

Supported by the trust of our customers, the close cooperation with our suppliers and business partners as well as our employees' commitment and willingness to change, we are convinced that ZF will successfully master the current challenges.

Friedrichshafen, March 7, 2022
ZF Friedrichshafen AG
The Board of Management

Consolidated Financial Statements

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CONSOLIDATED STATEMENT OF PROFIT OR LOSS

ZF FRIEDRICHSHAFEN AG FOR THE PERIOD DATING JANUARY 1 TO DECEMBER 31, 2021

in € million	Notes	2021	2020
Sales	1	38,313	32,611
Cost of sales	2	31,779	27,668
Gross profit on sales		**6,534**	**4,943**
Research and development costs	9	2,596	2,168
Selling expenses		1,563	1,333
General administrative expenses		1,373	1,367
Other operating income	3	584	608
Other operating expenses	4	390	770
Result from associates	5	220	–48
Other net result from participations	5	5	–76
EBIT		**1,421**	**–211**
Financial income	6	536	802
Financial expenses	7	875	1,336
Net profit or loss before tax		**1,082**	**–745**
Income taxes	8	299	–4
Net profit or loss after tax		**783**	**–741**
thereof shareholders of ZF Friedrichshafen AG		660	–825
thereof non-controlling interests		123	84

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

ZF FRIEDRICHSHAFEN AG FOR THE PERIOD DATING JANUARY 1 TO DECEMBER 31, 2021

in € million	Notes	2021	2020
Net profit or loss after tax		**783**	**–741**
Line items that will be reclassified in the consolidated statement of profit or loss			
Foreign currency translation differences			
Gains arising during the year (2020: losses)		819	–837
Mark-to-market of cash flow hedges			
Losses arising during the year (2020: gains)		–16	143
Reclassification adjustments for gains/losses included in profit or loss		–20	13
Amounts reclassified to acquisition costs through comprehensive income		0	–271
Income taxes		13	3
		796	**–949**
Line items that will not be reclassified in the consolidated statement of profit or loss			
Mark-to-market of securities		–7	–25
Actuarial gains from pension obligations (2020: losses)		1,277	–900
Income taxes		–362	273
		908	**–652**
Other comprehensive income after tax	25	**1,704**	**–1,601**
Total comprehensive income		**2,487**	**–2,342**
thereof shareholders of ZF Friedrichshafen AG		2,323	–2,409
thereof non-controlling interests		164	67

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

ZF FRIEDRICHSHAFEN AG AS OF DECEMBER 31, 2021

Assets

in € million	Notes	Dec. 31, 2021	Dec. 31, 2020
Current assets			
Cash and cash equivalents		2,332	2,341
Financial assets	10	148	144
Trade receivables	11	5,617	5,481
Contract assets	12	235	132
Other assets	13	767	593
Income tax receivables		74	46
Inventories	14	4,993	4,171
		14,166	**12,908**
Assets held for sale and disposal groups	27	88	0
		14,254	**12,908**
Non-current assets			
Financial assets	10	970	758
Associates	15	199	332
Contract assets	12	355	290
Other assets	13	263	195
Intangible assets	16	12,768	12,735
Property, plant and equipment	17	8,191	7,910
Deferred taxes	8	1,359	1,602
		24,105	**23,822**
		38,359	**36,730**

Liabilities and equity

in € million	Notes	Dec. 31, 2021	Dec. 31, 2020
Current liabilities			
Financial liabilities	20	1,092	549
Trade payables		5,855	5,598
Contract liabilities	21	1,506	1,321
Other liabilities	22	1,837	1,627
Income tax provisions		459	496
Other provisions	23	824	986
		11,573	**10,577**
Liabilities of disposal groups	27	59	0
		11,632	**10,577**
Non-current liabilities			
Financial liabilities	20	11,499	12,768
Trade payables		30	28
Contract liabilities	21	560	420
Other liabilities	22	204	134
Income tax liabilities		80	100
Provisions for pensions	24	5,680	6,735
Other provisions	23	865	845
Deferred taxes	8	686	680
		19,604	**21,710**
Equity			
Subscribed capital	25	500	500
Capital reserve	25	386	386
Retained earnings	25	5,741	3,218
Equity attributable to shareholders of ZF Friedrichshafen AG		**6,627**	**4,104**
Non-controlling interests		496	339
	25	**7,123**	**4,443**
		38,359	**36,730**

CONSOLIDATED STATEMENT OF CASH FLOWS

ZF FRIEDRICHSHAFEN AG FOR THE PERIOD DATING JANUARY 1 TO DECEMBER 31, 2021

in € million	Notes	2021	2020
Net profit or loss before income tax		1,082	−745
Depreciation and amortization/impairments		2,226	2,141
Results from first-time consolidation and deconsolidation		1	−16
Net result from participations and net financial result		114	658
Results from the disposal of intangible assets and property, plant and equipment		−4	−11
Income taxes paid		−456	−266
Changes in non-current provisions made through profit or loss		184	244
Increase (2020: decrease) in inventories		−722	59
Decrease (2020: increase) in trade receivables		150	−271
Increase in other assets		−399	−107
Increase in trade payables		5	100
Increase in other liabilities		238	437
Cash flow from operating activities		**2,419**	**2,223**
Expenditures for investments in			
intangible assets		−82	−49
property, plant and equipment		−1,464	−1,278
associates and other participations		−60	−7
financial receivables		−21	−68
securities		−301	0
Proceeds from the disposal of			
intangible assets		4	1
property, plant and equipment		68	53
associates and other participations		244	61
financial receivables		20	97
securities		318	2,480
Cash inflow from the sale of consolidated companies	29	236	127

in € million	Notes	2021	2020
Cash outflow from the acquisition of consolidated companies		9	−5,959
Dividends received	30	8	9
Interest received		16	26
Cash flow from investing activities		**−1,005**	**−4,507**
Dividends paid to ZF Friedrichshafen AG shareholders		0	−63
Dividends paid to non-controlling interests		−59	−55
Repayments of borrowings		−2,302	−4,218
Proceeds from borrowings	31	1,174	7,008
Interest paid and transaction costs	31	−352	−344
Cash flow from financing activities		**−1,539**	**2,328**
Net change in cash		**−125**	**44**
Cash position at the beginning of the fiscal year		2,341	2,402
Effects of exchange rate changes on cash		116	−105
Cash as of the closing date	28	**2,332**	**2,341**

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

ZF FRIEDRICHSHAFEN AG FOR THE PERIOD DATING JANUARY 1 TO DECEMBER 31, 2021

			Retained earnings							
in € million	Subscribed capital	Capital reserve	Other retained earnings	Foreign currency translation differences	Mark-to-market of securities	Mark-to-market of cash flow hedges	Actuarial gains and losses	Equity attributable to shareholders of ZF Friedrichshafen AG	Non-controlling interests	Group equity
Jan. 1, 2020	**500**	**386**	**7,752**	**–187**	**0**	**132**	**–1,762**	**6,821**	**285**	**7,106**
Net profit or loss after tax			–825					**–825**	84	**–741**
Other comprehensive income after tax				–820	–23	–112	–629	**–1,584**	–17	**–1,601**
Total comprehensive income	**0**	**0**	**–825**	**–820**	**–23**	**–112**	**–629**	**–2,409**	**67**	**–2,342**
Changes in the basis of consolidation								**0**	79	**79**
Dividends paid			–63					**–63**	–55	**–118**
Acquisition of non-controlling interests			–246					**–246**	–37	**–283**
Other changes			–17		18			**1**		**1**
Dec. 31, 2020	**500**	**386**	**6,601**	**–1,007**	**–5**	**20**	**–2,391**	**4,104**	**339**	**4,443**
Jan. 1, 2021	**500**	**386**	**6,601**	**–1,007**	**–5**	**20**	**–2,391**	**4,104**	**339**	**4,443**
Net profit or loss after tax			660					**660**	123	**783**
Other comprehensive income after tax			4	776	–6	–25	914	**1,663**	41	**1,704**
Total comprehensive income	**0**	**0**	**664**	**776**	**–6**	**–25**	**914**	**2,323**	**164**	**2,487**
Changes in the basis of consolidation								**0**	11	**11**
Dividends paid								**0**	–59	**–59**
Disposal of shares in consolidated companies			200					**200**	41	**241**
Other changes			–8		8			**0**		**0**
Dec. 31, 2021	**500**	**386**	**7,457**	**–231**	**–3**	**–5**	**–1,477**	**6,627**	**496**	**7,123**

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

OF ZF FRIEDRICHSHAFEN AG FOR 2021

FUNDAMENTAL PRINCIPLES

Corporate structure

ZF Friedrichshafen AG is a corporation, of which 93.8% is owned by the Zeppelin Foundation and 6.2% by the Dr. Jürgen and Irmgard Ulderup Foundation. The company is headquartered in 88046 Friedrichshafen (Germany), Löwentaler Straße 20, and is listed in the commercial register of the municipal court of Ulm under the number HRB 630206.

Further explanations on the corporate structure can be found in the management report.

General

The line items of the consolidated statement of profit or loss, the consolidated statement of comprehensive income, the consolidated statement of financial position, the consolidated statement of cash flows and the consolidated statement of changes in equity are broken down and explained in the notes to the consolidated financial statements.

The Group's currency is the euro. Unless otherwise stated, all amounts are reported in millions of euros (€ million).

The forecast in the Group management report was changed due to the Russia-Ukraine conflict. The section "Events after the reporting period" in the notes to the consolidated financial statements refers to the Opportunities and Risks chapter as well as the Forecast Report chapter in the Group management report for information about the impact of the conflict.

The Board of Management of ZF Friedrichshafen AG approved these consolidated financial statements on March 7, 2022, and forwarded them to the Supervisory Board.

The consolidated financial statements, which were prepared as of December 31, 2021, as well as the Group management report will be announced in the Federal Gazette.

The consolidated statement of financial position is broken down by maturities. The financial line items are divided into non-current and current assets and/or liabilities on the basis of whether they have a residual term of more than one year or up to one year, respectively.
Assets and liabilities included in a disposal group classified as held for sale as well as assets held for sale are presented separately from other assets and liabilities in the consolidated statement of financial position.

The recognition of assets and liabilities is carried out according to the historical cost principle. This does not include derivative financial instruments, securities and investments in participations that are recognized at fair value.

Adoption of IFRS

As a company that is not publicly traded, ZF Friedrichshafen AG has chosen the option to draw up its consolidated financial statements on the basis of IFRS pursuant to Sec. 315e para. 3 HGB (German Commercial Code).

The consolidated financial statements are in accordance with the standards and interpretations valid on the reporting date and issued by the International Accounting Standards Board (IASB), London, as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e para. 3 in conjunction with Sec. 315e para. 1 HGB.

In fiscal year 2021, the following amended standards were applied for the first time:

- Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16 "Interest Rate Benchmark Reform – Phase 2"
- Amendments to IFRS 4 "Insurance Contracts"
- Amendments to IFRS 16 "Covid-19-Related Rent Concessions beyond 30 June 2021"

The amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16 "Interest Rate Benchmark Reform – Phase 2" are not expected to have any material effects on ZF's consolidated financial statements with reference to further explanations regarding the interest rate risk (Note 36).

With regard to rent payments which have been deferred or (partially) waived due to the Covid-19 pandemic, the amendment of IFRS 16 grants lessees the right to choose at their discretion to not verify if such concessions represent a lease modification. When certain prerequisites are met, immediate recognition through profit or loss is possible. ZF makes use of this right of choice, but this does not result in a significant impact on the consolidated financial statements.

The first-time application of the other amendments to standards did not lead to any change in accounting within the consolidated ZF Group.

The listed standards and interpretations issued or revised by the IASB were not yet applied by ZF in fiscal year 2021 because either the application of these standards and interpretations was not yet mandatory or the European Union had not yet endorsed them. ZF will not adopt any of these standards or standard amendments earlier.

Standard/ Interpretation	Title	Applicable pursuant to IFRS as of	Endorsement by EU	Expected impact
IAS 1	Amendments to IAS 1 "Classification of Liabilities as Current or Non-Current"	Jan. 1, 2023	No	None
IAS 1	Amendments to IAS 1 "Disclosure of Accounting Policies"	Jan. 1, 2023	No	None
IAS 8	Amendments to IAS 8 "Definition of Accounting Estimates"	Jan. 1, 2023	No	None
IAS 12	Amendments to IAS 12 "Deferred Tax related to Assets and Liabilities arising from a Single Transaction"	Jan. 1, 2023	No	None
IFRS 17	Amendments to IFRS 17 "Initial Application of IFRS 17 and IFRS 9 – Comparative Information"	Jan. 1, 2023	No	None
IFRS 17	Insurance Contracts	Jan. 1, 2023	Yes	None
IFRS 3	Amendments to IFRS 3 "Reference to the Conceptual Framework"	Jan. 1, 2022	Yes	None
IAS 16	Amendments to IAS 16 "Proceeds before Intended Use"	Jan. 1, 2022	Yes	None
IAS 37	Amendments to IAS 37 "Onerous Contracts – Cost of Fulfilling a Contract"	Jan. 1, 2022	Yes	None
Various	Improvements to IFRS 2018–2020	Jan. 1, 2022	Yes	None

The amendments to IAS 1 "Classification of Liabilities as Current or Non-Current" essentially contain clarifications relating to the classification of liabilities as current or non-current and in particular affect rights to defer settlement. Since the clarification corresponds to the previous procedure of the consolidated ZF Group, the amendments are not expected to affect the consolidated financial statements.

With the amendments to IAS 37, clarifications take place when it comes to the costs an entity has to consider when determining whether a contract is to be classified as a loss. Since the clarification corresponds to the previous procedure of the consolidated ZF Group, the amendments are not expected to affect the consolidated financial statements.

The Group currently also does not expect that the other changes in the new or amended standards in their current form will have a significant impact on the presentation of financial statements.

Basis of consolidation

In addition to ZF Friedrichshafen AG, 40 German and 304 international subsidiaries controlled by ZF Friedrichshafen AG are included in the consolidated financial statements.

The following table shows the composition of the consolidated ZF Group (without ZF Friedrichshafen AG):

	Jan. 1, 2021	First-time consolidations	Legal changes	Deconsolidations	Dec. 31, 2021
Subsidiaries	347	11	–7	–7	344
of which German	42	2	–4	0	40
of which international	305	9	–3	–7	304
Joint ventures	5	0	0	–1	4
Associates	15	1	0	–2	14

Company acquisitions

By way of a purchase contract dated November 20, 2020, the remaining 25% of the shares of Ing. Tsetinis Beratungs GmbH, Kuchl (Austria), were acquired, which led to an increase of the participation quota to 100% with effect from January 1, 2021. The purpose of the company is management consultancy. The company was included in the consolidated ZF Group's basis of consolidation at the beginning of fiscal year 2021, as the majority of business activities prior to the acquisition were performed with companies of the consolidated ZF Group as customers. With the acquisition of all shares by ZF, the consulting company will focus more on external customers and expand the non-automotive business.

The purchase price of the shares acquired in 2021 amounted to €10 million and was paid in cash. The goodwill recognized based on the purchase price allocation amounted to €5 million. The excess remaining after capital consolidation arises in particular from the acquired know-how in the field of product cost optimization. The acquired assets and liabilities of the company have been recognized at the date of acquisition with the following fair values, which were based on a purchase price allocation:

in € million	
Cash and cash equivalents	16
Financial assets	1
Trade receivables	9
Inventories	1
Property, plant and equipment	1
Trade payables	–1
Other liabilities	–7
Income tax provisions	–2
Acquired total net assets	**18**

in € million	
Purchase price	10
Fair value of shares already held	13
Acquired total net assets	–18
Excess remaining after capital consolidation	**5**

In connection with the share deal, ZF acquired receivables at a fair value of €9 million.

These are trade receivables. There are no uncollectible receivables. Since the acquisition date, the consulting company has contributed sales of €4 million and an amount of –€25 million to the Group profit after tax.

By way of a purchase contract dated December 29, 2021, and effective December 30, 2021, 1% of the shares of Rane TRW Steering Systems Private Limited, Chennai (India), were acquired, which led to an increase of the participation quota to 51%. The company's line of business is the manufacture and sale of products and components for the automotive industry. Among other things, the product portfolio comprises power steering systems, seat belts and airbags. With the acquisition of the majority stake, ZF is further expanding its passenger car and truck business in the Region of India. The purchase price amounted to €2 million and was paid in cash. The goodwill recognized based on the preliminary purchase price allocation amounts to €97 million and is not tax-deductible. The excess remaining after capital consolidation results in particular from the strengthening of ZF activities in the fast-growing Region of India.

The acquired assets and liabilities of the company have been recognized at the date of acquisition with the following fair values, which were based on a preliminary purchase price allocation:

in € million	
Cash and cash equivalents	5
Financial assets	1
Trade receivables	27
Other assets	5
Income tax receivables	2
Inventories	28
Property, plant and equipment	42
Financial liabilities	–24
Trade payables	–28
Other liabilities	–10
Acquired total net assets	**48**

in € million	
Purchase price	2
Fair value of shares already held	119
Minority interests	24
Acquired total net assets	–48
Excess remaining after capital consolidation	**97**

In connection with the share deal, ZF acquired receivables at a fair value of €34 million. This amount includes trade receivables, other assets and income tax receivables. There are no uncollectible receivables. If the acquisition had been effected as of January 1, 2021, the Group sales would have amounted to €38,462 million and the Group profit after tax to €786 million.

The purchase price allocation has not yet been completed as there has been no final asset valuation yet. Adjustments may arise in particular when measuring

property, plant and equipment as well as the intangible assets. The return on the revaluation of the shares already held in the amount of €87 million was recognized in the result from associates.

Company acquisitions in the prior-year period

On May 29, 2020, ZF completed the purchase of 100% of the shares in WABCO Holdings Inc. by way of a cash transaction. WABCO is a leading global supplier of brake control systems, technologies and services for the improvement of the safety, efficiency and connectivity of trucks, buses and trailers. With its acquisition, ZF strengthened its position as an integrated systems supplier of commercial vehicle technology and expanded its product portfolio by the commercial vehicle control systems segment.

The finalization of the purchase price allocation particularly resulted in effects on other provisions in the medium double-digit million range as well as on income tax provisions and deferred taxes in a high one-digit million range each for the period from January 1 to May 28, 2021, which have led to an overall increase in goodwill.

Company disposals

With effect from December 21, 2021, the shares in TRW Asiatic Co., Ltd., headquartered in Bangkok (Thailand), and TRW Asiatic (M) SDN BHD, headquartered in Selangor (Malaysia), have been disposed of.

The disposal led to a deconsolidation income of €1 million that was recognized under other operating income.

Consolidation principles

The consolidation of investments in subsidiaries is carried out according to the purchase method. When control is obtained, the revalued assets and liabilities of the subsidiary and contingent liabilities, if they do not depend on a future event, are offset against the fair value of the consideration paid for the shares. Contingent purchase price payments are recognized at the amount expected. Subsequent adjustments of contingent purchase price payments are recognized in profit or loss. Acquisition-related expenses are recognized in profit or loss when they are incurred.

Any excess remaining after capital consolidation is recognized as goodwill and recorded under intangible assets. The goodwill is tested for impairment as of the reporting date. An impairment test is performed during the year if there are any triggering events. Negative differences arising on the consolidation of investments in subsidiaries are recognized in profit or loss in the consolidated statement of profit or loss under other income.

If not all interests are acquired during an acquisition, the non-controlling interests can be recognized at the amount of the proportionally revalued net assets or at their proportional total company value including the applicable goodwill. This right of choice is applicable to every company acquisition. As of December 31, 2021, all non-controlling interests are reported with the proportional net assets.

In the case of a step acquisition, the already existing interests in the company which has not yet been consolidated are revalued at fair value at the date when control is obtained. The difference to the carrying amount of the investment is recognized in profit or loss.

The acquisition of additional interests of already fully consolidated subsidiaries is recognized as an equity transaction. In this method, the difference between the cost of the interests acquired and the carrying amount of the non-controlling interest is recognized in retained earnings. The effects of a sale of interests, which does not lead to a loss of control over a subsidiary, are to be recognized in other comprehensive income with no effect on profit or loss by offsetting the capital gain or loss against retained earnings and by increasing the non-controlling interests to the amount of the proportional net assets.

