

**MOTIVATED EFFICIENT INNOVATIVE**

**SUSTAINABILITY AT ZF**

**2015**



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# PREFACE

## Dear Readers,

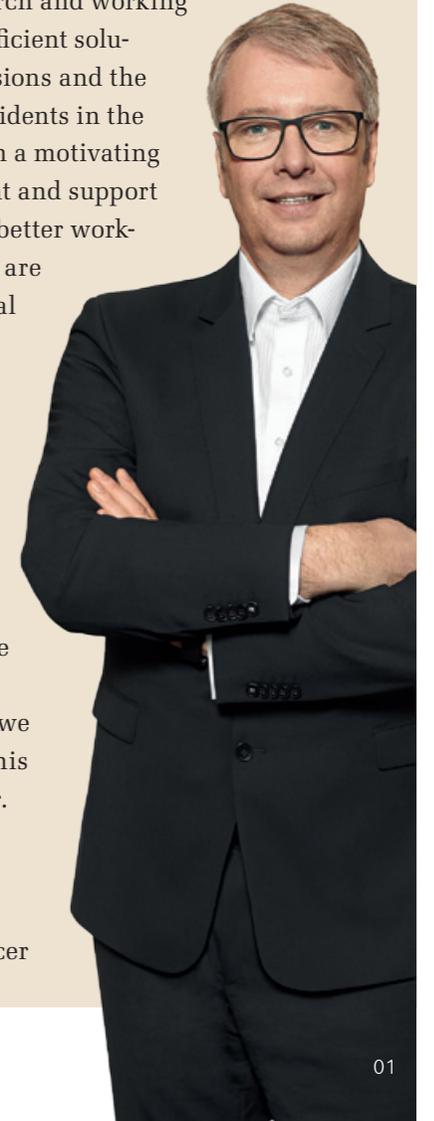
After our company's centennial, we were motivated to launch ourselves into the next century. We want to continue to be innovative and efficient in our actions. The largest acquisition in the history of our company supports this goal. Thanks to the integration of TRW, the ZF Group has grown by almost 100 percent and has gained additional expertise that will be crucial when it comes to making future mobility safer. At our company, economic growth will continue to be closely linked with a strong sense of responsibility for our environment, employees and for society. We have committed ourselves to this responsibility by signing the UN Global Compact.

As a systems supplier, we are decisively shaping the global megatrends of efficiency, safety and autonomous driving. Our "ZF 2025" strategy focuses on these megatrends. Last year, we closely involved our employees in our strategy approach and anchored it even more deeply in the mindset and the company. We have pooled our power of innovation for driveline electrification in our newly created E-Mobility Division. Our objective is to equip vehicles worldwide with powerful electric drives, thus contributing to climate protection. The industrial drives and wind turbine gearbox segment which we acquired from Bosch Rexroth in 2015 is also a part of this strategy. We are now

able to deliver products for central aspects of climate-friendly e-mobility – ranging from vehicle drive systems to alternative energy generation.

Approximately 138,000 employees in 40 countries are doing research and working on innovative and efficient solutions to reduce emissions and the number of traffic accidents in the future. We offer them a motivating working environment and support them in achieving a better work-life balance. And we are successful: Our global employee survey showed that 85 percent of our employees would recommend ZF as a good employer. Motivated, innovative, efficient: This is how we will continue to deliver top performance. This is what we stand for together. This is what ZF stands for.

Yours sincerely,  
Dr. Stefan Sommer  
Chief Executive Officer

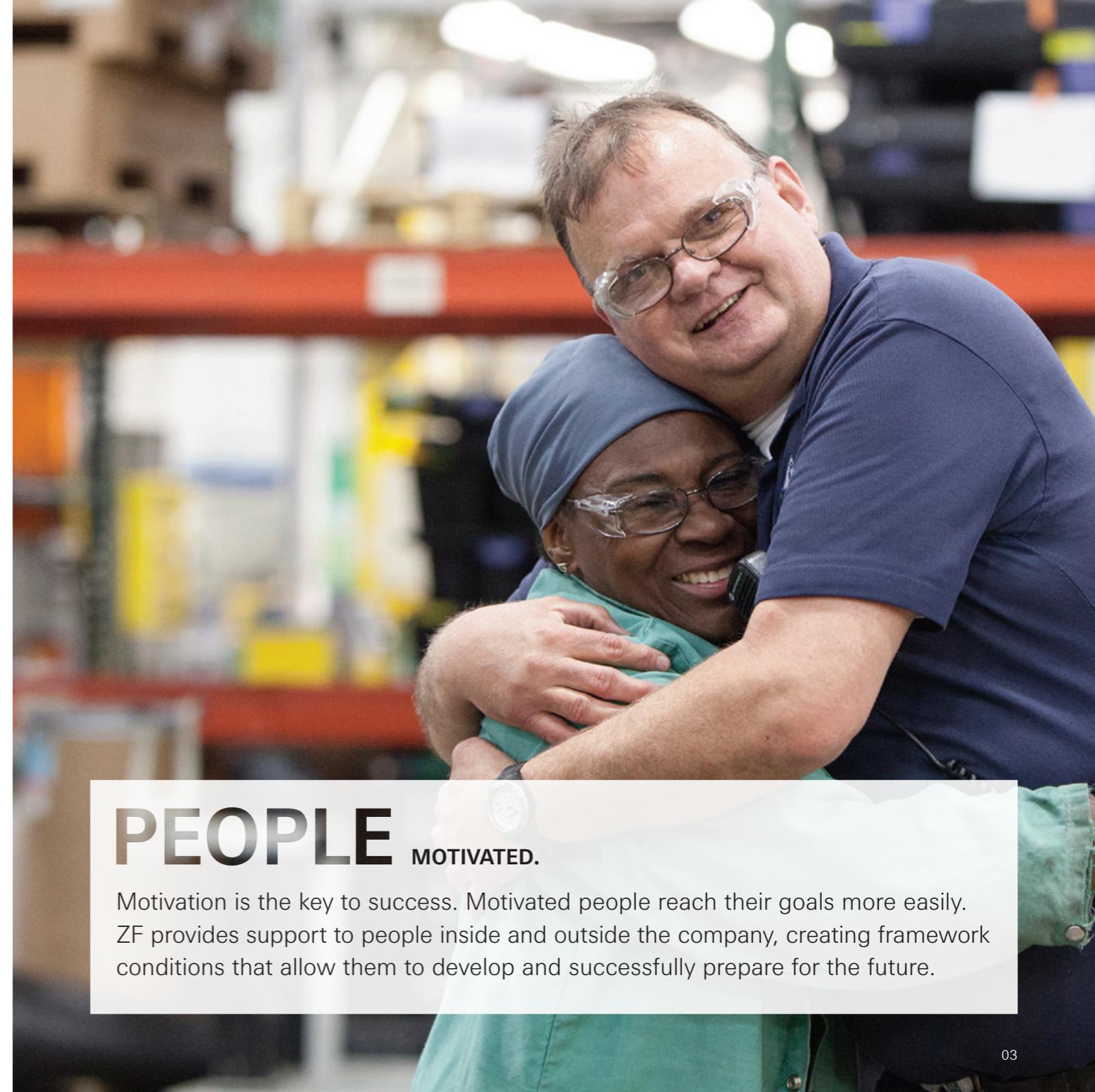
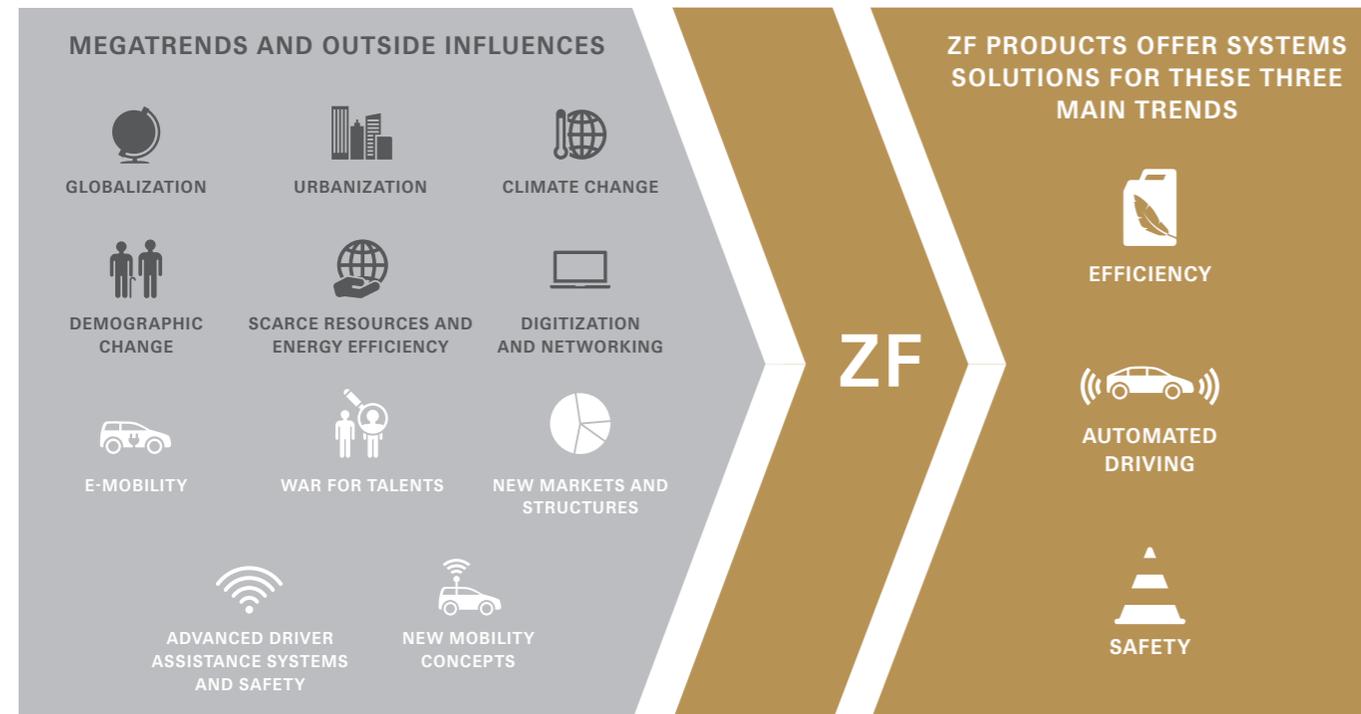


