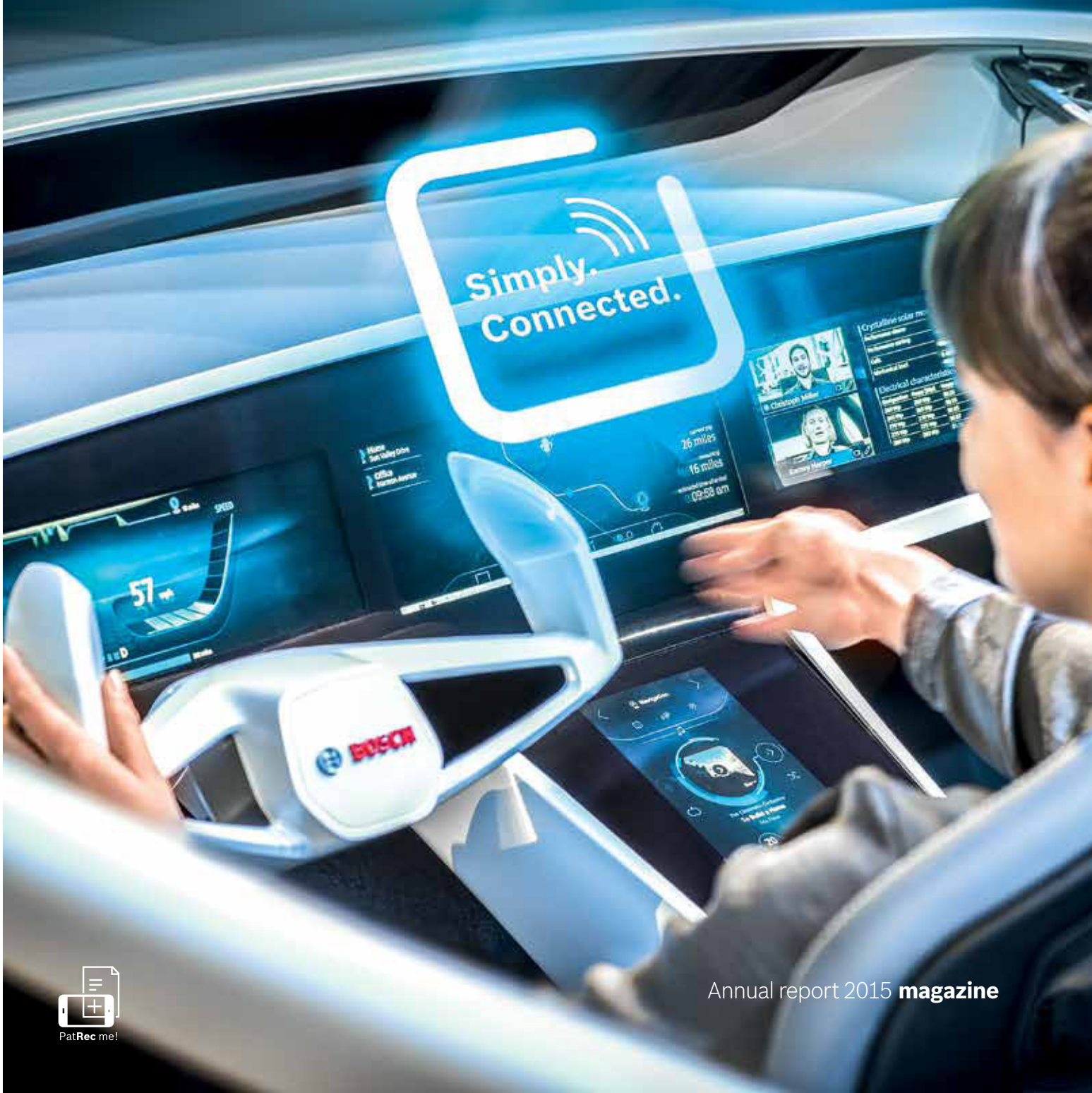
Sensors
With all the senses

Automated driving
Making the most of car time

Data mining
The new oil of the global economy

Diesel systems
Trucks under pressure

BOSCH
Invented for life



Annual report 2015 **magazine**

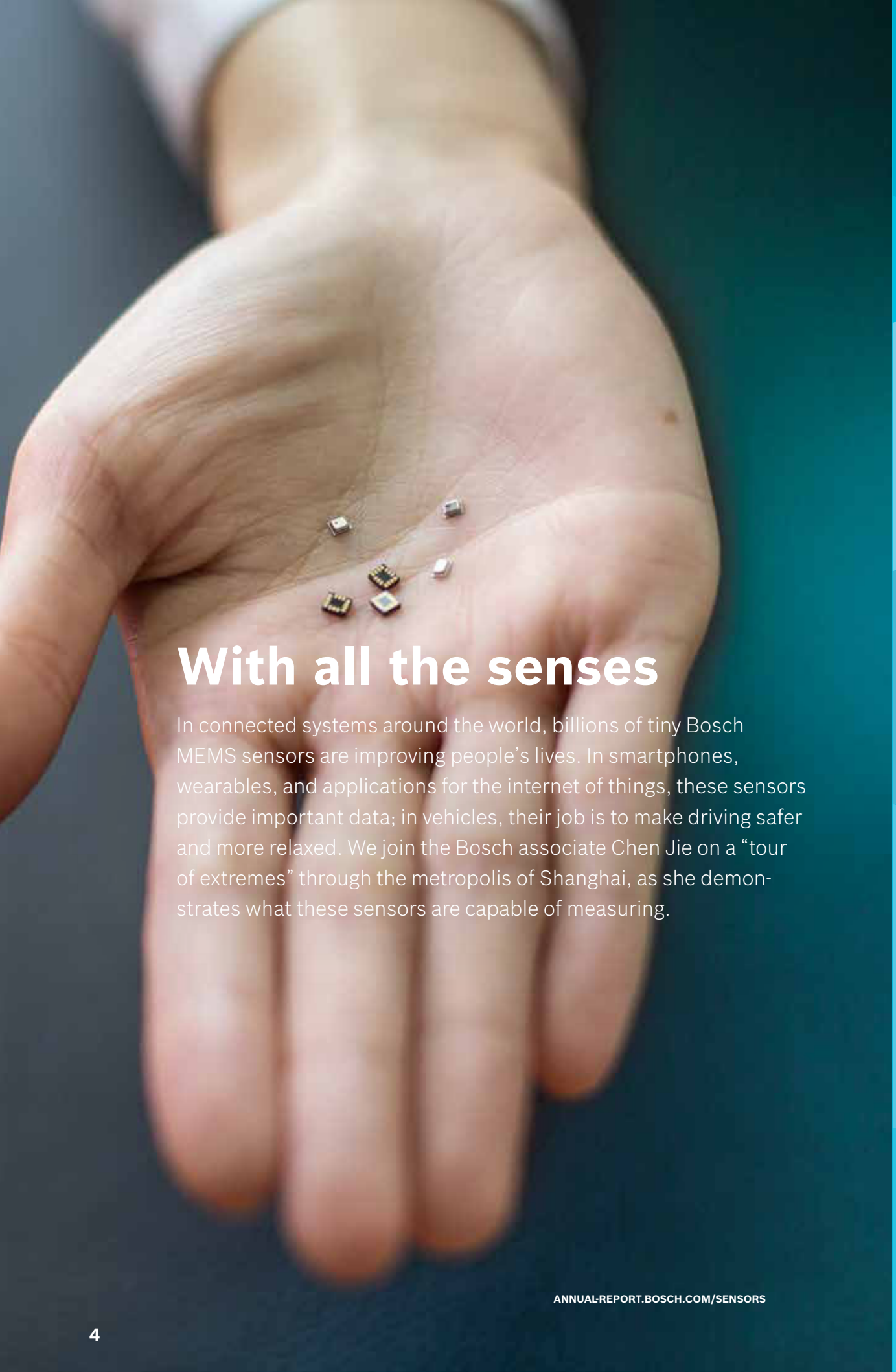
PatRec me!

At Bosch, change is not only something we embrace, it's something we're also actively helping to shape. By looking to the future, we succeed in creating technology that is "Invented for life" and makes our everyday lives simpler, more enjoyable, and safer.

Central to this is a special focus on connectivity. The internet of things connects machines, products, and people with each other. It allows mountains to be moved with the tap of a finger. Every day, Bosch is helping to develop new connected solutions that create added value, benefit users, and conserve natural resources.

Connectivity also guides our associates' mindset and actions. They are working on sensor technology, software, and services – Bosch core competencies for the internet of things. And connectivity is making traditional Bosch products even better.

But the internet of things poses just as many questions as it answers. What applications are conceivable, which of them make sense and create benefit? What do customers want, what will they accept? In this magazine, we show the paths we are taking, and our reasons for doing so. We show how Bosch is fusing the virtual with the physical. For users, everything is kept as simple as possible: "Simply.Connected."



With all the senses

In connected systems around the world, billions of tiny Bosch MEMS sensors are improving people's lives. In smartphones, wearables, and applications for the internet of things, these sensors provide important data; in vehicles, their job is to make driving safer and more relaxed. We join the Bosch associate Chen Jie on a "tour of extremes" through the metropolis of Shanghai, as she demonstrates what these sensors are capable of measuring.

1 fm

PatRec me! 3D

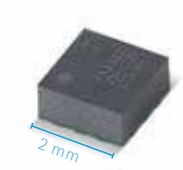
The movable silicon structures inside a MEMS sensor can detect shifts in the femtometer range in their position relative to other structures. This microscopically small distance is roughly equivalent to the diameter of an atomic nucleus. To give an idea of the dimensions at play here, the photograph on the right shows a human hair resting on such a silicon structure.

Simply. Connected.

Video
PatRec me!

Fast: On the other side of the window, colors and shapes blend into each other, becoming a blur of trees, streets, and skyscrapers. If this were an airplane, we'd be taking off by now. But the maglev floats – at 300 kph, then 320. The floor of this magnetic levitation train running from Shanghai Pudong International Airport to downtown Shanghai vibrates softly. 350 kph. "I can feel the acceleration," Chen Jie says. And she can measure it, too. A glance at her smartwatch tells her that our acceleration is 0.85 m/s^2. A little later, the train reaches 430 kph – its top speed, which it maintains for 50 seconds. Chen Jie's eyes flicker as she looks out the window.

Acceleration 0.85 m/s^2



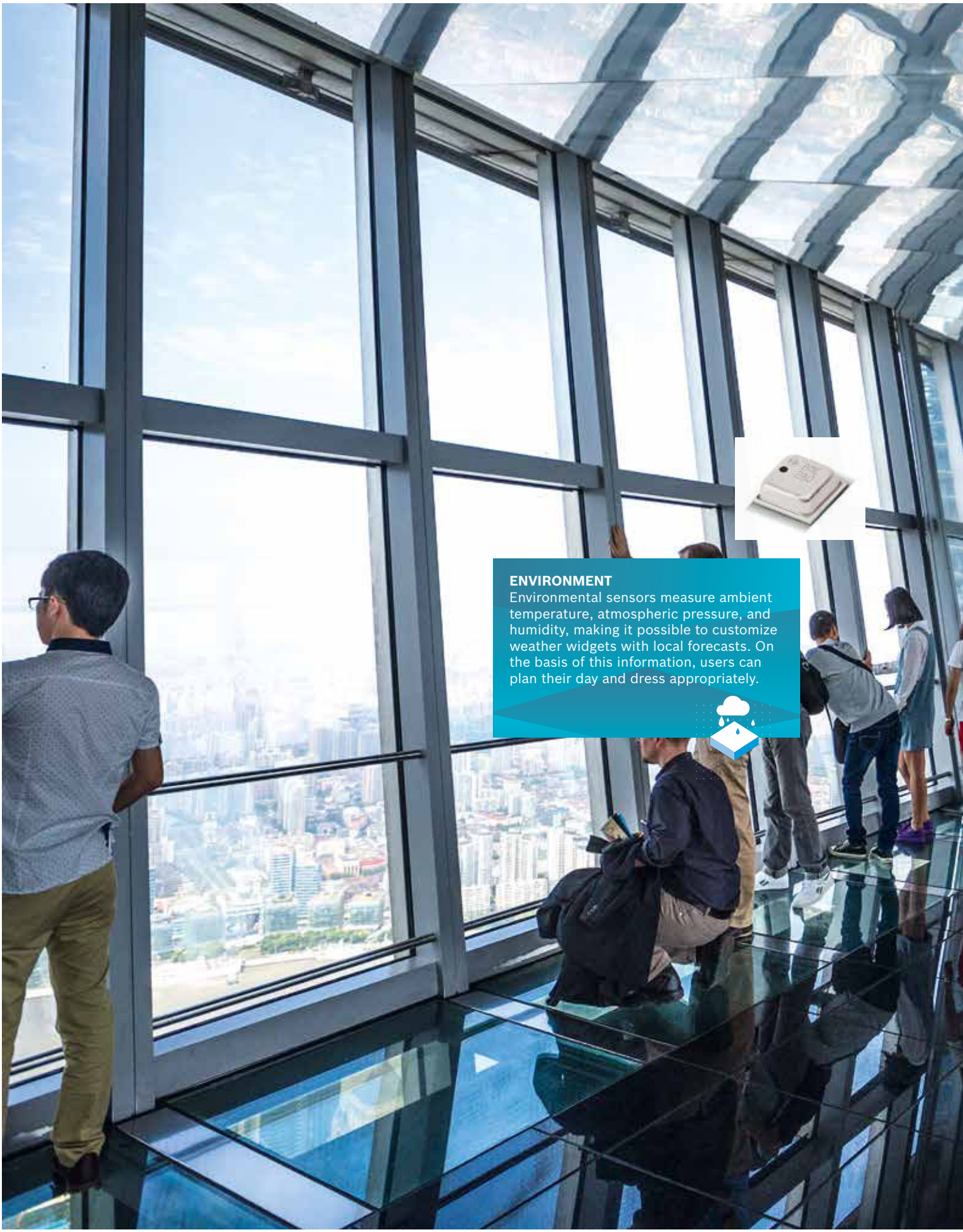
ACCELERATION
As part of in-vehicle ESP systems and vehicle dynamics control applications such as ACC adaptive cruise control or rollover detection, acceleration and yaw-rate sensors work to ensure safety.

AIR QUALITY
Gas sensors help monitor air quality by detecting harmful elements in the ambient air. These elements can come from things such as paints, varnishes, cleaning products, furniture, adhesives, and alcohol.

Clean: From a Chinese perspective, Chen Jie lives and works just a stone's throw from the metropolis of Shanghai and its 24 million inhabitants. Suzhou, where she heads the Bosch sensor test center, is roughly an hour's drive away. She and her team of around 80 associates check the functioning of microelectromechanical systems, or MEMS. Sometimes as small as a pinhead, MEMS sensors have a tangible effect on many aspects of our daily lives, whether in connection with smartphones, tablets, wearables, applications for the internet of things, or in vehicles. Around a million of these tiny devices, particularly pressure and inertial sensors that measure acceleration and yaw rate for consumer electronics applications, pass through the testing facilities in Suzhou every day under the strictest clean-room conditions. Clean air is not just something that concerns MEMS in the clean room, however, but also in metropolises like Shanghai. "Our latest sensors can measure air quality," Chen Jie says. For example, fresh air can be let into a room when required – when a meeting has been going on for a long time, say. Smart windows and blinds can be opened at the touch of a smartphone button.

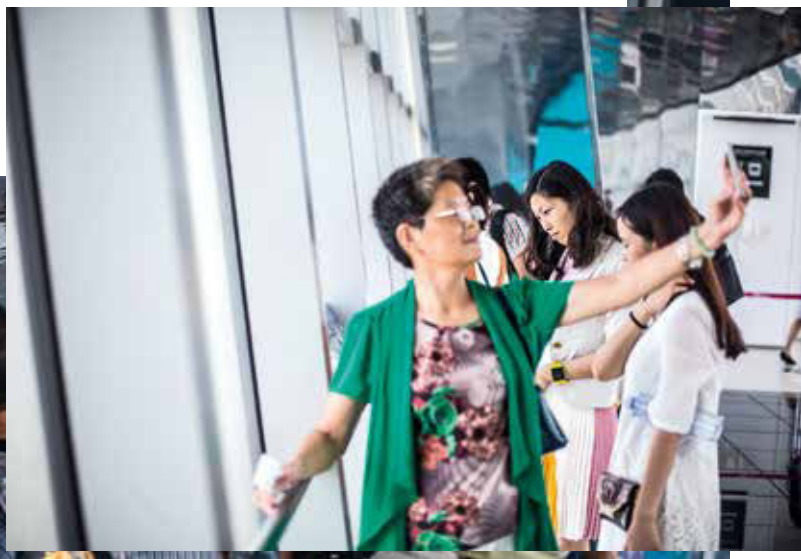
Vital: Mopeds, bicycles, and cars push past one another in the heart of Shanghai. This is the fast pulse of a metropolis during rush hour. Chen Jie's smartwatch tells her that her own pulse is currently 92 beats per minute. She has already taken 6,414 steps today, burning around 300 calories. "But that's probably not enough for first place," she says with a wink. She is referring to a fitness group that her colleagues in Suzhou created using the WeChat app; each day, the person who has taken the most steps wins. Chen Jie pauses briefly on the Zha Pu Road Bridge. "Lots of couples get their wedding photos taken here," she says. The reason is the marvelous backdrop: the spectacular skyline of the Pudong district with skyscrapers such as the Oriental Pearl Tower, the Shanghai Tower, and the Shanghai World Financial Center. The latter, which looks like a giant bottle opener, is home to the world's highest viewing platform.

ORIENTATION
Acceleration and yaw-rate sensors help smartphones do things such as count steps or change screen orientation (portrait or landscape) to suit the user, as well as with mobile navigation and the monitoring of vital signs.

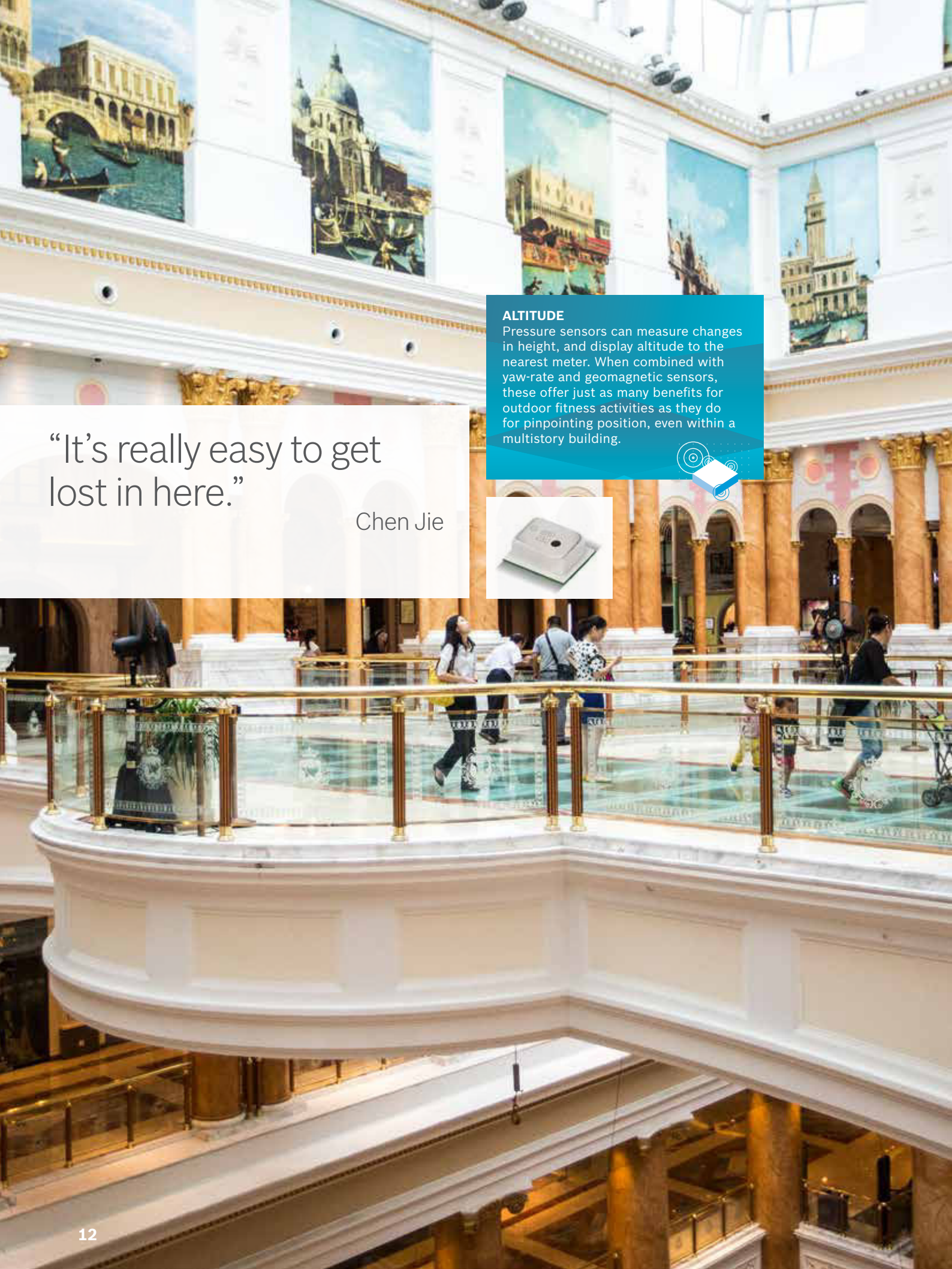


ENVIRONMENT
Environmental sensors measure ambient temperature, atmospheric pressure, and humidity, making it possible to customize weather widgets with local forecasts. On the basis of this information, users can plan their day and dress appropriately.

High: Before taking the ride up, Chen Jie makes one last check: 26°C, no rain, low humidity – to judge by the latest conditions reported by her smartphone, the views are going to be great. Bathed in dark blue light, the visitor elevator at the Shanghai World Financial Center speeds upward at ten meters per second. Chen Jie has tracked her progress by using her smartwatch to count the floors as they fly by: 50, 92, 96, 97, then 100. Here's where the Sky Walk is located. The glass-bottomed observation deck offers breathtaking views at a height of 474 meters. No wonder so many selfies are taken up here. "Somewhere over there is my alma mater," says Chen Jie as she gestures to the north. The 37-year-old studied international investment and seemed destined for a career in one of Pudong's bank towers, structures that appear small from this height. "But by the time I finished my studies, I decided that I didn't want to work just with money," she says. "I wanted a job that fulfilled me." MEMS technology helps many people improve their quality of life. "And I'm a small part of that." She smiles, then quickly takes a selfie.



MEMS SENSORS
Just a few microns in size, the extremely delicate silicon structures shift when the MEMS sensor moves. As a result, their electrical properties are altered. These alterations can be measured and converted into a data stream. Depending on the sensor type, the user will then receive information about variables such as temperature, humidity, air quality, acceleration, and position.



“It’s really easy to get lost in here.”

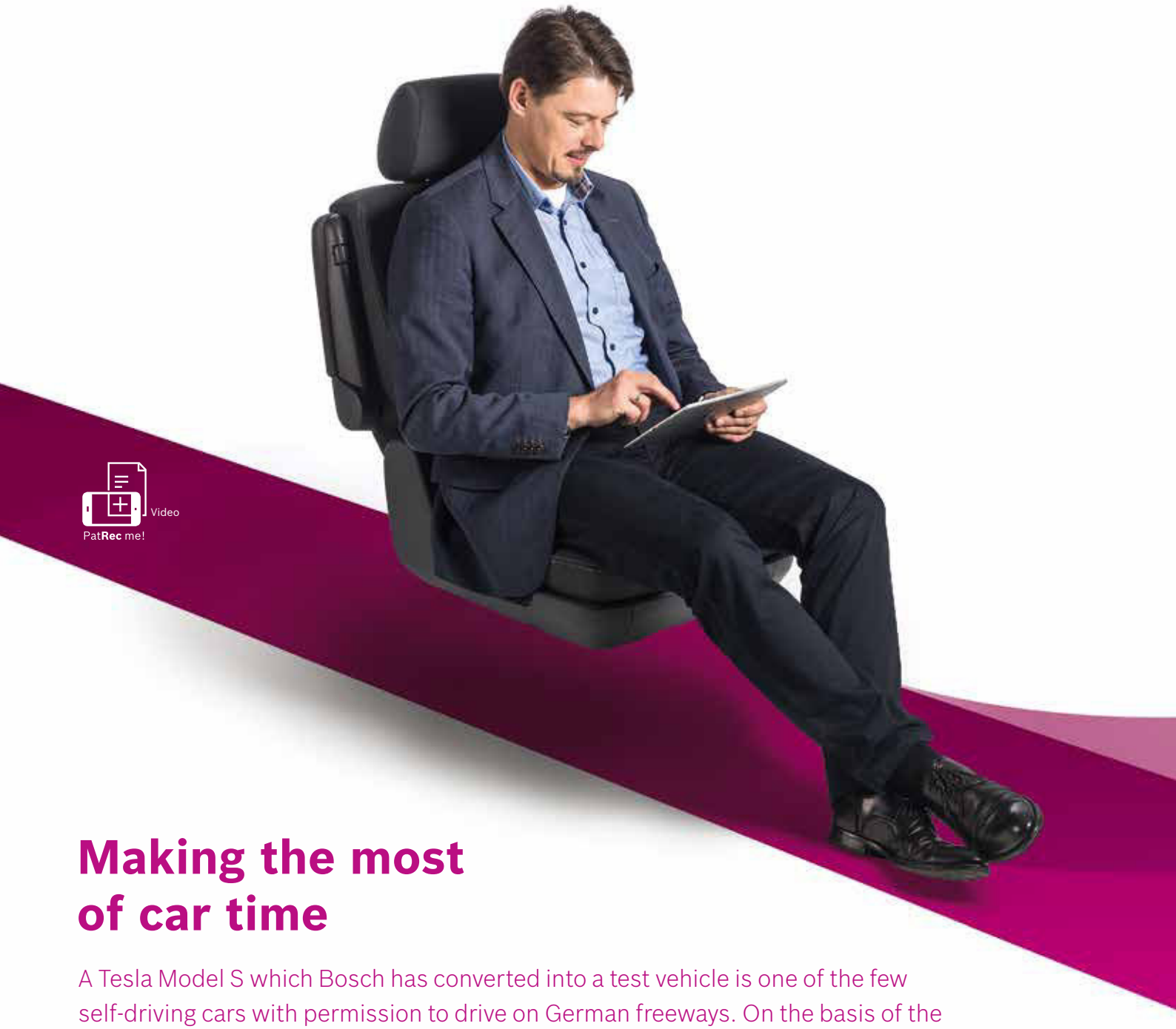
Chen Jie

ALTITUDE
Pressure sensors can measure changes in height, and display altitude to the nearest meter. When combined with yaw-rate and geomagnetic sensors, these offer just as many benefits for outdoor fitness activities as they do for pinpointing position, even within a multistory building.