The deconsolidation of subsidiaries is carried out on the date of the loss of control or the date of liquidation. The gain or loss on deconsolidation is recognized in other income or expenses, respectively. Remaining interests are recognized at fair value under investments in participations.

Consolidation of receivables, liabilities, provisions, income and expenses as well as gains or losses is effected for the companies included in the basis of consolidation. Guarantees and warranties between consolidated companies are eliminated.

Foreign currency translation

The financial statements of consolidated Group companies prepared in foreign currencies are translated on the basis of the concept of functional currency by the modified closing rate method. Since the subsidiaries operate independently from a financial, economic and organizational point of view, the functional currency is generally identical with the company's local currency. Accordingly, the income and expenses in the financial statements of subsidiaries drawn up in foreign currencies are translated in the consolidated financial statements applying average rates, and assets and liabilities at the closing rate. The exchange difference resulting from the translation of equity at historical rates and the translation differences resulting from the translation of the statement of profit or loss at the average exchange rate are recognized in other comprehensive income in equity without effect on profit or loss.

Upon initial recognition, foreign currency receivables and liabilities are measured at the rate valid on the day of transaction in the individual financial statements of ZF Friedrichshafen AG and its subsidiaries. The closing rate on the reporting date will be used for subsequent measurements. Foreign exchange gains and losses from the revaluation of trade receivables and trade payables on the reporting date are recognized in other income and expenses.

Foreign exchange gains and losses from financial assets and liabilities are generally recognized within other financial income and financial expenses. To the extent that non-current financial receivables or liabilities denominated in foreign currency exist toward a foreign operation, the settlement of which is neither planned nor likely in the foreseeable future, any translation differences are not recognized in profit or loss in other financial income and expenses, but directly in equity as other comprehensive income. A transfer to the consolidated statement of profit or loss only occurs upon repayment or sale of the foreign operation.

The translation of any goodwill carried in foreign currency is based on the closing rate as of the reporting date. The differences resulting from currency translation are recognized in equity through other comprehensive income as foreign currency translation differences.

The exchange rates used for foreign currency translation with a significant influence on the consolidated financial statements changed as follows in relation to one euro:

	Closing rate		Average rate	
	Dec. 31, 2021	Dec. 31, 2020	2021	2020
U.S. dollar	1.1326	1.2271	1.1833	1.1430
British pound	0.8403	0.8990	0.8599	0.8898
Chinese renminbi	7.1947	8.0225	7.6328	7.8785
Brazilian real	6.3101	6.3735	6.3816	5.8851
Mexican peso	23.1438	24.4160	23.9903	24.5130

Accounting policies

The financial statements of ZF Friedrichshafen AG and the companies included in the consolidated financial statements are drawn up as of December 31 of each fiscal year, applying uniform Group accounting principles.

Recognition of expenses and income

Sales are recognized in accordance with IFRS 15 at the date when control over the product or the service is obtained by the customer. The assessment is made separately for each type of performance promise. The amount of sales is determined by the contractual agreement. To the extent that the purchase price refers to multiple sales transactions, the transaction price is allocated appropriately to the individual sales transactions.

Sales from selling products and tools as well as the reimbursement of development expenses are recognized at a point in time, i.e., once ownership or control is transferred to the customer. Income from service and license contracts is recognized either at a point in time or over a period of time, depending on the respective contractual structure. Sales are reported net of cash discounts, price reductions, customer bonuses and rebates.

Additional explanation regarding revenue recognition in accordance with IFRS 15 can be found in the notes on judgments.

Cost of sales comprises the cost of conversion of products sold as well as the purchase costs of sold merchandise. In addition to the directly attributable material and production costs, it also includes indirect production-related overheads, including depreciation on property, plant and equipment used and amortization of intangible assets. Cost of sales also includes write-downs of inventories to the lower net realizable value.

Research costs and non-capitalizable development costs are recognized in profit or loss when incurred.

Borrowing costs that are directly attributable to the acquisition or production of an asset which requires a considerable amount of time in order to be brought into the intended usable or sellable state are recognized as part of the cost of that asset. All other borrowing costs are recognized immediately as expenses.

Interest income is recognized in profit or loss when it is incurred.

Dividend income is recognized at the time the payout entitlement arises.

Hedging transactions

Derivative financial instruments are used at the consolidated ZF Group for hedging in order to reduce foreign currency and raw material price risks as well as interest rate and market price risks. If the criteria for hedge accounting are met, they are accounted for as fair value hedges or cash flow hedges.

If hedge accounting is not applicable, the derivative financial instruments are measured at their fair values and changes in fair value are recognized through profit or loss in the net financial result.

Fair value hedges are used to hedge risks of changes in the value of items recognized in the statement of financial position. If the criteria are met, the results from mark-to-market of derivative financial instruments and the underlying hedged items are reflected in profit or loss.

Cash flow hedges are used to hedge exposure to variability in future cash flows. If the market value of derivative financial instruments – used for cash flow hedges – changes, the unrealized gains and losses in the amount of the effective portion are initially recognized in other comprehensive income without affecting profit or loss. Reclassification to the consolidated statement of profit or loss is effected in the same period during which the hedged transaction affects profit or loss. The ineffective part of market value changes is reflected directly in the consolidated statement of profit or loss.

The profit and loss derived from hedging in connection with hedging operating transactions is recognized under other income and expenses or as part of acquisition costs. The gains and losses from derivative financial instruments used to hedge interest rate, market price or foreign currency risks related to financial assets or liabilities are shown under other financial results.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, bank deposits available any time and short-term overnight money.

Financial assets

In general, the classification of current and non-current financial assets in accordance with IFRS 9 is based on the following three measurement categories:

- at amortized cost (AC)
- at fair value through other comprehensive income (FVtOCI) or
- at fair value through profit or loss (FVtPL)

The classification into the relevant measurement category is determined by the business model based on the management of the respective financial asset and by the contractual cash flow characteristics of the financial asset.

If the financial asset can be allocated to the "Hold" business model and if the cash flows collected are solely payments of principal and interest, the asset is measured at amortized cost (AC). The initial measurement is based on fair value including transaction costs, while subsequent measurement is based on amortized cost. This measurement category primarily includes trade receivables held to maturity as well as financial receivables.

If the financial asset can be allocated to the "Hold and Sell" business model and if the cash flows collected are solely payments of principal and interest, the asset is measured at fair value through other comprehensive income (FVtOCI). Fair value changes recognized in other comprehensive income are reclassified to the statement of profit or loss upon the disposal of the financial asset, except in the case of equity financial instruments. The initial measurement is based on fair value including transaction costs, while subsequent measurement is based on fair value. This measurement category may be used for trade receivables to the extent that these are held to maturity or sold prior to maturity.

To avoid mismatches in terms of recognition or measurement, a financial asset that falls within the scope of one of the two measurement categories mentioned above may, alternatively, be measured at fair value through profit or loss (FVtPL). This measurement category is currently not in use.

Financial assets that do not meet the above-mentioned criteria regarding business model and cash flow characteristics are recognized at fair value through profit or loss (FVtPL). Both initial measurement and subsequent measurement are based on fair value. This measurement category includes investments in participations and securities.

Alternatively, if certain prerequisites are met, assets within the scope of this measurement category may also be measured at fair value through other comprehensive income (FVtOCI). ZF uses this option for equity instruments not held for trading (for example, instruments held in the portfolio for strategic reasons). Subsequently, all future changes in fair value have to be recognized in other comprehensive income; after the derecognition of the financial instrument, these changes remain within equity. Only dividend income is recorded through profit or loss.

Financial instruments measured at amortized cost mainly comprise current receivables. Impairments on these receivables are determined using the simplified model for the recognition of expected credit losses (loss allowance based on creditworthiness). This results in an earlier recognition of losses since not only incurred losses are taken into account, but also losses expected for the future. For this purpose, ZF applies a rating-based model to determine loss rates of receivables and contract assets. This involves the classification of customers into four risk categories. This risk classification is based on credit metrics provided by the external rating agency (Euler-Hermes) and takes into account both past and forward-looking information. Changes in the customers' creditworthiness are recorded within the framework of a regular monitoring process. The basis for the calculation of the general credit-based loss allowances comprise the respective gross receivables, less credit-based specific loss allowances and the expected probability of default. Cash and cash equivalents are normally not reviewed in more detail as to a potentially existing credit risk.

A significant increase in credit risk is assumed to exist when the risk category has deteriorated.

Risk category	Risk	Probability of default	Definition of category
Risk category 1	Low risk	0.1–0.5%	Customers have a small credit risk and a strong ability to meet their payment obligations.
Risk category 2	Medium risk	1–4%	Customers have a medium credit risk and a good ability to meet their payment obligations.
Risk category 3	High risk	4–10%	Customers have an increased credit risk and a sufficient ability to meet their payment obligations.
Risk category 4	In default/ insolvent	18%	Customers have a high credit risk. It can be expected that the customers cannot meet their payment obligations in whole or in part.

As a rule, financial assets are capitalized as of the settlement date.

A financial asset is derecognized as of the settlement date when the contractual rights to receive cash flows from the asset have expired or substantially all risks and rewards have been transferred. A derecognition is performed once it is established that the trade receivables as well as financial receivables are uncollectible.

Inventories

As a general rule, raw materials and supplies as well as merchandise are measured at their average cost taking into consideration the lower net realizable value. Work in progress and finished goods, including development expenses to be reimbursed by customers, are recognized at cost of conversion, taking into account the lower net realizable value. The cost of conversion includes all costs directly attributable to the manufacturing process and appropriate portions of the production-related overheads. This includes production-related depreciation, prorated general administrative expenses and prorated social expenses.

Contract assets

Contract assets comprise contingent customer receivables. On the one hand, this mainly includes development expenses, which are being reimbursed through the component price within the framework of volume production delivery. After the transition of the development results to the customer, these expenses are derecognized from inventories and recognized as contingent customer receivables in contract assets. On the other hand, contingent receivables arising out of price agreements with customers are considered.

Investments in associates and joint ventures

Investments in associates and joint ventures are generally recognized in accordance with the equity method with the proportionate equity. If, on the reporting date, there is objective evidence for the impairment of an investment, an impairment test is performed. The share of the consolidated ZF Group in the profit for the period of the associate or joint venture, respectively, and income and expenses related to such shares are recognized separately in the consolidated statement of profit or loss. Income and expenses that are directly recognized in the equity of the associate or joint venture are recognized in the consolidated ZF Group without effect on profit or loss as well.

Intangible assets

Purchased or internally generated intangible assets are capitalized if a future economic benefit can be expected from the use of the assets and the costs of the assets can be reliably determined.

For recognition and measurement of goodwill, please refer to the explanations on the consolidation principles.

Development costs that are not reimbursed by the customer are capitalized at cost of conversion in as far as both technical feasibility and marketability are ensured. It must furthermore be sufficiently probable that the development activity will generate future economic benefits. Capitalized development costs comprise all costs directly attributable to the development process. Capitalized development costs are amortized from the start of production over an expected product life cycle of five years.

Other intangible assets are recognized at cost and amortized based on the following useful lives:

	in years
Software	3 to 5
Patents, trademarks and licenses	5 to 10
Customer relations	3 to 30

Property, plant and equipment

The entire property, plant and equipment is used for business purposes and is measured at cost less depreciation for wear and tear. Depreciation on property, plant and equipment is recorded on the basis of the straight-line method in accordance with its utilization and allocated to the function costs. Throughout the consolidated group, systematic depreciation is based on the following useful lives:

	in years
Buildings	9 to 33
Technical equipment and machines	2 to 14
Other equipment, factory and office equipment	2 to 13

The depreciation on machines used in multi-shift operations is increased accordingly by shift allowances.

The residual values, depreciation methods and useful lives of assets are reviewed annually and adapted, if necessary.

Leases are accounted for in accordance with IFRS 16. A lease is a contract that conveys the right to use an asset for an agreed period of time in exchange for consideration. In accordance with IFRS 16, right-of-use assets are capitalized and a corresponding lease liability is recognized at the inception of a lease in which ZF acts as the lessee. The lease liability is recognized at the present value of the future lease payments and discounted using the interest rate implicit in the lease. Normally, this rate cannot be readily determined. In these cases, ZF's incremental borrowing rate for matching maturities and currencies is used. This rate is derived from observable credit spreads and swap rates. Lease liabilities are measured at the updated carrying amount using the effective interest method. Amounts that are expected to be paid due to a residual value guarantee as well as extension, termination and purchase options – to the extent reasonably certain – are taken into account in the measurement of future payments.

In addition to the present value of the future lease payments, the cost of the right-of-use asset is determined by taking into account any payments made before the commencement date, lease incentives and initial direct costs, if applicable. Furthermore, the estimated costs for retirement obligations assumed are included in the measurement. The capitalized right-of-use assets are depreciated on a straight-line basis over the shorter of the lease term or the expected useful life. By exercising the corresponding option, agreements with a term of up to one year and agreements regarding assets that can be used independently and are of low value are recognized directly in profit or loss, not affecting the statement of financial position. ZF does not apply IFRS 16 to transactions involving intangible assets (including software and licenses). These are accounted for in accordance with IAS 38.

The capitalized right-of-use assets are reported in the statement of financial position as a part of property, plant and equipment in the respective asset classes to which the asset underlying the lease is to be allocated. Lease liabilities are included in the line item "Financial liabilities." The interest expense is part of the net financial result.

Government grants

Government grants are recognized only if there is reliable evidence that the related conditions are met and the subsidies are likely to be granted. Investment subsidies are deducted from property, plant and equipment in the period in which they were received. Expense subsidies are recognized as income during the same period in which the expenses for which compensation was granted are incurred. This does not include reimbursements for employer contributions to social security in the context of short-time work. These are offset against the personnel expenses.

Current market interest rates are used for the valuation of non-interest-bearing or low-interest-bearing government loans. The difference between the discounted

value and the repayment value is deferred and recognized under other liabilities. The deferred amount is broken down over the duration of the loan contract and recognized in interest expenses.

Assets held for sale and disposal groups

Assets and liabilities are reported as disposal groups when these are to be disposed of by sale together as a group in a single transaction which is highly probable. Individual assets are reported in the statement of financial position as assets held for sale. The affected assets and liabilities are presented separately in the statement of financial position in current assets and liabilities as "Assets held for sale and disposal groups" and "Liabilities of disposal groups", respectively. Income and expenses of the assets and liabilities affected are included in the profit or loss from continuing operations until disposal.

The disposal group is measured upon initial recognition in accordance with the relevant IFRS standards. Subsequently, the disposal group is measured at the lower of its carrying amount or fair value less costs to sell.

Impairment tests

For investments in associates, intangible assets already in use as well as property, plant and equipment, it is verified as of the reporting date whether there are indications of potential impairment. If there are any indications, an impairment test must be performed. Intangible assets that are not yet ready to be used are subject to an annual impairment test.

To perform the impairment test, the recoverable amount is determined. This is the higher amount of the asset's or the smallest cash-generating unit's fair value less costs to sell and their value in use. The recoverable amount is determined for the individual asset or a cash-generating unit, if no cash flows can be allocated to the individual asset. The cash-generating units underlying the impairment tests are defined on the basis of the Group's business units or the regional organization of the Group. The Group's business units also represent the organizational level which is subject to regular review by management.

The value in use is the net present value of future cash flows, which are expected from the continued use of the asset (or the cash-generating unit) and its disposal at the end of its useful life. Based on ZF's changed procedure with upstream strategic planning with a seven- to ten-year planning horizon and downstream one-year budget planning, this extended projection period formed the basis for determining the value in use according to the discounted cash flow method. The extended planning horizon is better suited to reflect the long-term development of ZF's business and its strategic prospects against the backdrop of the transformational changes in the automotive industry – which require longer projection periods, in particular for research and development as well as investment planning – and the longer product life cycles, especially in the truck sector. The capital cost rates of the consolidated ZF Group, which are determined on the basis of the WACC (Weighted Average Cost of Capital) method, are used to discount the cash flows.

The forecast for cash flows is based on the current operational and strategic planning of the consolidated ZF Group, in which general economic data from external macroeconomic research as well as financial surveys is also taken into consideration. The assumptions made consider the country-specific rates of inflation for the period investigated. Cost of materials is forecast based on the individual premises at the level of each cash-generating unit. The development of personnel expenses is also forecast individually on the basis of the collective agreements in effect. Based on these cash flow predictions, the value in use of the cash-generating units is determined assuming a discount factor before tax of 10% (2020: 11%) and a growth rate of 1% (2020: 1%). For perpetuity going beyond the planning horizon, the cash flows are extrapolated taking into account the respective sustainably expected margin of the individual cash-generating units.

Fair values less costs to sell for property, plant and equipment are estimated on the basis of discounted cash flows as well as a cost-based approach for comparable assets that are generally not based on parameters observable on the market.

An impairment loss is recognized if the recoverable amount falls below the carrying amount of the asset or the cash-generating unit.

If the reason for an impairment loss recognized in an earlier period ceases to exist, the impairment loss is reversed, however up to a maximum of the carrying amount that would have been determined (net of depreciation or amortization) if no impairment loss had been recognized. Impairment losses and reversals of impairment losses for intangible assets and property, plant and equipment are assigned to the functional areas of the consolidated statement of profit or loss.

Goodwill from business combinations is allocated to those groups of cash-generating units that derive benefit from the business combinations. In the consolidated ZF Group, these are the respective divisions and business units. An impairment test for goodwill is performed annually using the impairment test in accordance with the above-described methods. An impairment of goodwill is recognized if the recoverable amount of the corresponding cash-generating unit is below its carrying amount. Impairment losses for goodwill are reported under other expenses. Impairment losses recognized on goodwill are not reversed.

Financial liabilities and other liabilities

If financial liabilities are held for trading, the related changes in fair value are recognized through profit or loss (FVtPL). Both initial measurement and subsequent measurement are based on fair value.

Financial liabilities not held for trading are measured at amortized cost (AC) (if they do not fall within a special category). The initial measurement is based on fair value less transaction costs, while subsequent measurement is based on amortized cost. This measurement category primarily comprises financial debt and trade payables.

Alternatively, to avoid mismatches in terms of recognition or measurement, the liabilities may also be measured at fair value through profit or loss (FVtPL). The consolidated ZF Group dispenses with applying the fair value option.

Contract liabilities

Contract liabilities comprise prepayments from customers received for goods or services that are yet to be delivered or provided by ZF. In addition, outstanding charges by the customer to ZF or credits not yet granted by ZF to the customer are reported in this item.

Provisions for pensions

Provisions for pensions are recognized in accordance with the projected unit credit method. Under this method, not only pensions and vested interests recognized as of the reporting date are taken into account, but also increases in pensions and current salaries and wages that are expected in the future. The calculation is based on actuarial reports, taking into account biometric calculation bases. The plan assets which are solely used for satisfying the pension obligations and which are restricted from the access of all other creditors are offset against provisions. If these exceed the amount of provisions, such excess is reported under non-current financial assets. The plan assets are recognized at fair value. Expenses resulting from unwinding the discount on pension obligations and expected returns on plan assets are offset and recognized in interest expenses. Actuarial gains and losses are recognized in full in other comprehensive income in the period in which they occur. All other expenses resulting from the addition to pension provisions are assigned to the affected functional areas within the consolidated statement of profit or loss.

Other provisions

Other provisions are recognized if an obligation to third parties exists, which will probably result in the outflow of resources, and if a reliable estimate can be made of the amount required.

As a general rule, all cost elements that are capitalized in inventories are reflected in the measurement of provisions relating to sales, in particular those for warranties and potential losses on pending transactions. The measurement takes place at the value of the best possible estimate of expenses which are necessary to fulfill the obligation on the reporting date. The measurement of provisions for warranty costs takes place on the basis of actual warranty expenses under consideration of warranty and goodwill periods as well as sales development over several years.

Personnel-related obligations mainly relate to semi-retirement obligations, obligations in connection with restructuring measures as well as long-service awards. The provisions for semi-retirement obligations comprise individual or pay-scale-related top-up benefits for pension insurance as well as the wages and salaries to be paid until the end of the release phase. They are accrued on a pro-rata basis when the obligation arises and according to the respective nature of the commitment, taking into account a minimum period of employment.