# SUSTAINABILITY AT ZF

Climate change, urbanization or demographic change – these global megatrends have become tangible and therefore form an integral part of the “ZF 2025” strategy.

With clearly defined strategic goals and sustainable corporate governance, ZF is actively shaping the changes in the automotive industry brought about by these and other megatrends. In our target setting process for innovation and sustainability management, we consider long-term factors that are changing due to global eco-

nomie, ecological and social developments. The results are incorporated into our sustainability program which, together with the “ZF 2025” strategy, maps out our path into the future. Efficiency, safety and automated driving as well as ZF’s responsibility for its employees and for society are at the core of all our efforts.



## PEOPLE MOTIVATED.

Motivation is the key to success. Motivated people reach their goals more easily. ZF provides support to people inside and outside the company, creating framework conditions that allow them to develop and successfully prepare for the future.

# HIGHLIGHTS & KEY FIGURES

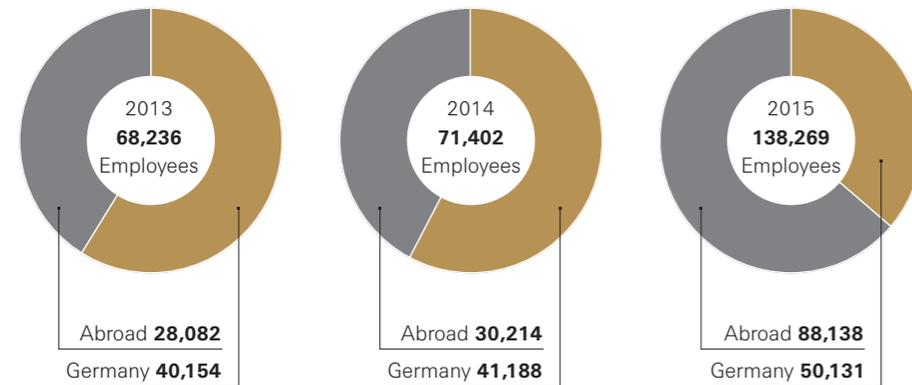
EUR 2.4 million

were donated by employees, ZF, customers, suppliers and friends of ZF during the anniversary year 2015. The money was used to build and expand 100 educational institutions in poverty-stricken regions around the globe.

Attractive employer

In the renowned "trends Graduate Barometer" among future engineers, ZF is ranked 14<sup>th</sup> – moving up two places compared to the previous year. In a survey among economists, ZF is ranked 26<sup>th</sup>.

## GLOBAL EMPLOYER



11.1%

fewer accidents leading to one or several working days lost per one million working hours at ZF compared to the previous year.

87%

of ZF employees worldwide are proud to work for ZF.

2,300

apprentices and dual-education students were employed at ZF in 2015, making ZF one of the largest training companies in Germany.

# SOCIETY & COMMITMENT

"ZF hilft." has been supporting aid projects worldwide since 2005. The anniversary year saw the birth of the "100 Years – 100 Schools" education initiative to which all ZF employees were able to contribute.

## Worldwide humanitarian aid

Via "ZF hilft.", ZF employees and the Board of Management have supported donation projects all around the globe for victims of natural disasters, epidemics and famine. More than EUR 7.5 million have been collected for this purpose in ten years. ZF bears all administration expenses. This guarantees that all donations can be used directly for relief projects such as the rebuilding efforts after the tsunami in Southeast Asia, the earthquake in the Kashmir region or a water supply for refugees in Chad.

## 100 Years – 100 Schools

During the anniversary year, ZF rolled out the largest humanitarian education project in its history. By donating to "ZF hilft.", 100 educational institutions are to be built and expanded in various poverty-stricken regions around the globe. Children from 100 African villages will receive bicycles to get to school every day.

The initiative is aimed at creating a basic education infrastructure. EUR 2.4 million in donations provided by the company, business partners, friends and – for the first time – worldwide ZF employees have proven that great things can be achieved as well.

For example, a total of 30 new schools will be founded in Bangladesh, India and Sierra Leone. 70 different educational institutions, in China, Mexico, Nepal and Peru, for example, will benefit from the training of young specialists and the provision of adequate teaching materials.

Children are so hungry for knowledge. It is a tragedy when they cannot afford to go to school.

Ulrike Pfaumann de Ureña, a ZF employee from Friedrichshafen, has been collecting donations for a school in the Dominican Republic for ten years. These donations enabled the school to be expanded – now it can accept more students and offer more school books than ever before.