Big: Bosch's Reutlingen location plays a major role in the MEMS success story. Since 1995, the plant has manufactured just under 7 billion MEMS sensors. The facility in Germany functions as lead plant for Suzhou, and the two work closely together. "I'm there two to three times a year," says Chen Jie. When she's there, she always tries to head out to the nearby fashion outlet in Metzingen after work. Like so many Chinese, Chen Jie has a passion for shopping – and Shanghai in particular offers boundless opportunities for indulging it. It's no wonder that this is the home of Global Harbor – the world's largest urban shopping center occupies six floors and 480,000 square meters. "It's really easy to get lost in here," Chen Jie says as we enter the luxurious building. She pulls out her smartphone. The display shows a detailed map of the mall and, thanks to the interplay of many different MEMS sensors, constantly indicates her current location. It's indoor navigation without using GPS at all. At the end of our tour, Chen Jie heads straight for a store selling chocolates. Is she looking for something sweet at the end of a long day? "Not for me, but for my son, Victor." He's always thrilled when she brings him back some candy from a business trip. "Wait." Chen Jie takes out her smartphone, and just seconds later, Victor appears in a video chat window. When the 10-year-old sees his mother with the bag of chocolates, he beams.

75%
of all the MEMS sensors manufactured by Bosch are used in consumer electronics.

Interview



Video
PatRec me!

Making the most of car time

A Tesla Model S which Bosch has converted into a test vehicle is one of the few self-driving cars with permission to drive on German freeways. On the basis of the experience he has gained so far, the project manager Michael Fausten shares his vision of how we will drive in the future.

ANNUAL-REPORT.BOSCH.COM/AUTOMATED-DRIVING

Mr. Fausten, how long have people been dreaming of automated driving?

Almost as long as we've had cars. Back in the 1960s, the science-fiction writer and futurologist Arthur C. Clarke produced a concrete vision of automated driving. In his book "Profiles of the Future," he describes cars that choose their own route, know which route is fastest, and identify where there is traffic congestion. Automated driving also appears in the scenarios for the future that General Motors developed in the 1960s. In the 1980s, Mercedes converted a bus, packing it with cabinets full of electronics so that it could drive itself. Back then, people said it would take another 30 years until fully automated driving was a reality.

Back in 1993, a Bosch research project showed that automated driving is technically feasible. Now you're sitting in a Tesla test vehicle where all the necessary electronics fit under the floor of the trunk, and you could take a nap on the freeway. In five years, production vehicles will be capable of automated driving on the freeway. What are the drivers of this development?

Surround sensors have become affordable thanks to technological progress and the fact that there is now far more demand for them. When we launched ACC adaptive cruise control in 2000, not even one percent of car buyers were prepared to pay a premium for it, partly because there was virtually no empirical data.

These days, we still don't have the empirical data for automated driving. But more than half of buyers would be willing to consider it – provided the system can be turned off. In fact, a U.S. study suggests 20 percent would be willing to pay between three and four thousand dollars more for such a system.

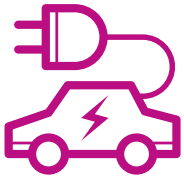
What is the biggest social benefit of this new driving culture?

Automated driving is a perfect fit for our "Invented for life" ethos. With this new kind of driving, traffic jams will be a thing of the past: after all, automated vehicles won't slow down to gawk at the scene of an accident. Nor will they keep changing lanes in an effort to get to their destination faster. Automated driving will save us time and energy that we can then put to productive use. It will also save fuel – as much as 40 percent if all vehicles are automated and able to travel in the slipstream of the vehicle in front. Automated driving is a way to ensure elderly people can continue to play an active role in society. In 2050, 25 percent of the population of Europe will be 65 or older, and the share of over-65s in Germany will have risen to more than 30 percent. And there's another hugely important aspect: we will increase safety. Today, 90 percent of traffic accidents are the result of human error.

What types of vehicles are you looking to automate first?

We're going to start with premium vehicles, for which we will offer both automated freeway driving and automated parking. Work has already started on installing the necessary technology in an initial batch of parking garages. The second target group is trucks, which in the future will be able to maneuver themselves around logistics depots. We're also considering pods, the small driverless vehicles that Google is currently testing on roads in California. The idea is that one day, people will be able to hail these pods just like they do a taxi.

“We want to develop automated driving for all types of powertrain.”



2015 2025

2% → 15%

SHARE OF NEWLY REGISTERED VEHICLES WITH AN ELECTRICAL POWERTRAIN.

Besides automation, Bosch is also pushing forward with electromobility, although current forecasts suggest that this might still be some time coming. How are you planning to deal with this transitional period?

It’s primarily the engineers working on vehicle architecture who face challenges, since cars powered by an internal-combustion engine behave differently than electric vehicles. That’s why we want to develop a concept for automated driving that is independent of the type of powertrain installed. The electrical powertrain is coming – there’s no doubt about that. But the market for vehicles with an internal-combustion engine will continue to grow for the foreseeable future, as will the overall number of vehicles sold worldwide. Our forecasts suggest that internal-combustion engines will continue to be the predominant powertrain system well beyond 2025.

Speaking of driving behavior: each country has its own traffic laws and rules. Doesn't that cause you problems? Which markets are even an option?

We're first focusing on Europe, Japan, and the United States, and a little later we'll add China. For each country, we have to make sure our systems consider the local driving style and the relevant rules – in the U.S., for example, vehicles also pass on the right. It's the same story for infrastructure. In Germany, we have the problem that traffic lights are positioned on the roadside in front of the actual intersection, not suspended over the middle of the intersection. For this reason, we need a camera that can look upward at a steep angle.

Can you describe your personal vision of what will it be like to drive a car in 2030?

In the morning, my car will tell me when I need to leave to make sure I get to the office on time. I'll use my smartphone to summon the car from my garage to my front door. On the way to work, I'll be answering e-mails or watching the news on the screen installed in my car. I could also turn around completely and chat with the other passengers in a lounge-style setting. Or, I could move my seat right back, pull a folding table out from the center console, and do office work. But this is all still crystal ball-gazing; there's no way of knowing how things will ultimately turn out.

People have always associated the car with a feeling of freedom and driving enjoyment. With cars driving themselves at moderate speeds, how much of that will be left?

The way we experience and value cars will certainly change. After all, we'll find plenty of ways to use the time that our cars free up for us, either for productive work or for relaxation. But that won't limit the potential for driving enjoyment. We'll still be able to feel the thrill of freedom on high mountain roads just by switching to classic driving mode and doing the steering ourselves. Automated driving simply adds to the list of things that cars can do. It could well be that we will use vehicles for far more things in the future.

Integrated sensors tell drivers exactly what's going on around their vehicles.

Bosch automated driving

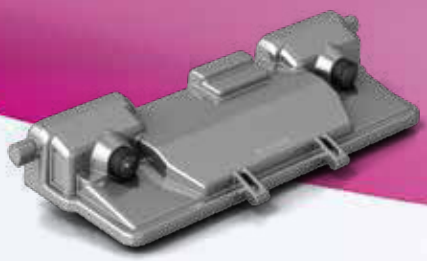
The Bosch test vehicle based on a Tesla Model S is fitted with 50 additional components. Examples of the Bosch sensors used include long-range radar sensors, mid-range radar sensors, and a stereo video camera.

MID-RANGE RADAR SENSORS are the basis for a number of assistance functions, such as the ACC adaptive cruise control and a predictive emergency braking system.

Products
PatRec me!

LONG-RANGE RADAR SENSORS can detect other vehicles at a distance of up to 250 meters and allow the system to intervene early in critical and dynamic situations.

STEREO VIDEO CAMERA
The stereo video camera helps create a three-dimensional image of the vehicle's surroundings. Lanes, traffic signs, and clear spaces can be identified. The Bosch stereo video camera is the smallest stereo camera system for automotive applications currently available in the market.



Step by step to automated driving

The driver assistance systems for the mobility of the future will gradually become increasingly widespread, resulting in greater safety for everyone

ASSISTED DRIVING AND PARKING
Drivers are given the support they need to reach their destination safely and without stress.

- Park steering control since 2008
- ACC adaptive cruise control since 2000
- Lane-keeping support since 2010
- Emergency braking assist since 2010
- Evasive steering support since 2015

HIGHLY AUTOMATED DRIVING AND PARKING
Drivers can temporarily pass responsibility to the car. However, they must be prepared to reassume control at all times.

- Traffic-jam pilot after 2016
- Highway pilot 2020

2008 2015 2020 2025

PARTIALLY AUTOMATED DRIVING AND PARKING
In certain driving situations, driver assistance systems take over the job of driving straight ahead and changing lane. They have to be permanently monitored by drivers.

- Remote park assist since 2015
- Traffic jam assist since 2015
- Integrated cruise assist 2017
- Highway assist 2018

FULLY AUTOMATED DRIVING AND PARKING
The system can deal with all driving situations. It does not have to be monitored.

- Automated valet parking 2018
- Autopilot after 2025

A bit more safety

Bengaluru in 2016: the population may still be growing, the streets may still be overcrowded, and the air may still smell of exhaust fumes. But something about the traffic on the streets has changed. Motorized two-wheelers that brake using ABS have started to appear, scooters will soon be equipped with electronically controlled injection, mopeds will feature digital intelligence. Or to put it another way: for the commuters who have to fight their way through the morning rush hour on their motorbikes, some of the world's most congested streets will become a little safer. And their bikes will consume less fuel. Soon, they will be able to connect their two-wheeler with their smartphone and have the engine control unit tell them which route to work offers them the best average fuel economy. The force behind this minor revolution is a team of dedicated Bosch associates from diverse divisions. Their expertise has been pooled together in the new Two-wheeler and Powersports business unit. Headquartered in Japan, and with experts at Bosch locations worldwide, this team of motorcycle enthusiasts has already done a lot in the field of high-performance bikes. Now it wants to come up with innovations for the world's many small motorbikes as well.

ANNUAL-REPORT.BOSCH.COM/TWO-WHEELER

Minor revolution on India's streets

Animation
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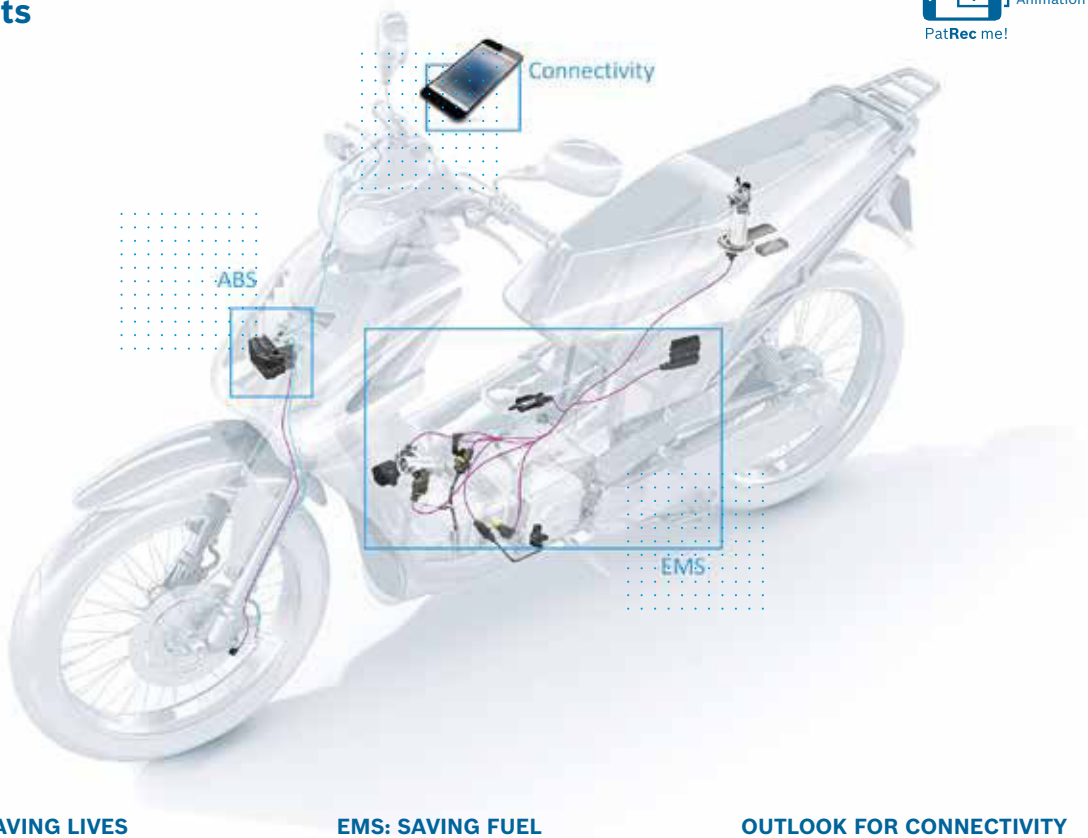


ABS: SAVING LIVES

An ABS antilock braking system for motorcycles takes the fear out of an emergency braking maneuver. The system prevents the wheels from locking up and keeps the motorbike stable. In addition, the braking distance for a motorbike traveling at 100 kph is shortened by 15 percent. In India, according to a Bosch accident research study, one in three motorcycle accidents outside built-up areas could be prevented if all two-wheelers were fitted with ABS.

EMS: SAVING FUEL

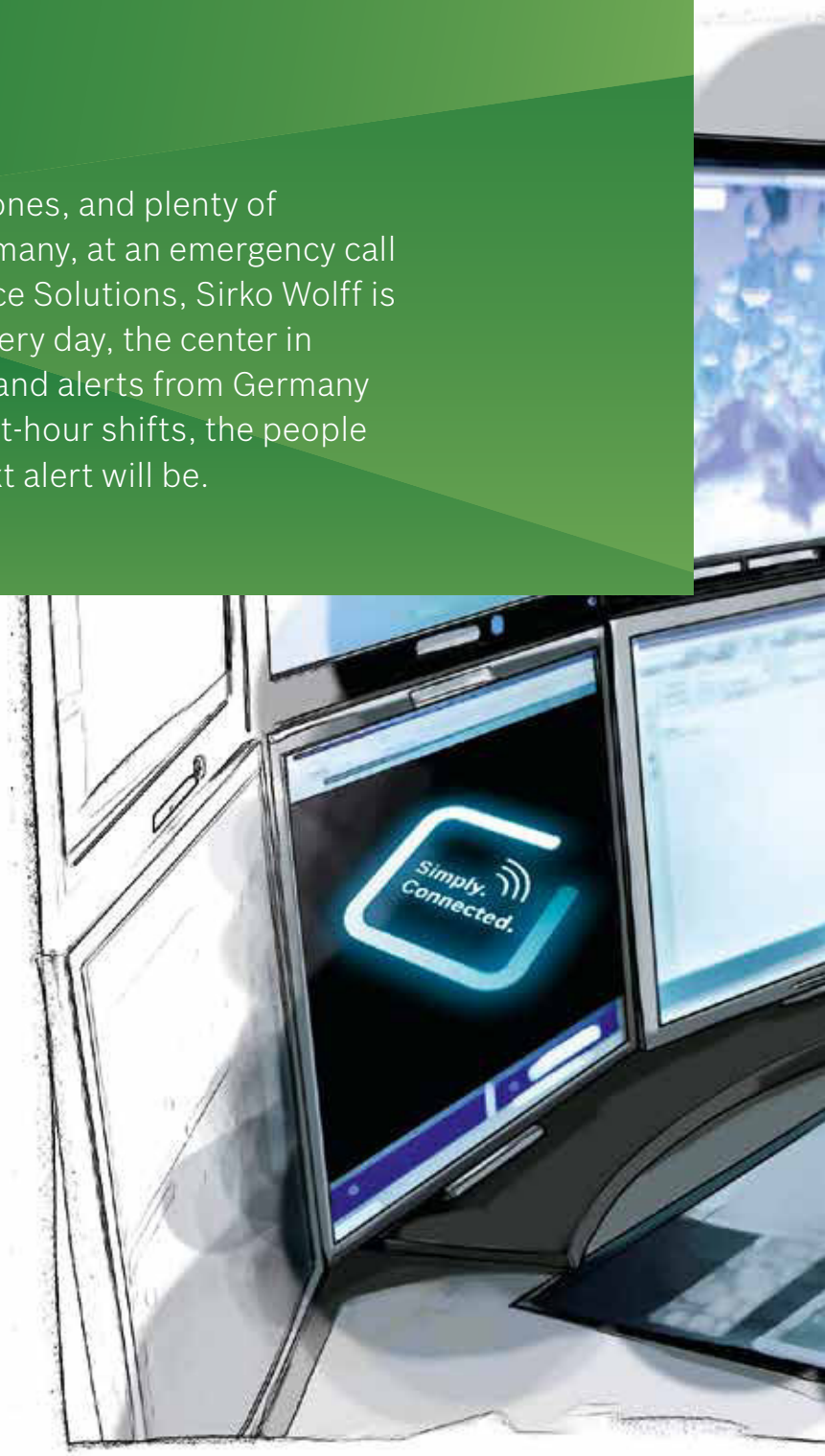
Depending on the situation, the electronically controlled fuel injection of the EMS engine management system is up to 15 percent more economical than a conventional carburetor system. This is not only good for the environment, but also makes riding a motorcycle more relaxed and fun – from smooth cold starts to faster acceleration. Riders can choose whether to optimize fuel economy or their bike's dynamics. And because the system is robust, it also saves money, since there is less need for maintenance, even when fuel quality is poor.

OUTLOOK FOR CONNECTIVITY

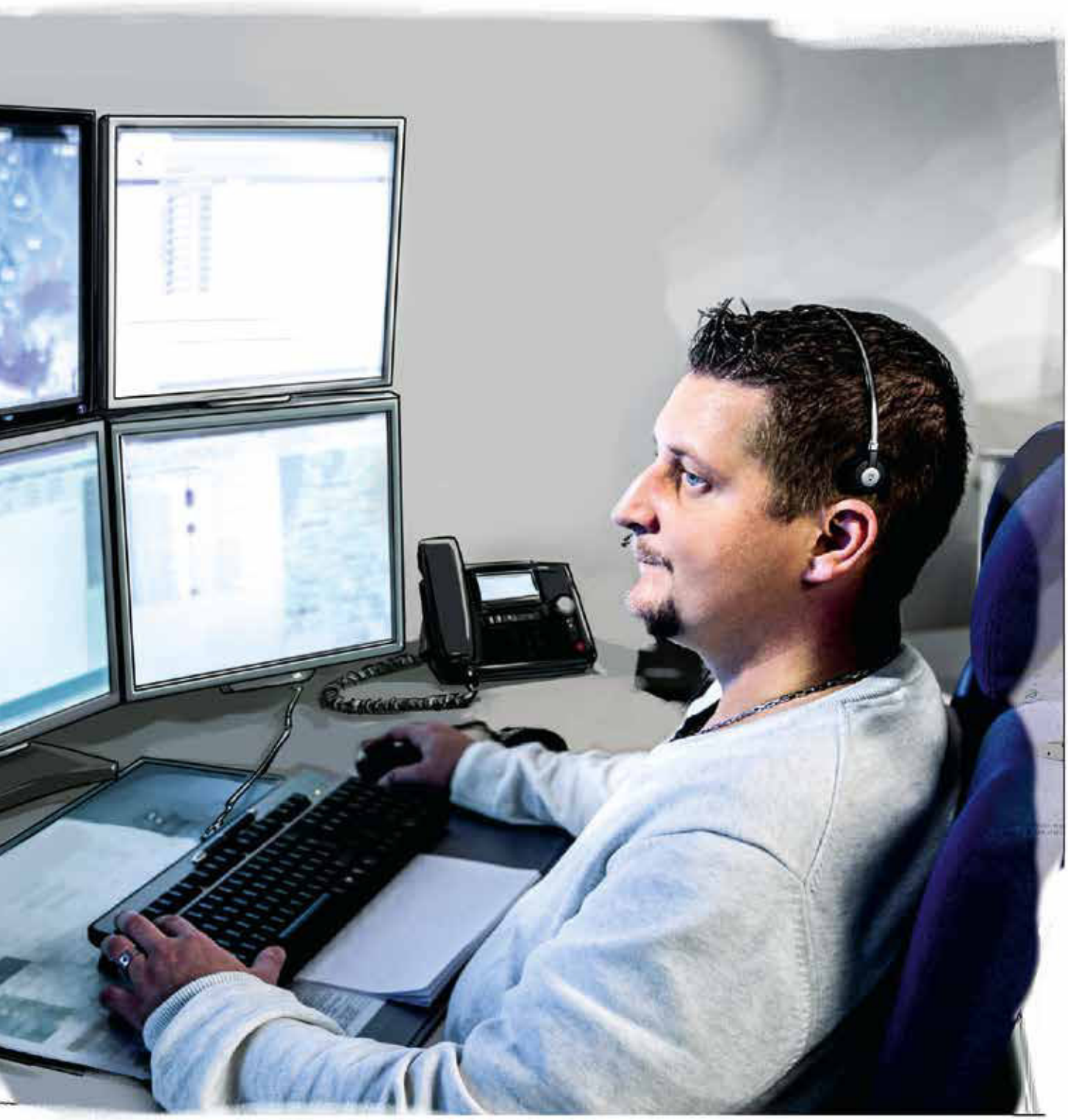
In the future, even mopeds will be able to connect to smartphones and give their riders the opportunity to benefit from connectivity. This will stop thieves in their tracks, as the engine will start only in connection with the smartphone. An on-board computer will analyze variables such as fuel consumption and speed, and send information about the optimum route to riders' smartphones. And in the event of a breakdown, motorcyclists will be able to consult their smartphones to find out where the fault is.

Bosch on alert

Eight monitors, two mice, three telephones, and plenty of responsibility: here in Magdeburg, Germany, at an emergency call center operated by Bosch Global Service Solutions, Sirko Wolff is helping make the world a little safer. Every day, the center in Magdeburg logs some 6,500 incidents and alerts from Germany and abroad. When they begin their eight-hour shifts, the people working here have no idea what the next alert will be.



5:42 a.m. – Time to get to work Wolff works on the fifth floor of a modern office building in Magdeburg. At the start of the early shift, he boots up the computer systems: one for vehicle monitoring, one for documenting and managing all alarm events, and one for e-mail. At 6 a.m. on the dot, he activates the button that means he is now the contact for all alarm notifications. “From now on, I have to be ready for anything,” Wolff says.



6:09 a.m. – Wagons roll A pop-up window announces the start of a new monitoring assignment. Wolff acknowledges receipt of the message. A truck loaded with tobacco products is setting off from Leipzig. The customer has booked several services: monitoring and documentation of the cargo, location of the vehicle by GPS, reception of emergency calls, and the securing of goods and vehicle in the event of an alarm. These are sensible precautions, since a truckload of these goods can be worth as much as a single-family home. “The customer stipulates precisely what gets monitored and when,” Wolff says.

7:38 a.m. – Standstill alert A truck has stopped. The nine-digit process number appears in a pop-up window. Wolff checks to see what route the vehicle is on. The truck is currently located in a business park in Spain. “Everything’s okay. That’s a defined unloading point. The time checks out, too.” One click and the notification has been documented. If anything had been unclear, Wolff would have called the driver.

9:13 a.m. – eCall alarm

An alarm starts beeping, and Wolff’s heart starts beating faster. A car’s eCall has been activated manually. Location and model are displayed on his monitor. “Emergency response center. We have received an accident notification,” says Wolff into the telephone. The alarm button is often pressed by mistake, which, as it turns out, was what happened this time as well. About once or twice a day, however, it’s not a false alarm. Last night, for example, the call center could hear traffic noise from the freeway on the other end of the line. The operator immediately informed the emergency services. Wolff tries to avoid thinking about the details of the accident or the people involved. “I just hope we can help the victims. Anything else doesn’t bear thinking about.”