The major portion of the semi-retirement obligations is protected against insolvency using a trust model. The assets, which are solely used for satisfying the semi-retirement obligations and which are restricted from the access of all other creditors, are offset against provisions (plan assets). They are recognized at fair value. If the plan assets exceed the amount of provisions, such excess is reported under non-current financial assets. The return on plan assets is offset against expenses from the interest cost of provisions and reported in the statement of profit or loss together with interest.

Provisions for restructuring measures are recorded as soon as a formal plan exists and was communicated to the parties affected or when the implementation of the plan has started. In addition to the scope of the planned capacity adjustments, country- and location-specific regulations as well as the corresponding remuneration level are also taken into account in the evaluation.

Provisions for employee long-service bonuses are calculated on an actuarial basis.

Non-current provisions with a residual term of more than one year are recognized at the reporting date with their discounted settlement amount. They are discounted when the effect of the time value of money is material.

Income taxes

The current income tax receivables and provisions for current and previous periods, which also include tax risks, are measured using the amount for which reimbursement from or payment to tax authorities is expected. The amount is calculated using the tax rates and the tax laws that are in effect on the reporting date.

Deferred tax assets and liabilities are recognized via temporary differences between the tax basis and the IFRS carrying amounts. Deferred tax assets also include tax reductions that will result from the expected utilization of existing tax loss carryforwards and tax credits in the subsequent years. Deferred taxes are computed on the basis of the tax rates that will or are expected to apply on the realization date with sufficient probability in accordance with the current legal situation in the individual countries.

Deferred tax assets on temporary differences and on tax loss carryforwards are only recognized if there is sufficient probability that the tax reductions resulting from them will actually occur in future.

The carrying amount of deferred tax assets is reviewed on each reporting date and written down accordingly, if it is anticipated that there will not be enough taxable profit to offset the tax assets at least in part. Unrecognized deferred tax assets are reviewed on each reporting date and recognized to the extent that a future taxable income allows the utilization of deferred tax assets.

In addition, no deferred tax assets and liabilities are recognized if these result from the initial recognition of goodwill, an asset or a liability as part of a business transaction which is not a business combination, and if, through this initial recognition, neither the accounting net profit or loss before income tax nor the taxable profit is influenced.

Deferred taxes that refer to line items that are directly recognized in equity are also recognized in equity and not in the consolidated statement of profit or loss.

Deferred tax receivables and deferred tax liabilities are offset against each other if the consolidated group has a recoverable right to offsetting the current tax refunds against current tax liabilities and if they apply to the income taxes of the same tax subject levied by the same tax authority.

Judgments and uncertainties in connection with estimates

Preparation of the consolidated financial statements requires assumptions to be made and estimates to be applied, which affect the reported amounts and disclosure of assets and liabilities, income and expenses as well as contingent liabilities.

Essential assumptions and estimates as used in the recognition and measurement of the balance sheet items are explained below.

ZF recognizes sales (Note 1) from a transaction with a customer at the date when ZF has satisfied its performance obligation and control over the product or the service is transferred to the customer. For the major part of the transactions, the transfer of control occurs on the basis of the terms of delivery agreed with the customer (Incoterms). The most commonly used Incoterms are “Ex Works” and “Free Carrier” (FCA). After the transfer of control, the payment for the items delivered or services rendered is made based on terms of payment that are common in the industry and dependent on the individual creditworthiness of the customer. To the extent that warranties with service characteristics are provided to customers that extend beyond typical warranty agreements, sales are recognized over the agreed service period.

In the case of sales not related to volume production, ZF partially receives prior to or concurrently with service provision advance payments in relation to the services to be provided. The transaction price underlying revenue recognition is measured on the basis of the payment claim contractually agreed at the date of the transaction. Any existing variable price components, such as price reductions linked to meeting specific quantity targets or to the development of material prices or exchange rates, are reviewed periodically as to their feasibility.

Contract assets (Note 12) are amortized depending on the project term and unit prices. They are reviewed regularly as to their feasibility based on orders received and sales expectations. If there are any indications that a contract asset is not recoverable, a loss allowance is recognized in the corresponding amount.

Management estimates as to technical and economic feasibility of development projects influence the decision to capitalize development costs under intangible assets (Note 16). The measurement of the capitalized development costs depends on the assumptions about the amount and timing of expected future cash flows as well as on the discount rates to be applied.

For the accounting of other intangible assets (Note 16) and property, plant and equipment (Note 17), the assumptions and estimates essentially relate to the definition of useful lives.

Extension, termination and purchase options have to be taken into account in the recognition of right-of-use assets from leases (Note 18) as well as lease liabilities to the extent that it is reasonably certain that such options are exercised. Reasonably probable extension and purchase options lead to an increase of future payments and thus to higher right-of-use assets and, accordingly, to higher future depreciation. In contrast, reasonably probable termination options result in a decrease of the recognized right-of-use assets and to lower future depreciation. In particular, real estate rental contracts may include such options, and the exercise of such options is reviewed regularly taking into account economic aspects.

Measurement as well as the determination of the useful lives of assets, liabilities and contingent liabilities to be recognized in the context of acquisitions were primarily made using cash-flow-based estimates. The allocation of purchased goodwill was subject to estimates as regards the amount and the timing of future cash flows resulting from synergies.

In the context of the impairment tests (Note 19), assumptions and estimates are used in determining the future cash flows to be expected as well as for defining discount rates. This may have an influence on the values of intangible assets in particular.

The assessment of the recoverability of trade receivables (Note 11) is subject to judgment as regards the expected probability of default.

In accounting the deferred tax assets (Note 8), the assumptions and estimates essentially relate to the likelihood of expected tax reductions actually occurring in the future.

The determination of income tax assets and liabilities (Note 8) is subject to assumptions and estimates relating to the tax assessment of circumstances. Within the scope of current or future audits, tax laws and relevant facts or circumstances could be interpreted and assessed in a different manner by tax authorities than by ZF.

When determining the outstanding customer charges or credits to the customer as part of contract liabilities (Note 21) in the consolidated financial statements in connection with differences in prices or quantities, assumptions and estimates were made based on ongoing customer negotiations or past experience with customers.

The actuarial measurement of provisions for pensions (Note 24) requires several assumptions depending on the nature of the commitment. The assumptions regarding discount rates, future pension and salary increases as well as demographic developments have a major influence on the valuation. In addition to the aforementioned assumptions, the amount of deferred remuneration by the participating employees as well as their future selection with regard to payment options is also an essential estimate for the measurement of the capital-related defined benefit obligations in Germany.

Determination of warranty provisions (Note 23) is subject to assumptions and estimates which refer to the time period between delivery date and the occurrence of the warranty event, warranty and goodwill periods as well as future warranty burdens.

The determination of provisions for onerous contracts (Note 23) is subject to judgments with respect to the interpretation of supply contracts. In this respect, the major decision criteria are the bindingly defined term of delivery as well as quantities and prices.

The measurement of the restructuring provisions (Note 23) depends to a great extent on the expected corporate development and implementation of the initiated cost reduction and structural adjustment measures.

ZF Friedrichshafen AG and its subsidiaries are exposed to various claims arising from legal disputes (Note 34), in particular in connection with warranty cases as well as antitrust proceedings and investigations by authorities. Against the backdrop of complex legal matters, the assessment of the outcome of the proceedings is subject to discretion. The probability and the amount of utilization is taken into account when recognizing provisions. The assessment is based on internal estimates, supported by external consultants and lawyers in individual cases. These estimates will be adjusted if new insights and changes in circumstances occur, and they may deviate significantly from the actual outcome of the proceedings.

No other major judgments were made.

In individual cases, actual amounts could differ from these assumptions and estimates. Changes are recognized in profit or loss as soon as better information is available. This could have an impact on the Group's future net assets, financial position and results of operations.

NOTES TO THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS

The consolidated statement of profit or loss has been drawn up in accordance with the cost of sales method.

The results of operations of the consolidated ZF Group are only partly comparable due to the pandemic-related decline in sales in the previous year. Furthermore, the income and expenses of WABCO Holdings Inc. and its subsidiaries are only proportionally included in the consolidated statement of profit or loss for fiscal year 2020, as control was obtained on May 29, 2020. In addition, fiscal year 2021 was influenced by the shortage of semiconductors.

1 Sales

In the following tables, the sales based on contracts with customers are broken down into sales categories and geographical regions:

in € million	2021	2020
Volume production business sales	32,606	28,021
Aftermarket and service sales	4,176	3,266
Other sales	1,531	1,324
	38,313	**32,611**

in € million	2021	2020
Germany	7,409	6,431
Western Europe	6,893	5,871
Eastern Europe	2,995	2,508
North America	10,194	8,587
South America	1,054	752
Asia-Pacific	9,395	8,147
Africa	373	315
	38,313	**32,611**

2 Cost of sales

in € million	2021	2020
Cost of materials	23,907	20,451
Personnel expenses	4,832	4,391
Depreciation, amortization and impairment	1,525	1,473
Other	1,515	1,353
	31,779	**27,668**

3 Other operating income

in € million	2021	2020
Foreign exchange gains	282	431
Income from hedging	79	63
Income from the disposal of intangible assets and property, plant and equipment	47	17
Badwill	0	14
Income from deconsolidations	1	0
Others	175	83
	584	**608**

4 Other operating expenses

in € million	2021	2020
Foreign exchange losses	270	464
Expenses from hedging	59	73
Losses on the disposal of intangible assets and property, plant and equipment	43	6
Changes of allowances for receivables	–42	48
Changes on other provisions	–6	–8
Goodwill Impairment	0	31
Others	66	156
	390	**770**

5 Net result from participations

in € million	2021	2020
Result from at-equity valuation	1	2
Result from disposal of associates	133	16
Valuation of associates	86	–66
Result from associates	**220**	**–48**
Income from participations	2	3
Result from disposal of participations	2	0
Valuation of participations	1	–79
Other net result from participations	**5**	**–76**
Net result from participations	**225**	**–124**

6 Financial income

in € million	2021	2020
Interest from financial assets	12	18
Other interest	83	9
Return on plan assets	22	0
Interest income	**117**	**27**
Foreign exchange gains	264	555
Income from derivative financial instruments	143	202
Income from securities	10	18
Others	2	0
Other financial income	**419**	**775**
Financial income	**536**	**802**

Interest income under the effective interest method accounts for €20 million for the 2021 fiscal year (2020: €27 million).

7 Financial expenses

in € million	2021	2020
Interest from financial liabilities	319	277
Interest on lease liabilities	27	26
Other interest	32	34
Interest cost on pension provisions	41	46
Unwinding the discount on other non-current items	1	1
Interest expenses	**420**	**384**
Foreign exchange losses	296	616
Expenses from derivative financial instruments	113	196
Expenses from securities	0	29
Valuation of financial receivables	8	57
Transaction costs and incidental expenses	38	54
Other financial expenses	**455**	**952**
Financial expenses	**875**	**1,336**

8 Income taxes

Income taxes are composed as follows:

in € million	2021	2020
Current taxes	389	317
Deferred taxes	–90	–321
Income tax income	**299**	**–4**

Current income tax expenses included adjustments in the amount of –€5 million (2020: €75 million) for current taxes of prior fiscal years. Deferred tax income includes tax income of approximately €91 million (2020: €260 million) in connection with the development of temporary differences.

The current taxes in Germany were determined on the basis of an overall tax rate of 30%, derived from the corporate income tax rate of 15%, the solidarity surcharge of 5.5% and an average trade tax rate of 14.175%. The current taxes of international subsidiaries are determined on the basis of relevant national tax laws and the tax rate applicable in the country of incorporation. Deferred tax assets and liabilities are measured at the tax rates in Germany and abroad, respectively, which are expected to apply at the time of realizing the asset or discharging the liability.

The (current and deferred) income tax expenses expected on the basis of the German overall tax rate of 30% (2020: 30%) deviate from the reported income tax expenses as set out below:

in € million	2021	2020
Expected income tax expenses	325	–224
Increase/decrease of income taxes due to		
Tax effects due to different national tax rates and taxation systems	–69	1
Effects of changes in tax laws	–22	10
Tax effects due to non-recognition and write-down of deferred tax assets and their reversal	24	57
Tax effects due to permanent differences [1]	85	83
Tax effects due to prior-period items	–37	76
Other	–7	–7
Reported income tax income	**299**	**–4**

1) Permanent differences comprise tax-reducing items such as tax credits as well as non-deductible operating expenses and withholding taxes.

The gross amounts of deferred tax assets and liabilities resulted from the following line items:

	2021		2020	
in € million	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Intangible assets	0	1,000	0	1,177
Other assets	181	271	340	333
Pensions	1,027	0	1,445	0
Other liabilities	588	159	424	88
Tax loss carryforwards and tax credits	307	0	311	0
Total	**2,103**	**1,430**	**2,520**	**1,598**
Netting	−744	−744	−918	−918
	1,359	**686**	**1,602**	**680**

The change in deferred taxes results not only from income taxes recognized in the consolidated statement of profit or loss but also from purchase price allocation, changes in line items of the consolidated statement of comprehensive income and from foreign currency effects.

For companies that showed a negative tax result in the year under review or in the previous year, a deferred tax asset arising from temporary differences and tax losses of €748 million (2020: €1,112 million) was capitalized because the realization of the tax claim is probable in this respect due to the tax profit planning.

At the end of the fiscal year, tax loss carryforwards are reported which were subject to offsetting restrictions. To that extent, no deferred tax assets have been recognized for these since their utilization due to future positive taxable profit is not probable.

No deferred tax assets were recorded for the following items (gross amounts):

in € million	**2021**	2020
Deductible temporary differences	399	354
Tax loss carryforwards and tax credits	989	934
	1,388	**1,288**

Of the unrecognized tax loss carryforwards, €547million (2020: €552 million) had a limited expiration period of up to 20 years and €442 million (2020: €381 million) were unlimited. Other items in the amount of €246 million (2020: €303 million) were not taken into account because the probability of a claim is deemed to be extremely low.

Deferred taxes are to be recognized for temporary differences in relation to subsidiaries if their realization is probable. Deferred tax liabilities of €159 million (2020: €54 million) were recorded for reserves generated by subsidiaries. Apart from that, no deferred taxes have been recognized for the reserves generated by subsidiaries of €2,335 million (2020: €2,241 million), as the profits are to be reinvested for an indefinite period of time.

9 Other notes to the consolidated statement of profit or loss

The consolidated statement of profit or loss includes the following cost of materials:

in € million	**2021**	2020
Cost of raw materials, supplies and merchandise	23,916	20,433
Cost of purchased services	287	255
Other cost of materials	29	20
	24,232	**20,708**

The breakdown of personnel expenses is as follows:

in € million	2021	2020
Wages and salaries	6,746	6,291
Social security and benefit expenses	1,290	1,047
Pension expenses	350	98
	8,386	**7,436**

Personnel expenses include expenses for defined contribution plans in the amount of €363 million (2020: €345 million). The expenses contained for the state plans amounting to €310 million (2020: €273 million) primarily comprise the employer's contribution to the state pension scheme, which is included in the social security expenses. The item "Social security and benefit expenses" includes reimbursements for employer contributions to social security in the context of short-time work in the amount of €9 million (2020: €170 million).

Termination benefits of €8 million (2020: €403 million) were recorded in the consolidated statement of profit or loss. They affect severance pay as well as expenses from additions to restructuring provisions.

Amortization on intangible assets and property, plant and equipment is included in the following consolidated statement of profit or loss items:

	Intangible assets		Property, plant and equipment	
in € million	2021	2020	2021	2020
Cost of sales	235	207	1,290	1,253
Research and development costs	43	48	111	107
Selling expenses	361	306	24	24
General administrative expenses	24	24	137	130
	663	**585**	**1,562**	**1,514**

Impairment losses on property, plant and equipment amount to €3 million (2020: €6 million). The reversals of impairments in the year under review amount to €2 million (2020: €1 million). There have been no impairment losses on intangible assets (2020: €37 million) and no reversals of impairments (2020: €1 million).

Research and development costs recorded in the fiscal year reached €2,596 million (2020: €2,168 million). This figure includes amortization for capitalized development costs of €22 million (2020: €23 million).

NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

10 Financial assets

in € million	Dec. 31, 2021 Total	Dec. 31, 2021 Thereof current	Dec. 31, 2020 Total	Dec. 31, 2020 Thereof current
Investments in participations	77	0	62	0
Securities	92	63	100	76
Financial receivables	134	32	119	27
Net assets from defined benefit plans	759	0	571	0
Derivative financial instruments	56	53	50	41
	1,118	**148**	**902**	**144**

Investments in participations have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	62	161
Changes in the basis of consolidation	–14	9
Additions	28	3
Reclassifications	2	–4
Disposals	–2	–28
Depreciation, amortization and impairment	–3	–100
Reversals of impairments	4	21
Carrying amount as of Dec. 31	**77**	**62**

The financial receivables include granted loans and direct insurance claims against life insurances of €33 million (2020: €35 million).

The financial receivables also contain earmarked bank deposits and time deposit investments of €55 million (2020: €19 million).

The specific loss allowances for financial receivables have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	112	78
Net exchange differences	1	0
Additions	8	57
Utilization	–70	–23
Carrying amount as of Dec. 31	**51**	**112**

The credit-based loss allowances for financial receivables remained unchanged at €1 million.

11 Trade receivables

The trade receivables have the following risk structure:

Dec. 31, 2021 Risk category	Net in € million	Risk structure in %	Specific loss allowances in € million	Credit-based loss allowances in € million	Gross in € million
1	475	9	4	1	480
2	4,457	79	28	49	4,534
3	662	12	12	32	706
4	23	0	16	1	40
Total	**5,617**	**100**	**60**	**83**	**5,760**

Dec. 31, 2020 Risk category	Net in € million	Risk structure in %	Specific loss allowances in € million	Credit-based loss allowances in € million	Gross in € million
1	438	8	4	1	443
2	4,001	73	31	57	4,089
3	1,042	19	18	48	1,108
4	0	0	22	0	22
Total	**5,481**	**100**	**75**	**106**	**5,662**

The specific loss allowances for trade receivables have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	75	77
Net exchange differences	7	–2
Changes in the basis of consolidation	0	11
Additions	14	28
Utilization	0	–5
Reversals	–36	–34
Carrying amount as of Dec. 31	**60**	**75**

The credit-based loss allowances for trade receivables have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	106	58
Net exchange differences	0	3
Net additions	0	45
Net reversals	–23	0
Carrying amount as of Dec. 31	**83**	**106**

Net reversals for credit-based loss allowances are due to a risk structure improvement in the customer portfolio compared to the previous year.

12 Contract assets

	Dec. 31, 2021		Dec. 31, 2020	
in € million	Total	Thereof current	Total	Thereof current
Volume production business	413	172	264	75
Product development and application	169	55	149	48
Others	8	8	9	9
	590	**235**	**422**	**132**

Sales recorded in fiscal year 2021 from performance obligations satisfied (or partially satisfied) in previous fiscal years amount to €85 million (2020: €64 million).

Contract assets have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	422	328
Net exchange differences	6	0
Additions	307	189
Allowances	0	–1
Utilization	–145	–91
Reversals	0	–3
Carrying amount as of Dec. 31	**590**	**422**

The credit-based loss allowances for contract assets remained unchanged at €2 million.

The contract assets have the following risk structure:

Dec. 31, 2021 Risk category	Net in € million	Risk structure in %	Specific loss allowances in € million	Credit-based loss allowances in € million	Gross in € million
1	452	76	0	2	454
2	133	23	0	0	133
3	3	1	0	0	3
4	2	0	0	0	2
Total	**590**	**100**	**0**	**2**	**592**

Dec. 31, 2020 Risk category	Net in € million	Risk structure in %	Specific loss allowances in € million	Credit-based loss allowances in € million	Gross in € million
1	374	89	0	2	376
2	40	9	0	0	40
3	2	1	0	0	2
4	6	1	0	0	6
Total	**422**	**100**	**0**	**2**	**424**

13 Other assets

	Dec. 31, 2021		Dec. 31, 2020	
in € million	Total	Thereof current	Total	Thereof current
Other tax receivables	609	506	446	396
Prepaid expenses	162	110	149	101
Others	259	151	193	96
	1,030	**767**	**788**	**593**

Other tax receivables are, for the most part, sales tax refund entitlements. Others comprise, in general, payments in advance and capitalized reimbursement claims against suppliers.