# OPPORTUNITIES & DIVERSITY

As a global company, ZF is as colorful and diverse as its employees. Our success as an employer depends on how well we are able to attract the best talent worldwide and to convince them to stay with us. ZF has been a member of the Diversity Charter (Charta der Vielfalt) since 2014.

## Women's careers at ZF

In 2015, the company joined the "Femtec. Promoting Talents" network to win over highly qualified female university graduates in the areas of natural sciences and engineering to start a career at ZF. The network supports the best female students at the leading technical universities in Germany and Switzerland in the areas of individual career planning and professional networking.

## Balancing career and family

72 percent of ZF employees believe that they have a good work-life balance – a result achieved by the "Career & Family" Expert Team which has been working together across locations since 2012. The experts developed measures in five fields to create a good balance between work and family time. These measures include flexible working hours and locations, financial support for families as well as continuous information and communication regarding the opportunities and benefits of offers created to support families.



ratZFatz day-care center

At the ZF day-care center, 14 staff take care of 60 children – up to eleven hours per day. The interior was created to cater for the needs of those using the center: Everything is available, from a water studio in which the children can experiment to an office room in which parents can work and be close to their children at the same time.

## DEMOGRAPHIC CHANGE

Germany's population structure is changing. People are getting older and there are fewer births with each generation. At the same time, society is becoming more diverse – not least due to the marked increase in immigration. While the average age in Germany was approximately 38 years in 1995, it has meanwhile increased to over 45. This makes Germany the country with the second-oldest population after Japan.

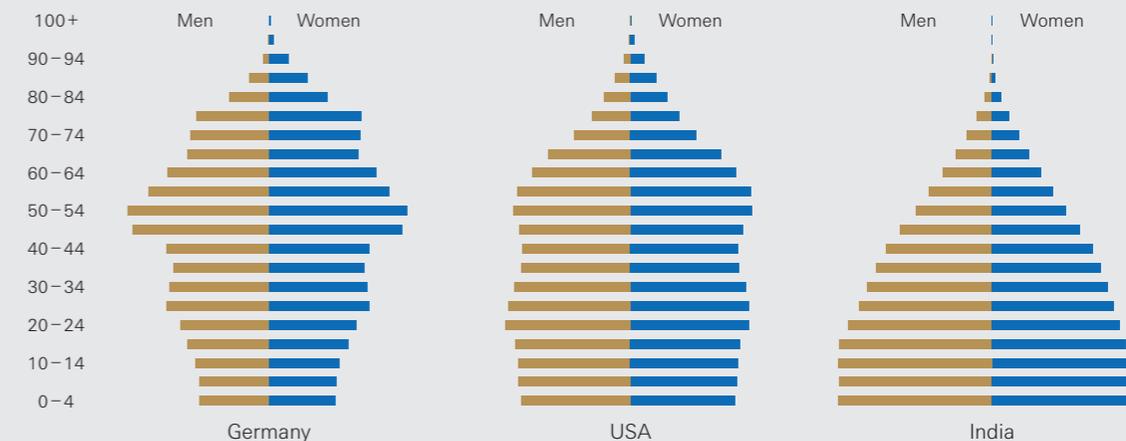
### Different challenges around the globe

From a global perspective, demographic change comes in many different shapes. While primarily Western industrialized countries are facing the challenges of an aging population, people in developing and newly industrialized countries are much younger. In India, for instance, the average age is 26.6.

Since ZF is a global player with approximately 230 locations in 40 countries, the age structure of the company's workforce is very heterogeneous and strongly dependent on the respective region. The share of older employees is much higher in Germany, whereas international locations employ younger people.

This requires individual measures adapted to fit local requirements. In Germany, ZF is pursuing a comprehensive approach to account for the challenges of an ageing society. For example, workplaces are designed to accommodate the requirements of an ageing workforce and emphasis is placed on balancing career and family. ZF is also focusing on health management, working time models and lifelong learning.

### Age distribution comparison of the total populations of selected regions (2015)



# SATISFACTION & POTENTIAL

In 2015, for the first time in ZF's 100-year history, all employees worldwide were asked how satisfied they were at the company. Barely one year later, a great number of improvements are being worked on or have already been put into practice.

## Worldwide satisfaction survey

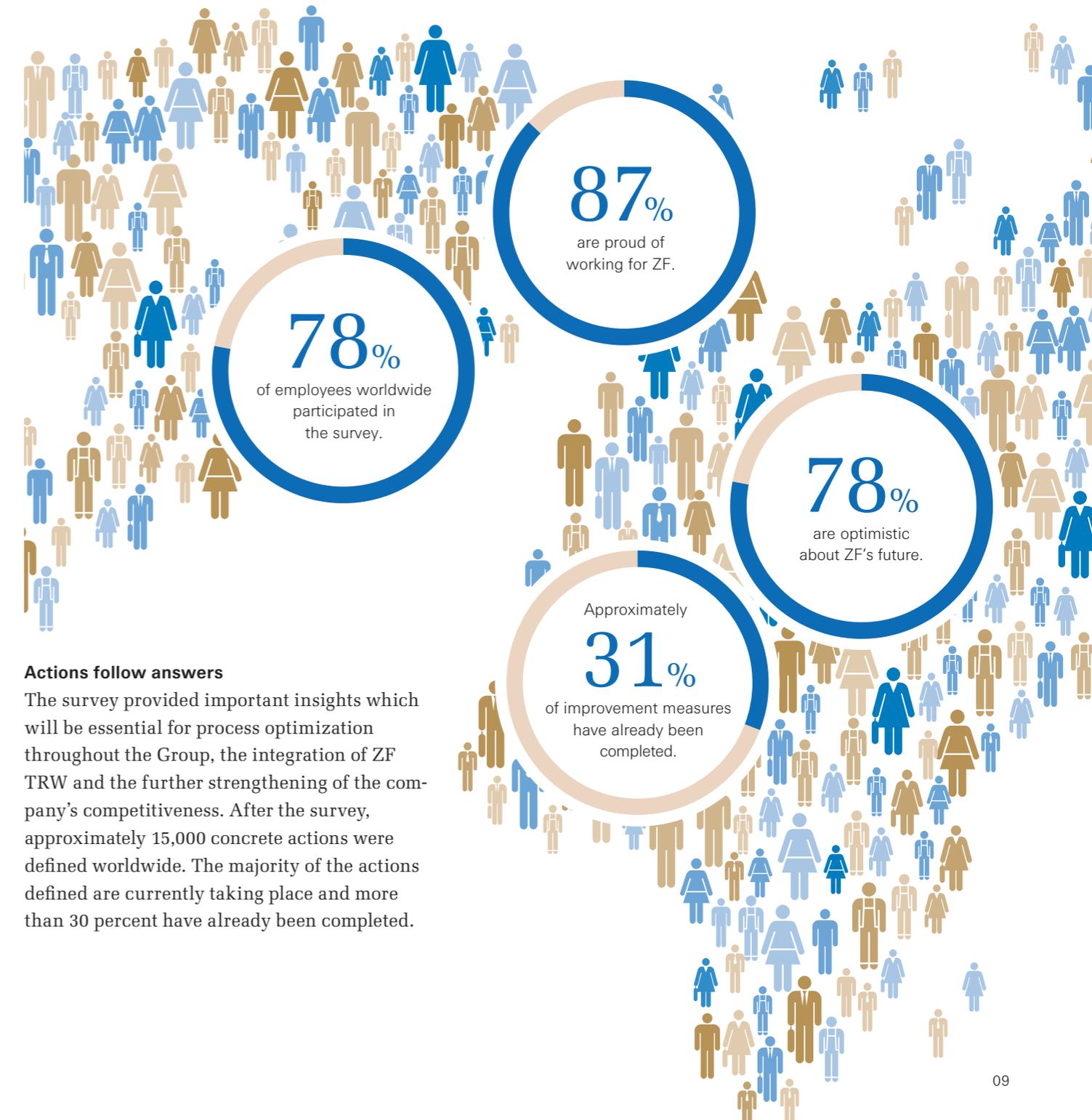
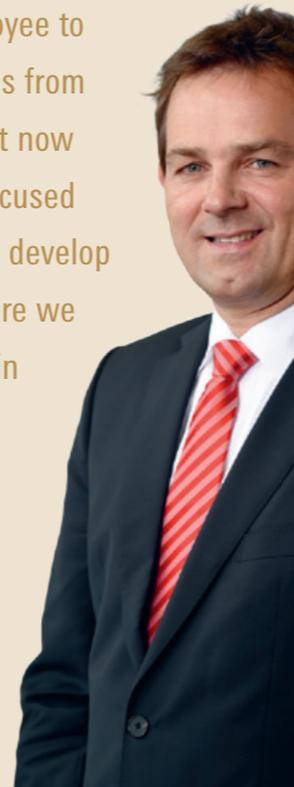
Employees at 122 locations of the ZF world were asked to take part in the first Group-wide employee survey. Its aim was to collect experience and opinions regarding work at ZF. The idea was to identify strengths and weaknesses and to include employees in the continuous search for improvement potential at all levels of the company.