Video
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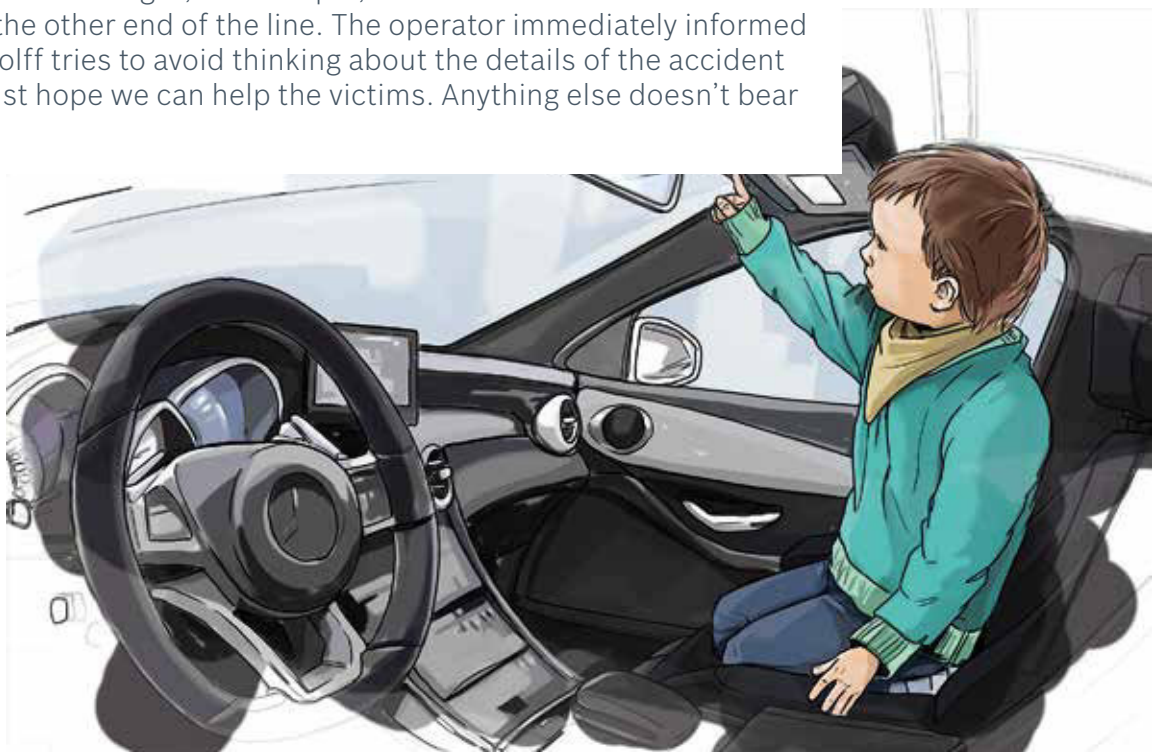
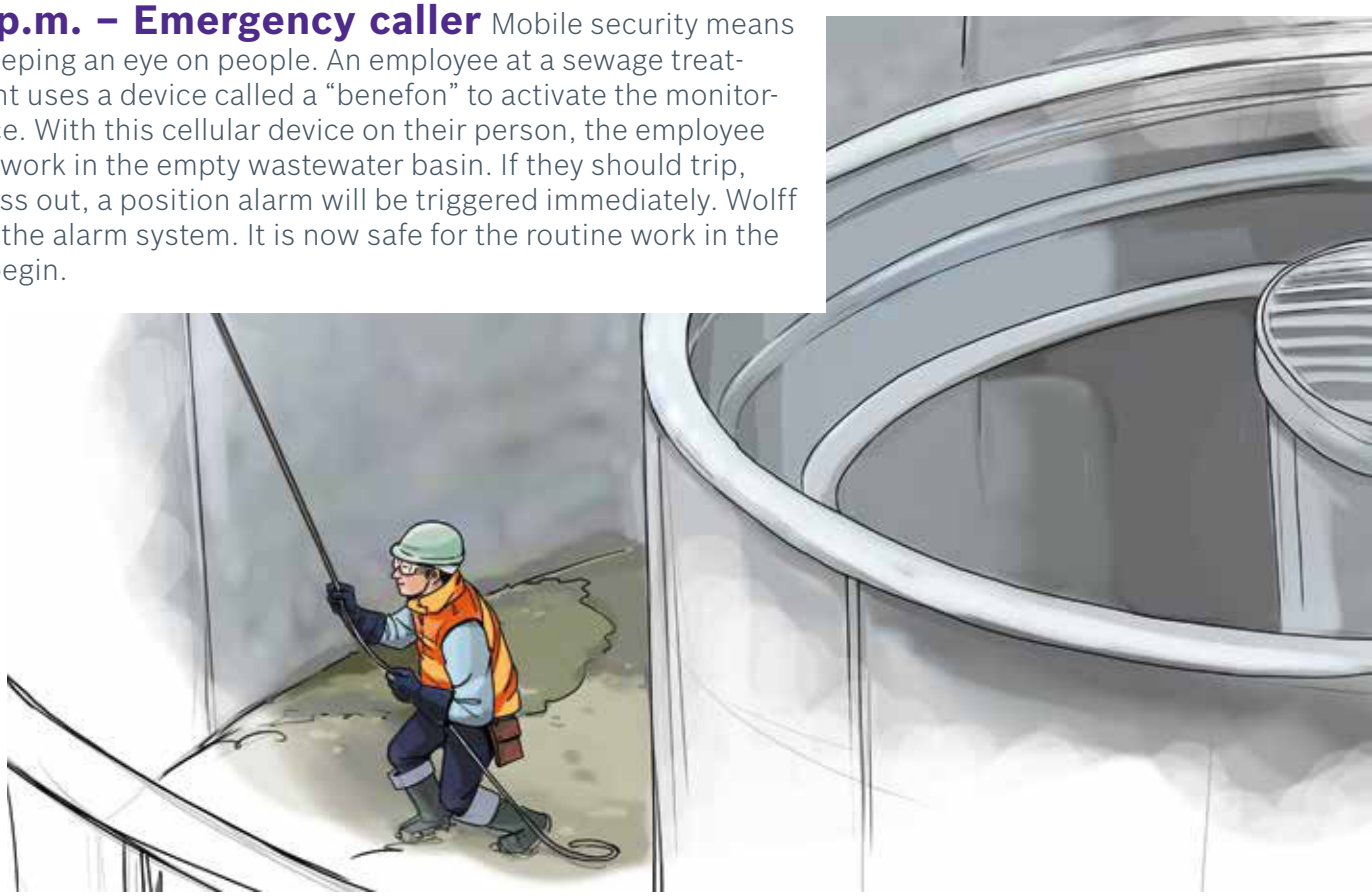


9:58 a.m. – Door-lock alarm A truck trailer is being opened, so Wolff checks the planned route. Just then the driver calls: he had forgotten to turn off the alarm system. Code words are exchanged and the alarm system is deactivated until noon. Everything's fine. Just the opposite of a recent case in Romania. Wolff contacted the driver after a door alarm went off, but the driver assured him that he was driving the truck. A short time later, Wolff notified the driver that a motion alarm in the trailer had been triggered. But the truck was still driving at 80 kph. It was later discovered that the truck had been burgled while it was in motion – just like in the movies. At least the Bosch technology had performed reliably.

10:23 a.m. – Safety check Truck drivers routinely check to make sure the sensors in their trucks are functioning normally. That, too, gets reported to Wolff. The sensors that are activated frequently include gas detectors, as thieves have been known to incapacitate sleeping truck drivers by pumping knockout gas through windows left ajar.

12:15 p.m. – Lunch break Wolff signs off from his computer and his coworkers take over. There are always at least two people in the control room, even during lunch. Wolff heads outside to get some fresh air and have a sandwich.

12:58 p.m. – Emergency caller Mobile security means always keeping an eye on people. An employee at a sewage treatment plant uses a device called a “benefon” to activate the monitoring service. With this cellular device on their person, the employee can start work in the empty wastewater basin. If they should trip, fall, or pass out, a position alarm will be triggered immediately. Wolff activates the alarm system. It is now safe for the routine work in the plant to begin.



1:35 p.m. – Shift change Marco Krug clocks in for the next shift. Wolff briefs him on things to look out for in some of the ongoing monitoring jobs, even though most of these are documented in the system and follow-ups happen automatically. The early shift ends without any incidents to report.

2:02 p.m. – Time to go home Wolff clocks out. Next on his schedule is to pick up his five-year-old daughter from kindergarten. Wolff grins: “Heaven help me if I’m late getting her. Then you’ll see a real alarm.”

A world of data in tablet form

Blaichach, the global lead plant for manufacturing of the widely selling ABS/ESP® safety systems, is deeply involved in sounding out the possibilities of connected industry. Yet even in this new connected working world, where cutting-edge IT delivers superlative efficiency, the focus is still on people.

How do associates view this change, and how are they trying to shape it? We asked four associates and managers from different departments to share their views. They talk about how their tasks have evolved as a result of connectivity, and what challenges and benefits this new approach brings. They are the ones who work with the information that gets served to them every day – in tablet form.

Simply. Connected.

Video
PatRec me!

ANNUAL-REPORT.BOSCH.COM/INDUSTRY4.0

MANUEL LEHMANN
34 years old
At Bosch since 1997
Production planner for the past three years

"We have 150 machine operators using about 20 tablets. Every time we show plant managers from other locations around our pilot shopfloor, they are amazed at what they see. We see to it that the utilization rate of our systems stays high, but we also have to ensure that our associates are in a position to achieve that. By providing training on tablets and smartphones and using computer programs, we get them on board and allay their fears about the technology. We also use examples like the operator support system to show what this technology can do for them. And while associates' work is more complex than it used to be, some simple routine tasks have disappeared. The days when an associate had to go through the machine shop counting components each morning are now long gone."

Blaichach is an object lesson in connectivity. Its shopfloor features huge touchscreens. Where production experts used to have to go to the machines to inspect and check parts, the commercially available tablet computer has now become a commonplace workday tool, used to track production processes and help the expert intervene if necessary. This is the new working world, the world of the fourth industrial revolution: Industry 4.0. Blaichach has made the switch. By thoroughly connecting its manufacturing operations with the latest in IT, plus digitalizing and visualizing all its processes in line with the Bosch Production System, the Bosch location has begun to blaze a path to the future.

As the lead plant for an international manufacturing network of eleven locations, Blaichach is the perfect choice for this pioneering role. Each year, its 3,300-strong workforce produces some 6.7 million units of the widely selling ABS/ESP® safety systems alone. Departments for production planning, special-purpose machinery, soft-

SEYIT-ALI YILDIRIM
21 years old
At Bosch since 2009
Trained industrial mechanic, now machine operator

"My friends can hardly believe it when I tell them that I work with a tablet. Of course it took some getting used to, and I needed training, but I soon realized that it meant I could do my work faster and more easily. Now I'm a machine operator overseeing six machines, which are all displayed on my tablet. Our performance tracker detects cycle-time deviations of mere milliseconds, so we can react quickly. And the recommendations from the operator support system for handling errors are a huge help. I know my machines pretty well, but even I sometimes need the system's help when something goes wrong."

ware, and system operations all work side by side, constantly sharing information and driving forward further improvements. And Industry 4.0, also called connected manufacturing, offers plenty of new opportunities for making production even more efficient. The wealth of information and data generated by connectivity is something companies need to exploit to their advantage. Super-fast computers are used to analyze this data. If this analysis is done properly, quality can be assured and the process of monitoring workpieces speeded up – saving time and money. There is also the advantage of a global database to reveal error patterns in production. Blaichach has combined these patterns with experience gained from resolving the errors successfully, and developed what it calls its operator support system.

This system not only displays error messages themselves but also tried-and-tested recommendations for dealing with them. Another digital tool, known as the performance tracker, allows experts to keep a close watch on cycle times and to intervene early on, even when deviations are in the millisecond range. In recent years,

TIMO DIVIVIER
31 years old
Returned to Blaichach as a project leader for Industry 4.0 two years ago, after completing a trainee program that included an international assignment

"Connected manufacturing makes a lot of things work better, but now we have to focus on exploiting its full potential. One of the challenges is how to cope with the huge quantities of data. We're trying to minimize the time it takes to obtain, prepare, and analyze data, so that we have more flexibility when putting any improvements into practice. It's just a question of finding the right technology. We're testing ways of making the path to analysis as straightforward as possible. But it's the associates who play the key role. They have to change their mindset, because being open in how you work with technology requires being open when working with other people. Actively sharing knowledge is a huge step forward, and an important one as well."

these advances have made it possible for Bosch to increase productivity at its ABS/ESP® manufacturing facilities worldwide by almost 24 percent. One further advantage is that product quality has been given a new dimension. Data gathered directly from customers during product use can be analyzed and transmitted automatically to manufacturers.

Yet the success of the technology depends on people. Their work has changed. They have to work with digital connectivity, understand the technology, and tap the opportunities it offers. People have to interpret the information and make the right decisions. That's why Blaichach highlights "soft factors" as well. Factors like "rethinking" and "culture change," or working with technology – an activity that should be as simple as it is effective. Or factors such as the desires and expectations that associates have when it comes to connected manufacturing, which everyone involved now has to fulfill.

HARALD WETZEL
40 years old
Project manager for special-purpose machinery for six years

"Our software solutions used to be a hard sell to associates in manufacturing. Then we changed tack, and determined first of all what their needs actually were. This, plus our physical proximity to manufacturing operations, definitely encourages the different areas to exchange ideas. We essentially develop ideas together, and they're always based on technologies that have proved themselves in the Bosch manufacturing network. Our goal is to make it as simple as possible to use the digital tools, and to make displays as clear as possible. But it's when ideas are shared in our global network that the things we develop really gain traction. The idea that associates who never meet face to face can still share valuable experience that anyone can access at any time truly fascinates me – and I'm not the only one who feels that way. You can find enthusiasm for this and similar topics in all age groups. And expectations are growing. Our associates can feel that things are moving forward."

Connected Industry innovation cluster:
In 2015, Bosch pooled its expertise in the area of connected manufacturing in its "Connected Industry" cluster. Even now, some 100 experts from every part of the company work together there. And in many plants, there are also expert groups supporting the innovation cluster with more than 100 pilot projects. In its own plants, Bosch uses the knowledge that has been gained in this way to enhance its Industry 4.0 competitiveness and open up new areas of business. But that is not all. It is also in a position to offer external customers Industry 4.0 solutions. In the area of connected manufacturing, Bosch is both a leading provider and a leading user.

360°
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The wave of the future

Over the course of their service life, Bosch power tools will often be used on different construction sites. So it's not unusual for tools to get mislaid or lost in the process. Finding them again becomes a matter of luck. Bosch took a close look at the situation, though, and came up with the perfect solution in the form of TrackMyTools, its smart inventory management system.

TrackMyTools is an innovative solution for day-to-day work on construction sites. It helps manage the whereabouts of tools and how they are being used. Every device gets a battery-operated Bluetooth module that is roughly half the size of a matchbox. This can transmit a a signal over a maximum distance of 30 meters. This signal is picked up by an app on the worker's smartphone, and the data is transmitted to a server. Tool inventories are then managed on a web-based service platform. As the workers' smartphones transmit GPS data to the cloud every 30 minutes, inventory items can be managed and pinpointed over long distances – for example, by the logistics manager of a subcontractor in another part of the country. The system is both extremely flexible and especially easy to use.

Video
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ANNUAL-REPORT.BOSCH.COM/CONNECTED-TOOLS


Simply.
Connected.

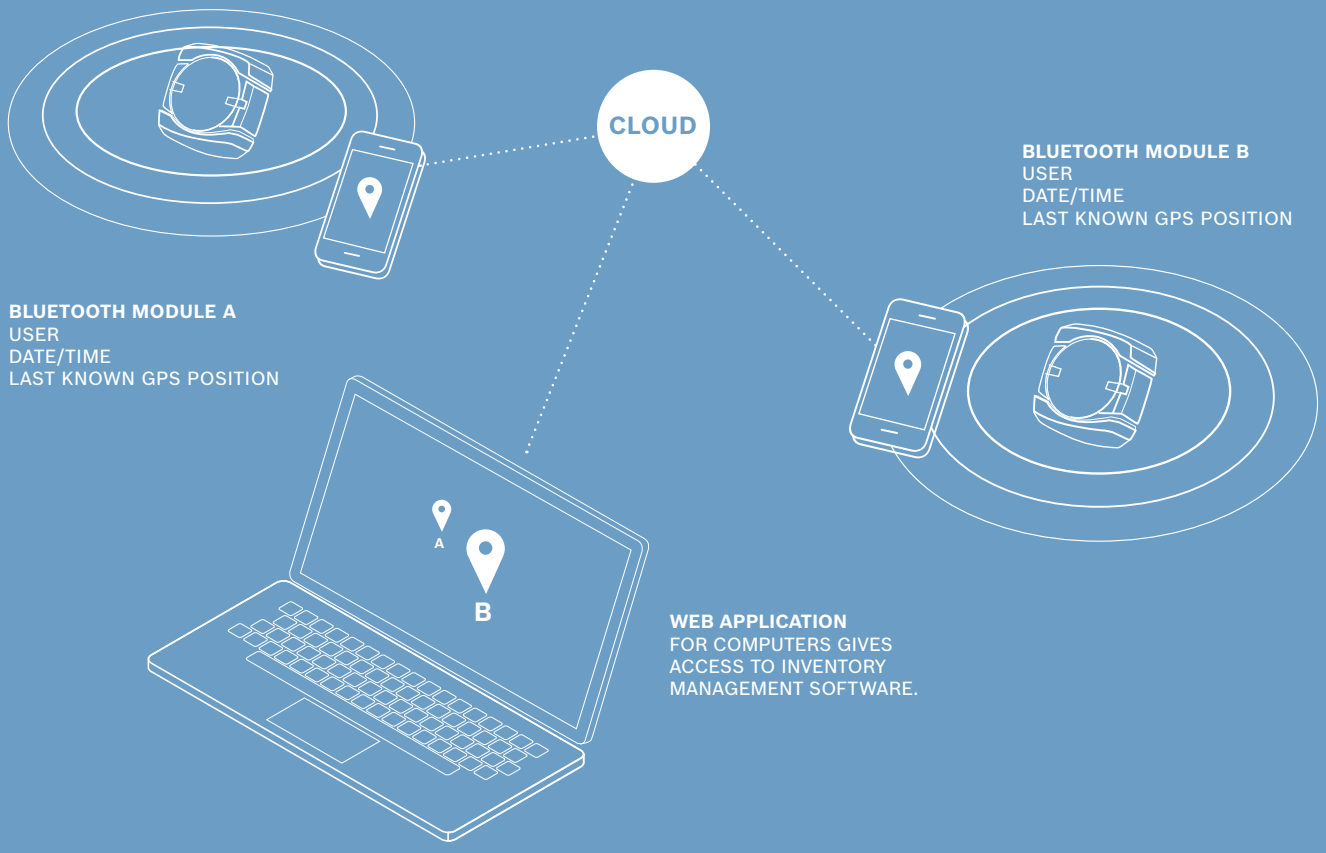
App

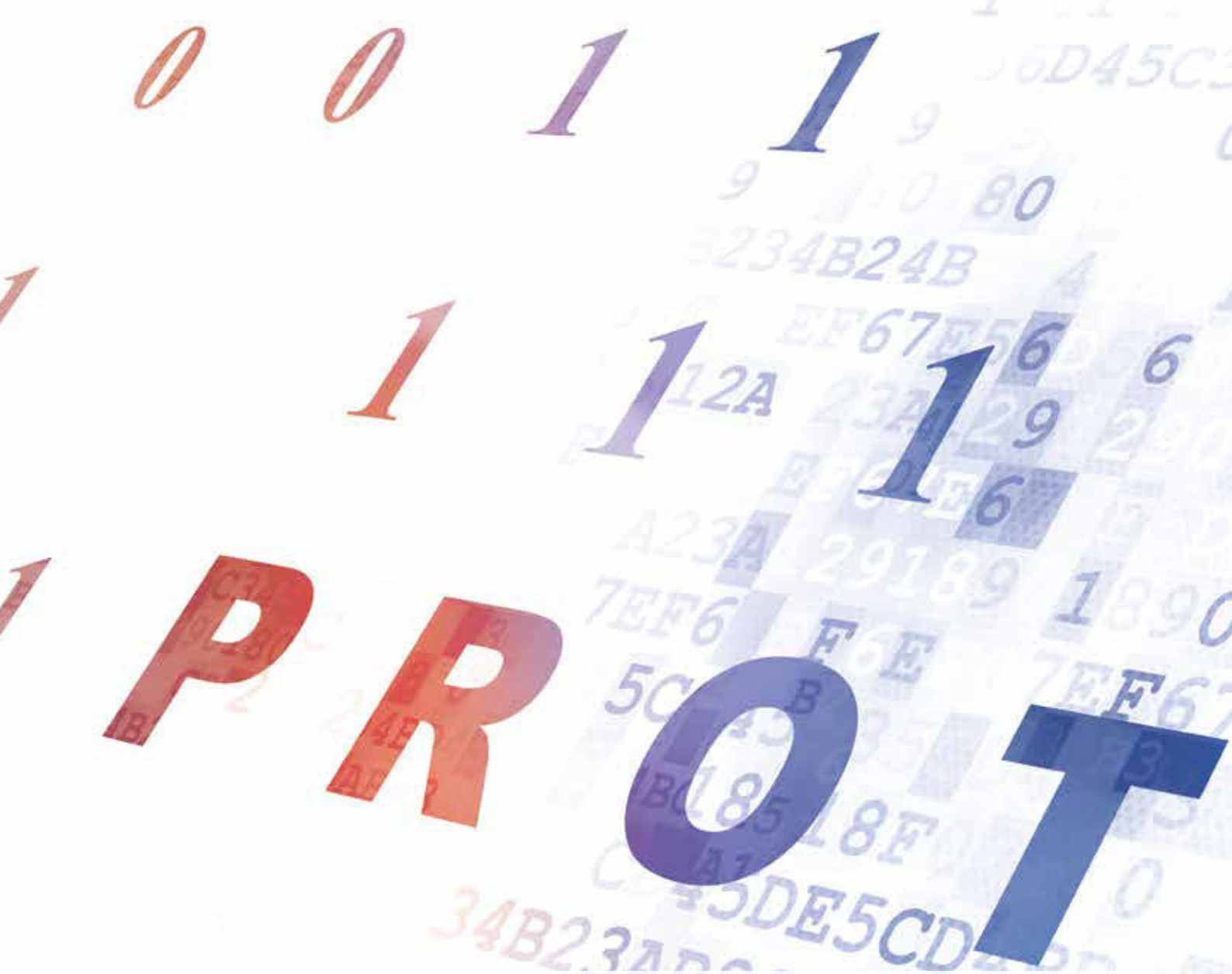
PatRec me!

TrackMyTools

Of needles and haystacks: TrackMyTools, Bosch's smart inventory management system, offers several advantages. Warehouse managers, planners, supervisors, and tradespeople can permanently keep tabs on the status of all their tools – either from their home base or directly on the construction site. In addition, the cloud-based solution means that tradespeople on site always know where their tools are. Before driving to the construction site, for instance, they can check to see that they've packed everything they need. And at the end of the day's work, they can rest assured they haven't forgotten anything. If a tool should go missing, the system helps find it again, thanks to the smart interaction of hardware and software. A battery-operated Bluetooth module measuring just 34.4 x 32.5 x 13 millimeters, roughly half the size of a matchbox, is affixed to the tools. The module – the GCC 30 TrackTag Professional to give it its official name – transmits a signal every eight seconds. Smartphones and tablets equipped with the TrackMyTools app detect the signal, and transmit time, user, and location data to the server. Every 30 minutes, moreover, the smartphone's GPS function transmits the tool's location to the cloud, making it fundamentally possible to locate it at any time – even from a considerable distance. The app shows where the tool is on a map. Tradespeople can use the web application, which is available in various subscription models, to keep tabs on their tools over the internet. The tagging module can be attached not only to power tools, but also to cable reels, ladders, and hammers. Finding the proverbial needle just got easier.

USING BLUETOOTH AND CLOUD TO LOCATE TOOLS





A solid defense

Anyone who gets into a car nowadays is immersing themselves in a complex, connected world of software – a world where millions of data bits fly back and forth between microcomputers in mere seconds. Increasingly, this communication is also taking place with other systems and vehicles. All this is giving rise to fascinating new applications for enhanced convenience, efficiency, and safety – but it also comes with more security risks, and these have to be brought under control. Highly qualified software experts working at the Bosch subsidiary escrypt GmbH Embedded Security are working to find ways of making the world a little more secure. One of these specialists is Thomas Wollinger, managing director of Escrypt and a seasoned security expert.

ANNUAL-REPORT.BOSCH.COM/DATA-SECURITY


EC

To protect sensitive messages from being manipulated during transfer, one of the tools Escrypt uses is the digital signature. In this cryptographic technique, the sender creates a sort of fingerprint from the message before encoding and sending it. The receiver decodes the fingerprint and compares it with a version contained directly in the message. If they match, then it's certain that the message has not been tampered with.

For every incoming message, the defense system has to make several decisions. Is the message trustworthy? If not, can it be ignored? Can we deny access to an unauthorized user? Or should the system that has received the message be separated from the network or even shut down because of a potential danger to security-relevant parts?

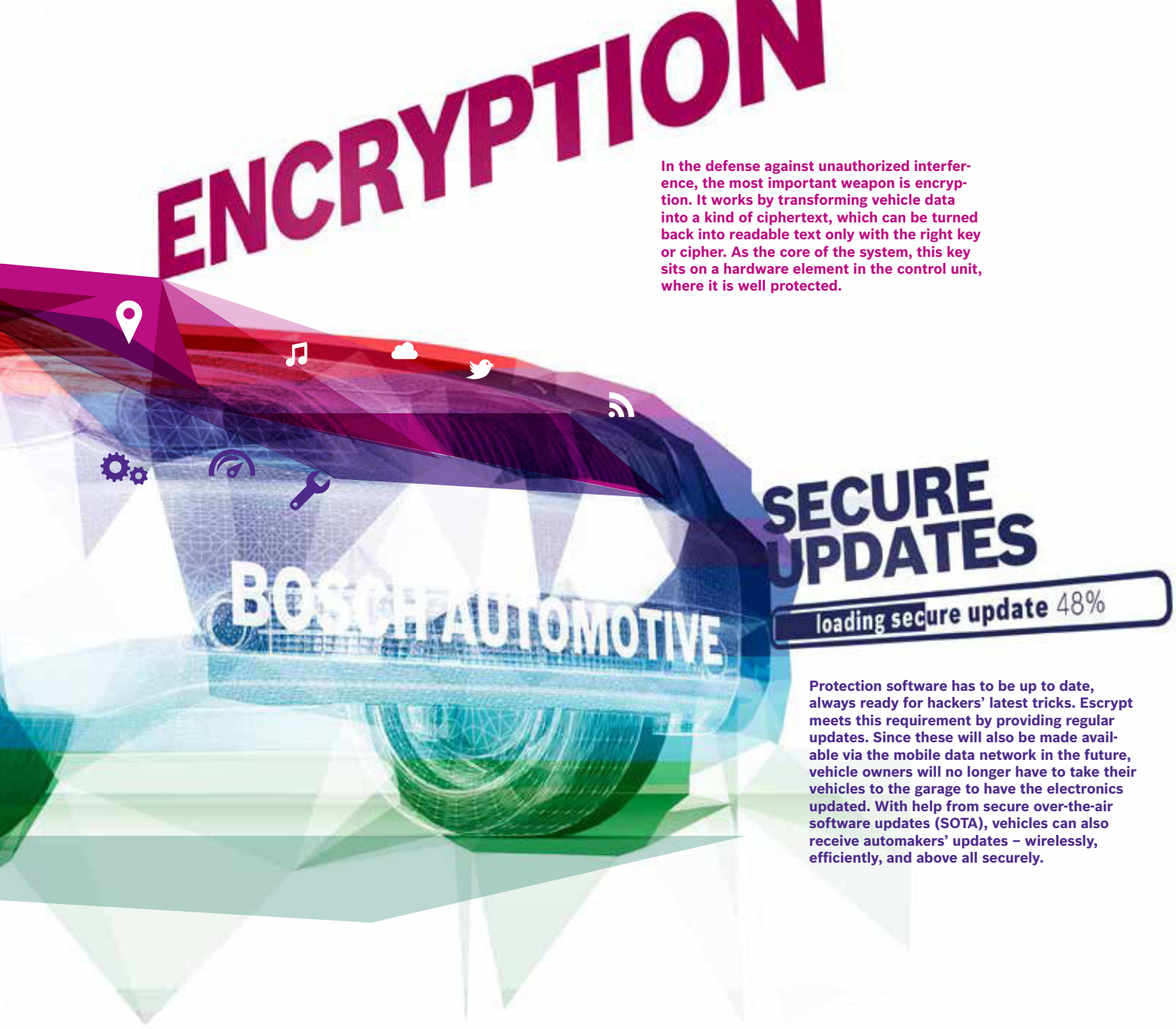
Escrypt's conference room is a high-security zone. Specially glazed windows make it impossible for snoopers to use a laser to track the vibration of the panes, and thus to record conversations. Security wallpaper sounds the alarm if it is tampered with or if it senses a break-in. Nothing unintentionally leaves this room, which is located in an office building in Bochum, Germany. Nor should it, because what Thomas Wollinger and his associates discuss with their customers is often strictly confidential.

Wollinger indicates one of the doors across the way. "In 2005, we pioneered embedded security in that room over there," he recalls. Back then, there were three of them toiling away to make a success out of the tiny start-up. Today, nearly 100 associates are employed at Escrypt's headquarters in Bochum and at other locations in Germany, the U.S., Japan, China, and Korea. All are working to protect software systems from attacks by hackers and the like.

In his early years, there was little to suggest that Wollinger would end up in this career. He spent his childhood playing with kids on the neighborhood streets, not in front of a computer. It wasn't until he started an apprenticeship in communications electronics that the subject really caught his interest. He finished his technical diploma at the top of his class, completed a university degree in electrical engineering in record time, and wrote his PhD thesis on a special encryption technique that utilizes hyperelliptic curves.

It's still encryption techniques like this one that allow Escrypt to develop protection software for what are known as embedded systems: microcomputers that are integrated into technical environments such as medical equipment, cell phones, or vehicle ECUs. And this protection is more important than ever.