The specific loss allowances for the other assets have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	15	0
Changes in the basis of consolidation	0	6
Additions	3	9
Utilization	–2	0
Carrying amount as of Dec. 31	**16**	**15**

The credit-based loss allowances for other assets remained unchanged at €1 million.

14 Inventories

in € million	Dec. 31, 2021	Dec. 31, 2020
Raw materials and supplies	2,187	1,650
Work in progress	1,655	1,523
Finished goods and merchandise	1,128	980
Payments in advance	23	18
	4,993	**4,171**

Compared to the previous year, write-downs of inventories increased by €32 million to €249 million.

15 Associates

in € million	Dec. 31, 2021	Dec. 31, 2020
Investments in joint ventures	72	85
Investments in associates	127	247
	199	**332**

The joint ventures and associates, including the shareholding, are set out in the list of shares held.

ZF PWK Mécacentre S.A.S., St. Etienne (France), is classified as an associate despite a participation quota of 50% as the company is not jointly controlled.

The total comprehensive income of the associates is as follows:

	Investments in joint ventures		Investments in associates	
in € million	2021	2020	2021	2020
Net profit or loss after tax	22	–65	198	17
Other comprehensive income	0	–3	0	–11
Total comprehensive income	**22**	**–68**	**198**	**6**

Net profit or loss after tax regarding investments in associates includes the book profit from the sale of shares of Brakes India Private Limited, Chennai (India).

16 Intangible assets

in € million	Goodwill	Patents, licenses, software and similar rights and assets	Development costs	Payments in advance	Total
Cost as of Jan. 1, 2021	**7,631**	**7,731**	**211**	**67**	**15,640**
Changes in the basis of consolidation	169	0	0	0	169
Net exchange differences	305	383	21	0	709
Additions	0	49	24	9	82
Reclassifications	0	8	0	–8	0
Disposals	0	–56	0	–1	–57
Reclass disposal groups	–10	–3	0	0	–13
Cost as of Dec. 31, 2021	**8,095**	**8,112**	**256**	**67**	**16,530**
Accumulated amortization as of Jan. 1, 2021	**73**	**2,711**	**121**	**0**	**2,905**
Changes in the basis of consolidation	0	0	0	0	0
Net exchange differences	0	241	9	0	250
Additions (amortization)	0	641	22	0	663
Disposals	0	–53	0	0	–53
Reclass disposal groups	0	–3	0	0	–3
Accumulated amortization as of Dec. 31, 2021	**73**	**3,537**	**152**	**0**	**3,762**
Carrying amount as of Dec. 31, 2021	**8,022**	**4,575**	**104**	**67**	**12,768**

in € million	Goodwill	Patents, licenses, software and similar rights and assets	Development costs	Payments in advance	Total
Cost as of Jan. 1, 2020	**4,181**	**4,917**	**225**	**56**	**9,379**
Changes in the basis of consolidation	36	3,208	–9	0	3,235
Net exchange differences	–312	–385	–16	–1	–714
Additions	3,726	26	11	12	3,775
Disposals	0	–35	0	0	–35
Cost as of Dec. 31, 2020	**7,631**	**7,731**	**211**	**67**	**15,640**
Accumulated amortization as of Jan. 1, 2020	**42**	**2,389**	**107**	**0**	**2,538**
Changes in the basis of consolidation	0	1	0	0	1
Net exchange differences	0	–211	–9	0	–220
Additions (amortization)	0	562	23	0	585
Additions (impairments)	31	6	0	0	37
Disposals	0	–35	0	0	–35
Reversals of impairments	0	–1	0	0	–1
Accumulated amortization as of Dec. 31, 2020	**73**	**2,711**	**121**	**0**	**2,905**
Carrying amount as of Dec. 31, 2020	**7,558**	**5,020**	**90**	**67**	**12,735**

Goodwill

Accordingly, goodwill from the consolidation of investments in subsidiaries and from the individual financial statements is shown below:

in € million	Dec. 31, 2021	Dec. 31, 2020
Active Safety Systems	1,013	946
Car Chassis Technology	394	392
Electrified Powertrain Technology	929	929
Electronics and ADAS	57	57
Passive Safety Systems	1,085	951
Commercial Vehicle Control Systems	3,135	2,944
Commercial Vehicle Technology	648	601
Industrial Technology	234	244
Aftermarket	522	494
Central units	5	0
	8,022	**7,558**

Goodwill mainly represents synergies in the areas of materials purchasing, technology development and administrative company organization.

17 Property, plant and equipment

in € million	Land and buildings	Technical equipment and machines	Other equipment, factory and office equipment	Payments in advance and construction in progress	Total
Cost as of Jan. 1, 2021	**4,170**	**12,355**	**2,806**	**1,063**	**20,394**
Changes in the basis of consolidation	36	56	6	1	99
Net exchange differences	90	336	54	44	524
Additions	136	573	164	732	1,605
Reclassifications	36	642	74	−752	0
Disposals	−61	−371	−166	−1	−599
Reclass disposal groups	−16	−17	−11	0	−44
Cost as of Dec. 31, 2021	**4,391**	**13,574**	**2,927**	**1,087**	**21,979**
Accumulated depreciation as of Jan. 1, 2021	**1,587**	**8,792**	**2,105**	**0**	**12,484**
Changes in the basis of consolidation	3	41	7	0	51
Net exchange differences	20	185	39	0	244
Additions (amortization)	227	1,104	231	0	1,562
Additions (impairments)	0	3	0	0	3
Reclassifications	−25	10	15	0	0
Disposals	−44	−322	−152	0	−518
Reclass disposal groups	−13	−14	−9	0	−36
Reversals of impairments	0	−2	0	0	−2
Accumulated depreciation as of Dec. 31, 2021	**1,755**	**9,797**	**2,236**	**0**	**13,788**
Carrying amount as of Dec. 31, 2021	**2,636**	**3,777**	**691**	**1,087**	**8,191**

in € million	Land and buildings	Technical equipment and machines	Other equipment, factory and office equipment	Payments in advance and construction in progress	Total
Cost as of Jan. 1, 2020	**3,771**	**11,639**	**2,781**	**1,085**	**19,276**
Changes in the basis of consolidation	254	266	30	117	667
Net exchange differences	−97	−275	−60	−54	−486
Additions	166	477	136	662	1,441
Reclassifications	123	571	48	−742	0
Disposals	−47	−323	−129	−5	−504
Cost as of Dec. 31, 2020	**4,170**	**12,355**	**2,806**	**1,063**	**20,394**
Accumulated depreciation as of Jan. 1, 2020	**1,390**	**8,197**	**2,020**	**0**	**11,607**
Changes in the basis of consolidation	0	−7	0	0	−7
Net exchange differences	−17	−108	−59	0	−184
Additions (amortization)	230	1,036	248	0	1,514
Additions (impairments)	0	5	1	0	6
Reclassifications	15	−13	−2	0	0
Disposals	−31	−317	−103	0	−451
Reversals of impairments	0	−1	0	0	−1
Accumulated depreciation as of Dec. 31, 2020	**1,587**	**8,792**	**2,105**	**0**	**12,484**
Carrying amount as of Dec. 31, 2020	**2,583**	**3,563**	**701**	**1,063**	**7,910**

18 Leases

The leased assets are primarily rented properties, leased motor vehicles and forklift trucks. The rights of use from leases reported in property, plant and equipment have the following additions and depreciations:

in € million Dec. 31, 2021	Leased land and buildings	Leased technical equipment and machines	Other leased equipment, factory and office equipment	Total
Additions during the fiscal year	80	21	40	141
Depreciations during the fiscal year	119	12	40	171
Carrying amount	**613**	**48**	**77**	**738**
Dec. 31, 2020				
Additions during the fiscal year	121	4	38	163
Depreciations during the fiscal year	123	11	35	169
Carrying amount	**627**	**56**	**80**	**763**

In fiscal year 2021, expenses for current leases amounted to €42 million (2020: €36 million) and expenses for leases of low-value assets were incurred in the amount of €14 million (2020: €11 million). Interest expenses for leases reported in the net financial result amounted to €27 million (2020: €26 million).

In the fiscal year, payments for lease liabilities in the amount of €169 million (2020: €196 million), including interest, were made.

The maturity structure of lease liabilities as of December 31, 2021, is as follows:

in € million	2021	2020
within the upcoming fiscal year	179	177
between 2 and 5 years	439	447
more than 5 years	302	309
	920	**933**

As of fiscal year 2021, lease liabilities are represented on a gross basis in the maturity structure, i.e., the undiscounted contractual cash flows are applied. For better comparability, the previous year's figures were adjusted.

As of December 31, 2021, there are purchase commitments for short-term leases to the customary extent.

19 Impairment tests

In the fourth quarter of 2021, the consolidated ZF Group performed impairment tests to assess the impairment of its assets.

Inter alia, assumptions were made with regard to the development of sales in order to calculate the impairment tests. The partial decrease in growth rates is mainly attributable to a lower sales level in the previous year due to the Covid-19 pandemic and the progressing transformation process in the automotive industry. The assumptions made for the average sales increase in the planning period are as follows:

in %	2021	2020
Active Safety Systems	10	9
Car Chassis Technology	5	4
Electrified Powertrain Technology	5	15
Electronics and ADAS	18	17
Passive Safety Systems	6	4
Commercial Vehicle Control Systems	7	8
Commercial Vehicle Technology	9	15
Industrial Technology	7	16
Aftermarket	4	7

The annual impairment tests of goodwill did not lead to an impairment loss on goodwill (2020: €31 million).

In addition, a sensitivity analysis regarding material measurement parameters was conducted in the context of the impairment tests. This involved an analysis to what extent, if assessed on an isolated basis, a reduction of the sustainable operating profit by 10%, a reduction of the sustainable growth rate to 0.5% or an increase in the capitalization rate by 10% would have an effect on the recoverability of goodwill. In all of the scenarios analyzed, this sensitivity analysis would not have led to an impairment of goodwill. In addition, impairments were recognized for individual assets of property, plant and equipment in the following divisions:

in € million	2021	2020
Active Safety Systems	0	5
Car Chassis Technology	2	1
Commercial Vehicle Technology	1	0
	3	**6**

As part of the process, the assets were measured at fair value less costs to sell.

The impairment losses are distributed by region as follows:

in € million	2021	2020
Asia-Pacific	2	1
Europe	1	0
North America	0	3
South America	0	2
	3	**6**

In the past fiscal year, reversals of impairments for property, plant and equipment in the Active Safety Systems Division amounted to €2 million (2020: €1 million).

In the previous year, impairment losses for intangible assets were recorded in the Electronics and ADAS Division in the amount of €6 million.

Reversals of impairments for intangible assets in the amount of €1 million were realized in the central units in the prior year.

20 Financial liabilities

in € million	Dec. 31, 2021 Total	Dec. 31, 2021 Thereof current	Dec. 31, 2020 Total	Dec. 31, 2020 Thereof current
Bonds	7,745	83	7,171	84
Bonded loans	2,062	611	2,647	156
Liabilities to banks	1,878	181	2,607	87
Other financial liabilities	37	12	38	37
Lease liabilities	809	156	820	154
Derivative financial instruments	60	49	34	31
	12,591	**1,092**	**13,317**	**549**

Under current financial liabilities, non-current loans, bonded loans and bonds are recognized with their redemption installments due within one year. Moreover, current liabilities which serve short-term financing purposes are included under this item. The country-specific interest rates on these short-term loans fluctuate between 1.1% (2020: 4.5%) and 2.9% (2020: 4.8%). The country-specific interest rate on the loans reported in non-current financial liabilities is again between 0.3% and 4.8%. Most of the financial liabilities have a fixed interest rate. Most of the loans are due at the end of the contractual term.

In 2021, the financing strategy was marked by the continued debt reduction efforts and sustainable financing. The gross debt was reduced by €752 million and, as part of a debt issuance program, which was launched in 2020, two green bonds with a total volume of €1.0 billion were issued for the first time. In addition, as of the reporting date, there was an unused revolving line of credit in the amount of €3.0 billion as well as a loan from the European Investment Bank in the amount of €500 million, which was fully drawn.

Apart from other obligations, the loans mentioned above also include a financial covenant that ZF has to comply with. It is defined as the ratio of net debt to adjusted consolidated EBITDA. This financial key figure is tested each quarter. Due to the significant effects of the pandemic on the financial covenant, ZF concluded agreements with all banks in 2020 to adjust the upper limit for debt. After March 31, 2021, this value was gradually reduced to 3.75 as of December 31, 2021. As of December 31, 2023, the maximum value will be 3.25. ZF met the requirement on all test dates in the past and on the reporting date.

21 Contract liabilities

in € million	Dec. 31, 2021 Total	Dec. 31, 2021 Thereof current	Dec. 31, 2020 Total	Dec. 31, 2020 Thereof current
Volume production business	968	940	920	892
Product development and application	1,061	546	788	407
Others	37	20	33	22
	2,066	**1,506**	**1,741**	**1,321**

Contract liabilities have developed as follows:

in € million	2021	2020
Carrying amount as of Jan. 1	**1,741**	1,445
Changes in the basis of consolidation	2	45
Net exchange differences	52	–27
Additions	1,298	919
Utilization	–927	–613
Reversals	–100	–28
Carrying amount as of Dec. 31	**2,066**	**1,741**

The expected future sales from performance obligations not satisfied (or partially not satisfied) as of December 31, 2021, are as follows:

in € million	2021	2020
1 to 5 years	824	1,262
> 5 years	97	134
	921	**1,396**

The performance obligations not satisfied (or partially not satisfied) mainly refer to contracts with customers in connection with development orders as well as tools.

In the current fiscal year, there were changes in the timeframe, which had an effect amounting to €51 million (2020: €71 million) on the fulfillment of future performance obligations.

22 Other liabilities

in € million	Dec. 31, 2021 Total	Dec. 31, 2021 Thereof current	Dec. 31, 2020 Total	Dec. 31, 2020 Thereof current
Liabilities to employees	903	824	643	588
Social contributions	63	61	52	52
Other tax liabilities	332	332	315	315
Prepaid expenses	39	10	24	9
Others	704	610	727	663
	2,041	**1,837**	**1,761**	**1,627**

Other tax liabilities are mainly sales tax liabilities. Others include deferred liabilities from sales, for legal costs and costs of litigation, as well as liabilities for licenses and commissions.

23 Other provisions

in € million	Dec. 31, 2021 Total	Dec. 31, 2021 Thereof current	Dec. 31, 2020 Total	Dec. 31, 2020 Thereof current
Obligation from sales	939	586	1,007	666
Obligation from personnel	518	125	527	197
Other obligations	232	113	297	123
	1,689	**824**	**1,831**	**986**

in € million	Obligation from sales	Obligation from personnel	Other obligations	Total
Jan. 1, 2021	1,007	527	297	1,831
Changes in basis of consolidation	52	1	10	63
Net exchange differences	26	3	8	37
Addition	334	160	65	559
Utilization	−360	−129	−49	−538
Reversals	−120	−21	−99	−240
Netting of plan assets	0	−23	0	−23
Dec. 31, 2021	**939**	**518**	**232**	**1,689**

The provisions for obligations from sales primarily include provisions for warranty, product liability and punitive damages as well as for imminent losses from delivery obligations.

The obligations from personnel mainly affect provisions for restructuring measures as well as other obligations to employees. Furthermore, the surplus of liabilities due to semi-retirement obligations remaining after offsetting with plan assets is included. The provisions for restructuring measures primarily concern expenses for severance payments that will be incurred as part of a long-term program for structural adjustment.

Other obligations include, among other things, provisions for litigation and other legal risks, environmental protection measures, other punitive damages as well as tax risks.

Utilization of all current provisions is expected for the following fiscal year.

Non-current obligations from sales are expected to be utilized at a rate of 96% within the next five years. Also, about 95% of the provisions contained in the non-current obligations from personnel and about 81% of other non-current obligations will presumably be utilized in the next five years.

Expected reimbursements as of December 31, 2021 amount to €34 million (2020: €19 million), of which €34 million (2020: €19 million) was capitalized as assets.

24 Provisions for pensions

The provisions for pensions are broken down as follows:

2021 in € million	Present value of defined benefit plans					Financial assets	Provisions for pensions
	Unfunded	Funded	Total	Plan assets	Net value	Net assets	Net liability
Germany	1,525	6,308	7,833	−2,545	5,288	62	5,350
United States of America	2	315	317	−333	−16	18	2
United Kingdom	0	1,621	1,621	−2,276	−655	655	0
Other	122	203	325	−187	138	24	162
	1,649	**8,447**	**10,096**	**−5,341**	**4,755**	**759**	**5,514**
Obligations from medical care benefits	166	0	166	0	166	0	166
Balance sheet disclosure						**759**	**5,680**

2020 in € million	Present value of defined benefit plans					Financial assets	Provisions for pensions
	Unfunded	Funded	Total	Plan assets	Net value	Net assets	Net liability
Germany	5,834	2,799	8,633	−2,231	6,402	14	6,416
United States of America	2	299	301	−314	−13	15	2
United Kingdom	0	1,676	1,676	−2,200	−524	524	0
Other	125	168	293	−166	127	18	145
	5,961	**4,942**	**10,903**	**−4,911**	**5,992**	**571**	**6,563**
Obligations from medical care benefits	172	0	172	0	172	0	172
Balance sheet disclosure						**571**	**6,735**

There are various schemes for retirement and medical care benefits. The structure of those schemes depends on the legal, economic and tax situation in the respective countries. A distinction has to be made between defined contribution plans and defined benefit plans.

Under defined contribution plans, the consolidated ZF Group does not enter into any obligations apart from the payment of contributions into earmarked funds and private pension insurance carriers.

Under defined benefit plans, the obligation of the consolidated ZF Group consists of fulfilling promised benefits to current and former employees. There are both unfunded and funded pension systems. Provisions for defined benefit pension commitments are set up for obligations from vested benefits of entitled current and former employees of the consolidated ZF Group and their surviving dependents.

Description of plans

The following paragraphs describe the most significant pension and medical care plans of the consolidated ZF Group. The essential risks for the company lie with the actuarial parameters, particularly interest rate and pension trend as well as mortality rates.

Germany (GER)

In Germany, there is a variety of defined benefit obligations with different characteristics.

Until 1993, commitments were granted depending on length of service and remuneration. From 1997, so-called pension modules were promised to pay-scale employees; the amount depends on the pensionable income in relation to the social security contribution ceiling of the statutory pension insurance. Since 2005, the allocated annual pension modules have been decoupled from the social security contribution ceiling. Since then, the modules' amounts have been calculated on the basis of the remuneration, the length of service, the respective classification of the position within the company hierarchy and the employee's age.

A Group-internal contractual trust arrangement (CTA) was concluded in 2016 to hedge the above-mentioned direct defined benefit obligations, and assets were contributed to the CTA.

While the CTA was initially intended to hedge the grants made to executive managers, the group of beneficiaries was expanded in 2021 so that the obligations from all of the above-mentioned commitments involving different hierarchy levels are hedged. There are no legal or regulatory minimum funding requirements.

Within the scope of the acquisition of ZF TRW, ZF also acquired unfunded defined benefit plans in Germany. The plan benefits depend upon salary, length of service and the cost of living index.

In the course of the acquisition of WABCO in 2020, obligations for existing pension commitments in Germany were adopted. These are unfunded and, in addition to pensions after entering retirement, also provide for benefits to surviving dependants as well as for early retirement and disability. The amount of the benefit depends on the pensionable remuneration at the start of retirement as well as the length of service in the company.

In the context of the "ZF Rente" pension scheme, employee-financed pension modules are awarded. Employees may defer between 1% and 5% of their pensionable remuneration, where deferring at least 1% is compulsory. There are two rates: The first rate includes guaranteed interests of 3.5% for established employees before December 31, 2005. The second rate does not offer guaranteed interests for new employees as of 2006. Up to and including the year 2016, this direct grant was made in form of a participation in a multi-employer plan that constitutes a defined benefit plan. Since 2017, the waiver amounts have been transferred as trust funds to a trustee established specifically for this purpose.