## Positive attitude at the company

Approximately four fifths of all employees participated in the survey. 87 percent of them are proud to be working at ZF. 85 percent of our employees would recommend ZF as a good employer to their friends and relatives – these are results we can build on. Of course, the survey also revealed some need for action. For example, only 61 percent of the respondents currently feel that they are able to explain ZF's strategy and objectives.

The employee survey has provided us for the first time with comprehensive feedback from employees of all divisions and locations worldwide. It covers all major questions relating to our work at ZF. It is now up to each and every manager and employee to draw the right conclusions from this information. We must now work carefully and in a focused and structured manner to develop solutions in all areas where we are not yet good enough in order to achieve real improvements.

**Jürgen Holeksa**, ZF Board Member Human Resources, relies on employees who will continue to actively shape the company after the survey.



## Actions follow answers

The survey provided important insights which will be essential for process optimization throughout the Group, the integration of ZF TRW and the further strengthening of the company's competitiveness. After the survey, approximately 15,000 concrete actions were defined worldwide. The majority of the actions defined are currently taking place and more than 30 percent have already been completed.

# OCCUPATIONAL SAFETY & HEALTH PROTECTION

2015 focused on the Board of Management Resolution on global accident management. Its aim for 2025 is to reduce the number of accidents at all ZF locations by 60 to 70 percent.

## First successes

In the course of its first year, the accident reduction program has already reduced the Lost Time Accident Rate (number of industrial accidents resulting in one or several working days lost per one million working hours) by a total of 11.1 percent. Compared to the previous year, there were 136 fewer accidents and 1,526 fewer working days lost.

## New organizational structure

One factor that contributed decisively to this decrease was the introduction of an optimized organizational structure to further strengthen the role of the occupational health and safety officers at the locations. They are now better integrated into the operational processes and are therefore able to support executive managers in identifying and planning measures to reduce the num-

ber of accidents. Group-wide sharing of experiences, promoted by central coordinators in the regions and divisions, and specific safety leadership trainings help them do their job.

## Systematic risk assessment

Risk assessment is a central tool to reduce the number of work-related accidents in the long run. It helps identify potentially dangerous activities and respective measures to promote health protection. The Passau location has found a playful approach to this serious topic by developing a “Risk Wheel” to enable employees to assess everyday risks themselves. It has already been handed out more than 300 times to supervisors and their employees. As a result, the Lost Time Accident Rate at the Passau location decreased by 8.5 percent compared to the previous year.

## HEALTH PROTECTION AT ZF TRW

ZF TRW offers health promotion programs to its employees at a global level. The topics vary depending on the location and cover a broad spectrum, from a healthy diet to cancer prevention. The “Healthy Workplace – Stress Management” campaign has been a focus in Europe since 2014. ZF TRW is a partner of this initiative

and implemented two pilot projects at European locations. In Aschaffenburg and Pamplona, employees and executive managers were trained to better recognize stress-related risks signals and to address them in a supportive and targeted manner.

# LIFELONG LEARNING & MOBILE WORKING



Lifelong learning, further development and qualification are decisive success factors, also when it comes to securing the company’s long-term future. Here, ZF places importance on digital learning, working more flexibly and in networks.

## Strategic skills

The right skills are required in order to guarantee that ZF retains its power of innovation and stays fit for the future. This is why ZF employees can choose from a wide range of advanced qualification opportunities. Since 2015, employees working toward a full-time or part-time extra-occupational university degree in an engineering domain can obtain a scholarship. At the company-owned “ZF Campus,” experts and executive managers acquire the skills they need for a successful implementation of the ZF strategy. Innovative learning methods within the scope of an exchange across divisions and countries enable ZF and its employees to develop together. ZF Campus focuses on digital skills in

particular and keeps expanding both contents and learning formats equally. Digital Learning@ZF integrates the corresponding aspects of digitization into all ZF Campus further training courses and designs innovative and collaborative learning formats.

## Location-independent working

The modern working world is not only subject to fundamental content-related changes. It is also itself embedded in the completely new realities of many employees. In order to face this challenge, ZF created the “Mobile Work” program in 2015, giving employees in Friedrichshafen the opportunity to do their work from outside their workplace for up to 80 hours per month.

# SUSTAINABILITY PROGRAM

The company must provide the right prerequisites in order to motivate employees to give their best. One approach in this regard is the sustainability program, which we will briefly illustrate below.

## Positioning as a globally attractive employer

In the coming years, we would like to maintain the good positions we achieved in recent rankings and be among the top 20 employers for young engineers in Germany. For 2016, ZF is also planning the implementation of benchmarks regarding our attractiveness as an employer in China and the U.S.

## Increasing the number of women in executive management positions by 2017

At the first managerial level below the Board of Management, we want to increase the proportion of women from 6.3 percent to 8.4 percent, and at the second managerial level from 6.1 percent to 8.1 percent. At the moment, 15 percent of the members of the Supervisory Board are women.

## Implementation of the recommendations from the employee survey and new version by 2018

More than 15,000 suggestions for improvement were obtained through the employee survey. We were able to put almost one third of them into practice in 2015 already. Another survey is being planned, which will include ZF TRW employees, to evaluate the impact of the implemented measures.

## Reduction of the global accident rate to fewer than five accidents leading to one or several working days lost per one million working hours by 2025

In the first year of the implementation of this target, we already managed to reduce the number of accidents ZF-wide by 11.1 percent. The Lost Time Accident Rate was thus reduced to 12.0. In the previous year, there were still 13.5 accidents per one million working hours. We still have a long way to go before we reach the target we have set ourselves but we are on the right track.



# ENVIRONMENT EFFICIENT.

Efficient processes are good for cost-effectiveness and the environment. This is why conserving resources, saving energy and preventing emissions are part of ZF's corporate policy and a key component of our strategy.