Take the example of vehicles: attackers are trying more and more ways to infiltrate them – through their internet connection, cell phone interface, radio, or the navigation system. And attempts to interfere with vehicles come from all sides – owners try to manipulate their vehi-



In the defense against unauthorized interference, the most important weapon is encryption. It works by transforming vehicle data into a kind of ciphertext, which can be turned back into readable text only with the right key or cipher. As the core of the system, this key sits on a hardware element in the control unit, where it is well protected.

Protection software has to be up to date, always ready for hackers' latest tricks. Escrypt meets this requirement by providing regular updates. Since these will also be made available via the mobile data network in the future, vehicle owners will no longer have to take their vehicles to the garage to have the electronics updated. With help from secure over-the-air software updates (SOTA), vehicles can also receive automakers' updates – wirelessly, efficiently, and above all securely.

cle's odometers, competitors are interested in automakers' data or know-how, and still others hack into connected systems to commit acts of sabotage or espionage.

With integrated security solutions and industry expertise, Escrypt's job is to thwart such attempts. In each of the brightly lit offices on the second floor of the Bochum headquarters, two associates sit staring intently at their computer screens. They develop encryption software, advise their clients, and attempt to find and evaluate weaknesses in their clients' systems. The major competitive advantage in all this is that Escrypt works very closely with its parent company, the Bosch subsidiary ETAS. While ETAS ensures that a car is safe – that its control units and systems function as they should – Escrypt's focus is on security, protecting the systems from external attacks. In connected systems, the two disciplines have to intermesh more tightly than ever. Even before software and hardware development starts, it is up to security and safety experts to jointly assess risks, evaluate them, and formulate targets derived from them. "You can't have safety without security – and vice versa," says Simon Burton, who is in charge of embedded software services at ETAS. "That's why the two companies complement each other so well." Another factor that comes into play here is the full breadth of Bosch's automotive expertise. Wollinger views it as an ideal combination, since "we can offer everything from a single source."

Even with all the expertise that Escrypt pits against hackers, Wollinger understands that drivers have some concerns. "No one can guarantee one hundred percent security, not even us," he concedes. However, because Wollinger and his team work closely with security experts in companies and at universities, "we can anticipate potential attacks very early on. And we've been working on countermeasures for a long time."

The new oil of the global economy

Analog life dominates the streets of Bengaluru in a wild stream of buses, taxis, two-wheelers, and cows. Add to that a lively mix of people: some in modern business attire, others in traditional saris or sober school uniforms. The sidewalks are a service sector in their own right, with everything from shoe shiners to bike repair shops, flower sellers, and food vendors. But even the street vendors use smartphones to take orders and track delivery. After all, this city in southern India, formerly known as Bangalore, is a hub on the data highway that spans the globe.

ANNUAL-REPORT.BOSCH.COM/DATA-MINING

BIG DATA

This buzzword refers primarily to the processing of large, complex, and rapidly changing sets of data that can no longer be evaluated using conventional computers, but requires high-performance computing clusters. The data collected can come from any number of different sources. Around the world, the amount of data doubles roughly every two years. Sri Krishnan V, vice president of Bosch Engineering and Business Solutions in India, compares big data with an avalanche, albeit in a positive sense: "We would like to see data analytics ingrained in our company's DNA. The more data we have, the better our analysis." Bosch takes a two-step approach: first, data is collected from things and processes. Second, the data is used to develop services.

When, in 2011, the Bosch subsidiary Robert Bosch Engineering and Business Solutions was on the lookout for digital trends to diversify its business portfolio, Sri Krishnan and his team identified data mining as one of the possible new business fields for Bosch in India. For the country that contributed the concept of zero to the world of mathematics, it is only natural that it should be an early adopter of this technology wave. Drawing the right conclusions from huge amounts of data sounded pretty straightforward, but turned out to be a highly complex undertaking. "We didn't let it remain a theoretical exercise; instead, we got straight to work and turned it into a business model," Sri Krishnan says. They had the full support of Volkmar Denner, the chairman of the Bosch board of management, since big data is one of the elements that is paving Bosch's way into the connected world.

DATA METROPOLIS BENGALURU

Bengaluru is the capital of the state of Karnataka. With close to ten million residents, it is the third largest city in India. In recent years the "Garden City" has become one of the country's key IT centers, and is one of the world's hubs for big data. The reason for this lies in Bengaluru's openness and its wealth of highly trained local IT experts, a large proportion of them women. India's ambition is to transform itself from a low-cost production location to a leading supplier of complex, high-quality manufacturing and services. Big data is now being taught at all major educational institutions, including the Indian Institute of Science in Bengaluru. The institute is home to the Robert Bosch Center for Cyber-Physical Systems.

In the southern Indian city of Bengaluru, the rush hour practically never ends. That's as true for the roads as for the data highway. Any company wanting to exploit big data has to have a presence here.

Video
PatRec me!

After all, data is the oil of the global economy. When the India team took its first steps in this area, the Bosch Research and Technology Center in California was already exploring this new field. Since then, the data scientists in the U.S. and in India – 12,500 kilometers apart – have joined forces in a newly established agile service team. The team members share the findings of their data analytics projects and use them as the basis for deriving best-practice solutions. Currently, more than 50 data scientists share in the digital back and forth between the two locations. Hauke Schmidt – the head of the global data mining organization – and Lavanya Uppala confer with each other nearly every day, the former in Palo Alto and the latter in Bengaluru. They run their teams like a start-up business.

Bosch embraces big data, and the associated analytics algorithms benefit its core business. In the information society, mass is the basis for quality. The ability to generate new knowledge from big data is a key competence of the future. That's why, on the new Renningen research campus and in California's Silicon Valley, the corporate research sector is not only concerned with practical applications, but also has its own expert teams dedicated to developing new methods of evaluating increasing amounts of data.

Sri Krishnan (second from left) spearheaded Bosch India's foray into big data at the Bengaluru location from an early stage. Today, 50 data experts work in this promising field.

"It's all about developing methods, algorithms, and hardware that allow us to comb through the masses of data."

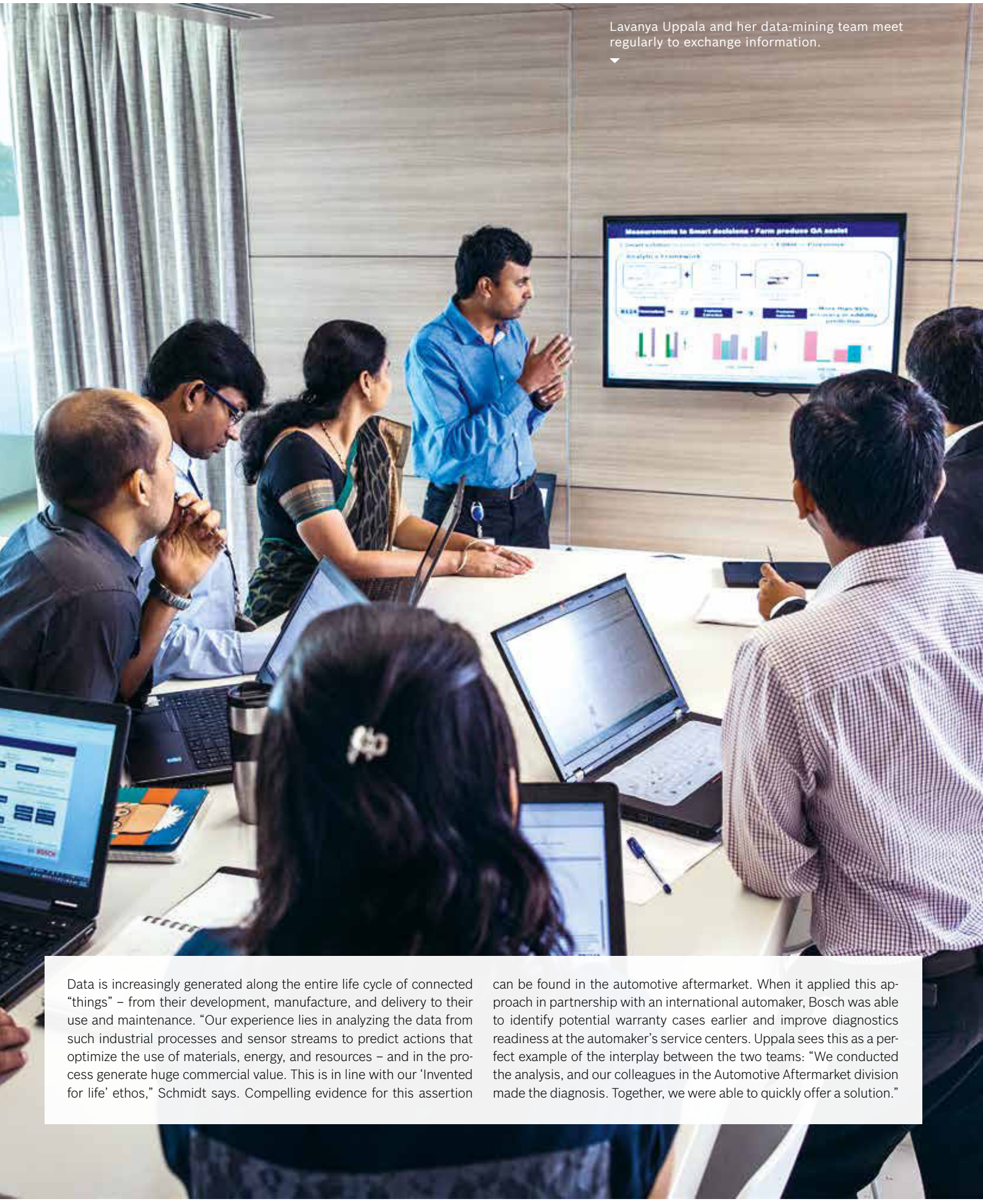
Hauke Schmidt

DATA MINING

This term refers to the systematic application of statistical methods when evaluating big data. The powerful algorithms used in this approach are nothing new, but the challenge today lies in efficiently applying them across clusters of interconnected servers comprising the thousands of processors now required to process the deluge of data generated daily by the internet of things. "Nowadays, everything is connected with everything else," the analyst Lavanya Uppala says. When it comes to applying data mining in practice, she and her team use the "V formula": variety, velocity, volume, vicinity, and visualization.

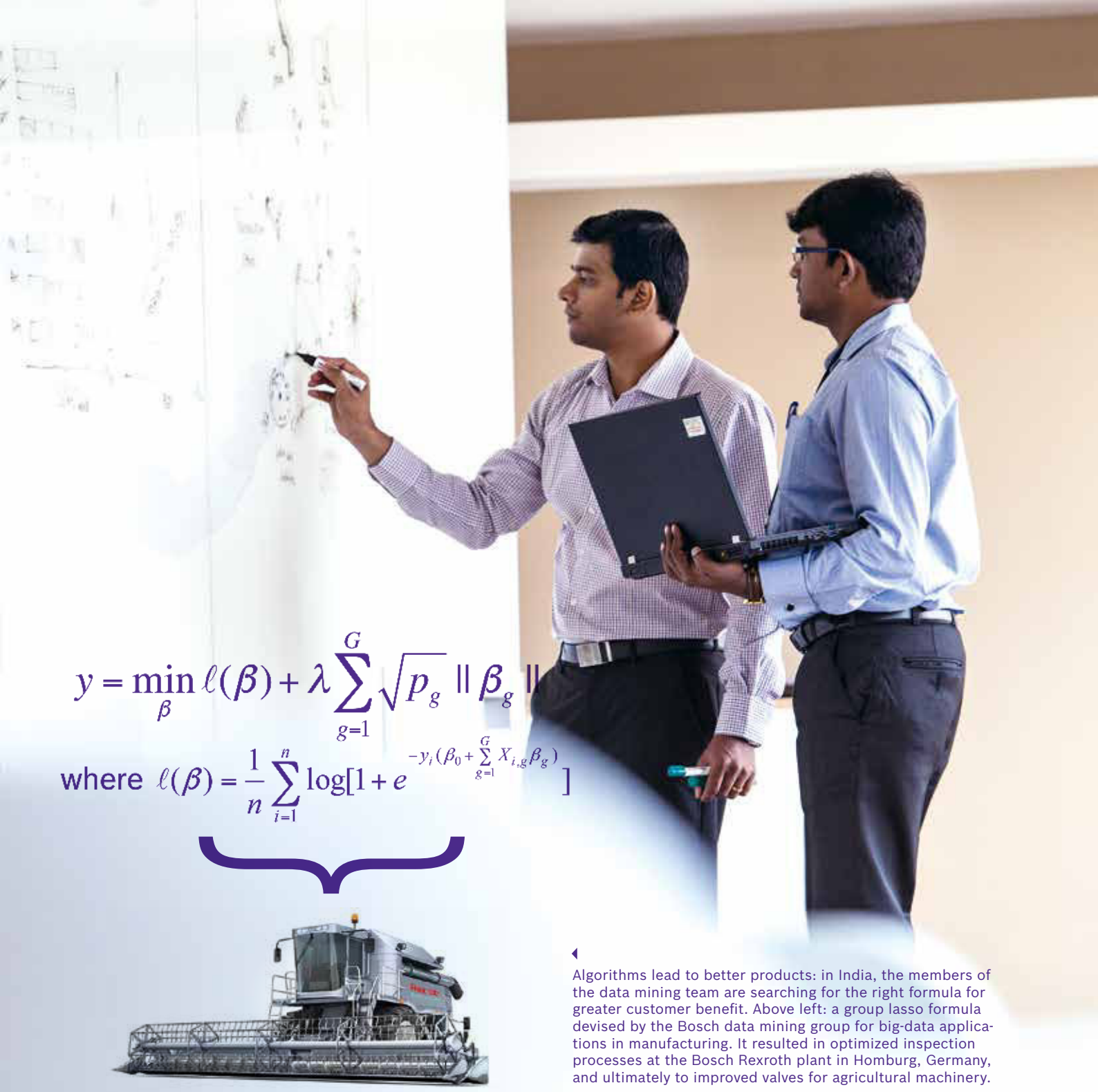
Hauke Schmidt (left), head of the global data-mining team, with his associates in Palo Alto.

The first data mining trials at Bosch manufacturing facilities in India resulted in an immediate major improvement to processes. A similar success was scored in the open market by a pilot project with a major railway company; the goal of the project was to get a handle on electronic ticket fraud. "In every internal project, we generate new knowledge for customer projects – and vice versa. This benefits both sides," says Lavanya Uppala. One of her favorite examples concerns BSH Hausgeräte GmbH. When a customer reports a fault, the patterns derived from big data allow a conclusion as to the most likely cause – and as to the spare part needed – to be drawn very quickly. The benefits of this method of finding solutions faster will soon also be available to car drivers who come to Bosch Car Service for repairs and maintenance.



Lavanya Uppala and her data-mining team meet regularly to exchange information.

Data is increasingly generated along the entire life cycle of connected "things" – from their development, manufacture, and delivery to their use and maintenance. "Our experience lies in analyzing the data from such industrial processes and sensor streams to predict actions that optimize the use of materials, energy, and resources – and in the process generate huge commercial value. This is in line with our 'Invented for life' ethos," Schmidt says. Compelling evidence for this assertion can be found in the automotive aftermarket. When it applied this approach in partnership with an international automaker, Bosch was able to identify potential warranty cases earlier and improve diagnostics readiness at the automaker's service centers. Uppala sees this as a perfect example of the interplay between the two teams: "We conducted the analysis, and our colleagues in the Automotive Aftermarket division made the diagnosis. Together, we were able to quickly offer a solution."



$$y = \min_{\beta} \ell(\beta) + \lambda \sum_{g=1}^{G} \sqrt{p_g} \, \| \beta_g \|$$

$$\text{where } \ell(\beta) = \frac{1}{n} \sum_{i=1}^{n} \log[1 + e^{-y_i (\beta_0 + \sum_{g=1}^{G} X_{i,g} \beta_g)}]$$

Algorithms lead to better products: in India, the members of the data mining team are searching for the right formula for greater customer benefit. Above left: a group lasso formula devised by the Bosch data mining group for big-data applications in manufacturing. It resulted in optimized inspection processes at the Bosch Rexroth plant in Homburg, Germany, and ultimately to improved valves for agricultural machinery.

To get to the office of the data scientist Rama Mohan D in Bengaluru, visitors have to pass an emergency cabinet, with axes and helmets mounted behind glass. There's hardly a better visual for the subject of data mining. It's all about digging deep, extracting, and mining in a constantly growing mass of data. A single set of data of the kind used by analysts comprises 1,000 columns and 20 million rows. And the volume of data keeps growing – by three to four terabytes a year in some projects.

The formula that the Bosch associate appears to be writing so casually on a magnetic board will ultimately be the key with which to wrest a solution and a new business model from ostensibly impenetrable heaps of data taken from various sources. Regardless of where the data comes from – connected industry, social media, or handwritten records – it has to be cleaned up, organized, validated, and prepared. People will always have a key role to play in big data, and not just as programmers. They first have to ask the right questions in order to collect the necessary data, and then compare the analysis with the experience and expectations of practical application. "More than anything else, we have to understand not only the data, but the customers as well," Mohan D says. "That's the only way they will be able to gain valuable insights from the data later on." And it is only then that the big data formula will make sense.

Comfort zone

Life can be so simple: innovations such as Bosch's smart home platform make it more eco-friendly, convenient, and secure.

"Good morning. Today is Wednesday. It's 6:30 a.m." Stefan sits up in bed and blinks sleepily at the shiny white robot. Felix – as he calls his personal robot – has woken him half an hour earlier than usual, due to the bad traffic situation. The robot hands him a cup of coffee, so that he can still have a relaxed start to the day, despite the early hour. He cheerfully heads to the bathroom. But why is everything there green? He must have accidentally chosen the wrong color yesterday. On the flat screen integrated into the bathroom wall mirror, Stefan selects "tile color" from the menu and then hits "sand-colored." The tiles instantly change color. The clothes that he selected on his tablet for today have been laid out for him. Felix never lets him down. While Stefan leisurely gets dressed, Felix is preparing breakfast in the kitchen. Stefan tells him he would like an egg today after all. A realistic scene? Of course not – not yet.

But smart homes are already well on their way to becoming a reality. Bosch offers a systems solution that can be used to operate and control different devices in the home, and also enables those devices to communicate with each other. The core of this interoperable system is the smart home controller. Using a smart home app, the controller can be operated from a smartphone or tablet. In the future, a whole range of Bosch products will be compatible with this controller, including ones made by the Thermotechnology, Security Systems, Household Appliances, and Power Tools divisions. Depending on the solution, supplementary apps will be available for regulating specialized device functions. One such example is the Home Connect app made by BSH Hausgeräte GmbH. It's even possible to integrate applications by other manufacturers, such as Philips's "Hue" wireless lighting control. And since the system works with open standards, many others can follow.

The Bosch smart home system enriches life in three ways: it increases convenience, enhances safety, and improves energy efficiency. For example, if Stefan decides to open a window once he's done with his shower, the window contact will tell the thermostat that the room is being ventilated. As a result, the system will automatically turn down the heat. That saves money and conserves resources. Generally speaking, temperature settings can be adjusted with the touch of a finger on a smartphone or tablet – even from outside the home. If Stefan forgets to close the window or to turn off the light, he gets a push notification about it on his cell phone as he leaves the house. Similarly, the washing machine informs him once it has completed its cycle, saving him unnecessary trips to the laundry room.

ANNUAL-REPORT.BOSCH.COM/SMARTHOME


Apps
PatRec me!
Simply.
Connected.

LIGHTING The smart home controller app allows users to control the ambient lighting. For example, they can set the intensity and color of the "Hue" lighting system made by Philips.

SMOKE ALARM Besides the usual function, the smoke alarm can also be connected with door/window contacts and a motion detector to sound an alarm when someone tries to break in.

RADIATORS A window contact ensures that the radiator thermostat automatically turns down the heating when a window is opened.

WINDOWS The window contact recognizes when the window is opened or shut. It reports this to the app in the same way it reports an attempted break-in.

HEATERS With the touch of a finger, the app can be used to adjust temperature settings for the heating system.

And thanks to the security function, he can rest easy knowing that his home is protected without needing to install an extra alarm system. For example, if a burglar tried to break in through a window, the window contact would alert the smoke alarm and the lighting control system: the former would sound an alarm while the lights would flash red. At the same time, Stefan would receive a warning notification and, with just the touch of a fingertip, could alert the police or a neighbor he has set as his contact for such an event. Smart connectivity par excellence. Stefan can even go off on vacation without any worries. He just activates his "away" settings on his smartphone: lights off, heating turned down, occupancy simulated by turning on lights and, say, radio – all automatically.

To give him a warm welcome upon his return, the heating is programmed to increase room temperature to 23 degrees Celsius. The lights are set to give off a pleasant red-orange glow, and the stereo plays "Coming Home" by the U.S. singer Leon Bridges.

Home sweet home.

POWER SOCKET By means of an adapter, even analog devices can be operated using the smart home controller.

WASHING MACHINE The washing machine can be controlled using the app, and sends a push notification when the laundry is ready, for example.

OPEN

SMART-HOME-CONTROLLER It connects all the Bosch smart home products with each other. The app that goes with it can be used to operate individual devices. Thanks to open standards, other manufacturers can use the new system platform as well.

MOTION DETECTOR Combined with the smoke alarm and door/window contact, the motion detector serves first and foremost as a security feature, but can also automatically control lighting.

BOSCH SMART HOME APP
The app controls all smart home functions and is available for Android and iOS (Apple) devices.

"senseorchestra" video
Pat**Rec** me!

Trucks under pressure

Getting from Toronto to Texas with Bosch technology in the cargo hold – and under the hood

In the dark skies over Texas, the turban's orange glow stands out. Normally people around here wear a cowboy hat, but Jaspreet Bola knows more about horsepower than he does about horse riding – and anyway, he prefers to stick to his own traditions. It's eight in the morning as this young Sikh climbs out of the cab of his semi tractor-trailer. In this grey, wet weather at a truck stop outside Dallas, it's time for a quick coffee, a soda, and a burger. He'll be choosing the chicken and avoiding the beef – and the same goes for his copilot, Manjinder Sidhu, who has no cowboy hat either, but instead a blue and white knit cap. The Texas Longhorn cattle quietly grazing on the horizon have nothing to fear from this pair.

Jaspreet and Manjinder come from Punjab, a region in northern India, but have both lived in Canada for many years. Every week, their job as truckers sees them driving thousands of miles through North America's varied landscapes. Day and night. One drives while the other sleeps. They almost always take the same route: from Toronto, Canada's biggest city, to Laredo, in the far south of the United States.

There they head for the Bosch warehouse, which stretches over more than 11,000 square meters and is just a stone's throw from the Mexican border. The pale yellow building is one of the Bosch logistics hubs for North America. Some 750,000 pallets pass through here every year, and the site handles around 100 trucks daily. "It takes no time at all," says Jaspreet, "you just reverse up to the ramp, unload the raw materials, fill up with finished components, and an hour later you're back on the road."

This time, too, Jaspreet and Manjinder are transporting nuts and bolts, plastic parts, and seals made in the United States and Canada to Laredo. There, together with similar components, they are readied for onward transportation to Bosch's Mexican plants, and generally spend no more than 24 hours in the warehouse. Heading back north, Jaspreet and Manjinder's truck is loaded with finished products from Toluca, San Luis Potosí, and Aguascalientes: ignition coils, wiper systems, brake components, sensors, and much more – most of them destined for the big automakers in and around Detroit.

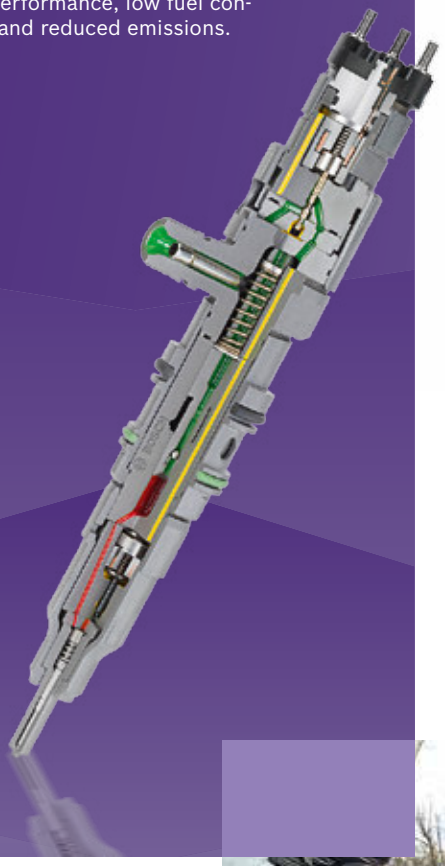
Knit caps and turbans in cowboy-hat country: the two truckers Manjinder Sidhu (above) and Jaspreet Bola (below)

“Every liter less helps.”

Jaspreet Bola

AMERICAN POWERTRAIN

The Freightliner's diesel engine features Bosch injection technology. The CRSN4 common-rail system ensures optimum performance, low fuel consumption, and reduced emissions.



HEAVILY AUTOMATED

At some point, heavy-duty trucks will also be largely automated and connected. The steering system will play a major part in achieving this. Robert Bosch Automotive Steering GmbH, the world's biggest manufacturer of power steering systems, already offers Servotwin®, the first integrated electro-hydraulic steering system for heavy-duty trucks (not installed in the truck presented in this article). This steering system allows precise steering actions at high speeds as well as comfortable truck maneuvering at low speeds. As Servotwin is developed further, it will bring to trucks many of the assistance systems that have already proved so valuable in cars. These include corrective steering interventions should the vehicle unintentionally leave its lane and a traffic jam assistant that relieves drivers of a lot of stress. It can also support an assistance function that determines how much steering has to be corrected to counter a sudden gust of wind, and actuates an electric motor to help with the maneuver.

But these two truckers don't just have Bosch technology in their cargo hold. It's also under the hood of their Freightliner Cascadia Evolution. The truck is powered by a Detroit DD15 engine with six cylinders, around 500 HP, almost 15 liters displacement – and the highly efficient Bosch CRSN4 common-rail injection system. The high-pressure pump and rail come from the Jihlava plant in the Czech Republic, while the extremely precise injector is manufactured in Homburg, Germany. "The Freightliner has plenty of power, uses less fuel than other trucks, and is nice and quiet," Manjinder says.

The pump provides system pressure of up to 1,200 bar, while the injector features an integrated hydraulic pressure amplifier that can more than double the maximum injection pressure. As a result, the engine is economical, clean, and efficient – and provides power whenever it is needed. And this not only in the Cascadia, but also in millions of commercial vehicles in North America and the rest of the world.

But back on the soaking wet parking lot in Texas, thoughts such as this are not the issue. Jaspreet and Manjinder prefer to spend their time working out how long it will take them to reach Laredo – and above all whether they will manage to get back to Toronto in time for Diwali, the Indian festival of light. They've already put around two-thirds of the journey behind them. "We reckon on roughly 34 hours each way," Manjinder says. There are rarely any traffic jams, they fill up just once, and the mandatory rest periods aren't too long when there are two drivers.