In 2019, employees that had not previously been covered were granted a defined benefit commitment as part of the realignment of company pension schemes. This commitment called "ZF Vorsorge" also requires a monthly employee contribution in the amount of at least 1% of the remuneration. Entitled employees are now able to pay monthly contributions into a funded benefit account from their pensionable remuneration by way of deferred remuneration. With this commitment, the employer also makes contributions depending on the level of the employees' contributions. The commitment includes a retirement benefit as well as risk-based benefits in the case of reduced earning capacity and death. The employees can choose between various payout options.

Both employer and employee contributions for this new company pension scheme are managed by a trust fund association, specifically founded for this purpose.

In addition, at the end of 2020, an in-house agreement was concluded pursuant to which employees are enabled to switch to the "ZF Vorsorge" scheme. Any previously vested benefit obligations are taken into account in the form of starting modules. The past service costs resulting from concluding the in-house agreement in 2020 were directly recognized through profit or loss in the same year. The implementation of the switching project was completed in 2021 and resulted in an actuarial gain due to experience adjustments.

Upon the introduction of the "ZF Vorsorge" scheme, all benefit commitments in Germany were closed for new entrants, including both "ZF Rente" and the commitments of ZF TRW and WABCO.

United States of America (USA)

The various defined benefit plans existing in the USA are closed for new entrants. Any vesting of further entitlements is normally no longer possible. The plans are mainly funded and comply with the provisions of the U.S. Employee Retirement Income Security Act (ERISA).

In addition, ZF finances several unfunded post-employment medical care plans. The plans are closed for new entrants. The level of the benefits and the contributions for pensioners differ depending on the location. The major risks for grants of medical care benefits are increasing medical care costs as well as a decreasing participation of the government in these costs. These plans are subject to risks typical for defined benefit grants, particularly the risk from changes in discount rates.

United Kingdom (UK)

In the United Kingdom, the consolidated ZF Group maintains funded defined benefit plans that have been closed. These plans are maintained pursuant to legal provisions and are managed by trust companies. The financing is determined every three years by technical valuations in compliance with local provisions.

With the acquisition of WABCO in 2020, additional funded pension obligations were recognized in the United Kingdom. In addition to retirement pensions, these include benefits for surviving dependants as well as for cases of disability and death before the retirement age is reached.

Under these pension commitments, both employers and employees must make contributions to trust funds. The pension amount depends on the pensionable income as well as the period of employment. The employer guarantees a minimum pension.

Defined benefit pension plans

Provisions for pensions are recognized based on actuarial principles in accordance with the projected unit credit method. Determining these provisions requires estimates to be made. In addition to assumptions on life expectancy, fluctuation and expected salary increases, above all the discount rates have a material effect on the amount of the obligation.

Changes in actuarial assumptions, diverging estimates as regards the risk profile of pension obligations as well as deviations between the actual and the expected return on plan assets are recognized as actuarial gains or losses under other comprehensive income.

	2021			2020		
in %	**GER**	**USA**	**GB**	GER	USA	GB
Discount rate	**1.2**	**2.9**	**2.0**	0.7	2.5	1.4
Pension increases	**1.4**	**–**	**2.5 –3.1**	1.3	–	2.0 –2.6

The average maturity period of the defined benefit obligations is as follows:

	2021			2020		
in years	GER	USA	GB	GER	USA	GB
Average maturity	20	13	18	23	12	20

The measurement of direct defined benefit obligations from pension plans in Germany, where additional awards may still be earned, is, in part, not based on a uniform replacement interest rate but by applying a yield curve corresponding to the relevant term of the underlying future cash flows.

As part of the measurement of provisions for other pension plans in Germany, the replacement interest rate is determined on the basis of high-quality corporate bonds with a rating of AA (or equivalent) from at least one of the three big rating agencies and are extrapolated based on the yield curve of zero coupon government bonds.

Pension provisions are calculated using country-specific mortality tables which are updated annually, depending on the country involved. The following mortality tables were used as of December 31, 2021:

	2021	2020
GER	Heubeck 2018 G mortality tables	Heubeck 2018 G mortality tables
USA	Pri-2021 mortality tables split between indirect and direct employeed	120% RP-2014 projected back to 2009 using scale MP-2014
GB	2018 VITA tables (averaged) with CMI 2020	2018 VITA tables (averaged) with CMI 2018

A discount as regards the probability of disability according to the Heubeck 2018 G mortality tables to measure pension obligations at Group companies in Germany was applied. The discount is determined on the basis of company-owned historical data.

The effects from the application of revised mortality tables on the present value of the defined benefit obligations are recognized in other comprehensive income as actuarial gains or losses from changes in demographic assumptions.

The pension obligations resulting under the projected unit credit method are netted in the case of funded pension commitments with the plan assets measured at fair value. As soon as the plan assets exceed the pension obligations, an asset is created which is recognized under non-current financial assets.

The development of pension provisions as well as the related plan assets is presented in the following table:

in € million	GER	USA	GB	Other	2021 Total
Present value of the defined benefit obligations as of Jan. 1	**8,633**	**301**	**1,676**	**293**	**10,903**
Current service costs	262	1	3	24	**290**
Past service costs	0	0	0	–4	**–4**
Interest expenses	53	8	23	6	**90**
Contributions by plan participants	80	0	0	5	**85**
Settlements	0	–2	0	0	**–2**
Pension payments	–176	–11	–92	–20	**–299**
Actuarial gains (–) and losses (+) from the change in demographic assumptions	0	13	–1	0	**12**
Actuarial gains (–) and losses (+) from the change in financial assumptions	–790	–16	–78	–18	**–902**
Actuarial gains (–) and losses (+) due to experience adjustments	–170	0	–21	17	**–174**
Other changes	–59	0	0	0	**–59**
Net exchange differences from plans abroad	0	23	111	22	**156**
Present value of the defined benefit obligations as of Dec. 31	**7,833**	**317**	**1,621**	**325**	**10,096**
Plan assets at fair value as of Jan. 1	**2,231**	**314**	**2,200**	**166**	**4,911**
Expected return on plan assets	12	8	32	2	**54**
Actuarial gains (+) and losses (–) from the change in plan assets	220	–1	–14	–2	**203**
Employer contributions to the plan assets	23	0	0	2	**25**
Employee contributions	80	0	0	5	**85**
Settlements	0	0	0	–1	**–1**
Pension benefits paid	–9	–11	–92	–7	**–119**
Other changes	–12	0	0	0	**–12**
Net exchange differences from plans abroad	0	23	150	22	**195**
Plan assets at fair value as of Dec. 31	**2,545**	**333**	**2,276**	**187**	**5,341**

in € million	GER	USA	GB	Other	2020 Total
Present value of the defined benefit obligations as of Jan. 1	**7,049**	**307**	**1,487**	**212**	**9,055**
Current service costs	223	4	1	18	**246**
Past service costs	–222	0	4	0	**–218**
Interest expenses	77	7	29	7	**120**
Contributions by plan participants	75	0	0	1	**76**
Pension payments	–171	–10	–100	–14	**–295**
Actuarial gains (–) and losses (+) from the change in demographic assumptions	0	–1	33	0	**32**
Actuarial gains (–) and losses (+) from the change in financial assumptions	1,011	26	172	4	**1,213**
Actuarial gains (–) and losses (+) due to experience adjustments	–13	–5	17	0	**–1**
Changes in the basis of consolidation	604	0	112	73	**789**
Net exchange differences from plans abroad	0	–27	–79	–8	**–114**
Present value of the defined benefit obligations as of Dec. 31	**8,633**	**301**	**1,676**	**293**	**10,903**
Plan assets at fair value as of Jan. 1	**2,044**	**307**	**2,020**	**106**	**4,477**
Expected return on plan assets	21	7	35	3	**66**
Actuarial gains (+) and losses (–) from the change in financial assumptions	67	37	240	4	**348**
Employer contributions to the plan assets	36	0	0	5	**41**
Employee contributions	72	0	0	1	**73**
Pension benefits paid	–11	–10	–100	–2	**–123**
Changes in the basis of consolidation	2	0	114	54	**170**
Net exchange differences from plans abroad	0	–27	–109	–5	**–141**
Plan assets at fair value as of Dec. 31	**2,231**	**314**	**2,200**	**166**	**4,911**

The items recognized in profit or loss in connection with pension obligations are composed of as follows:

in € million	GER	USA	GB	Other	2021 Total
Current service costs	262	1	3	24	290
Past service cost	0	0	0	–4	–4
Unwinding the discount on net liabilities	41	0	–9	4	36
	303	**1**	**–6**	**24**	**322**

in € million	GER	USA	GB	Other	2020 Total
Current service costs	223	4	1	18	246
Curtailments and settlements	–222	0	4	0	–218
Unwinding the discount on net liabilities	56	0	–6	4	54
	57	**4**	**–1**	**22**	**82**

All components of the pension expenses recognized in profit or loss, with the exception of the interest portion, are reported in the functional areas.

The actuarial gains amounting to €1,267 million (2020: losses of €896 million) are recorded in other comprehensive income with no effect on profit or loss.

The plan assets consist of the following items:

in € million	2021	2020
Cash and cash equivalents	260	92
Securities		
Equity instruments	1,224	945
Debt instruments	3,226	2,974
Fund shares	0	332
Land and buildings	6	6
Derivative financial instruments	0	3
Other	625	559
	5,341	**4,911**

Securities are measured at prices quoted on active markets. The “Other” item mainly includes securities covered by receivables (asset-backed securities).

Contributions to plan assets are expected to amount to €44 million (2020: €26 million) in the following year.

Pension payments for the next ten years are as follows:

in € million	2021	2020
within the upcoming fiscal year	376	343
between one to five years	1,416	1,269
after five up to ten years	1,854	1,664

The calculation presents the expected actual pension payments and not just the pension modules earned by employee service rendered as of the closing date, i.e., pension modules that are to be allocated in future are also considered. In addition, it was assumed that the number of active employees remains constant.

For the other calculation assumptions, the same parameters were used as for the determination of the defined benefit obligations.

The effect of a change in significant assumptions on the defined benefit obligations is shown in the following:

in € million	GER	USA	GB	Other	2021 Total
Discount rate					
−0.25%	+398	+12	+73	+9	**+492**
+0.25%	−367	−11	−69	−8	**−455**
Pension increases					
−0.25%	−136	0	−44	−1	**−181**
+0.25%	+143	0	+55	+1	**+199**
Life expectancy					
−1 year	−209	−7	−64	−3	**−283**
+1 year	+235	+7	+64	+3	**+309**

in € million	GER	USA	GB	Other	2020 Total
Discount rate					
−0.25%	+530	+14	+86	+5	+635
+0.25%	−486	−13	−80	−6	−585
Pension increases					
−0.25%	−197	0	−53	0	−250
+0.25%	+207	0	+64	0	+271
Life expectancy					
− 1 year	−275	−8	−67	−5	−355
+1 year	+310	+8	+67	+4	389

For the sensitivity analysis, pension obligations were re-measured. It was assumed that all other factors remain unchanged. For calculating the sensitivity of life expectancy, it was assumed that the average life expectancy of a 65-year-old individual will increase or decrease by one year.

Disclosures on medical care benefits

Certain foreign subsidiaries, particularly in the USA and Canada, grant post-retirement benefits to their employees if specific conditions as to age and period of employment are met.

The average maturity period of the defined benefit obligations is 11 years (2020: 13 years).

The development of the present value of the defined benefit obligations is presented as follows:

in € million	2021	2020
Present value of the defined benefit obligations as of Jan. 1	**172**	**208**
Current service cost	**2**	2
Past service costs	**−2**	0
Interest expenses	**5**	7
Payments made	**−16**	−15
Settlements	**0**	−24
Actuarial gains (−) and losses (+) from the change in demographic assumptions	**4**	−2
Actuarial gains (−) and losses (+) from the change in financial assumptions	**−12**	12
Actuarial gains (−) and losses (+) due to experience adjustments	**−2**	−6
Changes in the basis of consolidation	**0**	4
Net exchange differences from plans abroad	**15**	−14
Present value of the defined benefit obligations as of Dec. 31	**166**	**172**

The premises for discounting for the purpose of calculating the obligations for medical care benefits vary depending on the circumstances in the individual countries. As of December 31, 2021, the valuation factors for discounting were between 2.0% and 9.2% (2020: 1.0% and 7.8%).

The net expenses of the obligations for medical care benefits comprise the following:

in € million	2021	2020
Current service costs	2	2
Past service costs	–2	0
Unwinding the discount on net liabilities	5	7
	5	**9**

The actuarial gains amounting to €10 million (2020: losses of €4 million) are recorded in other comprehensive income with no effect on profit or loss. In 2020, a loss of €2 million was realized from settlements.

The effect of a change in significant assumptions on the medical care obligations is shown in the following:

in € million	2021	2020
Discount rate		
– 0.25%	+3	+4
+ 0.25%	–3	–4
Life expectancy		
– 1 year	–8	–9
+ 1 year	+8	+9

25 Equity

Subscribed capital

At the end of the fiscal year, the subscribed capital still amounts to €500 million. As of December 31, 2021, the subscribed capital is divided into 500,000,000 registered shares. All shares are fully paid in.

Capital reserve

At the end of the fiscal year, the capital reserve still amounts to €386 million. The capital reserve comprises the premium on the issuance of shares. It is subject to the restrictions of Sec. 150 AktG (German Stock Corporation Law).

Other retained earnings

Other retained earnings contain the legal reserve of ZF Friedrichshafen AG and the accumulated earnings of the companies included in the consolidated financial statements to the extent that such accumulated earnings are not distributed. Asset and liability differences resulting from the capital consolidation in accordance with the book value method and the previously used accounting policies are also accounted for in this line item. Other components include the reserves from the first-time adoption of IFRS and the cumulative currency translation adjustments, which were reclassified when changing over to IFRS.

Foreign currency translation differences

The line item contains amounts not affecting profit or loss that result from the currency translation of the financial statements from foreign subsidiaries (non-euro area) recognized starting from the date of the first-time adoption of IFRS.

The change in equity resulting from foreign currency translation differences amounting to +€821 million (2020: –€837 million) is attributed to non-controlling interests in the amount of +€41 million (2020: –€17 million) as well as €0 million (2020: –€14 million) to associates.

Mark-to-market of securities and cash flow hedges

This line item includes the post-tax effects of the financial instruments valuation that do not affect profit or loss.

Actuarial gains and losses

This line item contains the actuarial gains and losses from employer pension plans after tax, with no effect on profit or loss.

Deferred taxes on equity items not affecting profit or loss

in € million 2021	Before income tax	Income tax	After tax
Foreign currency translation differences	819	2	821
Mark-to-market of securities	–7	1	–6
Mark-to-market of cash flow hedges	–36	11	–25
Actuarial gains and losses	1,277	–363	914
Other comprehensive income	**2,053**	**–349**	**1,704**
2020			
Foreign currency translation differences	–837	0	–837
Mark-to-market of securities	–25	2	–23
Mark-to-market of cash flow hedges	–115	3	–112
Actuarial gains and losses	–900	271	–629
Other comprehensive income	**–1,877**	**276**	**–1,601**

Sale of shares in consolidated companies without loss of control

In the fiscal year, 18.1% of the shares in WABCO India Limited were sold for a sales price of €236 million. The difference between the sales price and the carrying amount of the acquired non-controlling interests of €200 million was offset against retained earnings.

Dividends

ZF Friedrichshafen AG has proposed a dividend payout of €119 million for the fiscal year 2021 (€0.24 per share).

26 Disclosures on capital management

The primary objective of capital management at the consolidated ZF Group is to ensure the financial stability and independence of ZF and to meet the requirements of the shareholders and lenders. Ensuring a sufficient equity ratio is an important basis for achieving this objective. Net debt and the debt-equity ratio (net debt in relation to EBITDA) are central parameters for capital management at ZF with regard to external financing. The credit rating by the commissioned rating agencies is another vital indicator. The objective is to achieve a solid Group rating at investment grade level.

In order to determine the equity ratio, the equity disclosed in the consolidated statement of financial position is used.

	Dec. 31, 2021	Dec. 31, 2020
Equity in € million	7,123	4,443
Equity ratio in %	19	12

ZF Friedrichshafen AG is not subject to by-laws-based capital requirements.

27 Assets held for sale and liabilities of disposal groups

On June 2, 2021, an agreement was reached with Airbus Helicopters Deutschland GmbH on the sale of the Aviation Technology Business Unit. The sale is expected to be completed during the fiscal year 2022. The Aviation Technology Business Unit based in Calden (Germany) is a leading global manufacturer of dynamic components for lightweight and medium-weight helicopters, including related services such as maintenance, repair and overhaul. This business unit currently has around 400 employees.

In accordance with the provisions of IFRS 5, the assets and liabilities to be disposed were reclassified to form a disposal group upon reaching the agreement on the sale of the Aviation Technology Business Unit.

in € million	Dec. 31, 2021
Current assets	
Trade receivables	14
Inventories	43
Non-current assets	
Other assets	4
Property, plant and equipment	8
Goodwill	10
Deferred taxes	9
Assets of the disposal group	**88**
Current liabilities	
Trade payables	6
Contract liabilities	1
Other liabilities	3
Other provisions	2
Non-current liabilities	
Provisions for pensions	47
Liabilities of the disposal group	**59**

NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS

28 General

The consolidated statement of cash flows shows how the cash position of the consolidated ZF Group changed in the fiscal year due to the inflow and outflow of funds. A distinction is drawn between cash flows from operating, investing and financing activities.

The cash position presented in the consolidated statement of cash flows covers all cash and cash equivalents reported in the consolidated statement of financial position, i.e., cash on hand and cash at banks, available at any time for use by the consolidated ZF Group. In addition, the cash position comprises highly liquid financial investments that have a maturity of less than three months and that are subject to small fluctuations in value.

Cash is comprised as follows:

in € million	Dec. 31, 2021	Dec. 31, 2020
Cash and cash equivalents	2,332	2,341

The cash flows from investing and financing activities are determined on the basis of payments. The cash flow from operating activities, on the other hand, is indirectly derived from the net profit or loss before income tax.

Dividends and interest received are assigned to the cash flow from investing activities. Interest and transaction costs paid for borrowings, including lease liabilities, are included in cash flow from financing activities. To this end, the net profit or loss before income tax in the cash flow from operating activities is adjusted by the net result from participations and the net financial result.

As part of the indirect calculation, the changes in financial line items taken into account in conjunction with the operating activities are adjusted for effects from the translation of foreign currencies and changes in the basis of consolidation. Changes in the respective financial line items can therefore not be reconciled to the corresponding values on the basis of the published consolidated statement of financial position.

29 Sale of consolidated companies

The divestments in assets and liabilities from the share deals relate to the following:

in € million	2021	2020
Current assets	39	55
thereof cash and cash equivalents	14	14
Non-current assets	1	113
Current liabilities	12	7
Non-current liabilities	0	22

The total sales prices for the sale of shares in fiscal year 2021 in the amount of €13 million (2020: €139 million) were fully paid in cash.

30 Acquisition of consolidated companies

The assets and liabilities of consolidated companies assumed on the date of acquisition are composed as follows:

in € million	2021	2020
Current assets	143	1,449
thereof cash and cash equivalents	21	442
Non-current assets	45	4,566
Current liabilities	114	803
Non-current liabilities	8	2,451

The total purchase prices for the acquisition of shares in fiscal year 2021 in the amount of €12 million (2020: €6,398 million) were fully paid in cash.

31 Changes in financial liabilities

The change in financial liabilities from financing activities due to cash and non-cash effects is as follows:

	Financial liabilities	
in € million	Current	Non-current
Carrying amount as of Jan. 1	364	12,099
Change in cash	–137	–809
Non-cash changes		
Reclassification	617	–617
Currency effects	7	119
Other	36	43
Carrying amount as of Dec. 31	**887**	**10,835**

The presentation considers neither lease liabilities nor derivative financial instruments. Changes in cash involve taking on and extinguishing financial liabilities. Other non-cash changes are primarily comprised of changes in deferred interests (partly cash items) as well as the cancelation of loan-raising costs and additions resulting from the acquisition of companies.

Current lease liabilities increased by €2 million in the fiscal year. This includes a cash decrease in the amount of €169 million. Non-current lease liabilities were reduced by €13 million, of which €9 million in cash.