# HIGHLIGHTS & KEY FIGURES

## ENVIRONMENTAL AND ENERGY MANAGEMENT SYSTEMS

99 ZF locations

have an environmental management system certified according to **ISO 14001**.

46 ZF locations

have an energy management system certified according to **ISO 50001**.

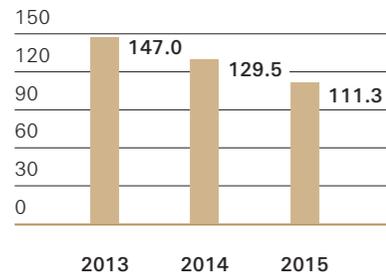
## RESOURCE-SAVING GROWTH

The specific, i.e. sales-related, consumption of energy and water as well as CO<sub>2</sub> emissions have decreased continuously over the past few years. Thanks to higher production process standards, ZF was able to increasingly decouple its sales growth from resource consumption.

24.3%

reduction in specific energy consumption since 2013.

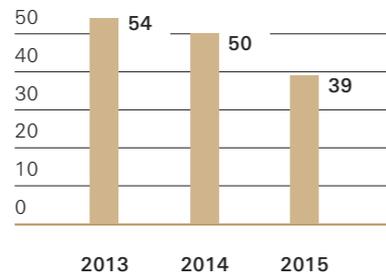
**Specific energy consumption**  
in MWh per EUR million of sales



27.8%

reduction in specific CO<sub>2</sub> emissions since 2013.

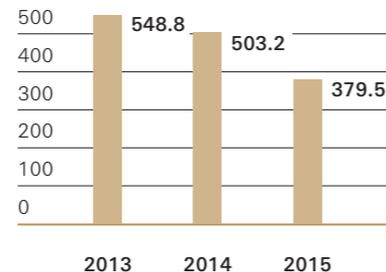
**Specific CO<sub>2</sub> emissions**  
in tons per EUR million of sales



30.9%

reduction in specific water consumption since 2013.

**Specific water consumption**  
in cubic meters per EUR million of sales



# RESOURCE EFFICIENCY & WATER

Production is impossible without water. Water is essential as a coolant for the industrial sector and for machines. It is all the more important to handle this precious resource carefully. One model for ZF's careful handling of water can be found at the Schweinfurt production location.

## Water supply from the river Main

Approximately 600 machines at the Schweinfurt location require continuous cooling in order to reliably guarantee the production of shock absorbers and clutches. The required water comes from the river Main, which flows directly past the plant and is also used to supply sanitary facilities and fire hydrants with water. ZF has gradually been upgrading the cooling water systems since 2011.

plants, fine gravel filters naturally remove suspended particles from the water and prepare it for use in the cooling systems.

Pumps then distribute the clean water in the plants to keep the machines running at optimal operating temperatures. The cooling water only cools the machines and is not polluted in the process. Safety heat exchangers prevent the water from being contaminated by oil or other operating supplies. Once the water has fulfilled its purpose, it is fed back into the river Main.

30%

energy savings and reduced water consumption thanks to upgraded cooling water systems and reduced water extraction.

## Reduced cooling water consumption

A pump station on the riverbank pumps water out of the Main and pre-cleans it. Afterwards, the water is fed to Plants North and South. At the power stations in the

## RESOURCE EFFICIENCY AT ZF TRW

In the context of its resource and waste management, ZF TRW was able to achieve significant progress over a period of five years. In 2015, for example 99.7 percent of all metal waste and 99.5 percent of all electronic waste were recycled.

84%

of all waste generated at ZF TRW was recycled in 2015.

## DECENTRALIZED ENERGY SUPPLY

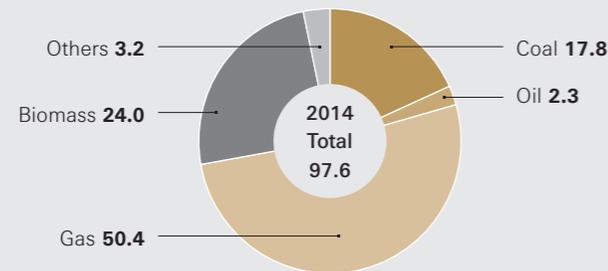
Efficiency can be increased to more than **90%**

thanks to combined heat and power plants (CHP).

According to the Federal Government, **25%**

of the total electricity produced in Germany are to be generated in CHP plants by 2020.

Net amount of power generated in CHP plants by energy sources in Germany (in TWh)



### Local energy generation

The global energy industry is undergoing radical change. Renewable energy sources and natural gas are becoming more important and are supplementing or replacing coal and nuclear power.

Decentralized energy systems play a large role in this context. As opposed to centralized energy supply by means of large power plants, local power plants generate the energy directly where it is needed. If energy is generated close to where it is needed, transmission losses are reduced and there is no need for costly high-voltage power lines.

### Using energy efficiently

Combined heat and power play an important role in decentralized energy supply. In these systems, the heat, which is a by-product of power generation, is used for space heating, to heat water or for different industrial processes. It enables the optimum use of energy – an ideal solution for the efficient operation of production locations, which can simultaneously generate power and heat in their own power plants.

# ENERGY EFFICIENCY & COMBINED HEAT AND POWER

Since 2013, ZF has been generating its own electricity and heat. At three locations in Europe, the company now operates energy-efficient combined heat and power plants to supply itself with energy – a development with an upward trend.

### Combined heat and power plant in Friedrichshafen

The modern combined heat and power plant was installed at the Friedrichshafen location in 2013. The plant is driven by a gas engine and has an electric and thermal power of two megawatts, respectively, and an efficiency of 85 percent. It covers approximately 40 percent of the electricity and heat demand of one production plant at the location. The power plant will also supply the ZF Forum – the new Corporate Headquarters – with energy.

**2,800**

tons of CO<sub>2</sub> savings per year thanks to the combined heat and power plant at the ZF Friedrichshafen location.

### ZF TRW ENERGY PROGRAM

According to ZF TRW's "Global Energy Vision," the annual reduction target for energy consumption per production unit is a five percent reduction compared to previous year's average. The reduction of total energy consumption by ZF TRW – based on sales – by 28 percent over the past six years shows how consistently this vision is being implemented.

### Combined cycle power plant in Saarbrücken

Since 2014, ZF covers the entire electricity demand of the Saarbrücken location with a new, highly efficient combined cycle power plant. The power plant also supplies district heating to the regional energy supplier and thus unites energy efficiency and cost-effectiveness.

**65,000**

households could be supplied with the electricity produced by the ZF Saarbrücken location.

### Prospects

ZF plans to build a new combined heat and power plant in one of its plants in Passau. The location will then be able to supply itself with part of the electricity and heat it requires and reduce its CO<sub>2</sub> emissions by 13 percent at the same time. After Padua (Italy), Friedrichshafen and Saarbrücken, Passau will be the fourth location at which ZF relies on the tried and tested combined heat and power technology, thus conserving resources and reducing energy costs.

# SUSTAINABILITY PROGRAM

In order to continuously improve our ecological performance, we developed the ZF sustainability program to define objectives and monitor them annually. A small selection of these objectives is presented below:

## Reduction of specific energy consumption in relation to sales compared to the previous year

Specific energy consumption decreased considerably – by 14 percent compared to the previous year. With respect to the average from 2006 to 2010, specific energy consumption dropped by 32 percent. To realize further potential for reduction, all European locations are to be certified according to the energy management standard ISO 50001 by 2018; the most important production locations worldwide are to follow in their footsteps at a later point in time.