They know the route like the back of their hands: 2,948 kilometers through the southern tip of Canada, crossing into the U.S. near Detroit, then across the industrial heartlands of Michigan and Ohio, straight through the fields and forests of Indiana and Illinois, and over the Mississippi to Missouri. And when the sky gets bigger and the light changes, and when it's banjos and not guitars on the radio, that's when they've arrived in the South: welcome to Texas. Now Canada is a long way away.

Tomorrow’s cockpit

Reducing the burden on drivers, protecting the environment

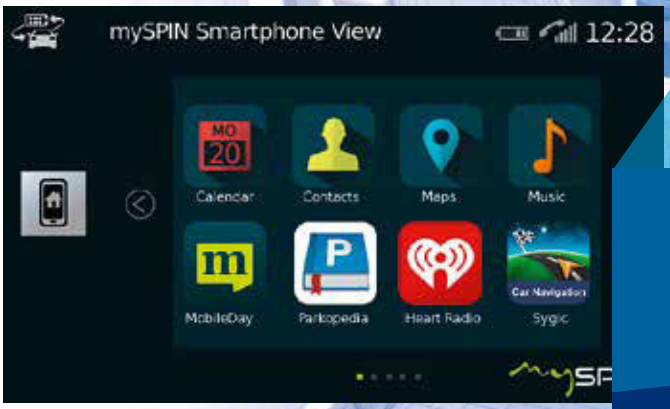
DIGITAL EXTERIOR MIRROR

Lower fuel consumption – the large-surface exterior mirror that increases drag is a thing of the past. On top of that, drivers have a much better view of what’s happening to the rear, even at night.

Video
PatRec me!

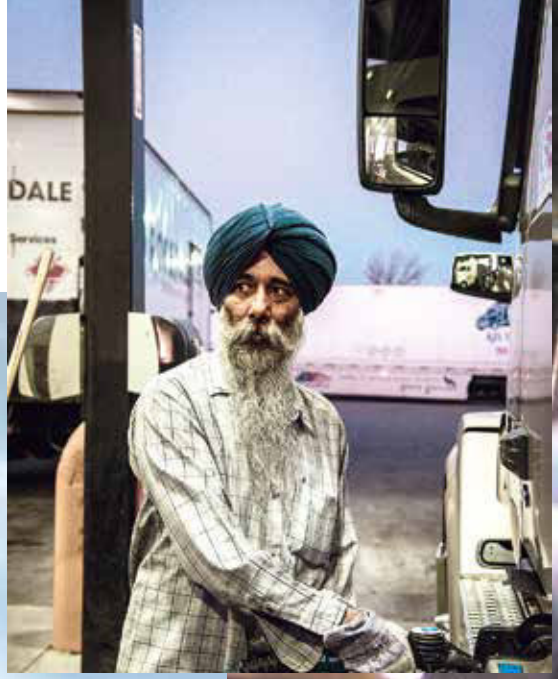
FREELY PROGRAMMABLE INSTRUMENT CLUSTER

The days of fixed mechanical instrument clusters are over. Today’s displays can be adapted to the traffic situation and to the requirements of drivers and automakers. The extremely high-resolution display allows information to be presented more accurately.



DISPLAY UNIT

The display unit is the central user interface for navigation and entertainment. Drivers can connect it directly with their smartphones, and in this way safely operate many apps on their truck’s touchscreen. The display’s design and interface dynamically adapt to the driving situation.



Kashmir Singh fills up his truck in Toronto (right).

"The Freightliner Cascadia has plenty of power, uses less fuel than other trucks, and is nice and quiet."

Manjinder Sidhu

Doesn't it get boring? Always taking the same highways and stopping at the same gas stations? Jaspreet laughs. "It depends on whether there's something to look forward to," he says. For him there is: he dreams of having a small house in the suburbs of Toronto and of marrying his girlfriend. That's what he's saving up for, regularly putting a little money aside.

He and Manjinder are two of a great many truckers with Indian roots who drive for Canadian logistics companies. "People consider us Sikhs honest and reliable," says Kashmir Singh, one of Jaspreet and Manjinder's fellow truckers. Kashmir has been driving all over North America for many years and has already been to all 48 contiguous U.S. states. Like the other two, he now works for himself, driving his own truck, despite the Giggs Express logo on its side. Giggs Express is the company that sent the three drivers on their current journeys. Independent drivers are paid by the mile, which means they are directly affected by the price of diesel. Each time the price goes up, Jaspreet's house in the suburbs recedes another few months into the future.

What the drivers need, therefore, is more economical engines. That's why Jaspreet's brother – who owns the truck – opted for the Freightliner. Not only does it feature state-of-the-art Bosch diesel technology, it also has Eco.Logic motion, the smart assistance system provided by Bosch's Car Multimedia division. This system makes use of a digital map and knows long before the driver does whether the road is going uphill or downhill, and whether to expect a bend or a long stretch of straight road. Because the system also detects the current speed and the selected gear, it can work with the automatic transmission to accelerate in advance or avoid unnecessary gearshifts – without the driver having to do anything.

Eco.Logic motion can potentially reduce fuel consumption by 5 percent. "Every liter less helps," Jaspreet says, filling up for a few hundred dollars somewhere in deepest Missouri. All the drivers agree that diesel will remain the most important powertrain in the logistics business for the foreseeable future. That makes it all the more important to further improve internal-combustion engines and make them cleaner, more efficient, and more cost-effective. Bosch is working hard on this – so Kashmir, Manjinder, and millions of other truckers don't have to fill up so often. To reduce environmental impact. And to help Jaspreet's dream of a wedding and a house come true that little bit sooner...

Jaspreet Bola cleans his headlights during a stop in Missouri.

Space for ideas

Nodes and networks: when people talk about the new Bosch research campus in Renningen, these terms are frequently heard. After all, networking among the approximately 1,700 associates employed in corporate research and advance engineering (abbreviated “CR”) could hardly be better – physically and technologically. But that’s not all. Within Bosch, networking with others is central to what CR does: ideally, CR acts as an intermediary between academic, basic research and application-oriented research in the Bosch divisions – even when in practice, the boundaries between the two often blur.

ANNUAL-REPORT.BOSCH.COM/RENNINGEN

On most projects, CR also works closely with **Bosch's various divisions,** which themselves employ more than **54,000 associates in research and development** in **25 countries** worldwide. The initiative to pursue a particular research topic can come from CR as well as from the divisions themselves. Frequently, development work is done according to the principles of simultaneous engineering, with both sides working in parallel on the same topic. Two years before the likely market launch, as much research responsibility as possible is then shifted to division level.

Renningen is the node where findings from **ten other locations in the international CR network** converge: Bengaluru, Boston, Hildesheim, Moscow, Palo Alto, Pittsburgh, Shanghai, Singapore, St. Petersburg, and Tokyo. Due to their geographical positions, a number of these locations in the "innovation pipeline" often take the lead in the Bosch network.

At the start of many innovation projects, CR collaborates closely with **universities.** This collaboration is often the foundation for future CR research. One important factor affecting CR's decision to initiate research on a particular technology is when the market is likely to be ready. The aim is to create a market-ready product and put it into production within a maximum of five to ten years.

MEMS: In the early 1980s, researchers at Stanford, Berkeley, and MIT began researching the mechanical properties of silicon. A few years later, CR turned its attention to this field, developing the basic processes for microelectromechanical systems (MEMS). At first, the focus was on structuring techniques such as deep silicon etching. Later, the emphasis shifted to things such as tests, quality, design, and simulation. At this stage, CR began collaborating closely with the Automotive Electronics division. There, research was pursued with an eye to real-world applications, first in the automotive industry (for example in pressure sensors for engine control units), and later increasingly in consumer electronics and on the internet of things.

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Dr. Christoph Zemelka

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Additional information about the company can be taken from the brochure
Bosch today, as well as from the internet at **csr.bosch.com**

For an online version of this annual report, go to:
annual-report.bosch.com

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PatRec me!

For the first time, this annual report makes use of PatRec, the mobile pattern recognition technology developed by Bosch in 2015 for recognizing objects such as products and print media.

If you use an iOS or Android smartphone, this offers you the benefit of accessing digital information that goes beyond the printed version. Using PatRec, you'll be able to move quickly and effortlessly between the offline and online worlds. Simply.Connected.

To use this feature, simply download the Bosch Annual Report 2015 app from the Apple App Store or Google Play. To find out which pages of the annual report offer additional digital content, look out for the icon shown above. Start the app, then point your phone's camera at the sections that interest you. Pressing the "Scan" button will give you immediate access to fascinating additional information.

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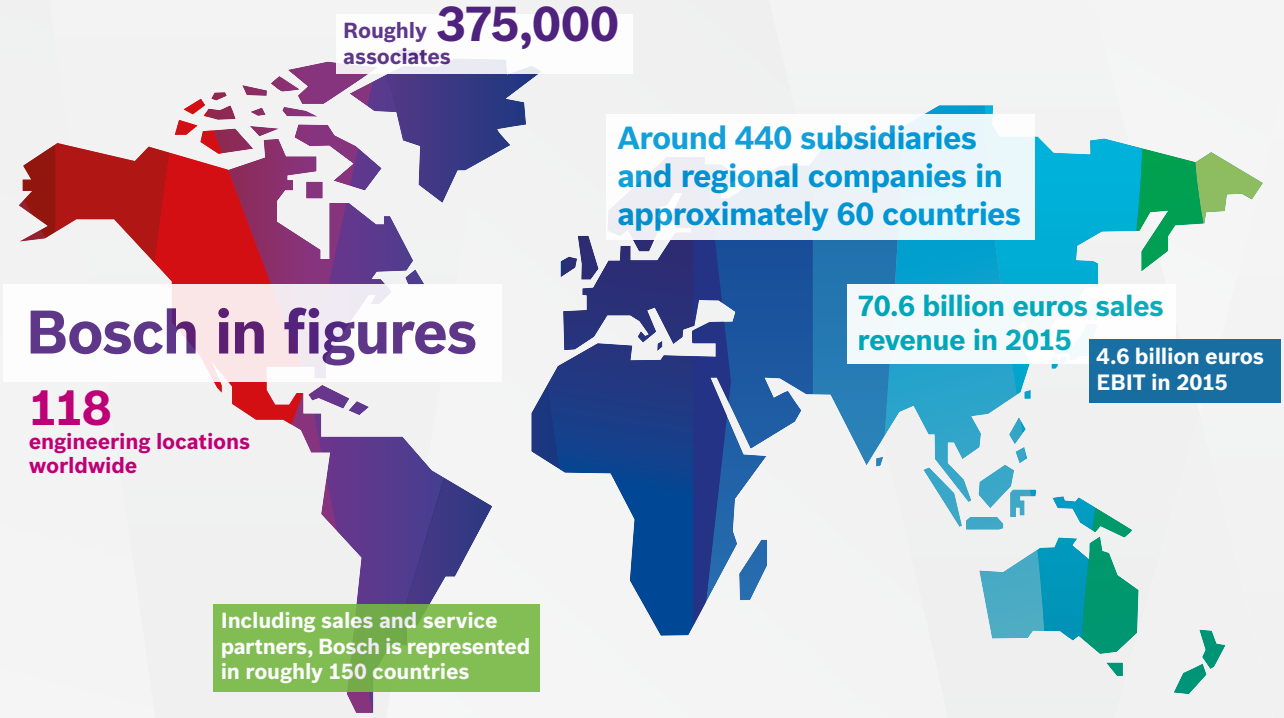
BOSCH
Invented for life

BOSCH
Invented for life

Annual report **2015**



Animation
PatRec me!

Key data

FIGURES IN MILLIONS OF EUROS	2015	2014
Sales revenue	**70,607**	**48,951**
percentage change from previous year	44.2	6.3
percentage share of sales generated outside Germany	80	78
Research and development cost[1]	**6,378**	**4,959**
as a percentage of sales revenue	9.0	10.1
Capital expenditure	**4,058**	**2,585**
as a percentage of depreciation	146	138
Associates		
average for the year	368,833	286,084
on December 31, 2015	374,778	290,183
Total assets	**77,266**	**61,924**
Equity	**34,424**	**29,541**
as a percentage of total assets	45	48
EBIT	**4,587**	**3,030**
as a percentage of sales revenue	6.5	6.2
Profit after tax	**3,537**	**2,637**
Unappropriated earnings (dividend of Robert Bosch GmbH)	**142**	**102**

[1] Including development work charged directly to customers

THE BOSCH GROUP is a leading global supplier of technology and services. The company employs roughly 375,000 associates worldwide (as of December 31, 2015), and generated sales of 70.6 billion euros in 2015. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including its sales and service partners, Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life."

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Bosch Group business sectors

MOBILITY SOLUTIONS
Gasoline Systems
Diesel Systems
Chassis Systems Control
Electrical Drives
Starter Motors and Generators
Car Multimedia
Automotive Electronics
Automotive Aftermarket
Automotive Steering[1]

INDUSTRIAL TECHNOLOGY
Drive and Control Technology[2]
Packaging Technology

CONSUMER GOODS
Power Tools
BSH Hausgeräte GmbH[3]

ENERGY AND BUILDING TECHNOLOGY
Security Systems
Thermotechnology
Bosch Global Service Solutions[4]

[1] Formerly ZF Lenksysteme GmbH or Steering Systems division; included in the 2014 financial statements at equity; all shares acquired on January 30, 2015
[2] Bosch Rexroth AG (100% Bosch-owned)
[3] Formerly BSH Bosch und Siemens Hausgeräte GmbH; included in the 2014 financial statements at equity; all shares acquired on January 5, 2015
[4] From January 1, 2016

Contents

Foreword

Dear readers,

The Bosch Group took a great step forward in 2015. Sales grew 44 percent year on year. The acquisition of all shares in the former fifty-fifty joint ventures for household appliances and steering systems is a considerable boost for our company. Strategically, both areas of activity are an excellent fit for the Bosch Group and our “Invented for life” ethos. In our business operations as well, we made good progress. Our considerable innovative strength is a key to our success. All in all, therefore, we have a sound base from which to tackle our future tasks.

Our business environment is very volatile. More than anything else, we see this as a great opportunity. In this context, our focus is on energy efficiency, automation, electrification, growth in emerging markets, and connectivity. We orient our work to these challenges and changes. Especially in light of the only moderate prospects for the global economy, we want to use innovation as a way of creating additional markets in many areas. A further important point is to adapt not only our organization, but also the way we lead and collaborate, in order to improve our flexibility and agility.

One subject that concerns all our business sectors is the huge potential of the internet of things. Our ambition is to be one of the world’s leading companies in this area. And we have an excellent basis on which to build: our comprehensive expertise in mobility, industrial technology, consumer goods, and energy and building technology. We are a globally leading manufacturer of MEMS sensors, are systematically expanding our software expertise, and are increasingly moving into services and new business models in areas such as connected vehicles, smart homes, and connected manufacturing. We have also set up the Bosch Global Service Solutions division in order to strengthen our services business. The present annual report shows just how much is happening. We explain our strategy in the management report and provide a wealth of examples in the magazine entitled “Simply.Connected.” All these things are brought even more vividly to life in the online version.

Video
PatRec me!

"We want to become one of the world's leading IoT companies."

We make heavy upfront investments in the areas that will determine the company's future. On electromobility alone, we spend roughly 400 million euros a year. When we bought the U.S. start-up Seeo last year, we secured a battery technology that may prove to be a breakthrough in this field. At the same time, the challenges presented by change mean we have to focus our efforts, and this may result in structural changes. In such cases, our responsibility lies equally with the company as a whole and with the associates affected. We believe it is important to involve the employee representatives in our plans as early as possible, to inform the workforce in detail, and to show them where future prospects lie.

In the years ahead, change will demand a lot from us as a company. It is our executives and associates worldwide, with their ideas and in their daily work, who will seize the opportunities presented by change and secure our success. This makes it all the more important to involve them closely, and to offer them interesting tasks and attractive working conditions. We are also relying increasingly on collaboration across departmental and divisional boundaries.

On behalf of the board of management, I would like to thank our entire workforce worldwide for their hard work and dedication. Without them, our success in 2015 would not have been possible. Our thanks also go to the employee representatives for their constructive contribution to the company's development, to the shareholders and the supervisory board for their support, and especially to our business partners.

With best regards,

Dr. Volkmar Denner,
Chairman of the board of management

1

2

Bosch offers systems for two-wheeler safety, efficiency, and riding enjoyment: exhibition by the new Two-Wheeler and Powersports unit in the foyer at Bosch headquarters.

1

In the future, Bosch's **connectivity control unit** will enable motorcyclists to connect their vehicles to external devices such as a smartphone and use an app-controlled immobilizer, for instance.

2

A type of ESP® for two-wheelers, Bosch's **MSC motorcycle stability control system** ensures safe braking and acceleration even when leaning into bends. MSC can mitigate the severity of two-thirds of the motorcycle accidents caused by rider error while cornering.

3

Compared with the **mechanically controlled carburetor**, and depending on situation, Bosch's electronically controlled fuel-injection system can reduce fuel consumption by up to 15 percent. This also significantly reduces emissions and conserves valuable resources.

Board of management

From left:
Dr. Rolf Bulander
Dr. Volkmar Denner
Dr. Stefan Asenkerschbaumer
Dr. Markus Heyn
Dr. Stefan Hartung
Dr. Dirk Hoheisel
Christoph Kübel
Uwe Raschke
Dr. Werner Struth
Peter Tyroller

Board of management

Dr. Volkmar Denner
Chairman

Corporate responsibilities
- Technology coordination
- Corporate strategy
- Corporate communications
- Research and advance engineering
- Real estate and facilities

Subsidiaries
- Bosch Healthcare Solutions GmbH[1]
- Bosch Software Innovations GmbH
- Healthcare Telemedicine
- Robert Bosch Venture Capital GmbH
- Bosch Energy Storage Solutions LLC[2]

Dr. Stefan Asenkerschbaumer
Deputy chairman

Corporate responsibilities
- Finance and financial statements
- Controlling, planning, and mergers and acquisitions
- Internal accounting and organization
- Purchasing and logistics
- Information technology
- In-house consultancy

Christoph Kübel

Corporate responsibilities
- Human resources and social welfare, including senior executives
- External affairs, governmental and political relations
- Legal services
- Taxes
- Compliance management[1]
- Internal auditing
- Intellectual property
- Insurance

Dr. Dirk Hoheisel

Corporate responsibility
- Automotive systems integration

Divisions
- Chassis Systems Control
- Car Multimedia
- Automotive Electronics
- Automotive Steering[3]

Subsidiary
- ETAS GmbH[2]

Dr. Markus Heyn[3]

Corporate responsibilities
- Original equipment sales
- Marketing and sales

Division
- Automotive Aftermarket

Subsidiaries
- ETAS GmbH
- Bosch Engineering GmbH

Wolf-Henning Scheider[2]

Corporate responsibilities
- Spokesperson, Mobility Solutions business sector
- Original equipment sales
- Marketing and sales

Divisions
- Electrical Drives
- Automotive Aftermarket
- Automotive Steering[4]

Subsidiary
- Automotive Steering[5]

Presidents of the divisions

Manfred Baden
Car Multimedia

Henning von Boxberg
Power Tools

Dr. Jörg Fischer[7]
Bosch Global Service Solutions[7]

Uwe Gackstatter[3]
Diesel Systems

Uwe Glock
Thermotechnology

Dr. Markus Heyn[2]
Diesel Systems

Gert van Iperen
Security Systems

Dr. Ulrich Kirschner
Starter Motors and Generators

Friedbert Klefenz
Packaging Technology

Peter Tyroller

Regional responsibilities
Asia Pacific, India

Dr. Werner Struth

Corporate responsibilities
- Industrial Technology business sector
- Manufacturing coordination
- Environmental protection

Divisions
- Drive and Control Technology
- Packaging Technology

Regional responsibilities
North America, South America

Dr. Rolf Bulander

Corporate responsibilities
- Mobility Solutions business sector[3]
- Quality

Divisions
- Gasoline Systems
- Diesel Systems
- Electrical Drives[3]
- Starter Motors and Generators

Subsidiary
- Bosch Engineering GmbH[2]

Uwe Raschke

Corporate responsibilities
- Consumer Goods business sector
- User experience

Division
- Power Tools

Subsidiary
- BSH Hausgeräte GmbH[6]

Regional responsibilities
Western Europe; Middle Eastern Europe; Russia; Middle East; Africa

Dr. Stefan Hartung

Corporate responsibility
- Energy and Building Technology business sector

Divisions
- Bosch Global Service Solutions[7]
- Security Systems
- Thermotechnology

Subsidiaries
- Bosch Energy and Building Solutions GmbH[8]
- Bosch Energy Storage Solutions LLC[3]
- Robert Bosch Smart Home GmbH[7]

Klaus Meder
Automotive Electronics

Rolf Najork[9]
Drive and Control Technology

Stefan Seiberth
Gasoline Systems

Christian Sobottka[4]
Automotive Steering[4]

Gerhard Johannes Steiger
Chassis Systems Control

Dr. Bernhard Straub
Electrical Drives

Dr. Uwe Thomas
Automotive Aftermarket

Dr. Karl Tragl[10]
Drive and Control Technology

1 Effective January 1, 2015
2 Until March 31, 2015
3 Effective April 1, 2015
4 Effective February 1, 2015
5 Formerly ZF Lenksysteme GmbH; completely acquired on January 30, 2015, and run as the Automotive Steering division
6 Formerly BSH Bosch und Siemens Hausgeräte GmbH; completely acquired on January 5, 2015
7 Effective January 1, 2016
8 Until December 31, 2015
9 Effective February 1, 2016
10 Until January 31, 2016

Supervisory board report

"In both strategic and operational terms, the Bosch Group made good progress in 2015."

Ladies and gentlemen,

In both strategic and operational terms, 2015 was a successful year for the Bosch Group. In this context, the complete acquisition of the former joint ventures Automotive Steering and BSH Hausgeräte was of special relevance. At the same time, it was a challenging year, especially as a result of comprehensive reorganization programs and the divestment of business areas.

In our capacity as supervisory board, we regularly monitored the work of the board of management, and lent it our support relating to running the company, to developing Bosch Group strategy, and to individual matters affecting the company. We are obliged by law and the statutes to fulfill a number of tasks – an obligation which we fulfilled once more with the utmost care in the 2015 business year. In addition, outside of board meetings, the chairman of the supervisory board was regularly informed by the chairman of the board of management about current developments and events in the company. For us and the board of management, the highest priority is to ensure that the Bosch Group continues to develop sustainably and successfully. In this endeavor, our work together is open, conscientious, and constructive.

Among other things, the supervisory board concerned itself with the strategy of the Energy and Building Technology business sector, the carve-out of the Starter Motors and Generators division, and the realignment of the Drive and Control Technology division. In addition, it kept itself fully abreast of the board of management's other major plans for acquisitions and divestments. It also devoted its attention to the integration of Automotive Steering and BSH Hausgeräte, to the determination of target quotas for the share of women on various management bodies, and to the changing requirements Bosch has to meet to be seen as an attractive employer. The supervisory board critically examined compliance issues and antitrust investigations. It set up a committee that kept itself constantly informed about the company-internal investigations into compliance issues. The supervisory board looked in detail at business developments, risk management, as well as the financial and capital expenditure plans.

PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft (PwC) audited and issued an unqualified audit opinion on the Robert Bosch GmbH annual financial statements, the Bosch Group

consolidated financial statements, and the accompanying management reports as of and for the year ended December 31, 2015. The supervisory board discussed these documents at length and subjected them to its own examination. All members of the supervisory board had access to the auditor's reports. Moreover, at the supervisory board meeting, the auditor reported on the main findings of the audit, which were then discussed in detail. The supervisory board raised no objections, concurred with the results of the audit, and approved the Robert Bosch GmbH annual financial statements and the Bosch Group consolidated financial statements.

Professor Olaf Kübler and Tilman Todenhöfer, two long-standing members of the supervisory board, stood down in April after reaching the mandatory retirement age. Professor Kübler was also a limited partner of Robert Bosch Industrietreuhand KG. As one of the managing partners of the Industrietreuhand and a former member of the board of management of Robert Bosch GmbH, Tilman Todenhöfer had close ties with the company for many years, helping to shape its development. The supervisory board would like to thank Olaf Kübler and Tilman Todenhöfer for all they have done to support the committee's work. We are pleased to welcome Professor Elgar Fleisch and Professor Michael Kaschke as their successors.

The supervisory board would also like to thank the board of management and all Bosch Group associates for their dedication over the past year. The company could not be successful without their hard work.

Stuttgart, April 2016

For the supervisory board

With best regards,

Franz Fehrenbach,
Chairman

Supervisory board

Franz Fehrenbach
Stuttgart
Chairman
Former chairman of the board of management of Robert Bosch GmbH

Alfred Löckle
Ludwigsburg
Deputy chairman
Member of the works council of the Schwieberdingen plant, and chairman of the central works council as well as of the combined works council of Robert Bosch GmbH

Christiane Benner
Frankfurt
Vice-president of Industriegewerkschaft Metall, Frankfurt am Main

Dr. Christof Bosch
Königsdorf
Spokesperson for the Bosch family

Christian Brunkhorst
Mühltal
Representative of the chairman of Industriegewerkschaft Metall

Prof. Dr. Elgar Fleisch
St. Gallen
(from April 9, 2016)
Full professor of information and technology management at the University of St. Gallen (HSG) and ETH Zurich

Klaus Friedrich
Lohr
Chairman of the works council of Bosch Rexroth AG, Lohr am Main, and chairman of the central works council of Bosch Rexroth AG and member of the combined works council of Robert Bosch GmbH

Hartwig Geisel
Leinfelden-Echterdingen
Chairman of the works council of the Feuerbach plant and deputy chairman of the central works council as well as of the combined works council of Robert Bosch GmbH

Jörg Hofmann
Esslingen
President of Industriegewerkschaft Metall, Frankfurt am Main

Prof. Lars G. Josefsson
Stockholm
Former president and chief executive officer of Vattenfall AB

Prof. Dr. Michael Kaschke
Oberkochen
(from April 9, 2016)
President and chief executive officer of Carl Zeiss AG

Dieter Klein
Wolfersheim
Chairman of the works council of the Homburg plant and member of the central works council of Robert Bosch GmbH

Prof. Dr. Renate Köcher
Konstanz
Managing director, Allensbach Institute for Public Opinion Research

Prof. Dr. Olaf Kübler
Zurich
(until April 8, 2016)
Former director, Eidgenössische Technische Hochschule (ETH) Zurich

Matthias Georg Madelung
Munich
Member of the board of trustees of Robert Bosch Stiftung GmbH

Kerstin Mai
Hildesheim
Chairperson of the works council of Robert Bosch Car Multimedia GmbH, Hildesheim, and member of the combined works council of Robert Bosch GmbH

Dr. Wolfgang Malchow
Pliezhausen
Former member of the board of management of Robert Bosch GmbH

Urs B. Rinderknecht
Zurich
Former chief executive of UBS AG

Tilman Todenhöfer
Madrid
(until April 8, 2016)
Managing partner of Robert Bosch Industrietreuhand KG

Dr. Richard Vogt
Bühl
Project director, Electrical Drives division, and chairman of the executives committee of Robert Bosch GmbH as well as of the combined executives committee of the Bosch Group in Germany

Prof. Dr. Beatrice Weder di Mauro
Singapore
Chair of international macroeconomics at the Johannes Gutenberg University of Mainz

Hans Wolff
Bamberg
Chairman of the works council of the Bamberg plant of Robert Bosch GmbH

Industrial trust and international advisory committee

Robert Bosch Industrietreuhand KG

GENERAL PARTNERS

Franz Fehrenbach
Stuttgart
Chairman of the shareholders' meeting

Tilman Todenhöfer
Madrid
(until April 7, 2016)

Dr. Wolfgang Malchow
Pliezhausen
(from April 8, 2016)

LIMITED PARTNERS

Dr. Christof Bosch
Königsdorf

Dr. Siegfried Dais
Gerlingen

Dr. Volkmar Denner
Pfullingen

Prof. Dr. Lino Guzzella
Uster
(from April 8, 2016)

Dr. Jürgen Hambrecht
Neustadt

Prof. Lars G. Josefsson
Stockholm

Prof. Dr. Renate Köcher
Konstanz
(from April 8, 2016)

Prof. Dr. Olaf Kübler
Zurich
(until April 7, 2016)

Dr. Wolfgang Malchow
Pliezhausen
(until April 7, 2016)

Dr. Michael Otto
Hamburg
(until April 7, 2016)

Urs B. Rinderknecht
Zurich

Robert Bosch International Advisory Committee

Franz Fehrenbach
Stuttgart
Chairman

Dott. Alessandro Benetton
Treviso

Dr. Hugo Bütler
Zurich

Stephen J. Hadley
Washington

HRH Prince El Hassan bin Talal
Amman

Prof. Ryozo Hayashi
Tokyo

Baba N. Kalyani
Pune

Pascal Lamy
Paris

Friedrich Merz
Düsseldorf

Prof. Dr. Volker Perthes
Berlin
(from Jan. 1, 2016)

Ingo Plöger
São Paulo

Erwin Schurtenberger
Ascona, Beijing

Prof. Dr. Igor Yurgens
Moscow

Highlights 2015

January to June

Jan. 6, Las Vegas, USA

Bosch at CES

Bosch presents smart solutions that make consumers' lives more convenient, efficient, and secure.