OTHER DISCLOSURES

32 Contingent liabilities

No provisions were set up for the following contingent liabilities, which are recognized at nominal values, because the probability of a claim is deemed to be low:

in € million	**Dec. 31, 2021**	Dec. 31, 2020
Guarantees	90	87
thereof for participations	84	80
Other	138	126
	228	**213**

The guarantees are due within one year when fully utilized. The other contingent liabilities essentially refer to potential liabilities from procurement and personnel as well as from litigation and other taxes. Like in 2020, there were no collaterals for contingent liabilities during the fiscal year.

33 Other financial obligations

In addition to liabilities, provisions and contingent liabilities, other financial obligations consist of investment projects launched and procurement agreements initiated.

in € million	**Dec. 31, 2021**	Dec. 31, 2020
Purchase commitments	746	492
Payment obligations on participations	36	58
	782	**550**

The purchase commitments can be broken down into intangible assets amounting to €7 million (2020: €8 million) and property, plant and equipment amounting to €739 million (2020: €484 million).

34 Litigation

ZF continues to be in close contact with the National Highway Traffic Safety Administration (NHTSA) in the USA in relation to the latter's investigation regarding certain vehicles that are equipped with ZF airbag control units and of which a few were subject to recalls by Toyota, FCA and HKMC. Based on the currently available investigation results, ZF does not believe to have culpably caused the recalls and is defending itself against lawsuits pending in the USA and Canada.

In principle, claims for damages may be asserted even in connection with completed proceedings. Neither ZF nor any of its Group companies are involved in current or foreseeable court or arbitration proceedings which, based on facts known today, have had in the past or could have a significant impact on the economic situation of the consolidated ZF Group.

35 Disclosures on financial instruments

Carrying amounts of the financial instruments by category

The following table shows the recognized financial assets and liabilities by measurement category:

in € million	Dec. 31, 2021	Dec. 31, 2020
Assets		
At amortized cost	7,938	7,644
At fair value through other comprehensive income		
Debt instruments	145	297
Equity instruments	40	17
At fair value through profit or loss	160	159
Derivative financial instruments (hedge accounting) [1]	25	36
	8,308	**8,153**
Liabilities		
At amortized cost	17,607	18,089
At fair value through profit or loss	16	21
Lease liabilities [1]	809	820
Derivative financial instruments (hedge accounting) [1]	44	13
	18,476	**18,943**

1) No measurement category in accordance with IFRS 9

In the fiscal year, there were no reclassifications of financial assets between the measurement categories.

Fair values

The fair values of the financial assets and liabilities are presented below. Provided that financial assets and liabilities are recognized at amortized cost, the fair value is compared to the carrying amount.

The following table shows the carrying amounts and the fair values of the financial assets and liabilities recognized at amortized cost. Due to short maturities, the carrying amounts of the current financial instruments recognized at cost approximate the fair values.

in € million	Dec. 31, 2021 Carrying amount	Dec. 31, 2021 Fair value	Dec. 31, 2020 Carrying amount	Dec. 31, 2020 Fair value
Assets				
At amortized cost				
Cash and cash equivalents	2,332	2,332	2,341	2,341
Financial receivables	134	134	119	119
Trade receivables	5,472	5,472	5,184	5,184
	7,938	**7,938**	**7,644**	**7,644**
Liabilities				
At amortized cost				
Bonds	7,745	8,078	7,171	7,319
Bonded loans	2,062	2,071	2,647	2,719
Liabilities to banks	1,878	1,885	2,607	2,678
Other financial liabilities	37	37	38	38
Trade payables	5,885	5,885	5,626	5,626
Lease liabilities [1]	809	-	820	-
	18,416	**17,956**	**18,909**	**18,380**

1) No measurement category in accordance with IFRS 9

In the following, the financial instruments are allocated to the three levels of the fair value hierarchy based on the input parameters used for the measurement. The classification as well as the need to perform reclassifications is reviewed on the reporting date. Level 1 covers those financial instruments for which prices for identical assets and liabilities quoted on active markets are available. Allocation to level 2 occurs if input parameters are used for the measurement of financial instruments that are directly (e.g., prices) or indirectly (e.g., derived from prices) observable on the market. Financial instruments whose valuation is based on information that is not observable on the market are reported in level 3.

The following table shows the allocation of the fair values of the financial instruments recognized at amortized cost to the three levels of the fair value hierarchy:

in € million	Level 1	Level 2	Level 3	Dec. 31, 2021 Total
Assets				
Cash and cash equivalents	0	2,332	0	2,332
Financial receivables	0	134	0	134
Trade receivables	0	5,472	0	5,472
	0	**7,938**	**0**	**7,938**
Liabilities				
Bonds	8,078	0	0	8,078
Bonded loans	0	2,071	0	2,071
Liabilities to banks	0	1,885	0	1,885
Other financial liabilities	0	37	0	37
Trade payables	0	5,885	0	5,885
	8,078	**9,878**	**0**	**17,956**

in € million	Level 1	Level 2	Level 3	Dec. 31, 2020 Total
Assets				
Cash and cash equivalents	0	2,341	0	2,341
Financial receivables	0	119	0	119
Trade receivables	0	5,184	0	5,184
	0	**7,644**	**0**	**7,644**
Liabilities				
Bonds	7,319	0	0	7,319
Bonded loans	0	2,719	0	2,719
Liabilities to banks	0	2,678	0	2,678
Other financial liabilities	0	38	0	38
Trade payables	0	5,626	0	5,626
	7,319	**11,061**	**0**	**18,380**

Except for bonds, the market values of assets and liabilities were calculated using the net present value method. Here, the future cash flows were discounted with the current risk-free interest rates matching the maturities plus a ZF-specific credit risk markup. Bonds were calculated using the fair value on the market.

The following tables show the financial instruments recognized at fair value.

in € million	Dec. 31, 2021	Dec. 31, 2020
Assets		
At fair value through other comprehensive income		
Securities	11	15
Investments in participations	29	2
Trade receivables	145	297
At fair value through profit or loss		
Securities	81	85
Investments in participations	48	60
Derivative financial instruments	31	14
Derivative financial instruments (hedge accounting) [1]	25	36
	370	**509**
Liabilities		
At fair value through profit or loss		
Derivative financial instruments	16	21
Derivative financial instruments (hedge accounting) [1]	44	13
	60	**34**

1) No measurement category in accordance with IFRS 9

In the following, the financial instruments recognized at fair value are allocated to the three levels of the fair value hierarchy based on the input parameters used for measurement.

in € million	Level 1	Level 2	Level 3	Dec. 31, 2021 Total
Assets				
Securities	74	18	0	92
Investments in participations	8	27	42	77
Trade receivables	0	145	0	145
Derivative financial instruments	0	56	0	56
	82	**246**	**42**	**370**
Liabilities				
Derivative financial instruments	0	60	0	60

in € million	Level 1	Level 2	Level 3	Dec. 31, 2020 Total
Assets				
Securities	91	9	0	100
Investments in participations	6	0	56	62
Trade receivables	0	297	0	297
Derivative financial instruments	0	50	0	50
	97	**356**	**56**	**509**
Liabilities				
Derivative financial instruments	0	34	0	34

In the fiscal year, no reclassification took place between levels 1 and 2 of the fair value hierarchy.

For level 1 securities, the fair value is recognized directly as the quoted price on an always active market. An active market is either the stock exchange of the respective country or a comparable trading platform offering the liquidity and transparency of the underlying asset. Level 2 includes classes whose prices can be derived or modeled from parameters which can be observed on the market. This includes in particular observable interest rates, exchange rates or comparable instruments.

Investments in participations included in level 1 and traded on an active market are recognized at share prices of the stock exchange of the respective country. With level 2 investments in participations measured at fair value, measurement is based on transactions that can be observed in the market. The level 3 investments in participations concern investments in companies that are not listed on the stock exchange. In case of these investments in participations recognized at fair value through profit or loss, there is either not enough information available or only a vast range of possible values can be determined for the fair value by using a multiplier method. The acquisition costs are therefore used to appropriately estimate the fair value. In case of changes in the environment of the participations or in case of proof due to external transactions, the estimate is adjusted accordingly. A significant change regarding the future results and multipliers used for the multiplier method would affect the fair value of these investments in participations in the amount of −€14 million to +€9 million.

The trade receivables measured at fair value are allocated to level 2 since measurement can be derived from parameters observable on the market.

The level 2 derivative financial instruments concern non-tradable derivatives. Fair values are determined on the basis of fixed prices quoted on approved stock exchanges discounted for the remaining term (foreign currency exchange rates, interest rates and raw material price indexes).

The following table illustrates the development of financial instruments assigned to level 3 of the fair value hierarchy:

	Investments in participations		Derivative financial instruments (assets)	
in € million	**2021**	2020	**2021**	2020
As of Jan. 1	**56**	159	**0**	79
Changes in the basis of consolidation	**–15**	9	**0**	0
Fair value changes – recognized through profit or loss	**0**	–81	**0**	3
Fair value changes – recognized through other comprehensive income	**0**	0	**0**	165
Purchases	**1**	1	**0**	0
Sales	**0**	–28	**0**	0
Transfers	**0**	–4	**0**	0
Liquidation of derivative positions	**0**	0	**0**	–247
As of Dec. 31	**42**	**56**	**0**	**0**

	Securities	
in € million	**2021**	2020
As of Jan. 1	**0**	140
Sales	**0**	–104
Reclassifications to level 3 from level 2	**0**	54
Reclassifications from level 3 to level 2	**0**	–90
As of Dec. 31	**0**	**0**

The expenses from the measurement of participations, which had been recognized through profit or loss, are included in the net result from participations.

The fair value changes of the previous year recognized through other comprehensive income in relation to derivative financial instruments were included in the item "Mark-to-market of cash flow hedges." The fair value changes recognized through profit or loss in relation to derivative financial instruments, as presented in the prior year, were reported in other financial income and other financial expenses, respectively.

The reclassifications of securities between the levels 2 and 3 of the fair value hierarchy in the prior year were attributable to a higher or reduced amount of price quotas on active markets.

Net gains and losses by measurement category

in € million	Dec. 31, 2021 Total net gains and losses	Dec. 31, 2021 Thereof from interests	Dec. 31, 2020 Total net gains and losses	Dec. 31, 2020 Thereof from interests
At amortized cost				
Financial assets	–14	19	–63	21
Financial liabilities	–274	–329	–408	–297
At fair value through profit or loss				
Financial assets and liabilities	32	2	–83	0
	–256	**–308**	**–554**	**–276**

Net gains and losses in the "Financial assets at amortized cost" measurement category primarily contain, in addition to the interest income, exchange rate gains and losses from foreign currency receivables in the amount of –€58 million, expenses derived from the derecognition of receivables in the amount of –€8 million as well as income from the change in write-downs in the amount of +€33 million.

In the "Financial liabilities at amortized cost" measurement category, apart from interest expenses, net gains and losses primarily comprise exchange rate gains and losses from foreign currency liabilities in the amount of +€52 million.

Net gains and losses in the "Financial assets and liabilities at fair value through profit or loss (recognized at fair value)" measurement category essentially include income from derivative financial instruments excluding hedge accounting.

Offsetting financial assets and financial liabilities

Financial assets and liabilities which are subject to settlement agreements, enforceable master netting arrangements and similar agreements:

in € million	Dec. 31, 2021 Gross amount	Dec. 31, 2021 Offsetting	Dec. 31, 2021 Net amount
Offset items			
Trade receivables (current)	5,672	55	5,617
Trade payables (current)	5,910	55	5,855
Eligible for offsetting in the event of insolvency			
Derivative financial instruments (assets)	56	31	25
Derivative financial instruments (liabilities)	60	31	29

in € million	Dec. 31, 2020 Gross amount	Dec. 31, 2020 Offsetting	Dec. 31, 2020 Net amount
Offset items			
Trade receivables (current)	5,628	147	5,481
Trade payables (current)	5,745	147	5,598
Eligible for offsetting in the event of insolvency			
Derivative financial instruments (assets)	50	21	29
Derivative financial instruments (liabilities)	34	21	13

The framework contracts concluded with the banks for financial futures regulate, among other things, that in the event of insolvency of a contracting party, existing contracts will have to be terminated and settled at the respective market value. Provided that several transactions are settled for a contracting party, positive and negative market values are offset and only the remaining difference is settled. As of December 31, 2021, no risk arises from this regulation due to the excellent credit rating of our banks.

36 Risks from financial instruments

Management of financial risks

The risk management system within the finance area comprises counterparty and credit risks with customers and suppliers, liquidity and interest rate risks as well as currency and raw material price risks. Reports on the essential risk positions of the consolidated ZF Group are presented to the Board of Management and the Supervisory Board on a regular basis. Compliance with the guidelines is audited by Corporate Audit.

The companies of the consolidated ZF Group hedge their foreign currency risks in a standardized manner at prevailing market conditions either internally through the responsible ZF Treasury Hubs or directly externally with banks. Risk items hedged externally are traded with banks with excellent credit rating, taking into account the prescribed risk limits. In general, derivative financial instruments with plain vanilla character are used. These are used exclusively to hedge existing hedged items or forecast transactions. Hedge accounting is applied if the IFRS criteria are met. The Commercial Vehicle Control Systems Division hedges its risk independently while following guidelines comparable to the consolidated ZF Group's hedging strategy. Integration into ZF's hedging strategy will be completed in 2022. Interest rate and raw material price risks are hedged on a case-by-case basis.

Hedging transactions are concluded in accordance with uniform corporate policies, following various jurisdictions' rules and regulations and in line with bank regulations on the operating of trading business. Such conclusions are subject to stringent monitoring, which is ensured in particular by the strict separation of duties between trading, settlement and control.

Credit and counterparty risk

Credit risk is the risk that our contracting parties in the areas of financial investments, financial receivables and trade receivables will not meet their payment obligations. This risk is defined based on calculated probabilities of default or information about the insolvency of contracting parties.

In order to reduce the counterparty risk for financial investments and derivatives, all financial transactions are carried out only with banks with a first-class credit rating within the framework of defined limits. These limits are reviewed quarterly and adjusted, if necessary. Input parameters for taking into account counterparty risk are ratings with a long-term perspective issued by independent rating agencies for the financial institutions participating in the respective transaction.

The financial assets of the consolidated Group lead to a maximum credit risk if one counterparty defaults, amounting to the carrying amount of the respective financial line item without considering collaterals received.

Outstanding trade receivables mainly comprise receivables from manufacturers of passenger cars and commercial vehicles, off-road machinery and wind turbines worldwide. In order to secure the entire value-added chain, the creditworthiness of our strategic suppliers is constantly monitored on the one hand, in particular by concentrating new contract awarding decisions on creditworthy suppliers. In order to reduce the credit risk in relation to customers on the other hand, the creditworthiness of customers as well as the related receivables are subject to continuous monitoring in the context of an SAP-based credit management. In some instances, credit risks are reduced by appropriate hedging measures such as trade credit insurances. The carrying amount of trade receivables covered by trade credit insurances is €52 million (2020: €46 million).

The following table illustrates the credit risk existing per risk category for trade receivables and contract assets as of the reporting date:

Dec. 31, 2020 in € million Risk category	Trade receivables	Contract assets
1	480	454
2	4,534	133
3	706	3
4	40	2
Receivables (gross)	**5,760**	**592**
Specific loss allowances	−60	0
Credit-based loss allowances	−83	−2
Receivables (net)	**5,617**	**590**

Dec. 31, 2020 in € million Risk category	Trade receivables	Contract assets
1	443	376
2	4,089	40
3	1,108	2
4	22	6
Receivables (gross)	**5,662**	**424**
Specific loss allowances	−75	0
Credit-based loss allowances	−106	−2
Receivables (net)	**5,481**	**422**

A specific loss allowance on receivables is recognized if there is an existing credit risk. The amount of the allowance mainly depends on the risk category and how long the receivable is overdue, and may be up to 100% in individual cases. A distinction is made between credit risk and business risk in assessing the recoverability of receivables.

Liquidity risk

The expected future outflow of funds due to principal and interest payments for financial liabilities and trade payables is contained in the medium-term liquidity planning.

The following table lists the maturity structure of principal and interest payments for the financial liabilities and trade payables:

in € million	Carrying amount Dec. 31, 2021	Cash outflow		
	Total	2022	2023 to 2027	2028 and beyond
Bonds	7,745	215	6,567	2,031
Bonded loans	2,062	629	1,472	51
Liabilities to banks	1,878	218	1,733	0
Other financial liabilities	37	13	16	10
Trade payables	5,885	5,855	30	0
	17,607	**6,930**	**9,818**	**2,092**

in € million	Carrying amount Dec. 31, 2020	Cash outflow		
	Total	2021	2022 to 2026	2027 and beyond
Bonds	7,171	231	5,414	2,698
Bonded loans	2,647	178	2,452	150
Liabilities to banks	2,607	117	2,582	0
Other financial liabilities	38	40	0	0
Trade payables	5,626	5,598	28	0
	18,089	**6,164**	**10,476**	**2,848**

The solvency and the liquidity reserves within the consolidated ZF Group are managed on the basis of short-, medium- and long-term liquidity and financing planning. A sufficient amount of cash and cash equivalents as well as securities that can be converted to cash and confirmed credit lines is held so that the solvency of the consolidated ZF Group is ensured at all times. Cash and cash equivalents amounted to €2,332 million as of the reporting date. The carrying amount of short-term securities was €63 million. The syndicated loan refinanced in 2016 with a remaining amount of €3,000 million in the form of a revolving credit line was unused. The credit line has a residual term until July 2023.

Market price risk from securities

The market price risk is the risk that the fair value of securities decreases. Due to the low portfolio of securities, the risk from market price fluctuations is considered immaterial. Therefore, a sensitivity analysis is dispensed with.

Foreign currency risk

The foreign currency risk is the risk that the fair values or future cash flows of monetary items are negatively influenced due to exchange rate changes. As a result of its international orientation, the consolidated ZF Group carries out transactions in different currencies.

The consolidated ZF Group follows a unified approach to managing currency risks. The hedging approach pursues a central and systematic currency risk assessment and strategy that includes regular survey rounds for expected risk items, risk assessment and the implementation of multi-layered hedging for a hedging horizon of 24 months.

The net principle applies to foreign currency hedging, i.e., hedging takes place for the net risk items from bilateral cash flows. Foreign currency hedging is carried out mainly via FX forward instruments. The intended hedging relationship between the designated amount of the hedged item and the designated amount of the hedging instrument amounts to up to 80%.

Individual hedging is generally carried out for the project business (gross principle). As a rule, the hedged item of project-related individual hedges is hedged in the full amount.

The translation risk from the measurement of line items is not hedged – the risks are monitored on a regular basis.

The economic relationship between the hedging instrument and the hedged item can be determined in terms of quality and quantity, and ZF assesses the effectiveness of this hedging relationship using the hypothetical derivatives method and linear regression. Ineffectiveness is largely expected to occur through changes in credit risk or from timing adjustments regarding the hedged item. In the current fiscal year, no gains from ineffective hedging relationships (2020: €3 million) were derecognized from the cash flow hedge reserve.

The expected cash outflow from derivative financial instruments results from the following presentation:

			Cash outflow	
in € million	Market values as of **Dec. 31, 2021**	Nominal value	Within a year	1 to 5 years
Derivatives excl. hedge accounting				
Assets	31	1,438	1,427	11
Liabilities	–16	1,067	1,055	12
Cash flow hedge				
Assets	25	712	542	170
Liabilities	–44	1,085	768	317

in € million	Market values as of Dec. 31, 2020	Nominal value	Cash outflow: Within a year	Cash outflow: 1 to 5 years
Derivatives excl. hedge accounting				
Assets	14	1,003	986	17
Liabilities	–21	882	865	17
Cash flow hedge				
Assets	36	1,134	899	235
Liabilities	–13	509	359	150

For the purposes of hedging foreign currency risk, the hedging rates for the material currency pairs are as follows: 1.18 EUR/USD; 4.60 EUR/PLN; 21.65 USD/MXN; 5.60 USD/BRL. The hedging rates comprise derivatives including and excluding hedge accounting.

in € million	Change in value of hedging instrument: 2021	Change in value of hedging instrument: 2020	Change in value of hedged item: 2021	Change in value of hedged item: 2020
Cash flow hedge	–19	23	19	–23

Sensitivity analysis

In terms of sensitivity to exchange rates volatility, ZF considers most relevant to evaluate the potential impact of EUR strengthening or weakening on its portfolio of outstanding cash flow hedge derivatives, as well as on un-hedged financing instruments such as loans and cash and cash equivalents in foreign currencies. For this purpose, the sensitivity of the portfolio of derivatives and financing instruments was determined for a 10% appreciation and depreciation of EUR versus all other currencies represented in the portfolio.