## 20 percent reduction in specific CO<sub>2</sub> emissions in relation to sales by 2020 compared to the average of the years 2006 to 2010

Despite considerable production increases in 2015, we have been able to stabilize absolute CO<sub>2</sub> emissions. In 2015 already, we achieved the reduction of specific CO<sub>2</sub> emissions values we had originally envisaged for 2020. With respect to the average from 2006 to 2010, specific CO<sub>2</sub> emissions dropped by 34 percent by 2015. Since we are ahead of time, we will therefore update the CO<sub>2</sub> reduction target next year.

## Reducing or stabilizing specific water consumption in relation to sales, compared to the previous year

Compared to the previous year, ZF's specific water consumption fell by more than 24 percent. In the years ahead, these successes are to be transferred to and adjusted to fit the requirements of other locations in order to continue this positive trend.

## Reducing the environmental impact of transport

Optimization of logistics processes is an important lever for reducing environmental impacts. This is why we also want to make the transport-related ecological impact of ZF more transparent by the end of 2016 and take emissions into account in transport projects.

# PRODUCTS INNOVATIVE.

Trendsetting mobility needs innovation. ZF develops technology to move people and goods in an efficient and climate-friendly manner. As a global leader in drive-line and chassis technology as well as active and passive safety technology, ZF is already creating the products of tomorrow.



# HIGHLIGHTS & KEY FIGURES

## AWARDS

### eCarTec Award and international busplaner Sustainability Award

In 2015, ZF received the Bavarian State eCarTec Award and the international busplaner Sustainability Award for its electric low-floor axle AVE 130. With its two integrated electric motors, the AVE 130 axle system offers a space-saving and powerful drive which enables buses to move through city traffic without causing any emissions.

### Vehicle Dynamics International Award

In 2015, the British trade journal Vehicle Dynamics honored ZF with awards in not one but two categories. The Innovation of the Year award went to the rear axle steering system Active Kinematics Control. It supports the steering function and improves parking maneuverability, for example. The jury also honored ZF's high rate of innovation with the Supplier of the Year award.

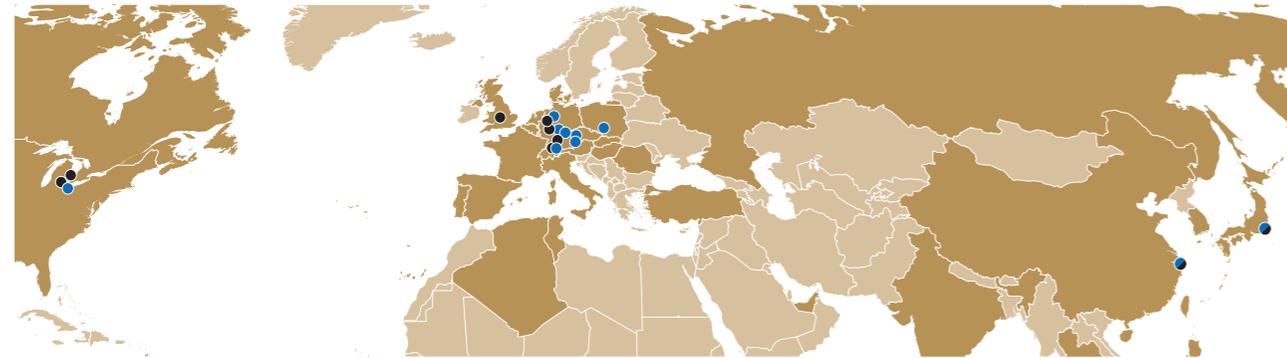
**EUR 1.39 billion**

investment in R&D

**1,036**

patent applications filed in Germany in 2015

## DEVELOPMENT LOCATIONS WORLDWIDE



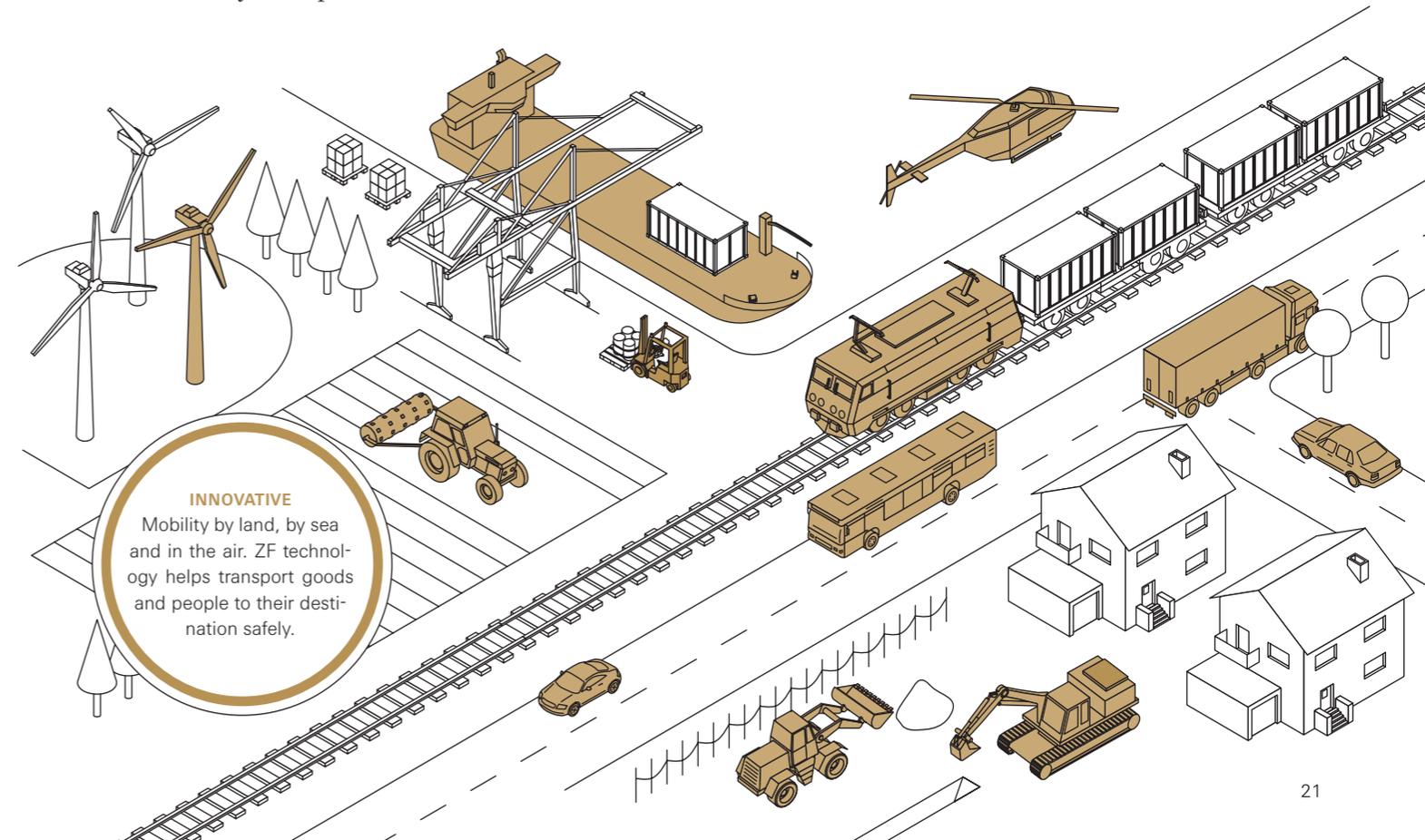
● ZF	<b>Germany</b>	Radolfzell Schweinfurt	<b>Great Britain</b>	<b>China</b>
● ZF TRW	Friedrichshafen Alfdorf Auerbach Dielingen Düsseldorf Koblenz Passau	<b>Czech Republic</b>	<b>USA</b>	Shanghai/Anting
		Pilsen	Northville Farmington Hills Washington (MI)	<b>Japan</b>
		<b>Poland</b>		Yokohama
		Czestochowa		

# CHALLENGES & CREATIVE TALENT

Urbanization, climate change and resource scarcity: Facing the main challenges of our time requires creative talent and expertise. ZF combines both in efficient technology.