Mar. 20, Stuttgart, Germany

Connected industry innovation cluster set up

Activities in the field of connected industry are pooled in a new innovation cluster. In this way, Bosch is pursuing its dual strategy of being a leading provider and a leading user.

01 02 03

Jan. 6, Farmington Hills, USA

Acquisition of Climatec

Bosch acquires Climatec, LLC. In the U.S. market, Climatec is a leading supplier of building-automation, energy-efficiency, and security solutions.

Feb. 6, Farmington Hills, USA, and Waiblingen, Germany

Bosch agrees to acquire Osgood Industries

With the acquisition, Bosch Packaging Technology strengthens its activities in the liquid food industry in North America and other markets.

Feb. 16, Stuttgart and Cologne, Germany

Acquisition of ProSyst

ProSyst is a software specialist in the areas of smart homes, connected mobility, and Industry 4.0.

Feb. 17, Berlin, Germany

Bosch ConnectedWorld

At this IoT conference, some 800 international experts meet to talk about current areas of application and new business models.

Feb. 18, Reutlingen, Germany

Since the start of mass production in 1995, Bosch has manufactured five billion MEMS sensors.

By the end of 2015, this figure has risen to just under seven billion.

Mar. 23, Yokohama, Japan, and Stuttgart, Germany

New Two-Wheeler and Powersports unit set up

In this new business unit, Bosch wants to bring together its various motorcycle-related activities and strengthen its global presence.

Press/video
PatRec me!

Apr. 28, Bad Kissingen, Germany

Works council meeting

Christoph Kübel, the director of industrial relations, Alfred Löckle, the chairman of the central works council, Dr. Volkmar Denner, the chairman of the board of management, and Hartwig Geisel, the deputy chairman of the central works council (from left), discuss ways of jointly shaping the working world of the future together with more than 200 employee representatives.

Jun. 11, Reutlingen, Germany

10 years of Bosch Sensortec

From start-up to leading global supplier of MEMS sensors for consumer electronics.

04

Apr. 13, Hannover, Germany

Hannover Trade Fair: wide variety of Bosch solutions relating to Industry 4.0

Bosch presents efficient concepts for flexible, connected factories, including mobile production assistants that work together with human operators without the need for special guards.

05

May 6, Suzhou, China

Robert Bosch International Advisory Committee visits the Bosch plant in Suzhou

06

Apr. 28, Stuttgart, Germany

75th anniversary of Robert Bosch Hospital

Today's Robert Bosch Hospital is one of the best equipped hospitals in southwest Germany.

May 19, Boxberg, Germany

Moving toward the mobility of the future

Bosch is pursuing three development paths, toward driving that is electric, automated, and connected. On all three fronts, Bosch is making good progress. At the International Auto-motive Press Briefing, motoring journalists were able to experience this for themselves at the proving ground in Boxberg.

Jun. 12, Stuttgart, Germany

Workplace of the future

Bosch's "Next-Generation Workplace" project marks the next milestone on the road to becoming a globally connected, agile company. This project will equip the company's office workplaces worldwide with the latest office applications. The aim is to bolster the agility of associates' work by introducing a standard suite of user-friendly office and communications software.

Highlights 2015

July to December

Jul. 21, Amsterdam, Netherlands, and Stuttgart, Germany

Bosch agrees alliance with TomTom

The two companies intend to work together in the area of map data for highly automated driving. TomTom will create the maps, while Bosch will use its systems development as the basis for defining the accuracy and content required.

Jul. 22, Stuttgart and Schwäbisch Gmünd, Germany

50 million electric steering systems

Electric steering systems are essential for electromobility and automated driving. Seven out of ten Bosch power steering systems are operated electrically. By the end of the year, the number of electric steering systems manufactured will have risen to 60 million.

Jul. 30, Stuttgart, Germany

Bosch Global Service Solutions division planned

From January 1, 2016, the new Bosch Global Service Solutions division will bring together all the internal and external services offered by the company. As well as continuing successful services such as eCall, customer support, and business process outsourcing, the division will also become the comprehensive Bosch-internal provider of shared-service functions relating to administration and sales.

Aug. 7, Budapest, Hungary

New Mobility Solutions engineering center opened

In the facility, things such as electronics and other components for driver assistance and engine management systems will be developed by nearly 1,300 engineers – twice as many as four years ago.

Aug. 17, Hayward, USA, and Stuttgart, Germany

Bosch acquires Seeo Inc.

The acquisition of this start-up is a further important milestone on the path to a new groundbreaking technology for electric vehicles. The newly gained expertise could mean that this technology is ready for production within five years.

Sept. 15, Frankfurt, Germany

66th International Motor Show (IAA)

At the IAA 2015, Bosch showcases solutions and innovations in the growing fields of connectivity, automation, and electrification. The exhibition clearly shows how successful Bosch already is in these areas, and that it is assuming a leading role in the transformation that is sweeping through the automotive sector.

Sept. 22, Farmington Hills, USA

Acquisition of Kliklok-Woodman agreed

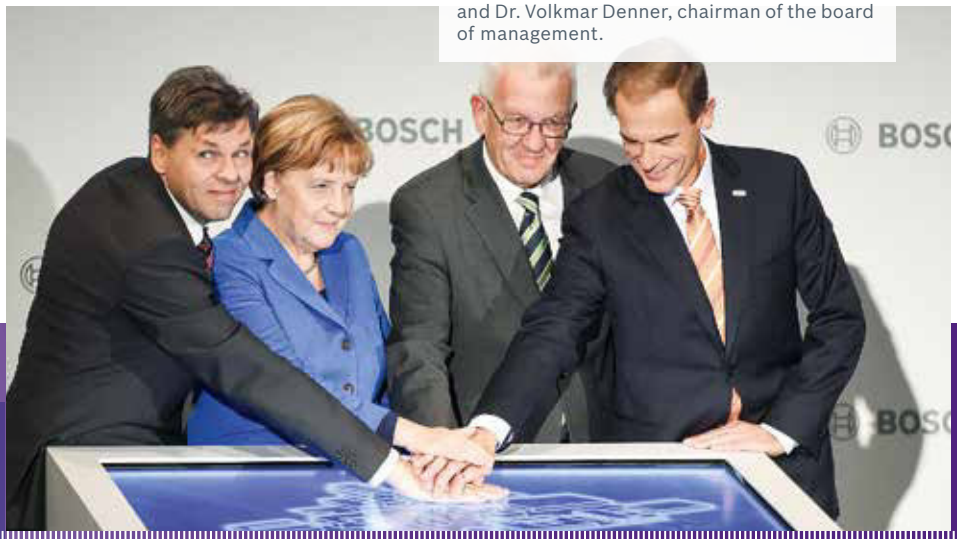
With this acquisition, Bosch broadens its portfolio of process and packaging technology for the foodstuffs industry.

Oct. 14, Renningen, Germany

Bosch officially opens new research campus in Renningen

At a ceremony attended by the federal chancellor Dr. Angela Merkel, Baden-Württemberg governor Winfried Kretschmann, and many other guests from politics, business, and academia, the research campus is officially opened on October 14, 2015.

Shown here (from left): Dr. Michael Bolle, president of the corporate sector for research and advance engineering, Federal Chancellor Dr. Angela Merkel, Governor Winfried Kretschmann, and Dr. Volkmar Denner, chairman of the board of management.



10

Oct. 6, Bengaluru, India

The German federal chancellor Dr. Angela Merkel and the Indian prime minister Narendra Modi visit the Bosch facilities in Bengaluru

Two Bosch apprentices present them with a lion, the symbol of the “Make in India” initiative.

11

Nov. 26, Stuttgart, Germany

New subsidiary for smart homes

Bosch announces the establishment of Robert Bosch Smart Home GmbH. From January 1, 2016, it will offer smart-home solutions from a single source. The core of the system is the Bosch smart-home controller, a central control unit that connects the components with each other and to the internet.

12

Dec. 2, Stuttgart, Germany

A gift in three movements

The Stuttgart Chamber Orchestra dedicates a specially composed cello concerto to Prof. Hermann Scholl, the Bosch Group honorary chairman, on his 80th birthday.

Dec. 2, Saarbrücken and Blaichach, Germany

Industrie 4.0 Award 2015

For the way it has connected all the consumables in its manufacturing and logistical operations, as well as for processing its operating data and statuses in real time, the Bosch plant in Blaichach receives the Industrie 4.0 Award from the trade journal “Produktion.”

Robert Bosch Stiftung

Since it was set up 50 years ago, Robert Bosch Stiftung GmbH has been carrying on the company founder's pubic welfare endeavors. It pursues its specific objectives with programs and institutions of its own, taking the challenges of our age as its starting point. The Stiftung also supports third-party projects and initiatives that fit with its own objectives. Each year, the Robert Bosch Stiftung approves funding for some 800 initiatives.

WWW.BOSCH-STIFTUNG.DE

1
A pupil from the Waldschule school in Flensburg with the German school award. This elementary school near the Danish border focuses on personal development and systematic feedback. For this, it was singled out by the judges for an award in 2015.

2
Jointly instigating change – the Robert Bosch Stiftung carries on the civic initiatives of Robert Bosch.

The Robert Bosch Stiftung promotes projects relating to healthcare, science, education, and international relations. Its aim is to find possible solutions for relevant issues, and to test them in the field as models. The Stiftung develops projects aimed at improving social coexistence and increasing equality of opportunity. To give the insights from its projects the chance of being considered by as wide an audience as possible, the Stiftung makes them available to decision-makers and the general public. The main point of reference for its work is provided by the values of Robert Bosch and the mission he handed down in his will. The Stiftung finances itself from the dividend it receives as a shareholder in Robert Bosch GmbH. Just like the company, the Stiftung is committed to quality and sustainability.

Encounter and dialogue

The Robert Bosch Stiftung aims to help bring together people of different backgrounds to engage in dialogue. The simplest way to build bridges between different countries is through direct personal contact. The Stiftung creates platforms for cross-border exchange. In this way, it helps foster mutual understanding and encourages people to jointly initiate positive change. In this context, its most effective tools include international scholarship programs, exchange programs for young executives, and research grants for journalists.

Following its establishment, the Robert Bosch Stiftung immediately began work to bring about reconciliation with France. Today, it is active throughout Europe, as well as in North America, Asia, and northern Africa.

Cultural projects can make an important contribution to fostering intercultural understanding. Within the framework of the "Actors of urban change" project, teams are working in ten European cities to create better living conditions and to improve civic participation and sustainability. The city teams in the pilot phase completed their projects in May 2015, and paved the way for new projects and city teams.

Since September 2015, the stART program has been offering youth culture projects as an opportunity for Greek university graduates to gain qualifications in international cultural management. Their innovative ideas give young people in Greece the chance to participate in culture and society, and thus reinforce cohesion in Europe.

Learning from the best

In June 2015, the German federal chancellor Angela Merkel presented the Deutscher Schulpreis (German school award) to the Barmen high school in Wuppertal. The judges were impressed by the school's

inclusive approach to education and the outstanding commitment of its teaching staff and principal. In early 2015, the Stiftung set up the Deutsche Schulakademie (German school academy). Its job is to ensure that the good practice of all school award winners is made available to other schools in Germany.

In February 2015, the Stiftung convened an expert commission to look into the realignment of refugee policy. Since then, ten high-caliber representatives from politics, business, and civil society have been preparing concrete policy recommendations that address current needs. The commission has systematically sifted expert contributions from as many involved parties as possible, on topics as diverse as language acquisition, living space, and the labor market.

In 2015, the Stiftung presented the Deutscher Alterspreis (German aging award) for the fourth time. The main award went to the Mobia project in Saarbrücken. This successfully executed model for age-appropriate public transportation demonstrates how cities can tackle aging.

Making society fit for the future and solving global issues – these are a key focus of academic research. With its junior chair for sustainable use of natural resources, the Stiftung has been supporting the environmental economist Dr. Björn Vollan since 2015. He is studying how climate change affects human behavior.

The following institutions also belong to the Stiftung:
- Robert Bosch Hospital
- Dr. Margarete Fischer-Bosch Institute for Clinical Pharmacology
- Institute for the History of Medicine of Robert Bosch Stiftung

Dependent foundations within the Stiftung:
- Otto und Edith Mühlschlegel Stiftung (aging)
- Hans Walz Stiftung (research into complementary medicine)
- DVA Stiftung (Franco-German dialogue)
- Rochus und Beatrice Mummert Stiftung (international promotion of young talent)

Project grants
by Robert Bosch Stiftung in 2015
(figures in millions of euros)

Total 76.7

Healthcare and science	**12.8**
Education, society, and culture	**16.0**
International relations: Americas and Asia	**7.6**
International relations: Europe and its neighbors	**13.8**
Projects by the Berlin liaison office to promote international relations	**4.6**
Projects of the management board and the communications department	**0.1**
Research at institutes[1] and the Robert Bosch Hospital	**10.1**
Investments in the Robert Bosch Hospital	**8.5**
Robert Bosch College UWC GmbH	**1.0**
Deutsche Schulakademie gGmbH	**0.6**
Dependent foundations	**1.6**

[1] Dr. Margarete Fischer-Bosch Institute for Clinical Pharmacology, Institute for the History of Medicine of Robert Bosch Stiftung

Group management report

of the Bosch Group

ANNUAL-REPORT.BOSCH.COM/GROUP-MANAGEMENT-REPORT

All in all, we can look back on a successful financial year in which sales leaped by nearly 22 billion euros to reach a record of more than 70 billion euros. One major strategic decision was the acquisition of all shares in former joint ventures concerned with household appliances and automotive steering systems. In our operations as well, we made further progress, despite a weak economic environment. Innovative and energy-efficient products were an important source of growth. In addition, we made a number of other strategic decisions. They include the acquisition of cutting-edge battery technology for electric vehicles and the creation of new operating units geared even more strongly to customer needs. We are working hard to become a leading provider of services relating to the internet of things. To enable us to concentrate more heavily on key areas important to Bosch's future, we disposed of some units. In the 2016 business year, we intend to continue our strategy of focusing on energy efficiency, electrification, automation, emerging markets, and connectivity, and expect further growth despite only moderate expansion of the global economy.

G.01

Shareholders of Robert Bosch GmbH
Percentage figures

Shareholding

Voting rights

G.02

Bosch Group business sectors

MOBILITY SOLUTIONS
Gasoline Systems
Diesel Systems
Chassis Systems Control
Electrical Drives
Starter Motors and Generators
Car Multimedia
Automotive Electronics
Automotive Aftermarket
Automotive Steering[1]

INDUSTRIAL TECHNOLOGY
Drive and Control Technology[2]
Packaging Technology

CONSUMER GOODS
Power Tools
BSH Hausgeräte GmbH[3]

ENERGY AND BUILDING TECHNOLOGY
Security Systems
Thermotechnology
Bosch Global Service Solutions[4]

[1] Formerly ZF Lenksysteme GmbH or Steering Systems division; included in the 2014 financial statements at equity; all shares acquired on January 30, 2015
[2] Bosch Rexroth AG (100% Bosch-owned)
[3] Formerly BSH Bosch und Siemens Hausgeräte GmbH; included in the 2014 financial statements at equity; all shares acquired on January 5, 2015
[4] From January 1, 2016

Fundamental information about the group

The group

The Bosch Group has a global presence and generates 47 percent of its sales outside Europe. It encompasses around 440 subsidiaries and regional companies in approximately 60 countries. Including its trading and service partners, the group is represented in some 150 countries. The parent company is Robert Bosch GmbH, which is headquartered in Stuttgart. It started out as "Workshop for Precision Mechanics and Electrical Engineering," founded in Stuttgart in 1886 by Robert Bosch (1861–1942). In 1917, the company temporarily changed its legal form into that of a stock corporation (Aktiengesellschaft); in 1937, it reorganized as a close corporation, Robert Bosch GmbH. Robert Bosch Stiftung GmbH has been the majority shareholder since 1964, and currently holds about 92 percent of the shares.

As a not-for-profit foundation, Robert Bosch Stiftung GmbH has no influence on the strategic or business development of the Bosch Group. The voting rights accruing to its share are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. Most of the remaining shares and voting rights are held by the founder's descendants. This ownership structure guarantees the Bosch Group's entrepreneurial independence, allowing the company to plan for the long term and make significant upfront investments in its future.

Organization and competitive environment

With around 374,800 associates, the Bosch Group covers a wide range of activities in different sectors. It is currently divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. Reporting is segmented in the same way. At the beginning of 2016, a new Bosch Global Service Solutions division was created within the Energy and Building Technology business sector. The four business sectors are all leaders in their fields. The diversified structure of the Bosch Group means that it faces a variety of market and competitive environments.

In the case of Mobility Solutions, the Bosch Group competes with only a small number of large providers. Its customers are automakers and, increasingly, suppliers of mobility solutions. In the case of Industrial Technology, the Drive and Control Technology and Packaging Technology divisions operate as component or systems suppliers in fairly fragmented markets with many competitors and customers. In the Consumer Goods business sector, the divisions and their products are generally geared directly to end consumers. These units face intense competition from both global and regional providers. In Energy and Building Technology, the competition consists of a small number of international providers and many regional providers. We expect growing competition from emerging markets and, in view of the increasing connectivity of products, new competitors from the IT, software, and other industries in all four business sectors.

Corporate governance

The board of management jointly defines the strategy for the entire company and leads the company as a whole. Its responsibilities are set out in the table of duties. The Robert Bosch GmbH supervisory board appoints, monitors, and advises the board of management. In making appointments, Robert Bosch GmbH is subject to the German Codetermination Act (Mitbestimmungsgesetz). In view of the company's size, the supervisory board has 20 members. Ten members are appointed by the shareholders with voting rights. The other ten members are appointed by the workforce. Robert Bosch Industrietreuhand KG acts as managing partner. In line with the mission handed down in the company founder's will, the trust is responsible for ensuring the company's long-term success and, above all, its financial independence. This is intended to guarantee the company's independence and ability to act at all times.

Based on German legal requirements, the supervisory board of Robert Bosch GmbH has set targets for the percentage of women members of the supervisory board and board of management as of January 1, 2017. These targets orient to the current 20 percent of women on the supervisory board, and do not foresee any women members of the board of management before 2017, as there are no plans to change its membership for the present. The target for the supervisory board applies to both the employer and workforce sides.

The company's declared objective is to rigorously continue these efforts and to create a talent pool of women executives for the highest management levels. On the level below the board of management, it is planned to increase their number from 2.9 percent (at the time the resolution was adopted in June 2015) to 5 percent by the start of 2017. At the second management level, the figure is to increase from 6.8 percent to 8 percent. As of January 1, 2016, these figures had already risen to 4.2 percent and 8.3 percent respectively. We also plan to increase the proportion of women executives across all management levels in the worldwide group to 20 percent by 2020. The figure has risen further to a current level of 13.6 percent, following a rise to 12.9 percent in the previous year.

Video
PatRec me!

Business sectors

Mobility Solutions business sector

As one of the world's largest automotive suppliers, Bosch is active in many subsegments. The business sector comprises the following divisions:

Gasoline Systems

The Gasoline Systems division develops and manufactures innovative technologies for internal-combustion engines powered by gasoline, natural gas, and ethanol, as well as systems and components for hybrid and electric vehicles and motorcycles. These include engine management systems, fuel supply systems, fuel injection systems, ignition systems, connectors, electric drive units, power electronics, battery systems, and transmission technology. Of growing importance is the division's expertise as a systems provider, both in the management of internal-combustion engines and of electric motors, and in combination with hybrids and plug-in hybrids.

Diesel Systems

The Diesel Systems division is a systems supplier of key powertrain components. The division offers an extensive range of energy-efficient, eco-friendly diesel injection systems for applications ranging from passenger cars and all kinds of commercial vehicles to large-scale industrial power-generation units. It focuses primarily on the common-rail system, which comprises a high-pressure pump injecting at pressures of up to 2,700 bar, the rail, and various injectors (solenoid and piezo). The division also provides air management systems such as mass air-flow sensors, electronic diesel control, and exhaust-gas management systems such as Denoxtronic, as well as solutions for diesel hybrid vehicles. Particularly in the areas of engine management, sensor systems, and powertrain electrification, Gasoline Systems and Diesel Systems work closely together.

The Diesel Systems division also includes the fifty-fifty joint venture Bosch Mahle Turbo Systems GmbH & Co. KG, Stuttgart. It is included in the consolidated financial statements according to the equity method, i.e. its pro rata share of equity is reported in the statement of financial position and its after-tax income is reported in the operating result. The joint venture develops and manufactures exhaust-gas turbochargers for gasoline and diesel engines for use in passenger cars, commercial vehicles, and large-scale industrial power-generation units.

Chassis Systems Control

The Chassis Systems Control division develops and manufactures innovative components, functions, and systems aimed at further improving driving safety and comfort. These comprise brake-actuation products such as master cylinders and brake boosters, including braking assistance systems. ABS, TCS, and ESP® electronic braking control systems are an important area of activity. The division also supplies sensors such as speed, steering-angle, and yaw-rate sensors, as well as electronic devices to protect passengers and pedestrians, such as airbag control units and crash sensors. A fast-growing area is that of driver-assistance systems based on ultrasonic, radar, and video sensors, also as the basis for automated driving. The division's portfolio also includes products such as radar-based speed control (ACC adaptive cruise control), predictive emergency braking systems, and lane-keeping systems.

Electrical Drives

The Electrical Drives division offers a broad array of products stretching from a wide variety of electromechanical components to entire systems for automotive body applications. These include innovative and energy-efficient actuators, as well as systems and components for engine thermal management, air-conditioning, and windshield cleaning. The product range comprises actuators for electric windows, seat adjustment, and sunroofs, fan modules and engine-cooling drive systems, pumps and valves for cooling systems, front and rear wiper systems, and wiper blades. Electrical Drives also makes motors for electric steering systems, for ABS and ESP® pumps, as well as for e-bikes and e-scooters.

Starter Motors and Generators

The Starter Motors and Generators division develops and manufactures starter motors and alternators for passenger cars and commer-

cial vehicles. The product catalog includes starters for gasoline and diesel engines, including and in particular for use in fuel-saving – and therefore CO_2-reducing – start-stop systems. Its alternators provide the vehicle with a reliable energy supply, and their high efficiency helps reduce fuel consumption. The gap between start-stop systems and hybrid powertrains is bridged by the BRS boost recuperation system. Based on highly efficient generators, it allows braking energy to be recovered while delivering additional power to the internal-combustion engine. In 2015, we announced plans to spin off the division and to look for a suitable buyer or partner.

Car Multimedia

The Car Multimedia division offers intelligent solutions that help make the integration of in-car entertainment, navigation, telematics, and driver-assistance systems better and more flexible, and as easy as possible to operate. Vehicle infotainment architectures are increasingly developing into connected systems, also increasingly utilizing the internet. The product portfolio includes driver information and infotainment systems usable anywhere in the world, freely programmable display systems, and head-up displays. The division also offers communication and entertainment systems for use in commercial vehicles and buses, and even on motorcycles.

Automotive Electronics

Automotive Electronics develops and manufactures microelectronics. The product portfolio ranges from components such as semiconductors, sensors, and MEMS (microelectromechanical systems), through control units for body electronics, braking control systems, and engine management systems (as well as contract manufacturing of the above), to non-automotive applications such as sensors for consumer electronics. Bosch Connected Devices and Solutions GmbH, Reutlingen, Germany, also offers sensors, software, and complete solutions for the internet of things. Automotive Electronics also includes the eBike Systems unit, which is one of Europe's leading suppliers of drive and control units for pedelecs.

Automotive Aftermarket

The Automotive Aftermarket division offers diagnostic and repair-shop technology for the aftermarket and for workshops worldwide, as well as a comprehensive range of spare parts for cars and commercial vehicles – from new parts to reconditioned spares and repair solutions. The product portfolio consists of Bosch original-equipment products, as well as products and services developed and manufactured in-house for the spare parts market. Under the "Automotive Service Solutions" label, it also provides testing and repair-shop technology, diagnostics software, service training, and technical information and services. The division is also responsible for the Bosch Car Service and AutoCrew repair-shop franchises, two independent repair-shop chains with around 17,700 and over 1,000 locations respectively worldwide. In addition, the division offers new telematics services for fleet operators and leasing and insurance companies. The detailed real-time information this provides helps optimize fleet operating costs. For example, predictive repairs help prevent interruptions to vehicle operation.