The following table shows the hypothetical effects on equity and profit or loss (in both cases excluding tax effects) within the scope of the aforementioned parameters:

in € million	Effect on equity	Effect on profit or loss
Appreciation of the euro by +10%	–2	–11
Devaluation of the euro by –10%	1	7

Raw material price risk

The raw material price risk is the risk that the acquisition cost from the purchase of production equipment and operational materials will change. ZF is working on setting up a structured raw material hedging program.

Interest rate risk

The interest rate risk is the risk that the fair values or future cash flows of financial instruments will fluctuate due to changes in the market interest rate. The interest rate risk is hedged on a case-by-case basis. No hedging transactions were entered into in the current fiscal year.

The replacement of reference interest rates in the context of the IBOR reform is not expected to have material effects on the consolidated ZF Group. To a small extent, there are financial liabilities that are linked to a reference interest rate that will be replaced in the course of the IBOR reform. It is planned that before the replacement date these liabilities will be repaid or the respective contracts will be amended by alternative benchmark rates which meet the new regulatory standards and market requirements.

The following tables indicate the effect on net profit or loss before income tax in the event of an increase or decrease in the average interest rate on financial investments as well as on financial liabilities with variable interest rates that are not supported by interest hedging transactions in the corresponding currency:

	Change in base points		Effect on net profit or loss before income tax (in € million)	
Investment of funds	**Dec. 31, 2021**	Dec. 31, 2020	**Dec. 31, 2021**	Dec. 31, 2020
EUR	**+5** **−5**	+40 −40	**+0** **−0**	+3 −3
USD	**+40** **−40**	+160 −160	**+1** **−1**	+4 −4
CNY	**+15** **−15**	+30 −30	**+1** **−1**	+2 −2

	Change in base points		Effect on net profit or loss before income tax (in € million)	
Financial liabilities	**Dec. 31, 2021**	Dec. 31, 2020	**Dec. 31, 2021**	Dec. 31, 2020
USD	**+40** **−40**	+160 −60	**−10** **+10**	−29 +11

With financial liabilities denominated in euros, neither an increase nor a decrease by five base points would have a material effect on the net profit or loss before income taxes.

The sensitivity analysis was drawn up under the assumption that the amount of loans from banks and of financial investments as well as the ratio of fixed and variable interest rates will remain at the same level.

37 Government grants

In the fiscal year 2021, €65 million (2020: €212 million) in government grants were received. They were divided as follows:

in € million	**2021**	2020
Investment grants	**17**	21
Expense subsidies	**48**	191

Investment grants were basically received for investments at various locations in China, Serbia, Canada, the Czech Republic and Belgium.

In the fiscal year 2021, in the context of the effects of the Covid-19 pandemic, expense subsidies of €9 million (2020: €170 million) were received and recognized in the consolidated statement of profit or loss as reduction of personnel expenses under function costs. Furthermore, state research subsidies as well as subsidies for personnel expenses were received.

38 Related party transactions

In accordance with IAS 24, persons or companies that control or are controlled by the consolidated ZF Group have to be disclosed to the extent that they are not already included in the consolidated financial statements of ZF Friedrichshafen AG as a consolidated company. Here, control is exercised if a shareholder holds more than half of the voting rights or is able, by virtue of terms in the by-laws or contractual agreements, to govern management's financial and operating policies. In addition, the disclosure obligations under IAS 24 extend to transactions with associates and transactions with persons who exercise a significant influence over the financial and operating policies, including close members of the family or interposed companies. A significant influence on the financial and operating policies of the consolidated ZF Group can be based on a shareholding of 20% or more in ZF Friedrichshafen AG, a seat on ZF Friedrichshafen AG's Board of Management or Supervisory Board, or another key position in management.

Accordingly, the related parties of ZF Friedrichshafen AG include joint ventures, associates and enterprises in which ZF Friedrichshafen AG holds at least 20% of the shares, the Zeppelin Foundation as a special fund of the City of Friedrichshafen, the Dr. Jürgen and Irmgard Ulderup Foundation as well as its affiliated companies.

Transactions with related companies and the receivables and liabilities existing on the reporting date result without exception from the ordinary business activities and are displayed as follows:

2021 **in € million**	Joint ventures	Associates	Other participations
Supplies and services rendered			
Sale of goods	11	0	9
Services	1	7	0
Other services	1	1	0
Supplies and services received			
Sale of goods	15	67	4
Services	0	10	24
Other services	0	3	18
Receivables	6	9	12
Liabilities	1	23	4

2020 **in € million**	Joint ventures	Associates	Other participations
Supplies and services rendered			
Sale of goods	9	4	7
Services	0	3	2
Other services	0	6	1
Supplies and services received			
Sale of goods	16	62	5
Services	0	12	64
Other services	0	10	10
Receivables	7	4	10
Liabilities	1	25	4

39 Board of Management and Supervisory Board compensation

The compensation for the Supervisory Board of the consolidated ZF Group, as determined by the Board of Management, comprises one fixed and two variable components, each consisting of short-term and long-term components. While the short-term component is based on the achievement of targets in the respective preceding fiscal year, the respective long-term component is determined by reference to the business performance over a 3-year period. The remuneration structure is designed to facilitate a long-term positive development of the company.

The payment of fixed salaries and short-term variable salaries to active members of the Board of Management for the fiscal year 2021 amounts to €11.2 million (2020: €10.2 million). The payment of the long-term remuneration component in the amount of €2.6 million (2020: €3.3 million) reflects the challenging business performance in the past two years, which were dominated by the Covid-19 pandemic. In total, payments (fixed salaries as well as short-term and long-term variable salaries) to active members of the Board of Management for the fiscal year 2021 amount to €13.8 million (2020: €13.5 million).

The amount recognized as an expense in the relevant fiscal year for the long-term salary component from 2019 to 2021 was €1.1 million (2020: €1.0 million). The entitlement to future long-term variable salary components expensed during the year under review amounts to €4.2 million (2020: €1.8 million). The payout of these components is not guaranteed, but depends upon the achievement of stretch targets for ZF. Accordingly, the addition to the provision for variable long-term salary components totals €5.3 million (2020: €2.8 million).

In addition, payments for pension rights acquired in the current fiscal year by the active members of the Board of Management total €3.7 million (2020: €3.7 million). The total remuneration, consisting of fixed remuneration, short-term and potential long-term variable components as well as earned pension entitlements, amounts to €20.2 million (2020: €16.7 million).

The emoluments of former members of the Board of Management and their surviving dependents amount to €4.9 million (2020: €4.8 million). The pension provisions for former members of the Board of Management and their surviving dependents amount to €102.1 million (2020: €104.7 million).

The emoluments of the Supervisory Board for the fiscal year 2021 amount to €2.8 million (2020: €2.2 million). Following a market comparison, the shareholders' meeting increased the emoluments of the Supervisory Board effective from the fiscal year 2021, after the emoluments had last been adjusted in the fiscal year 2017.

Moreover, the companies of the consolidated ZF Group have not carried out any reportable transactions whatsoever with members of the Board of Management or the Supervisory Board of ZF Friedrichshafen AG and other members of management in key positions, or with companies in whose management or supervisory bodies these persons are represented. This also applies to close family members of this group of persons.

40 Personnel

The annual average number of employees was 156,705 (2020: 155,502), of whom 77,143 were direct employees (2020: 76,594) and 79,562 were indirect employees (2020: 78,908). At the end of the year, the consolidated ZF Group had 157,549 (2020: 153,522) employees. Direct employees are employees whose activities depend on the production volume and can be allocated directly to the products.

41 Appointed auditor fees

Fees of the consolidated Group's auditing firm, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, recorded in the consolidated statement of profit or loss amount to €3 million for auditing services. The total consolidated Group-wide fees of Ernst & Young amount to €13 million for auditing services, €1 million for other assurance services, €1 million for tax advisory services as well as €1 million for other consulting services. Apart from Ernst & Young, other auditing companies work for the consolidated Group.

42 Events after the reporting period

We cannot give a final assessment of the impact of the Russia-Ukraine conflict yet. For further explanations, please refer to the Opportunities and Risks chapter as well as the Forecast Report in the Group Management Report.

43 Listing of the shares held as of December 31, 2021

Consolidated subsidiaries

Germany	Share of capital in %
Brake Force One GmbH, Tübingen, Germany	100.0
FTU Beteiligungsverwaltung GmbH, Auerbach, Germany	100.0
GAT - Gesellschaft für Antriebstechnik mbH, Alsdorf, Germany	100.0 [1]
Lemförder Electronic GmbH, Espelkamp, Germany	100.0 [1]
Lucas Automotive Grundstücksverwaltungs AG & Co. KG, Koblenz, Germany	100.0 [1]
Lucas Varity Grundstücksverwaltungs AG & Co. KG, Koblenz, Germany	100.0 [1]
Transics Deutschland GmbH, Hanover, Germany	100.0
TRW Deutschland Holding GmbH, Koblenz, Germany	100.0 [1]
WABCO Fahrzeugsysteme GmbH, Hanover, Germany	100.0
WABCO Holding GmbH, Hanover, Germany	100.0
WABCO Radbremsen GmbH, Mannheim, Germany	100.0
WABCO Systeme GmbH, Hanover, Germany	100.0
WABCO Testbahn GmbH, Hanover, Germany	100.0
ZF Active Safety GmbH, Koblenz, Germany	100.0 [1]
ZF Airbag Germany GmbH, Aschau am Inn, Germany	100.0 [1]
ZF Airbag Germany Grundstücksverwaltungs AG & Co. KG, Aschau am Inn, Germany	100.0 [1]
ZF Asia-Pacific Holding GmbH, Friedrichshafen, Germany	100.0 [1]
ZF Auslandsverwaltungs GmbH, Friedrichshafen, Germany	100.0
ZF Automotive Germany GmbH, Alfdorf, Germany	100.0 [1]
ZF Automotive Germany Grundstücksverwaltungs AG & Co. KG, Alfdorf, Germany	100.0 [1]
ZF Automotive Safety Germany GmbH, Aschaffenburg, Germany	100.0 [1]
ZF Automotive Safety Germany Grundstücksverwaltungs AG & Co. KG, Aschaffenburg, Germany	100.0 [1]
ZF Car eWallet GmbH, Berlin, Germany	100.0
ZF CV Distribution Germany GmbH & Co. KG, Hanover, Germany	100.0

Germany	Share of capital in %
ZF CV Logistics Germany GmbH, Hanover, Germany	100.0
ZF CV Systems Hannover GmbH, Hanover, Germany	100.0
ZF Europa Beteiligungs GmbH, Friedrichshafen, Germany	100.0 [1]
ZF Finance GmbH, Friedrichshafen, Germany	100.0
ZF Gastronomie Service GmbH, Friedrichshafen, Germany	100.0 [1]
ZF Getriebe Brandenburg GmbH, Brandenburg, Germany	100.0 [1]
ZF Gusstechnologie GmbH, Nuremberg, Germany	100.0 [1]
ZF Industrieantriebe Witten GmbH, Witten, Germany	100.0 [1]
ZF Luftfahrttechnik GmbH, Calden, Germany	100.0 [1]
ZF Micro Mobility GmbH, Ravensburg, Germany	100.0 [1]
ZF Mobility Solutions GmbH, Munich, Germany	100.0 [1]
ZF NewCo II GmbH, Friedrichshafen, Germany	100.0
ZF Nürnberg Trading and Asset GmbH & Co. KG, Nuremberg, Germany	100.0 [1]
ZF Pegasus GmbH, Friedrichshafen, Germany	100.0 [1]
ZF RACE ENGINEERING GmbH, Schweinfurt, Germany	100.0 [1]
Zukunft Ventures GmbH, Friedrichshafen, Germany	100.0 [1]

1) The company lays claim to exemption in part or in full from disclosing the annual financial statements according to Art. 264, section 3, and Art. 264b, HGB (Commercial Code).

International	Share of capital in %
2 Getthere B.V., Utrecht, Netherlands	100.0
2 Getthere Holding B.V., Utrecht, Netherlands	100.0
Advanced Cargo Transhipment B.V., Utrecht, Netherlands	100.0
Alfaro Brakes S.L.U., Corella, Spain	100.0
Automotive Holdings (Spain) S.L.U., Vigo, Spain	100.0
Beespeed Technical Engineering Center S.R.L., Timișoara, Romania	100.0
Changchun WABCO Vehicle Control System Co., Ltd., Changchun, China	60.0
Clayton Dewandre Holdings Limited, Hull, United Kingdom	100.0
Compagnie Financière de ZF SAS, Andrézieux-Bouthéon, France	100.0
Dalphi Metal Espana, S.A., Vigo, Spain	100.0
Dalphi Metal Portugal, S.A., Vila Nova de Cerveira, Portugal	100.0
DalphiMetal Tunisie S.A.R.L., Ben Arous, Tunisia	100.0
Delta Industrie Services SARL, Saint-Hilaire-de-Brethmas, France	100.0
Eurofren Investment, S. de R.L. de C.V., Cienega de Flores, Mexico	100.0
Eurofren Systems S.L.U, Mutliva Baja, Spain	100.0
FLC NV, Ypern, Belgium	100.0
Fortuna Assurance Company, Burlington, USA	100.0
Frenos y Mecanismos, S. de R.L. de C.V., Santa Rosa de Jarequi, Mexico	100.0
Friction Materials Group North America, Inc., Livonia, USA	100.0
Guangdong WABCO Vehicle Brakes Co.,Ltd., Taishan, China	100.0
Ing. Tsetinis Beratungs GmbH, Kuchl, Austria	100.0
Kelsey-Hayes Holdings Inc., Livonia, USA	100.0
Kelsey-Hayes Mexico LLC, Reynosa, Mexico	100.0
Laydon Composites, Ltd., Hamilton, Canada	100.0
Liuzhou ZF Machinery Co., Ltd., Liuzhou, China	51.0
LucasVarity Langzhong Brake Company Limited, Langfang, China	70.0
LucasVarity, Solihull, United Kingdom	100.0
Midwest Lemförder Limited, Darlaston, United Kingdom	100.0

International	Share of capital in %
OOO ZF Kama, Naberezhnye Chelny, Russia	51.0
OOO ZF Russia, Saint Petersburg, Russia	100.0
OOO ZF SAAZ, Chulkovo Village, Russia	51.0
PT. ZFAG Aftermarket Jakarta, Jakarta, Indonesia	100.0
Qingdao FMG Asia Pacific Co., Ltd., Qingdao, China	100.0
Rane TRW Steering Systems Private Limited, Chennai, India	51.0
Revestimientos Especiales de Mexico, S. de R.L. de C.V., Cienega de Flores, Mexico	100.0
Roadster Automotive B.V., Amsterdam, Netherlands	100.0
Roadster Holdings (Canada) ULC, Toronto, Canada	100.0
RTH Properties Proprietary Limited, Elandsfontein, South Africa	100.0
Safe-Life - Industria de Componentes de Seguranca Automovel S.A., Ponte de Lima, Portugal	100.0
Shanghai Sachs Huizhong Shock Absorber Co., Ltd., Shanghai, China	60.0
TAVARES B.V., Brussels, Belgium	100.0
Transics Belux B.V., Ypern, Belgium	100.0
Transics France SARL, Alès, France	100.0
TRANSICS International B.V., Ypern, Belgium	100.0
Transics Ireland Limited, Dublin, Ireland	100.0
Transics Italia S.r.l., Collegno, Italy	100.0
Transics Nederland B.V., Capelle aan den Ijssel, Netherlands	100.0
Transics Telemática España S.L.U., Madrid, Spain	100.0
TRW Aftermarket Asia Pacific PTE Ltd., Singapore, Singapore	100.0
TRW Airbag Systems SRL, Roman, Romania	100.0
TRW Australia Holdings Pty Ltd., Zetland, Australia	100.0
TRW Australia Pty Ltd., Zetland, Australia	100.0
TRW Auto B.V., Amsterdam, Netherlands	100.0
TRW Automotive (LV) Corp., Livonia, USA	100.0
TRW Automotive China Holdings Ltd., Ebene, Mauritius	100.0

International	Share of capital in %
TRW Automotive Components Technical Service Shanghai Co. Ltd., Shanghai, China	100.0
TRW Automotive Distribution France SAS, Puteaux, France	100.0
TRW Automotive Espana S.L.U., Pamplona, Spain	100.0
TRW Automotive Holding Mexico LLC, Reynosa, Mexico	100.0
TRW Automotive India Private Limited, Haryana, India	100.0
TRW Automotive Portugal Lda., Santos Domingos de Rana, Portugal	100.0
TRW Automotive Research and Development (Shanghai) Co. Ltd., Shanghai, China	100.0
TRW Automotive Safety Systems SRL, Timisoara, Romania	100.0
TRW China Holdings Ltd, Grand Cayman, Cayman Islands	100.0
TRW Delplas, S. de R.L. de C.V., El Marqués, Mexico	100.0
TRW FAWER Automobile Safety Systems (Changchun) Co., Ltd., Changchun, China	60.0
TRW FAWER Commercial Vehicle Steering (Changchun) Co., Ltd., Changchun, China	55.0
TRW Intellectual Property Corp., Livonia, USA	100.0
TRW International Holdings B.V., Amsterdam, Netherlands	100.0
TRW Occupant Restraints de Chihuahua, S. de R.L. de C.V., Chihuahua, Mexico	100.0
TRW Odyssey Mexico LLC, Reynosa, Mexico	100.0
TRW Safety Systems Mexico LLC, Reynosa, Mexico	100.0
TRW Sistemas de Direcciones, S. de R.L. de C.V., El Marqués, Mexico	100.0
TRW Sistemas de Frenado S. de R.L. de C.V., El Marqués, Mexico	100.0
TRW Steering & Suspension Co., Ltd., Rayong, Thailand	100.0
TRW Steering Wheel Systems de Chihuahua, S. de R.L. de C.V., Chihuahua, Mexico	100.0
TRW Vehicle Safety Systems de Mexico, S. de R.L. de C.V., Reynosa, Mexico	100.0
Verona Holding Corp., Wilmington, USA	100.0
WABCO (Schweiz) GmbH, Bern, Switzerland	100.0
WABCO (Thailand) Ltd., Rayong, Thailand	100.0
WABCO Air Compressor Holdings Inc., Auburn Hills, USA	100.0

International	Share of capital in %
WABCO Araç Kontrol Sistemleri Destek ve Pazarlama Limited Şirketi, Istanbul, Turkey	100.0
WABCO Asia Private Ltd., Singapore, Singapore	100.0
WABCO Australia Pty Ltd., Melbourne, Australia	100.0
WABCO Automotive B.V., Capelle aan den IJssel, Netherlands	100.0
WABCO Automotive Control Systems Inc., Auburn Hills, USA	100.0
WABCO Automotive Italia S.r.l., Torino, Italy	100.0
WABCO Automotive Mexico., S. de R.L. de C.V., San Luis Potosi, Mexico	100.0
WABCO Automotive Products Ltd., Grand Cayman, Cayman Islands	100.0
WABCO Automotive UK Limited, Leeds, United Kingdom	100.0
WABCO Brzdy K Vozidlum spol.s.r.o., Brno, Czech Republic	100.0
WABCO Comercial México S. de R.L. de C.V., Santa Fe, Mexico	100.0
WABCO Compressor Manufacturing Company, Charleston, USA	70.0
WABCO Digital Solutions Private Limited, Bangalore, India	100.0
WABCO España, S.L.U., Madrid, Spain	100.0
WABCO Europe Holdings B.V., Capelle aan den IJssel, Netherlands	100.0
WABCO Europe Holdings LLC, Auburn Hills, USA	100.0
WABCO Expats Inc., Auburn Hills, USA	100.0
WABCO Financial Services Srl, Brussels, Belgium	100.0
WABCO Foundation Brakes Private Limited, Chennai, India	99.8
WABCO France SAS, Jossigny, France	100.0
WABCO Group Inc., Auburn Hills, USA	100.0
WABCO Group International Inc., Auburn Hills, USA	100.0
WABCO Holdings B.V., Capelle aan den IJssel, Netherlands	100.0
WABCO Holdings Inc., Auburn Hills, USA	100.0
WABCO Hong Kong Ltd., Hong Kong, China	100.0
WABCO India Limited, Chennai, India	75.0
WABCO International LLC, Auburn Hills, USA	100.0
WABCO IP Holdings LLC, Auburn Hills, USA	100.0