According to forecasts published by the United Nations, approximately 10 billion people will be living on our planet in 2050 – and two thirds of them will be living in cities. This faces planners with major challenges. In this context, moving people and goods plays a key role. Innovative mobility concepts are called for if we want to live

in big cities without noise, traffic jams and exhaust emissions which put the climate at risk. ZF already provides trendsetting technology for such concepts, making vehicles more efficient, smarter and safer in the process.



# EFFICIENT CLIMATE PROTECTION

Highly efficient technology reduces fossil fuel demand and CO<sub>2</sub> emissions, thus contributing towards climate-friendly mobility. ZF offers integrated solutions from energy generation to drivelines.



Up to **70%**  
less fuel consumption  
thanks to plug-in hybrid  
transmissions.

## INTEGRATED PRODUCT PORTFOLIO

After the acquisition of the industrial drives and wind turbine gearbox segment of Bosch Rexroth, ZF covers essential production steps of an integrated, climate-friendly e-mobility approach – from the generation of wind energy to wind turbine gearboxes.

## HYBRID DRIVES THE FUTURE

Plug-in hybrid transmissions combine the range of a combustion engine with a locally emission-free electric drive. The volume-produced ZF 8-speed plug-in hybrid transmission enables purely electric driving up to a speed of 120 km/h – the combustion engine only engages once this speed is exceeded. Up to 70 percent fuel can be saved with this system.

## THE FUTURE OF ELECTRIC CARS

In 2015, approximately 1.3 million electric cars were registered worldwide – around 70 percent more than the year before. Although the share of electric cars in the overall market is still small, it is impossible to overlook the increasing importance of e-mobility as the driving power of the 21st century. ZF is taking a strategic approach and pools its power of innovation in the newly created E-Mobility Division.

## EMISSION-FREE BUS TRANSPORT

Efficient public transport is a main lever when it comes to relieving traffic congestion in megacities. The compact electric low-floor axle AVE 130 offers more space for passengers and enables buses to move through city traffic without causing any emissions. The flexible bus drive system works as a hybrid application or as a stand-alone electric drive, thus fulfilling all practical requirements.

## EFFICIENT FLEET OPERATION

With the telematics solution Openmatics, fleet operators can achieve an optimal utilization of their trucks or buses and reduce emissions. An on-board operating system collects and transfers vehicle and vehicle handling data. Tailor-made apps make it possible to identify vehicles with high fuel consumption and to determine savings potential.

# AUTOMATED DRIVING

The traffic sector causes approximately a quarter of all global greenhouse gas emissions, with individual city transport contributing a large share. In response to this, intelligently connected vehicles with automated ZF components offer the greatest possible inner-city mobility, combined with low emission values.



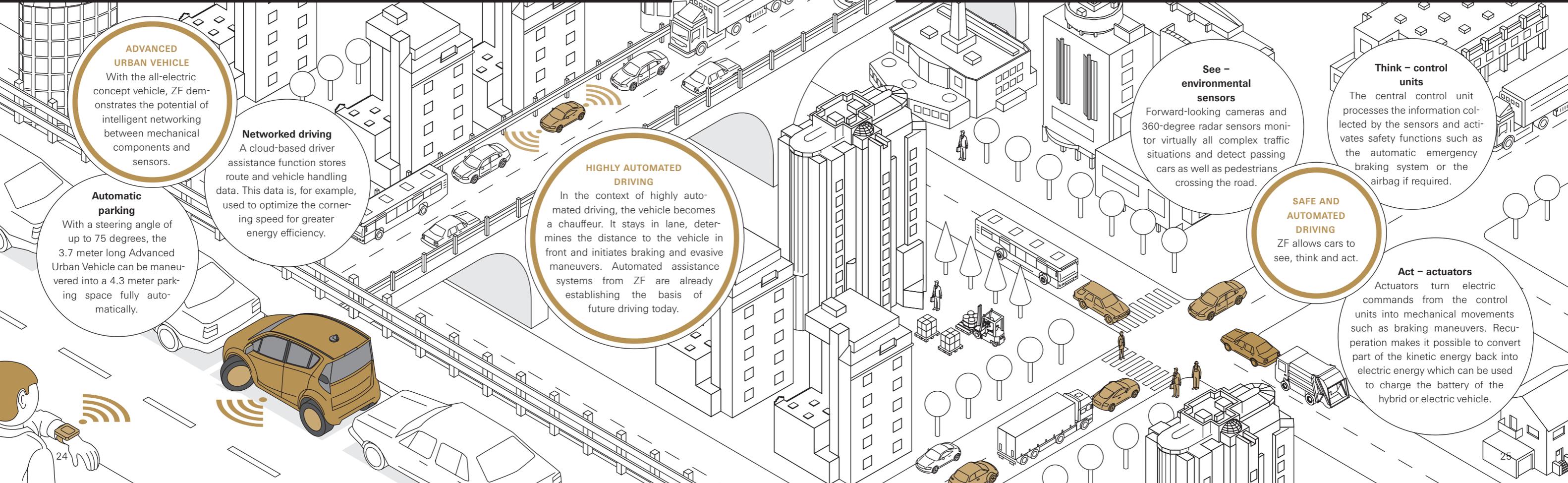
**25%**  
of parking spaces in the U.S. could be freed up for other use thanks to automated parking.

# INTEGRATED SAFETY

Integrated sensor and camera systems as well as brakes and airbags help prevent accidents and are the basis of automated driving. Thanks to the integration of TRW, ZF combines efficient driveline and chassis technology and effective safety systems.



Up to **72%**  
of all rear-end collisions involving personal injury in Germany could be prevented by an automatic emergency braking system.



**ADVANCED URBAN VEHICLE**  
With the all-electric concept vehicle, ZF demonstrates the potential of intelligent networking between mechanical components and sensors.

**Networked driving**  
A cloud-based driver assistance function stores route and vehicle handling data. This data is, for example, used to optimize the cornering speed for greater energy efficiency.

**Automatic parking**  
With a steering angle of up to 75 degrees, the 3.7 meter long Advanced Urban Vehicle can be maneuvered into a 4.3 meter parking space fully automatically.

**HIGHLY AUTOMATED DRIVING**  
In the context of highly automated driving, the vehicle becomes a chauffeur. It stays in lane, determines the distance to the vehicle in front and initiates braking and evasive maneuvers. Automated assistance systems from ZF are already establishing the basis of future driving today.

**See - environmental sensors**  
Forward-looking cameras and 360-degree radar sensors monitor virtually all complex traffic situations and detect passing cars as well as pedestrians crossing the road.