Automotive Steering

Following the acquisition of all shares at the end of January 2015, the former joint venture ZF Lenksysteme GmbH, including its subsidiaries, is now fully consolidated and integrated into the Mobility Solutions business sector. Based in Schwäbisch-Gmünd, Germany, the company now operates under the name Robert Bosch Automotive Steering GmbH. In the 2014 consolidated financial statements, the company was still consolidated according to the equity method. It now forms the Automotive Steering division, which manufactures and sells steering technology for passenger cars and commercial vehicles. In addition to complete steering systems, steering columns, and steering pumps for vehicles ranging from small cars to commercial vehicles, the product line also covers components such as valves, universal joints, and steering shafts. The main area of activity is electric steering systems. They are already of great significance for driver assistance systems, and will in the future be essential for electric and automated vehicles.

Other businesses

A cross-divisional Two-Wheeler and Powersports unit was created in mid-2015, which has access to the worldwide resources of the Mobility Solutions business sector. For two-wheelers, Bosch offers safety systems such as ABS and MCS motorcycle stability control, fuel-saving powertrain technology and display instruments. At the beginning of 2016, based on a similar concept, a separate Commercial Vehicles and Offroad Applications organizational unit was launched within the Mobility Solutions business sector, with responsibility for systems development, product management, and sales.

Bosch's ETAS Group companies provide innovative solutions for embedded software systems that are used in the automotive and other industries. ETAS's subsidiary escrypt GmbH Embedded Security, Bochum, Germany, is primarily concerned with data security. For over ten years, this company has offered data security-related software, advice, and training for a wide range of industries.

The Bosch Engineering GmbH subsidiary, headquartered in Abstatt, Germany, offers a wide range of customers tailored solutions based on tried and tested technology used in large-scale production. For example, it provides solutions for sports cars and off-road vehicles, but also for railcars, marine applications, and industrial engines. Bosch's motor racing activities are also based there.

Industrial Technology business sector

This business sector comprises two divisions:

Drive and Control Technology

The Bosch Rexroth AG subsidiary, based in Lohr, Germany, specializes in drive and control technology and is one of the world's leading suppliers in this field. It offers customized drive, control, and actuator solutions for factory automation, plant construction and engineering, mobile machinery, and commercial vehicles. As a systems partner, service provider, and supplier, the division is active in many branches of industry and more than 80 countries. Moreover, it offers a comprehensive range of services and carries out large-scale international projects.

Packaging Technology

This division is one of the world's leading providers of process and packaging solutions for the pharmaceuticals, foodstuffs, and confectionery industries, as well as selected segments of the beverages industry. Its portfolio includes individual modules, customer-specific systems, turnkey solutions, and a comprehensive service portfolio. This division also includes ATMO, Bosch's in-house supplier of assembly systems and special-purpose machinery. ATMO develops flexible, scalable plans for assembly systems and builds customized solutions in the field of testing and calibration technology.

Consumer Goods business sector

The business sector comprises two divisions:

Power Tools

With brands such as Bosch, Dremel, and Skil, Bosch is one of the world's leading suppliers of power tools and accessories. The Power Tools division has an extensive range of products aimed at both the professional and do-it-yourself markets. In addition to power tools such as hammer drills, impact screwdrivers, and jigsaws, the product line also includes gardening equipment such as lawnmowers, hedge trimmers, and high-pressure cleaners. The division focuses on convenient, high-performance cordless equipment, and increasingly on web-enabled equipment and services. It also offers innovative, digital laser measurement tools for both professional and DIY users. The accessories include a comprehensive range of abrasive systems, drill bits, and saw blades.

BSH Hausgeräte GmbH

In early January 2015, we acquired all shares in the former fifty-fifty joint venture BSH Bosch und Siemens Hausgeräte GmbH, based in Munich, Germany. The company is now officially known as BSH Hausgeräte GmbH. This company, too, is included in the Bosch Group's 2014 consolidated financial statements using the equity method. The subgroup (referred to in the following as BSH Hausgeräte) has been fully consolidated since the start of 2015.

The household appliance manufacturer has a product portfolio that ranges from washing machines and tumble dryers through refrigerators and freezers, stoves and ovens, and dishwashers, to small appliances such as vacuum cleaners, coffee makers, irons, and hot-water appliances. The household appliance specialist sells its products under the main Bosch and (under license) Siemens brands, as well as under regional and specialty brands such as Gaggenau, Neff, Thermador, Constructa, Zelmer, Balay, and Pitsos.

Energy and Building Technology business sector

As well as the Security Systems and Thermotechnology divisions, the business sector includes newly established units, particularly in the field of services and the internet of things.

Security Systems

The Security Systems division provides products and solutions relating to security. The product portfolio encompasses video-surveillance, intrusion-detection, and fire-detection systems, as well as access-control, public-address, and evacuation systems, and professional audio and conference systems. Since the start of 2016, the Security Systems division has also included a new International Integrator Business unit. This combines the commercial service business of the building security unit with the subsidiary Bosch Energy and Building Solutions GmbH, Ditzingen, Germany, and Climatec, LLC of Phoenix, AZ (USA), a provider of building automation services which we acquired at the beginning of 2015.

Thermotechnology

In Europe, the Thermotechnology division is a leading manufacturer of energy-efficient heating products and hot-water solutions. The division's products are sold under international and regional brand names such as Bosch, Buderus, Worcester, and Junkers. The product portfolio ranges from floor-standing and wall-mounted heaters, through heat pumps, solar thermal systems, and solid-fuel boilers, to cogeneration plants and industrial boilers.

Bosch Global Service Solutions

A Bosch Global Service Solutions division was created at the beginning of 2016. The division has the task of expanding the business previously located within Security Systems to include external business services. Within Bosch, it will also provide shared-service functions.

Robert Bosch Smart Home GmbH

A new subsidiary, Robert Bosch Smart Home GmbH, was also set up at the beginning of 2016. We have combined our smart-home activities, including the relevant software and sensor technology, under the umbrella of the new company, so that in future we can offer products and services for smart homes from a single source.

Company not allocated to any business sector

Our subsidiary Bosch Software Innovations GmbH, Berlin, Germany, develops solutions for the connected world based on its own software suite (i.e. software platform). It provides applications in the areas of energy, industry, and mobility in particular.

Outlook for the Bosch Group

Fundamental strategic orientation

Our "We are Bosch" mission statement provides a framework for the future strategic orientation of the Bosch Group and its business sectors. The starting point is the mission of securing the company's future, true to the spirit of its founder Robert Bosch – in other words, ensuring the company's strong and meaningful development and securing its financial independence. Our goal is to develop products that are "Invented for life," that fascinate, that improve quality of life, and that help conserve natural resources. In this respect, "products" means not only physical products, but increasingly also software and services. Our strategy is based on the focal points defined in the mission statement: customer focus, change, and excellence. These focal points are derived from factors such as megatrends, changes in the competitive environment, innovations, customer expectations, resource scarcity, and political developments.

In terms of products and business models, we want to find the best solutions for our customers. We therefore offer products tailored to our customers and markets, and exploit the innovation potential of our global development network. The strategic focal point "change" underlines our ambition to play an active part in shaping the far-reaching changes taking place in markets and technology. Excellence in all areas is essential in order to achieve our targets for growth, earnings, and agility on a lasting basis. In this respect, we measure ourselves against our best competitors. With efficient processes, lean structures, and high productivity, we aim to secure and increase the value of the company. A business environment that is changing at an ever increasing rate also calls for increased agility. To this end, we are constantly reappraising our understanding of leadership, cooperation, organization, and communication, as well as the concepts based on them. Our objective here is to increase our ability to change and the speed at which we do so.

To achieve this, we build on our strengths: the Bosch culture, our high level of innovation and quality, and our broad global presence. We base our strategy and our actions on the Bosch values: a clear future and result focus, responsibility and sustainability, initiative and determination, openness and trust, fairness, reliability and credibility, legality, and diversity.

A wealth of opportunities

A changing market and technology environment opens up a wealth of opportunities for the Bosch Group, particularly in the areas of energy efficiency, electrification, automation, connectivity, and emerging markets. We aim to increase energy efficiency both in our products and in our own value chain. Drivers include the growing demand for energy, ever tighter climate and environmental regulations, and the finite nature of fossil fuels. This will lead to increased demand for energy-efficient products in all business sectors. We generate some 40 percent of our sales with products that contribute to energy efficiency, environmental protection, and resource conservation. Furthermore, these products currently account for more than half our research and development expenditure. This does not yet include Automotive Steering and BSH Hausgeräte.

Electrification is of particular importance for the Mobility Solutions business sector. By 2025, we expect that around 15 percent of all passenger cars and light trucks built worldwide will have an electric motor – most of them in hybrid vehicles with an internal-combustion engine. In 2015, the

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total production of electric and hybrid vehicles still came to less than 2 million units. The key drivers for electrification and electromobility include ever stricter standards for consumption and emissions, falling battery costs, increasing suitability for everyday use (i.e. range), but also driving enjoyment, fascination, and connectivity.

Automation primarily affects the Mobility Solutions and Industrial Technology business sectors. As traffic density continues to grow, automated driving can help reduce the number of accidents and improve road use. In Germany alone, for example, we expect the number of accidents to fall by up to one-third as a result of increasing automation. In Industrial Technology, the increasing flexibility of production combined with more widespread connectivity in manufacturing, including human-machine interfaces, offers a wealth of opportunities. This opens up new ways of increasing product quality and productivity, and of expanding functionality, improving resource conservation, and better protecting workers' health and safety.

Connectivity is a global theme that affects all business sectors – from connected mobility and connected industry, to smart-home technology, to connected solutions for buildings and energy technology. It is being driven by the miniaturization of electronics and the availability of ever more powerful sensors, data networks, and computers. More and more products can be inexpensively connected to the internet. We believe this offers us huge opportunities in view of our expertise in many product areas, software, and sensor technology as one of the world's leading suppliers of MEMS sensors. We have produced just under seven billion of these sensors since we began production in 1995. We develop new products, services, and business models on this basis.

The emerging markets of Asia, South America, and central and eastern Europe are home to most of the world's population. Despite the current slowdown in growth, over the long term they will disclose higher rates of growth than the industrialized nations. There is demand for affordable products that often have to meet special requirements of the local market, such as robustness and ease of repair. Another emerging, and for us promising, market is Africa. Its enormous pent-up demand gives it great long-term growth potential.

Business targets

The Bosch Group's business targets are derived from the "We are Bosch" mission statement, the strategic focal points, and the competitive environment. Over the longer term, we continue to aim for average annual sales growth of 8 percent, with up to 3 percentage points of this coming from acquisitions. By 2020, we want to double our sales in Asia Pacific and the Americas compared with 2013, to grow faster than the market in Europe, and to increase our sales in Africa from their present level of some 500 million euros to 2 billion euros. In terms of business sectors, we continue to aim for a better balance between Mobility Solutions and the other business sectors. The balance has improved thanks to the acquisition of BSH Hausgeräte.

We have also set ourselves the goal of an EBIT margin from operations of around 7 percent of sales, derived from benchmark comparisons of operating units, taking into account the significant up-front investments needed for growth projects and for the change processes this will involve. The target margin is regularly reviewed, also to take account of the existing portfolios of each of our areas

of business. The main reason the present target is lower than the previous year's target of 8 percent is the full consolidation of Automotive Steering and BSH Hausgeräte. Arithmetic effects are the main factor in this respect. Under the equity method applied in the past, the two units' pro rata share of after-tax income was included in Bosch Group EBIT, but not their sales. The revaluation of the assets of Automotive Steering and BSH Hausgeräte in the course of first-time consolidation results in higher depreciation and amortization, with a negative effect on earnings. This effect is not considered in the new target margin from operations, which is roughly 7 percent.

Strategy and innovation

Mobility Solutions

In the Mobility Solutions business sector, our goal is to occupy a leading position in the promising areas of electrified, automated, and connected driving. We also develop integrated mobility services, that is to say, solutions that allow cars to interact with other modes of transport such as bicycles, trains, and buses. We continue to develop the business sector from a supplier of systems and components into a provider of mobility solutions. We expect this to bring us new customers and additional business.

Strategic acquisition in battery technology

Our acquisition of the U.S. start-up Seeo Inc., Hayward, CA (USA) in 2015 gives us access to know-how in the field of solid-state cells for lithium-ion batteries. The battery is a key component of the electric vehicles of the future. Solid-state cells could represent a breakthrough in this area. Up to now, the industry target has been to double batteries' energy density and halve their costs by the end of this decade. We believe the new solid-state cells have the potential to exceed these targets.

The acquisition is an excellent fit with our electric mobility strategy. We already offer a wide range of components, from motors and power electronics to batteries. We have already carried out 30 production projects. Cooperation between the various divisions is extremely important. For example, our Electrical Drives division offers intelligent thermal management for electric vehicles, extending their range by up to 25 percent. In 2013, we established a joint venture with GS Yuasa and Mitsubishi Corporation, which is working to develop more powerful lithium-ion batteries. The acquisition of Seeo further extends our expertise. In current lithium-ion batteries, the anode largely consists of graphite, which limits energy density. Using solid-state technology, the anode can be manufactured out of pure lithium, which greatly increases storage capacity.

Internal-combustion engines still have potential

Despite these advances, the internal-combustion engine will continue to play a dominant role until well into the next decade. Demand for gasoline direct injection systems is currently rising on a scale similar to that enjoyed by diesel direct injection systems in recent years. This is because fuel-consumption and emissions standards have been tightened worldwide. Yet it is above all the diesel, with its outstanding fuel economy, that allows the EU's ambitious greenhouse-gas targets for 2021 to be met. Bosch has technologies to ensure that diesel engines meet strict nitrogen-oxide emissions regulations under real driving conditions.

When it comes to large, heavy cars, however, merely optimizing the internal-combustion engine is no longer enough. Hybrid designs are increasingly being used here. In fall 2015, Bosch presented the second generation of a 48-volt hybrid. The improved entry-level hybrid system achieves further fuel savings while also providing an extra 150 Newton meters of torque and hence better driving performance. The electric motor is integrated directly into the transmission. This makes fully electric driving possible over short distances – in inner-city traffic, for example. We expect that around four million new vehicles will utilize this system by the year 2020.

We have also made technological improvements to our gasoline and diesel direct injection systems. We have increased the fuel pressure in passenger-car diesel engines to as much as 2,700 bar, which

reduces emissions and fuel consumption. Furthermore, digital rate-shaping technology significantly reduces emissions, fuel consumption, and combustion noise by dividing the injection process into many tiny injections of fuel. For gasoline direct injection systems, we have likewise reduced fuel consumption and emissions by increasing fuel pressures to as much as 350 bar. Another approach to fuel saving is the active gas pedal. A gentle vibration tells the driver the most fuel-efficient pedal position. Another area of development is the connected powertrain. For example, we can time the regeneration of the particulate filter by connecting it with the navigation system's electronic horizon. In hybrid vehicles, this information can be used to charge the battery proactively, to allow driving in fully electric mode when a town is reached.

New units for commercial vehicles and two-wheelers

The commercial vehicle business, with which we generate around one-quarter of our sales in Mobility Solutions, offers further significant growth opportunities in terms of eco-friendly, efficient powertrain technology and assistance and connectivity solutions. One important strategic decision was the launch of a separate organizational unit for commercial vehicles and offroad business at the beginning of 2016, with responsibility for systems development, product management, and sales. Our aim is to meet industry-specific requirements more fully in the areas of truck transport, agriculture, and construction machinery, and to fulfill their specific needs better, such as smaller batches with greater variety. The new unit covers the entire product range, from powertrain technology, through steering systems, to infotainment solutions.

We are also expanding our two-wheeler business. In 2015 we launched a cross-divisional Two-Wheeler and Powersports unit. For two-wheelers, we offer safety systems such as ABS and MSC motorcycle stability control, fuel-saving powertrain technology, and display instruments. This unit increases our ability to address such regional markets as China, India, and ASEAN. The unit's headquarters, which has overall responsibility for development, sales, and result, is in Yokohama, Japan. This allows it to take advantage of close proximity to major motorcycle manufacturers. One market innovation in 2015 was the first blind spot assistant for motorcycles. The system's four surround sensors with ultrasonic technology help motorcyclists change lanes safely.

Focus needed

With mobility becoming electrified, automated, and connected, and with the significant up-front investments this calls for, a sharper focus is needed. We therefore decided in 2015 to spin off the Starter Motors and Generators division and, in a second step, to look for a suitable partner or buyer. We are convinced that the division has better long-term prospects as part of an alliance. A partner or buyer can focus on expanding the starter and generator business in this very cost-driven area and widen its global presence.

We have laid the foundations for this realignment by taking substantial steps to improve competitiveness and by working hard to develop new products and make new investments. For example, the division supports the ongoing development of low-voltage hybrid systems with its boost recuperation machine, thus making a significant contribution to CO_2 reduction compared with conventional internal-combustion engines. We have also made further progress in the conventional generator business. Generators with high-efficiency diodes and active rectification have been officially recognized by the European Parliament as fuel economy innovations. The division has a sound footing. This also means a secure outlook for associates under a new partnership. We also considered it important to inform associates at an early stage whenever possible. We also involve the employee representatives to a wide extent in our planning.

Growing market for driver-assistance systems

We expect automated driving to evolve gradually. Our efforts in this area are driven by the need to improve road safety. Worldwide, according to UN estimates, around 1.3 million people die as a result of road traffic accidents each year. Human error is to blame in 90 percent of cases. Legal and technical hurdles must be overcome before fully automated driving can become a reality. Even now, more and more partially automated functions and driver assistance systems are going into production. Our sales in the fast-growing market of driver assistance are currently growing by about one-third per annum. Around 2,500 Bosch experts are currently working on the development of driver assistance systems. ABS, TCS, and ESP® electronic braking control systems provide an important basis for this development. Since fall 2014, ESP® has been mandatory for all new vehicles in the European Union.

One important task is the integration of the former joint venture Automotive Steering, a technology leader in the promising field of electric steering systems. In 2015, Automotive Steering produced its 50 millionth Servolectric steering system. In passenger cars, but increasingly in light trucks as well, electric power steering is an essential component of many safety-relevant assistance systems, as well as a key element on the path toward automated driving. The introduction of Servotwin electrohydraulic steering for heavy trucks means that, for the first time, driver assistance functions such as lane-keeping can be realized in these vehicles as well. Assistance functions can contribute substantially to preventing accidents in the future – especially those involving commercial vehicles. Another focus area is the connecting of different components to create software-controlled systems. We have developed a solution which allows a car hooked up to a trailer to be maneuvered from outside the vehicle, using a smartphone. Moreover, electric power steering systems have the potential to substantially reduce fuel consumption in vehicles with internal-combustion engines. The powertrain, steering, braking, and driver assistance systems can be coordinated better, for example during start-stop coasting.

Sensors are a key technology

Sensor technology plays a key role. Bosch is a leading supplier of radar sensors, and has opened up radar technology to a wider market with its MRR mid-range radar sensor. The sensor provides the basis for several driver assistance functions such as adaptive distance and speed control and lane-keeping systems. This year we started production of a number of new systems, offering things from traffic-jam and evasive-action assistance to parking by remote control.

Sensors also have other uses. Working with Daimler AG, we have launched a pilot project for automated parking in parking garages. In the near future, vehicles will be able to maneuver independently, using a system that enables interaction between the parking garage infrastructure, vehicle control unit, and vehicle sensors. We are also collaborating with Verband Region Stuttgart on a pilot project for active parking lot management. Selected parking spaces will be equipped with sensors that detect whether the space is occupied and transmit the information in real time to potential users via an app.

The trend toward connectivity

The car of the future is connected. It uses up-to-the-minute information from the internet to get vehicle occupants to their destination even more safely, efficiently, and conveniently. In 2015, Bosch launched a cloud-based wrong-way driver warning system which warns drivers within ten seconds if a wrong-way driver is approaching. If the driver enables this cloud-based function, it compares the vehicle's actual movements with the permitted direction of travel to detect whether the vehicle is traveling in the wrong direction. Information about this is stored in a database in the cloud. The system is expected to go into production during 2016. To support these and other functions by generating highly accurate maps, Bosch entered an alliance with the Dutch map and traffic information provider TomTom in 2015. We already operate an eCall service and a mobile information service on behalf of several automakers, which we continue to expand.

To connect the car with the internet, Bosch follows two main approaches. First, it makes full use of the driver's smartphone. An agreement has been reached with a number of automakers to use the integrated mySPIN solution to link drivers' Android and iOS

devices to the vehicle's infotainment system. We now offer some 50 compatible apps for this solution. To develop them, we are adopting new methods. For example, we organize "hackathons", where programmers, software developers, designers, and product managers work together to quickly develop new software.

The second approach involves equipping the vehicle with connectivity hardware in the form of a connectivity control unit, which receives and transmits information using a wireless module with its own SIM card. Our portfolio includes devices specifically adapted to cars, commercial vehicles, motorcycles, and even rail freight cars. Fleet managers can also retrofit devices on their existing vehicles. Our overriding concern in developing such systems is the benefit to customers. At the 2016 Consumer Electronics Show, a touchscreen with haptic feedback developed by Bosch received the Innovation Award in the "In-Vehicle Audio/Video" category. The buttons on the touchscreen feel like real buttons. This facilitates orientation and makes driving safer.

Connectivity also means a growing services business. For example, vacant charge spots for electric vehicles can be located and paid for online. In addition, data transmitted from control units can be used to define preventive maintenance schedules. Such services support the fleet management of operations such as leasing companies. Using the Bosch "Drivelog" mobility portal, drivers can already use these services themselves in several European countries. We are also working to develop connectivity between different modes of transport. One example is the software solution developed for the "Stuttgart Services" project. Thanks to this software, a single chip card can be used for car-sharing, bike-sharing, and train and bus travel, as well as for admission to amenities such as swimming pools or libraries.

Industrial Technology

Realignment of Drive and Control Technology

We are in the process of realigning the Drive and Control Technology division. Bosch Rexroth is focusing on its Mobile Applications and Industrial Applications business units, whose areas of business are mobile hydraulics, industrial hydraulics, electric drives and controls, and linear motion and assembly technologies. In Mobile Applications, there is substantial excess capacity due to weak market growth, particularly in China. In November 2015 we presented a comprehensive, multi-year restructuring plan, designed to close a cost gap of around 450 million euros. We have closely involved the employee representatives in our efforts to find ways of closing this gap, as well as to prevent the loss of some of the 1,150 jobs that will be affected between now and 2018. Wherever possible, we will make these job losses socially acceptable. This affects our German locations in particular. In October, we also announced that jobs will be shed in China.

We had previously presented a restructuring plan for Industrial Applications in order to strengthen competitiveness in this area. This involves the socially acceptable shedding of around 580 jobs by the end of 2016. We also sold our large gearbox business to ZF Friedrichshafen AG of Friedrichshafen, Germany. Large gearboxes are used in applications such as wind turbines, tunnel-boring machines, and mining excavators.

We consider it vital to strengthen Drive and Control Technology's competitiveness, as this division plays a leading role in the world of connected industry (Industry 4.0 or I4.0). The pioneers of industrial connectivity are sectors that already have experience of production systems and multi-variant manufacturing, such as the automotive industry. As an automation partner, Bosch Rexroth works closely with several automotive and machine-tool manufacturers, supporting them with drive and control solutions that help them develop the connectivity of their entire production system.

To promote Industry 4.0 within the Bosch Group as a whole, we created a cross-divisional “Connected Industry” innovation cluster at the beginning of 2015. In its own factories, Bosch wants to become a leading user, with a focus on reducing costs, increasing quality, and meeting delivery commitments. At the same time, it also wants

to be a leading provider in external markets. With experience gained from more than 100 pilot projects in Bosch factories, we develop comprehensive solutions that we also aim to market to other companies. These solutions include an open I4.0 platform architecture for hardware and software.

In the field of factory automation, the electrification of all technologies is also a focus area for Bosch Rexroth. Measuring systems integrated into linear guidance systems, the IndraDrive ML electric drive, and above all electrohydraulic solutions with digital intelligence can be incorporated into connected environments. The IMS integrated measuring system makes even higher precision possible, down to four-thousandths of a millimeter, even under the harsh conditions of metal cutting, with its strong vibrations and other forces. The new IndraDrive ML extends the IndraDrive family in the upper power range up to four megawatts. The ABPAC hydraulic power unit series continuously senses different operational states and recognizes wear at an early stage before it leads to failure.

We also support machine and systems manufacturers in the electrification of metalforming technology, with variable-speed pump drives, digital pressure and flow control, and servohydraulic axes. Using the ActiveCockpit as a communications platform, IT applications such as production planning, quality data management, e-mailing, and personalized calendars can be connected with the software functions of machinery and equipment. ActiveCockpit visualizes all relevant data in real time as the basis for decisions and process optimization.

In Mobile Applications, we are reorganizing our sales structures. Our goal is to support major international customers, regional SME customers, and dealers even more effectively. We are also expanding the services business in order to boost sales of spare parts and repair services, which are largely independent of economic cycles. In addition, we are investing more heavily in innovation, developing solutions for the further electronification of mobile hydraulics and shaping technological change with state-of-the-art machinery. The EDIS system solution allows wheel-loader operators to reduce their fuel consumption. The HyStop hydrostatic quick-stop system brakes the rollers of grass or corn forage harvesters quickly and gently, even at high speeds. It is much less susceptible to failure than mechanical stopping systems.

We are also breaking new ground in the manufacture of our products. To overcome technological barriers, the Bosch Rexroth foundry in Lohr am Main, Germany, uses 3D printers for short production runs and prototyping of casting cores. Even complex shapes can be realized in this way, resulting in shorter development periods and lower costs. Consequently, small batches and spare parts can be produced more efficiently and at optimum cost.

Packaging Technology makes acquisitions in North America

Europe and North America will remain important target markets for the innovations of our Packaging Technology division. We also expect above-average market growth in Asia and Africa. We strengthened the division in North America through the acquisition of Osgood Industries Inc., Oldsmar, FL (USA), which manufactures fill and seal equipment for pre-formed containers that have to meet very stringent hygiene standards for foods such as ice cream or yogurt. We also acquired Kliklok-Woodman Corporation, Decatur, GA (USA), a manufacturer of machinery for packaging goods such as

pastries and confectionery, frozen food, and dairy products. This deal also included Kliklok International, Bristol, United Kingdom. The portfolio includes primary and secondary packaging machinery, such as cartoning and sealing machines. In addition, we acquired 49 percent of the shares in Klenzaids Contamination Controls Pvt. Ltd., Mumbai, India, which produces process, packaging, and clean-room technology for the international pharmaceuticals industry. In the pharmaceuticals and food segment, we also established the BOPATEC S.A. de C.V. joint venture, Mexico City, Mexico, with the Mexican Hubapac Group and set up sales and service locations in Kenya, as well as a service center in Brazil.

To strengthen our market position in these emerging markets, we are expanding our range of less complex machinery and equipment in the mid-range performance segment. We are also focusing on the development of I4.0 solutions, including an increased range of remote maintenance services, and track and trace solutions for packaging in the pharmaceuticals industry. Here, a special identification code is printed on every packaged product. This allows the package to be tracked throughout the entire supply chain – from factory to consumer. Bosch also offers the APAS product family, a range of production assistants designed specifically to work with human operators. Applications include critical processes such as inspection of highly sensitive surfaces, completeness checks, or high-precision joining. Moreover, a newly developed automation system uses software modules to monitor and control production and quality data as well as logistics processes along the entire value chain.