International	Share of capital in %
WABCO Japan Inc., Tokyo, Japan	90.0
WABCO Korea Ltd., Suwon, Korea (Republic)	100.0
WABCO Logistics (Qingdao) Co., Ltd., Qingdao, China	100.0
WABCO Middle-East and Africa FZCO, Dubai, United Arab Emirates	100.0
WABCO RUS LLC, Moscow, Russia	100.0
WABCO Services SAS, Jossigny, France	100.0
WABCO South Africa (PTY) Ltd., Germiston, South Africa	100.0
WABCO USA LLC, Auburn Hills, USA	100.0
WABCO Vehicle Control Systems LLC, Auburn Hills, USA	100.0
WABCO Vehicle Control Systems S. de R.L. de C.V., Santa Fe, Mexico	100.0
WABCO Vostok LLC, Moscow, Russia	100.0
WBC C.V., Capelle aan den IJssel, Netherlands	100.0
ZF (China) Investment Co., Ltd., Shanghai, China	100.0
ZF (Guangzhou) Technologies Co., Ltd., Guangzhou, China	100.0
ZF (Shanghai) Management Co.,Ltd, Shanghai, China	100.0
ZF (Thailand) Limited, Bangkok, Thailand	100.0
ZF Active Safety and Electronics US LLC, Livonia, USA	100.0
ZF Active Safety France SAS, Bouzonville, France	100.0
ZF Active Safety Slovakia s.r.o., Nove Mesto nad Vahom, Slovakia	100.0
ZF Active Safety US Holding Company, Livonia, USA	100.0
ZF Active Safety US Inc., Livonia, USA	100.0
ZF Aftermarket Iberica S.L.U., Pamplona, Spain	100.0
ZF Aftermarket Japan Co., Ltd., Tokyo, Japan	100.0
ZF Aftermarket Malaysia Sdn. Bhd., Senai, Malaysia	100.0
ZF ANSA Lemförder S.L. (Sociedad Unipersonal), Sant Cugat del Vallès, Spain	100.0
ZF AP Holdings Inc., Livonia, USA	100.0
ZF Argentina S.A., San Francisco, Argentina	100.0
ZF Asia B.V., Amsterdam, Netherlands	100.0

International	Share of capital in %
ZF Asia Pacific Group Co., Ltd., Shanghai, China	100.0
ZF Asia Pacific Pte. Ltd., Singapore Central, Singapore	100.0
ZF Auto Holdings US Inc., Livonia, USA	100.0
ZF Autocruise France SAS, Plouzane, France	100.0
ZF Automotive (Thailand) Co. Ltd., Bangkok, Thailand	100.0
ZF Automotive Aftermarket France SAS, Bonneval, France	100.0
ZF Automotive B.V., Amsterdam, Netherlands	100.0
ZF Automotive Brasil Ltda., Limeira, Brazil	100.0
ZF Automotive Canada Limited, Woodstock, Canada	100.0
ZF Automotive Components & Systems (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Automotive Czech s.r.o., Jablonec nad Nisou, Czech Republic	100.0
ZF Automotive Holding Italia S.r.l., Torino, Italy	100.0
ZF Automotive Holdings (UK) Limited, Solihull, United Kingdom	100.0
ZF Automotive Holdings France SAS, Andrézieux-Bouthéon, France	100.0
ZF Automotive Italia S.r.l, Torino, Italy	100.0
ZF Automotive J.V. LLC, Livonia, USA	100.0
ZF Automotive Japan Co. LTD., Yokohama, Japan	100.0
ZF Automotive Korea Co., Ltd., Ansan, Korea (Republic)	71.0
ZF Automotive Malaysia Sdn Bhd., Bukit Beruntung, Malaysia	100.0
ZF Automotive Passive Safety Systems (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Automotive Systems (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Automotive Systems (Wuhan) Co., Ltd., Wuhan, China	100.0
ZF Automotive Systems Poland Sp. z o.o., Czestochowa, Poland	100.0
ZF Automotive Technologies (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Automotive Technologies (Zhangjiagang) Co., Ltd., Zhangjiagang, China	100.0
ZF Automotive UK Limited, Solihull, United Kingdom	100.0
ZF Automotive US Inc., Livonia, USA	100.0
ZF Automotive Vietnam Co., Ltd., Haiphong, Vietnam	100.0

International	Share of capital in %
ZF Axle Drives Marysville, LLC, Marysville, USA	100.0
ZF Boge Elastmetall Espana S.A.U., Santa Perpètua de Mogoda, Spain	100.0
ZF Bouthéon SAS, Andrézieux-Bouthéon, France	100.0
ZF Braking Systems Poland Sp. z o.o., Gliwice, Poland	100.0
ZF Brazil US LLC, Livonia, USA	100.0
ZF Chassis Components, LLC, Newton, USA	100.0
ZF Chassis System (Rayong) Co., Ltd., Rayong, Thailand	100.0
ZF Chassis Systems (Beijing) Co., Ltd., Beijing, China	100.0
ZF Chassis Systems Chicago, LLC, Chicago, USA	100.0
ZF Chassis Systems Duncan, LLC, Duncan, USA	100.0
ZF Chassis Systems Sdn. Bhd., Padang Serai, Malaysia	100.0
ZF Chassis Systems Tuscaloosa, LLC, Tuscaloosa, USA	100.0
ZF Chassis Systems Zatec s.r.o., Plzeň, Czech Republic	100.0
ZF Chassis Technology S.A. de C.V., Toluca, Mexico	100.0
ZF Chassistech Commercial Vehicles (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Commercial Vehicle Systems (Jinan) Co., Ltd., Jinan, China	100.0
ZF Commercial Vehicle Systems (Qingdao) Co., Ltd., Qingdao, China	100.0
ZF Commercial Vehicle Technology (Jiaxing) Co., Ltd., Jiaxing, China	100.0
ZF CV Distribution Austria GmbH, Vienna, Austria	100.0
ZF CV Distribution Belgium B.V., Brussels, Belgium	100.0
ZF CV Distribution Poland Sp. z.o.o., Wrocław, Poland	100.0
ZF CV Distribution Sweden AB, Gothenburg, Sweden	100.0
ZF CV Logistics Brasil Ltda, Campinas, Brazil	100.0
ZF CV Systems Brasil Ltda, Campinas, Brazil	100.0
ZF CV Systems Europe B.V., Brussels, Belgium	100.0
ZF CV Systems Global GmbH, Bern, Switzerland	100.0
ZF CV Systems North America LLC, Auburn Hills, USA	100.0
ZF CV Systems Poland Sp. z.o.o., Wrocław, Poland	100.0

International	Share of capital in %
ZF Danmark ApS, Tåstrup, Denmark	100.0
ZF do Brasil Ltda., Sorocaba, Brazil	100.0
ZF Dongfang Automotive Safety Technology (Xi'an) Co., Ltd., Xi'an, China	90.0
ZF Dongfeng Shock Absorber Shiyan Co., Ltd., Shiyan, China	51.0
ZF Drivetech (Hangzhou) Co., Ltd., Hangzhou, China	100.0
ZF Drivetech (Jiaxing) Co., Ltd., Jiaxing, China	100.0
ZF Drivetech (Suzhou) Co., Ltd., Suzhou, China	100.0
ZF Electric Mobility Technologies (Shenyang) Co., Ltd., Shenyang, China	100.0
ZF Electronic Systems Juárez, S.A. de C.V., Juárez, Mexico	100.0
ZF Electronic Systems Monterrey S. de R.L., Monterrey, Mexico	100.0
ZF Electronic Systems Pleasant Prairie, LLC, Pleasant Prairie, USA	100.0
ZF Electronics (Zhuhai) Co., Ltd., Zhuhai, China	100.0
ZF Electronics Klášterec s.r.o., Klášterec, Czech Republic	100.0
ZF Engineering Plzeň s.r.o., Plzeň, Czech Republic	100.0
ZF Europe B.V., Amsterdam, Netherlands	100.0
ZF Europe Finance B.V., Amsterdam, Netherlands	100.0
ZF Faster Propulsion Systems Co., Ltd., Kaohsiung, Taiwan	100.0
ZF FAWER Automotive Chassis Systems (Changchun) Co., Ltd., Changchun, China	60.0
ZF FAWER Chassis Technology (Changchun) Co., Ltd., Changchun, China	51.0
ZF FOTON Automated Transmission (Jiaxing) Co. Ltd., Jiaxing, China	51.0
ZF Gainesville, LLC, Gainesville, USA	100.0
ZF Heli Drivetech (Hefei) Co., Ltd., Hefei, China	51.0
ZF Holding Austria GmbH, Steyr, Austria	100.0
ZF Holdings Australia Pty. Ltd. Ltd., Dingley Village, Australia	100.0
ZF Holdings B.V., Amsterdam, Netherlands	100.0
ZF Hungária Ipari és Kereskedelmi Korlátolt Felelösségú Társaság, Eger, Hungary	100.0
ZF India Holdings B.V., Amsterdam, Netherlands	100.0

International	Share of capital in %
ZF India Pvt. Ltd., Pune, India	100.0
ZF Inmobilaria S.A. de C.V., Saltillo, Mexico	100.0
ZF International B.V., Den Haag, Netherlands	100.0
ZF International Holdings Inc., Livonia, USA	100.0
ZF International UK Limited, Solihull, United Kingdom	100.0
ZF Italia Holding S.p.A., Selvazzano Dentro, Italy	100.0
ZF Italia S.r.l., Assago, Italy	100.0
ZF Japan Co., Ltd., Tokyo, Japan	100.0
ZF Lemforder (Thailand) Co., Ltd., Rayong, Thailand	100.0
ZF Lemförder Achssysteme Ges.m.b.H., Lebring, Austria	100.0
ZF Lemförder Aks Modülleri Sanayi ve Ticaret Anonim Sirket, Izmir, Turkey	100.0
ZF Lemforder Australia Pty. Limited, Edinburgh, Australia	100.0
ZF Lemforder Automotive Systems (Shenyang) Co., Ltd., Shenyang, China	100.0
ZF Lemförder Chassis Technology Korea Co., Ltd., Gumi, Korea (Republic)	59.3
ZF Lemförder Métal France S.A.S., Florange, France	100.0
ZF Lemförder SA (Pty.) Ltd., Rosslyn, South Africa	100.0
ZF Lemforder Shanghai Chassistech Co., Ltd., Shanghai, China	76.0
ZF Lemförder TLM Dış Ticaret Limited Şirketi, Izmir, Turkey	100.0
ZF Lemförder TVA, S.A.U., Ermua, Spain	100.0
ZF Lemforder UK Limited, Darlaston, United Kingdom	100.0
ZF Marine Krimpen BV, Krimpen aan de Lek, Netherlands	100.0
ZF Marine Propulsion Systems Miramar, LLC, Miramar, USA	100.0
ZF México, S.A. de C.V., Guadalajara, Mexico	100.0
ZF Middle East FZE, Dubai, United Arab Emirates	100.0
ZF Mobility France S.A.S., Paris, France	100.0
ZF North America Capital, Inc., Northville, USA	100.0
ZF North America, Inc., Northville, USA	100.0
ZF Occupant Safety Systems de la Laguna, S. de R.L. de C.V., Durango, Mexico	100.0

International	Share of capital in %
ZF Off-Highway Solutions Minnesota Inc., North Mankato, USA	100.0
ZF OPENMATICS s.r.o., Plzeň, Czech Republic	100.0
ZF Österreich Gesellschaft m.b.H., Vienna, Austria	100.0
ZF Overseas Inc., Livonia, USA	100.0
ZF Padova S.r.l., Selvazzano Dentro, Italy	100.0
ZF Passive Safety Czech s.r.o., Stara Boleslav, Czech Republic	100.0
ZF Passive Safety Korea Co., Ltd., Ansan, Korea (Republic)	100.0
ZF Passive Safety South Africa Inc., Livonia, USA	100.0
ZF Passive Safety Systems US Inc., Washington, USA	100.0
ZF Passive Safety US Inc., Livonia, USA	100.0
ZF Pension Sponsor UK Limited, Solihull, United Kingdom	100.0
ZF Philippines, Inc., Manila, Philippines	100.0
ZF Powertrain Modules (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Powertrain Modules Saltillo, S.A. de C.V., Ramos Arizpe, Mexico	100.0
ZF Powertrain Systems (Beijing) Co., Ltd., Beijing, China	100.0
ZF Restraints US Inc., Livonia, USA	100.0
ZF Sachs España S.A.U., Bilbao, Spain	100.0
ZF Sachs Italia S.p.A., Candiolo, Italy	100.0
ZF Sachs Korea Co., Ltd., Changwon, Korea (Republic)	91.5
ZF Sachs South Africa Proprietary Limited, Alberton, South Africa	100.0
ZF Sachs Süspansiyon Sistemleri Sanayi ve Ticaret A.Ş., Gebze, Turkey	100.0
ZF Sales and Service (Malaysia) Sdn. Bhd., Petaling Jaya, Malaysia	100.0
ZF Serbia d.o.o., Pančevo, Serbia	100.0
ZF Services (China) Co., Ltd., Shanghai, China	100.0
ZF Services (Shanghai) Co., Ltd., Shanghai, China	100.0
ZF Services Australia Pty. Ltd., Sydney, Australia	100.0
ZF Services Belgium N.V.- SA, Brussels, Belgium	100.0
ZF Services España, S.L.U., Barberá del Vallés, Spain	100.0

International	Share of capital in %
ZF Services France S.A.S., Antony, France	100.0
ZF Services Hong Kong Limited, Hong Kong, China	100.0
ZF Services Korea Co., Ltd., Incheon, Korea (Republic)	100.0
ZF Services Middle East Limited Liability Company, Dubai, United Arab Emirates	49.0 [2]
ZF Services Nederland B.V., Delfgauw, Netherlands	100.0
ZF Services Schweiz AG, Volketswil, Switzerland	100.0
ZF Services South Africa (Proprietary) Ltd., Johannesburg, South Africa	100.0
ZF Services Türk San. ve Tic. A.Ş., Istanbul, Turkey	100.0
ZF Services UK Limited, Nottingham, United Kingdom	100.0
ZF Services, LLC, Gainesville, USA	100.0
ZF Services, S.A. de C.V., Guadalajara, Mexico	100.0
ZF Slovakia a.s., Trnava, Slovakia	100.0
ZF South America Holdings B.V., Amsterdam, Netherlands	100.0
ZF Staňkov s.r.o., Stankov, Czech Republic	100.0
ZF Steering Active Safety US Inc., Livonia, USA	100.0
ZF Steering Systems Poland Sp. z o.o., Czechowice-Dziedzice, Poland	100.0
ZF Steyr Präzisionstechnik GmbH, Steyr, Austria	100.0
ZF Suspension Technology Guadalajara, S.A. de C.V., Guadalajara, Mexico	100.0
ZF Taiwan Ltd., Taipei, Taiwan	100.0
ZF Test Track Sweden AB, Arvidsjaur, Sweden	100.0
ZF Transmissions Gray Court, LLC, Gray Court, USA	100.0
ZF Transmissions Shanghai Co., Ltd., Shanghai, China	51.0
ZF TRW Automotive Holdings Corp., Livonia, USA	100.0
ZF Wind Power (Tianjin) Co., Ltd., Tianjin, China	100.0
ZF Wind Power Antwerpen NV, Lommel, Belgium	100.0
ZF Wind Power Coimbatore Private Limited, Coimbatore, India	100.0
ZF Wind Power Singapore Pte. Ltd., Singapore Central, Singapore	100.0
ZF YTO (Luoyang) Axle Co., Ltd., Luoyang, China	51.0

2) 100% voting rights

Consolidated companies accounted for using the equity method

National	Share of capital in %
ASAP Holding GmbH, Gaimersheim, Germany	35.0
doubleSlash Net-Business GmbH, Friedrichshafen, Germany	51.0
Ibeo Automotive Systems GmbH, Hamburg, Germany	43.8
WABCOWÜRTH Workshop Services GmbH, Hanover, Germany	50.0

International	Share of capital in %
2getthere Asia Pte. Ltd., Singapore Central, Singapore	49.0
2Getthere B.V. Mechanical Equipment LLC, Abu Dhabi, United Arab Emirates	49.0
CSG TRW Chassis Systems Co., Ltd., Chongqing, China	50.0
embotech AG, Zurich, Switzerland	25.8
Evercast, S.A. de C.V., Saltillo, Mexico	30.0
FOTON ZF LCV Automated Transmission (Jiaxing) Co. Ltd., Jiaxing, China	40.0
S.M. Sistemas Modulares Ltda., Taubate, Brazil	50.0
Shanghai G7 WABCO IOT Technology Co., Ltd., Shanghai, China	50.0
SOMIC ZF Components Private Limited, New Delhi, India	50.0
TRW Sun Steering Wheels Private Limited, New Delhi, India	49.0
Wolong ZF Automotive Electric Motors Co., Ltd., Shaoxing, China	26.0
ZF Fonderie Lorraine S.A.S., Grosbliederstroff, France	49.0
ZF Hero Chassis Systems Private Limited, Gurugram, India	50.0
ZF PWK Mécacentre S.A.S., Saint-Étienne, France	50.0

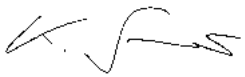
44 Management bodies

The members of the Supervisory Board and the Board of Management are listed on the pages 30 and 31 of the annual report. As of January 01, 2022, Dr. Heinrich Hiesinger was appointed Chairman of the Supervisory Board of ZF Friedrichshafen AG. Dr. Franz-Josef Paefgen resigned from the Supervisory Board of ZF Friedrichshafen AG effective December 31, 2021.

Friedrichshafen, March 07, 2022

ZF Friedrichshafen AG
The Board of Management

Wolf-Henning Scheider
(CEO)



Dr. Konstantin Sauer

Dr. Martin Fischer

Sabine Jaskula

Dr. Holger Klein

Wilhelm Rehm

Stephan von Schuckmann

Further Information

INDEPENDENT AUDITOR'S REPORT

To ZF Friedrichshafen AG

Opinions

We have audited the consolidated financial statements of ZF Friedrichshafen AG, Friedrichshafen and its subsidiaries (the Group), which comprise the consolidated statement of profit or loss and consolidated statement of comprehensive income for the fiscal year January 1 to December 31, 2021, consolidated statement of financial position as at December 31, 2021, the consolidated statement of cash flows and the consolidated statement of changes in equity for the fiscal year from January 1 to December 31, 2021, and notes to the financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of ZF Friedrichshafen AG for the fiscal year from January 1 to December 31, 2021.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at December 31, 2021 and of its financial performance for the fiscal year from January 1 to December 31, 2021, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other information

The Supervisory Board is responsible for the report of the Supervisory Board. The executive directors are responsible for the other information. The other information comprises the prescribed parts of the Annual Report, which were provided to us prior to us issuing this auditor's report, specifically the following:

- Report of the Supervisory Board and
- Sustainability

but not the consolidated financial statements, nor the disclosures in the group management report included in our audit and not our auditor's report thereon.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the supervisory board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec 315e (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Note on supplementary audit

We issue this auditor's report on the amended consolidated financial statements based on the audit concluded on 1 March 2022 and our supplementary audit concluded on 7 March 2022 in accordance with professional standards, which relates to changes in the section "Forecast Report" in the group management report and changes in the section "Events after the reporting period" in the notes to the consolidated financial statements on account of the effects relating to the conflict between Russia and Ukraine. Please refer to the presentation of the changes by the executive directors in the amended notes to the consolidated financial statements in the section "General".

Ravensburg, March 1, 2022 /
limited to the aforementioned changes: March 7, 2022

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Scheufele	Renner
Wirtschaftsprüfer	Wirtschaftsprüferin

IMPRINT

This Report is available in English and German; both versions can also be downloaded from www.zf.com
In cases of doubt, the German version of this Report is binding.

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