**Think - control units**  
The central control unit processes the information collected by the sensors and activates safety functions such as the automatic emergency braking system or the airbag if required.

**SAFE AND AUTOMATED DRIVING**  
ZF allows cars to see, think and act.

**Act - actuators**  
Actuators turn electric commands from the control units into mechanical movements such as braking maneuvers. Recuperation makes it possible to convert part of the kinetic energy back into electric energy which can be used to charge the battery of the hybrid or electric vehicle.

# SUSTAINABILITY PROGRAM

Our products and technologies are our biggest lever when it comes to contributing to sustainable development – particularly in the area of mobility. We focus on safety, efficiency and automated driving:

## Continuously increasing the efficiency of our products

Increasing cost-effectiveness, reducing emissions and maintaining or improving performance – these three objectives are the basis of development work at ZF. In 2015, we again successfully contributed to more sustainable mobility with our newly developed hybrid modules and plug-in hybrid systems. With the second generation of the globally successful 8-speed automatic transmission, we managed to further reduce fuel consumption of conventional drives compared to the already highly efficient predecessor model. We will continue systematically on this path, for example with the foundation of the E-Mobility Division in 2016.

## Continuous further development of active and passive safety systems

The newly created Active & Passive Safety Technology Division which was founded as a result of the acquisition of TRW Automotive allows ZF to make an even larger contribution to occupant safety. Our technologies enable intelligent systems in the vehicle to identify and interpret hazardous situations independently of the driver and to react rapidly and correctly by performing autonomous braking or evasive maneuvers.

# GLOBAL COMPACT PROGRESS COMMUNICATION

By signing the United Nations Global Compact in May 2012, ZF committed itself to respecting ten principles of sustainable corporate governance. In this chapter, we report on how the company is implementing these principles.

Principle	Implementation by ZF
<b>Principle 1:</b> Businesses should support and respect the protection of internationally proclaimed human rights.	Responsible and sustainable business management and the assumption of corporate social responsibility are fundamental components of ZF's corporate policy. In our Code of Conduct and Principles of Social Responsibility, we make a clear commitment to the OECD Guidelines for Multinational Enterprises and to compliance with human rights. These regulations are binding for all employees of the ZF Group.
<b>Principle 2:</b> Businesses should make sure that they are not complicit in human rights abuses.	The ZF Business Partner Principles require all suppliers and service providers to commit to respecting nationally and internationally applicable laws and regulations at their locations worldwide and to ensuring that human rights are respected and human dignity is protected in all business processes. The contents of the Business Partner Principles provide the binding foundation for supplier self-assessments and audits. By the end of 2016, all new and existing suppliers will be obligated to endorse the Business Partner Principles. ZF reserves the right to review the business relationship with each supplier or service provider in case of deviations from the Business Partner Principles.
<b>Principle 3:</b> Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	Applicable legislation around the globe as well as the CSR guidelines that apply to ZF worldwide form the basis for our cooperation with our employees' interest groups. They specify that it is possible for ZF to establish employee or trade union representations of interests, even if the national standard does not fully conform with the ILO standards in the respective country.
<b>Principle 4:</b> Businesses should uphold the elimination of all forms of forced and compulsory labor.	We explicitly reject any form of forced labor. All work performed within the ZF Group must be voluntary. We support the abolition of slavery and forced labor. The corresponding rules are defined in the ZF Code of Conduct and in ZF's Principles of Social Responsibility.

Principle	Implementation by ZF
<b>Principle 5:</b> Businesses should uphold the effective abolition of child labor.	The same applies to the avoidance of any form of exploitative child labor. At ZF, we always observe the minimum age for employment stipulated in national legislation. The natural development of children shall not be inhibited. The safety and health of children shall not be impaired. Their dignity shall be respected. These rules are based on the ILO Conventions No. 138 and 182. If child labor is detected at ZF or a supplier, the child worker shall, whenever possible, be replaced by an adult member of the family in order to guarantee the family's income.
<b>Principle 6:</b> Businesses should uphold the elimination of discrimination in respect of employment and occupation.	We believe that diversity and appreciation of this diversity have a positive effect on ZF and on society. This is why we committed ourselves to actively implementing diversity in our organization when we became a member of the Diversity Charter (Charta der Vielfalt) in 2014. In 2015, we introduced a mentoring program for female executive managers for this purpose.
<b>Principle 7:</b> Businesses should support a precautionary approach to environmental challenges.	Precautionary environmental protection is a key element of ZF's environmental strategy which is based on ZF's environmental policy which has been developed continuously since 1996 and is binding for all locations worldwide. In 2015, 99 production companies and organizational units were certified in accordance with the international ISO 14001 standard. ZF's centennial in 2015 also marked the anniversary of the ISO 14001 matrix certification which had been introduced ten years before. Today this certification is an integrated management system which also takes into account the ISO 50001 and OHSAS 18001 standards.
<b>Principle 8:</b> Businesses should undertake initiatives to promote greater environmental responsibility.	To promote environmental awareness, ZF actively includes its employees, suppliers, service providers and customers in its environmental management. Employees are trained on a regularly basis, suppliers and service providers have to respect environmental regulations and customers are informed about the environmental impacts of our products.
<b>Principle 9:</b> Businesses should encourage the development and diffusion of environmentally friendly technologies.	With its technologies and development work, ZF is making an important contribution to the objective of more efficient and resource-saving mobility. We continuously further develop conventional drives in order to reduce fuel consumption. With our newly developed hybrid modules, plug-in hybrid systems and our new, independent E-Mobility Division, we are playing a role in shaping more sustainable low-emission mobility.
<b>Principle 10:</b> Businesses should work against corruption in all its forms, including extortion and bribery.	For ZF as a global company, compliance is an essential element of successful management and good corporate governance. The principle "If there is no legal way, then there is no way for ZF" underlines our stance in this matter. The ZF Compliance Management System (CMS) creates the framework for meeting these requirements. It focuses on the subjects of anti-corruption, antitrust law and financial losses for ZF. At the same time, the ZF Code of Conduct stipulates corresponding principles which are binding for all employees of the ZF Group. All executive managers of the Group are instructed to strictly follow the Code of Conduct and communicate it to their employees. ZF provides them with comprehensive information and training courses to support them in fulfilling this task.

# NOTES ON THE REPORT & IMPRINT

This document is the fourth sustainability report published by ZF Friedrichshafen AG. Due to the acquisition of the former U.S. company TRW Automotive in the year under review, this report is for the first time not based on the Global Reporting Initiative (GRI) guidelines. It is rather an interim report and, as such, a summary of ZF's non-financial performance in the fiscal year 2015. Unless otherwise specified, all statements and key figures in this report refer to the locations of ZF, excluding TRW ("ZF Legacy"). For the fiscal year 2016, we are again planning to publish a report which is entirely based on the GRI guidelines for ZF including the Active & Passive Safety Technology Division which was newly created with the acquisition of TRW Automotive.

At the same time, this document represents our progress report to the United Nations Global Compact that we joined in May 2012.

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**Editorial deadline: May 30, 2016**

The report is available in German and English; both versions can be downloaded at [www.zf.com](http://www.zf.com).

**Consultancy, text and layout**  
 akzente kommunikation und beratung gmbh, Munich

**Print**  
 Eberl Print GmbH, Immenstadt

**Paper**  
 Profisilk FSC® Mix Credit, woodfree white semimatt



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MOTION AND MOBILITY