Consumer Goods

Video
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Power Tools expands its product portfolio

The Power Tools division maintains a strong market position for power tools, gardening equipment, measurement tools, and accessories, above all through regular product innovations with significant user benefits, and the strong brands that result from them. Over one-third of its products are less than two years old. The division produced around 50 million power tools in 2015 – more than ever before, and nearly twice as many as ten years ago. Power Tools serves various target groups with widely differing requirements: do-it-yourselfers on the one hand, and professional users in developed and emerging markets on the other.

In the case of professional users, developed and emerging markets show divergent trends. In developed markets, the focus is on improving productivity, and increasingly on health and safety aspects such as dust, noise, and vibration. Innovations such as the world's most powerful small angle grinder offer improved ergonomics and a high level of user protection, for example. Inventory management is also an important issue for professional users. Since fall 2015, Power Tools has offered a cloud-based solution called TrackMyTools for managing and locating equipment.

In emerging markets, many customers are using power tools for the first time. These tradespeople first have to be convinced of the benefits of changing from traditional hand tools to power tools. They need affordable power tools that are robust and easy to maintain. Power Tools is making great efforts to cultivate emerging markets such as China, India, Russia, Brazil, and Africa. Following successful pilot projects in China and Russia, a complete range of products will now be launched gradually in these emerging markets. We have also made organizational changes in Power Tools to meet these differing requirements. Responsibility for developed markets such as western Europe, North America, and Japan rests with our offices in Leinfelden-Echterdingen near Stuttgart, Germany. Our base in Shanghai, China, is now responsible for emerging markets.

From a technical perspective, two overall trends are apparent both in the do-it-yourself market and among professional users. First, there is growing demand for powerful rechargeable tools. Second, the rapid development of the internet and increasing use of smartphones and tablets open up additional possibilities for intelligent solutions and services.

Particularly in the case of measuring instruments, connectivity is a major theme for DIY and professional users alike. For example, measurements taken with a laser distance meter with integrated Bluetooth interface can be transmitted quickly and easily to a matching app for Android and iOS smartphones and tablets, where they can be processed. In 2015, our range of professional measuring instruments was extended to include temperature measurement devices. Our new thermal detectors also have connectivity features.

In the case of power tools for DIY users, optimum coordination of key components such as the motor and gearbox combined with the intelligent "Syneon Chip" allows even more powerful rechargeable tools to be created. More and more garden tools use this technology – handy, lightweight, but powerful cordless appliances are especially popular with amateur gardeners. The web-enabled Indego Connect robotic lawnmower decides when to mow the lawn on the basis of internet weather forecasts.

Full takeover of BSH Hausgeräte

The Consumer Goods business sector was considerably strengthened in January 2015 when the acquisition of the former joint venture for household appliances was completed. With its strategic and technological approach, BSH Hausgeräte is an excellent fit for Bosch and our "Invented for life" ethos. The company's products are designed with an emphasis on energy efficiency, smart technology, convenience, and ease of use, making the lives of people around the world easier and more pleasant.

BSH Hausgeräte has adopted an ambitious growth strategy. A differentiated brand strategy will be used to serve different consumer groups, ranging from the entry-level segment to the luxury class. A regional customer focus is another goal, given the significant regional differences in customers' needs. The organization has been restructured to support this strategic orientation. This primarily involved switching business management from a product-centered to a regional approach.

One country where a stronger regional focus is important is China, an important growth market for BSH Hausgeräte. A new dishwasher factory is being built there. Dishwashers designed for the Chinese market have specially shaped crockery and cutlery baskets, to hold a wok, rice or soup bowls, and chopsticks in the best possible way.

Special wash programs are designed to meet the hygiene requirements of Chinese consumers. With the construction of this new factory, the BSH Home Appliance Park in Chuzhou has acquired greater strategic importance. At this location, the company will drive forward the development of state-of-the-art technologies and solutions, and exploit synergy and efficiency potential through its links with various other BSH household-appliance plants.

For BSH Hausgeräte as well, connectivity is a major theme for the future. The company has developed a solution called Home Connect, which allows different appliances, even from different brands, to be controlled using an app. In 2015, one year after the launch of Home Connect, BSH Hausgeräte presented a range of connected devices for consumer electronics and home appliances at the IFA trade show. By 2018, most new products, as well as some small household appliances, will offer connectivity features.

For example, washing machines, dishwashers, and tumble dryers are now able to work more efficiently thanks to connectivity. Depending

on the settings, Home Connect tells the user via a push message that the wash is finished or that dishwasher tablets are running out. The FlexStart Option is especially useful for households that meet part of their electricity needs from decentralized sources, such as a photovoltaic array on the roof. The app also allows users to look inside their refrigerator when they are away from home, thanks to two interior cameras. At the IFA, BSH Hausgeräte demonstrated how the Home Connect app can be used for the remote diagnosis of technical problems. The company is also breaking new ground in the development of digital solutions, and held its first "hackathon" in 2015. Around 40 people took part. Over three days, they came up with new ideas for linking modern household appliances with intelligent sensors, thermostats, weather stations, and webcams.

The subject of energy efficiency remains an important strategic focus. Energy-efficient appliances can contribute significantly to climate protection and water-saving. Appliances currently produced by BSH Hausgeräte consume up to 75 percent less electricity than their counterparts 15 years ago. Other notable innovations in 2015 included new temperature-controlled induction stoves, active oxygen washing machines for germ-free laundry even at low temperatures, as well as a new generation of fridge-freezers with different zones for keeping food fresh. Design and lifestyle features are especially in demand for small appliances. Coffee machines are a particular success.

Energy and Building Technology

With the goal of being a systems suppliers and service provider for smart energy and building technology, we continue to develop this business sector. To this end, we have defined four key areas.

Connected products for private customers

The first area is concerned with expanding the Security Systems and Thermotechnology divisions' range of products for home users. Connected products and solutions play an increasing role in this area. Security Systems has expanded its AMAX family of web-enabled intrusion alarm systems for small to medium applications. Thermotechnology has unveiled a new generation of web-enabled heating systems for residential buildings. Having sold more than 100,000 connected products, Bosch is a leading supplier of smart heating solutions. The new "HomeCom" portal provides installation companies with detailed information about their customers' connected heating systems, while end-users receive all the information they need about their central heating, along with consumption data and personalized energy-efficiency tips.

Solutions that connect different areas of the home are an area with great potential. According to market experts, some 230 million homes worldwide – almost 15 percent of all households – will benefit from smart-home technologies by 2020. This prompted us to bring the activities of the Security Systems and Thermotechnology divisions in this field, as well as those of the subsidiary Bosch Software Innovations GmbH, under the control of a new subsidiary company, Robert Bosch Smart Home GmbH. Since January 2016, customers have been able to order the first products online.

Bosch smart-home system solutions offer users a single platform on which to interconnect their heating, lighting, smoke alarms, and other home appliances. All these can then be controlled simply by smartphone or tablet. The BSH Home Connect app can also be integrated into this solution. The core of the system is the Bosch smart-home controller, a central control unit that connects individual appliances to each other and to the internet. The Bosch Smart Home app can be used to combine the basic functions of unrelated devices. When it comes to connectivity, we believe open standards

and open platforms will make the technology as user-friendly as possible. We have the highest data-privacy and data-security standards. These standards are taken into account right from the start of the product development process. For this purpose, we have also set up a center of competence for product security. Customers and users know exactly what data have been collected, and decide for themselves how it is used.

Product solutions and services for commercial customers

Two further areas offer product solutions and services for commercial customers. We are expanding the air conditioning business. In 2015, we established a joint venture with the Chinese technology company Midea for the production of variable refrigerant flow (VRF) systems. These systems employ variable flows of refrigerant to provide commercial buildings with heating and air conditioning. Production will start in early 2016. In the future, Bosch will thus be able to offer a complete range of heating, ventilation, and air conditioning systems.

One example of a product solution for commercial buildings is the BIS building integration system, which greatly simplifies and standardizes the central monitoring and control of security and fire protection equipment. We also offer EffiLink, a system platform for services such as remote monitoring and remote maintenance of building installations. Bosch offers control for large energy systems with the new Master Energy Control (MEC System) product family. This enables industrial customers to create an efficient energy system that integrates boilers, combined heat and power plants, and storage, and to control it using an intuitive interface. Bosch develops turnkey storage solutions for power utilities and commercial customers. To this end it has set up the “Second Life Batteries” project jointly with BMW and Vattenfall. In Hamburg, used batteries from electric vehicles are being joined together in this project to form a large energy storage system.

In the field of building services, we have pooled our activities to achieve an even more effective presence. At the beginning of 2016, we formed a new International Integrator Business unit. This combines the commercial service business of the Building Security unit of the Security Systems division, the subsidiary Bosch Energy and Building Solutions GmbH, and Climatec, the provider of building automation services that we acquired at the beginning of 2015.

New Service Solutions division

The fourth area, business process management, is concerned with services relating to business processes for external and internal customers. At the beginning of 2016, we established a new Bosch Global Service Solutions division. The existing global service network of the Security Systems division for business services provided the basis for the reorganization. In the first months of 2016, we will open another service center in Leipzig, initially creating around 200 jobs, which will be Bosch’s fourth German service solutions location. Around 6,000 service associates at 23 locations currently provide services around the globe in over 30 languages. They are focused mainly on customers from the automotive, travel, and logistics industries, as well as on customers working in information and communications technology.

Cross-selling increasingly important

The Energy and Building Technology business sector coordinates our cross-selling activities. Here, we offer solutions that are aimed in particular at verticals such as mining, hotels, large stadiums, airports, automobile manufacturing, train stations, and theaters. The focus was initially on projects in the mining, theater, and automobile manufacturing sectors. In future, we will develop further projects in the pharmaceuticals, food, and commercial-building sectors. We also see great potential for smart-city solutions and services.

Looking to the future

Bosch on the way to becoming an IoT company

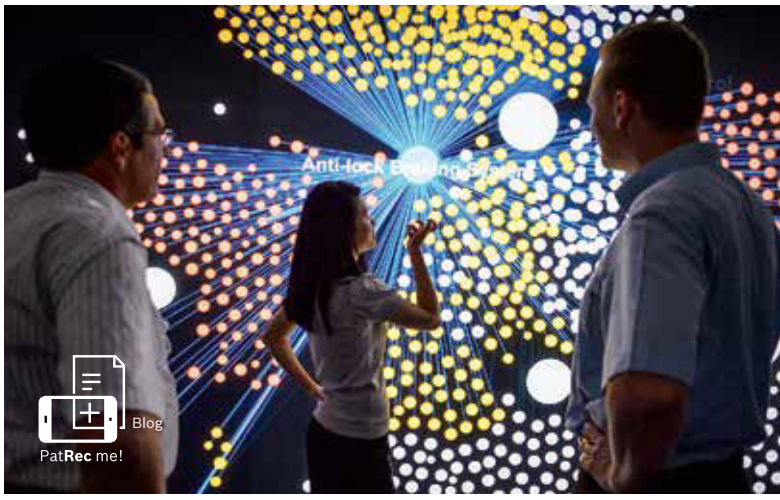
Our goal is to become one of the world’s leading IoT (internet of things) companies. We operate on all three levels of connectiv-

ity – intelligent and connected devices, software platforms, and applications and services – in order to provide additional benefits to customers. More than 40 percent of our product categories are already web-enabled, and this is rising rapidly. MEMS sensors are a key technology for connectivity, and we have extensive expertise in this area.

We also have our own software platform, the IoT Suite, developed by our subsidiary Bosch Software Innovations. This IoT Suite is a comprehensive software solution that can be used to develop, provide, and operate applications on the internet of things. We have multiplied the capacity of this platform over the past few years. We also strengthened the business in 2015 through the acquisition of ProSyst Software GmbH, Cologne, Germany. This company specializes in the development of gateway software and middleware for the internet of things. This software facilitates interaction between connected devices in the smart home, connected industry, and mobility segments.

We are also developing our expertise in the field of automated data analysis (data mining). A team of experts is working exclusively on such tasks, supporting associates from the business sectors in putting related projects into practice. The data experts are based mainly in Palo Alto, California – in the heart of Silicon Valley – and in Bengaluru, India. Bosch's global alliance partners in this field include Stanford University and the University of Pittsburgh. To make the most of this expertise, we are also working to increase our capabilities in developing new business models, particularly in relation to services. For example, we have created a new corporate unit to make methodological expertise in areas such as automated parking or robotics available throughout the company. As far as the products and services themselves are concerned, it is very much about customer benefit. Our user experience corporate department helps the divisions use modern product development methods jointly with customers.

We firmly believe that large companies such as Bosch need to make space to allow more entrepreneurial spirit. We therefore have our own start-up platform. Robert Bosch Start-up GmbH, Stuttgart, Germany, helps Bosch development teams become successful entrepreneurs. For example, it takes care of things such as premises, financing, and other administrative tasks. One example is the start-up that created the Bonirob agricultural robot. The team from Deepfield Robotics is developing this robot, which is the size of a compact car, as an aid for plant breeding and crop farming.



New research campus in Renningen

In the fall of 2015, we opened a new research campus in Renningen near Stuttgart, Germany. This is a flagship project for Bosch, in which we have invested around 310 million euros. We plan to use the campus to further develop cross-divisional collaboration and our capacity for innovation. We want it to become a hub of Bosch's global research and development network, which employs around 55,800 associates, approximately 42 percent of whom now come from outside Europe. In Renningen alone, a total of 1,200 associates in corporate research and advance engineering, plus 500 PhD students and interns, are now working on the technical challenges of the future. Their work is focused on areas such as sensor technology, automation, driver assistance systems, battery technology, and improved automotive powertrain systems. We are also working to expand our basic software expertise – particularly for IoT connectivity.

We devoted special attention to creating attractive working conditions on the campus. Wifi connections are available in every building and everywhere on the grounds. Laptops, tablet computers, and voice over internet mean that work can be done in every corner of the campus. Office layouts were designed on the basis of a comprehensive analysis of the innovation process. The result of the joint consultation with the parties involved was a completely new office concept.

Working in the Bosch Group

Diversity as a factor for success

Our human resources management work supports our business strategy. Only a modern working environment will enable us to compete successfully for the best brains and solutions, and thereby achieve lasting success. Given our broad presence and international character, we offer a wide range of employment opportunities in our international research and development network, in a global manufacturing organization, and in a wide range of management and marketing roles – from start-ups to group functions. Technical, leadership, and project career paths carry equal weight. Moreover, we strongly believe that mixed teams of men and women, embracing different generations and lifestyles and from diverse backgrounds, promote excellence and increase our capacity to innovate. Worldwide, we employ people of more than 150 nationalities in total.

In 2015 alone, we hired more than 16,000 graduates around the world (still excluding BSH Hausgeräte). More than one-quarter of these hires were IT specialists. Our executives are recruited mainly from our own ranks. We are making progress in our efforts to increase the percentage of international executives in the regions and of women in leadership positions in the company as a whole. In the majority of our focus countries, the percentage of local executives now stands at around 80 percent. Moreover, the target of 20 percent for the proportion of women in leadership positions has already been exceeded in several countries, including China and Spain.

Bosch has operated a senior expert model for more than 15 years. Bosch Management Support GmbH is headquartered in Leonberg, Germany. It also has operations in the United Kingdom, Austria, Turkey, the United States, Mexico, Brazil, Japan, and India. At the present time, 1,700 former associates make their experience and expertise available when professional advice is needed quickly. However, such knowledge sharing is not a one-way street. In reverse mentoring programs, young associates share knowledge with their elders on topics such as the use of new IT tools.

Creating attractive work environments

We aim to create attractive employment models for all associates and help them achieve a satisfactory work-life balance. Associates, as well as executives who work in non-production-related areas, already use a wide range of working models that allow them freedom to decide where and when they work. We are conducting pilot projects to examine how we can improve our flexible working culture in production and production-related environments. We believe the connected industrial production of the future offers great opportunities. Childcare services are also available close to our locations. As well as time spent abroad or job changes, we regard family leave – whether for childcare or looking after dependent relatives – as an element on a career path.

We are also developing concepts for the workplace of the future under the title “inspiring working conditions.” Initial field tests have produced such impressive results that the concept is gradually being applied worldwide in all newly built and renovated Bosch locations. This also applies to manufacturing operations. In the future we plan to introduce more services at locations to make life easier for associates, such as shopping services and health centers with gyms.

We also believe in providing scope for creativity. For example, developers in corporate research and advance engineering are given four hours of “concept time” per week to discuss ideas that go beyond their normal area of work. Yet we require creativity from all Bosch associates. As early as 1924, the company founder Robert Bosch introduced a company suggestion scheme. Today, associates have many opportunities to contribute ideas for new products and suggest improvements to processes and services. This is increasingly done using the internal social business platform Bosch Connect.

We are also looking at the new demands being made of leadership and collaboration. Here we ask ourselves how we can improve the company’s ability to change, as well as the speed of change. Our global associate surveys that we conduct every two years are an important basis for managing change. In our most recent survey, 83 percent of associates agreed with the statement: “I am proud to work for the Bosch Group.”

At the same time, we continue to develop our remuneration system to reflect the increased demand for personal initiative, cross-divisional collaboration, and entrepreneurship. We therefore changed our worldwide remuneration system for specialists and executives at the beginning of 2016. The new variable salary component, the Bosch

Performance Bonus, is now based entirely on divisional and company performance. Individual performance is more closely reflected in the basic salary, taking long-term performance, job value, and labor-market orientation into account. In this way, we give greater weight to work across divisional boundaries and a leadership style that is based on respect and trust and encourages honest feedback.

Importance of occupational training and professional development

Occupational training and continuing professional development have traditionally been regarded as very important at Bosch. Worldwide, over 7,300 young people completed apprenticeship schemes at Bosch in 2015, similar to the high levels of previous years. Due to the strong tradition of dual education in companies and schools, many of these young people – around 4,900 apprentices – are in Germany. At our locations worldwide, moreover, we have many training centers of our own that provide training specifically for technical trades. They include our sites in France, Turkey, India, China, and Vietnam, as well as in Brazil and North America. Topics such as software, IT, and Industry 4.0 also play an increasingly important role in occupational training and continuing professional development.

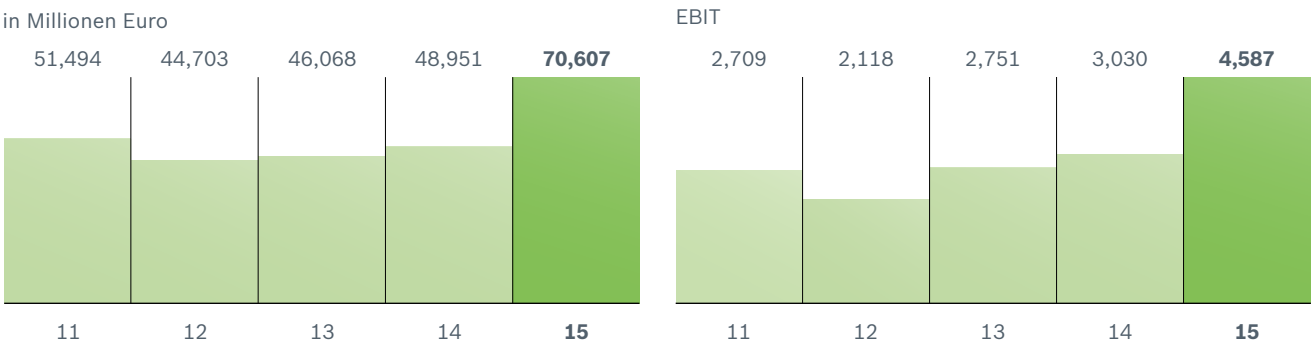
To support the integration of refugees in Germany, we plan to initially offer some 400 internships in Germany during 2016. We can draw on experience of our program for young people from southern Europe. In 2014, we created around 100 additional apprenticeships, about half of them in the young people's countries of origin and half in Germany, to make a practical contribution to combating youth unemployment in southern Europe.

At the same time, competence management and the further training of associates have always played a major role in the Bosch Group. In 2015, we invested around 250 million euros in this area, including Automotive Steering and BSH Hausgeräte. Besides traditional classroom teaching, new electronic learning methods are also gaining ground. The Robert Bosch Kolleg offers continuing professional development at university level for specialists and executives.

Comprehensive internship programs for students, scholarship programs, pre-master's programs, and postgraduate programs complete these activities. In our trainee programs, the Junior Managers Program, and the Graduate Specialist Program, we provide training specifically for the specialists and executives of the future. We also maintain numerous partnerships with universities around the world. Through the Bosch InterCampus Program founded in 2011 (our anniversary year), with a total endowment of 50 million euros, we have been supporting universities and research projects in Germany, the United States, and China, focusing on the environment, energy, and mobility, as well as on software development in India.

G.03

Development of sales revenue and EBIT
Bosch Group, 2011–2015
Figures in millions of euros



Report on economic position

On the whole, the Bosch Group developed favorably, despite a weaker economic environment in 2015. The acquisitions of the former joint ventures for automotive steering systems and household appliances led to a huge increase in sales. In operational terms as well, sales and earnings rose significantly. Performance varied considerably by business sector and region. The Mobility Solutions and Consumer Goods business sectors were particularly successful. The Energy and Building Technology business sector was also able to significantly improve its figures year on year. On the other hand, parts of the Industrial Technology business sector are suffering from a very weak market environment. From a regional perspective, sales in North America recorded particularly strong growth; sales also grew positively in Europe. By contrast, sales growth in Asia Pacific did not match that of previous years. The situation was once again very difficult in South America.

Controlling system

The Bosch Value Concept as the basis for control

The Bosch Value Concept pursues Bosch's core objectives of profitable growth and financial independence. The controlling system combines value creation with value preservation. Particularly for an unlisted company such as the Bosch Group, being able to expand and maintain profitability over the long term is crucial for financing future growth.

The main control parameters for value creation are sales growth, earnings before interest and taxes (EBIT), and the internal "operating value contribution" indicator. The operating value contribution is calculated in the same way as EBIT, but also deducts the cost of capital for current and non-current assets. Internal reporting is based in principle on the International Financial Reporting Standards (IFRS). However, in certain respects, such as recognition of impairment losses, pension provisions, and provisions for losses arising from delivery commitments, internal reporting deviates from external accounting. For the management of operations and the executive incentive program, we adjust for the earnings fluctuations associated with these factors. We secure value by closely tracking cost trends and through liquidity management that includes centralized financial planning.

The central internal reporting tool is a monthly business report, which contains an up-to-date overview of the operating units' performance indicators. It provides a year-on-year comparison and a target versus actual comparison of key performance indicators. The report is based on the business plan, which is embedded into longer-term strategic corporate planning. As part of the business plan for 2016, the "target business plan" scheme was introduced. This greatly simplifies and speeds up the process of group-wide business planning, and reduces planning effort. The focus is on developing and carrying out measures designed to achieve the planning targets. External benchmarks are taken as the starting point for planning. The targets derived from these

are also a guide for the value contribution targets. From 2016, these targets alone will be the basis for the result-based portion of specialists' and executives' variable remuneration, from section-manager level to the board of management.

Macroeconomic and sector-specific environment

Weak economic environment

World economic output, measured on the basis of global GDP, rose by only 2.5 percent in 2015. Economic momentum slowed down over the course of the year. Growth thus fell short of our already cautious forecast of 2.7 percent, and was below both the level of the previous year and the long-term trend of 3.3 percent. This was largely due to weak growth in emerging markets.

As expected, advanced economies increased their economic output by around 2 percent, helped by robust growth in the United States, where output rose by 2.4 percent. The European Union also performed better than expected, with economic output growing by 1.9 percent, compared with our forecast of only 1.3 percent. Germany's economic growth also exceeded expectations, coming in at 1.7 percent. There was also stronger impetus from Spain, while Italy and France grew slightly. Growth in Europe as a whole reached 1.4 percent. This was also slightly higher than forecast. However, the good developments in the EU were offset in part by the recession in Russia and weak growth in Turkey.

Momentum in emerging markets slackened considerably. Growth remained at around 3.5 percent, below our already cautious estimate of roughly 4 percent. Major influencing factors included slower growth in China and recessions in South America and Russia. Slightly higher growth in India was not enough to offset this. Africa also experienced slower growth.

In commodity markets, the prices of oil and other fuels continued to fall in 2015. Prices of industrial and precious metals also declined significantly. The main reasons included slower growth in emerging markets, particularly China, and a surplus of oil and gas. The euro was significantly weaker than in the previous year against the U.S. dollar and other currencies that are important to us, such as the Chinese yuan and the British pound.

Core markets important to our company were subdued. Automotive production including heavy trucks rose by only about 2 percent to some 92 million units, short of our expected figure of 93 million vehicles. Production of heavy trucks reached 2.8 million units, compared with 3.1 million units in the previous year.

One reason for the weak performance in 2015 was sluggish momentum in China, despite a slight tax cut-induced recovery in the final quarter. Chinese production over the year as a whole grew by only about 4.5 percent, well below the growth rates of previous years. Automobile production declined in Japan, but picked up again in India after a weak year in 2014. There was only moderate growth in North America, while production figures in South America again declined sharply. While minor increases were recorded in Europe as a whole, these were entirely due to a sharp increase of 6.5 percent in the European Union. Production figures in central and eastern Europe, particularly Russia, fell substantially.

Production figures in mechanical engineering were very disappointing. Worldwide, they increased by only around 0.5 percent, and thus lagged far behind our growth forecast of around 4 percent. This affected all major regions. Production figures declined slightly in Europe, and were slightly positive in the Americas thanks only to a relatively stable performance in the United States. In Asia, substantially slower growth resulted in a 2 percent rise, far short of the growth rates of the past.

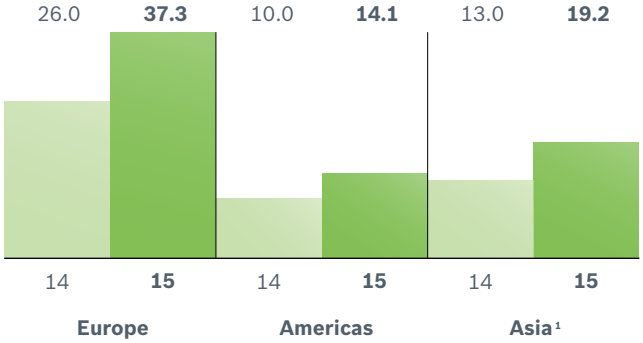
Global private consumption grew by around 2.3 percent in 2015. Despite low oil prices, consumption levels were weaker than in the previous year and lower than we expected. Consumption developed somewhat more favorably in Europe, an important market for Bosch, particularly in the southern countries that were hard hit by the debt crisis.

Growth in global construction activity was lower than expected; the rise of 3.4 percent was below the 2014 level of around 4 percent. This was largely due to subdued growth in emerging markets, above all in China and South America. But in the European Union as well, momentum was weaker than in the previous year. In the United States, on the other hand, construction investment rose very strongly.

G.04

Bosch Group sales revenue
Regional comparison

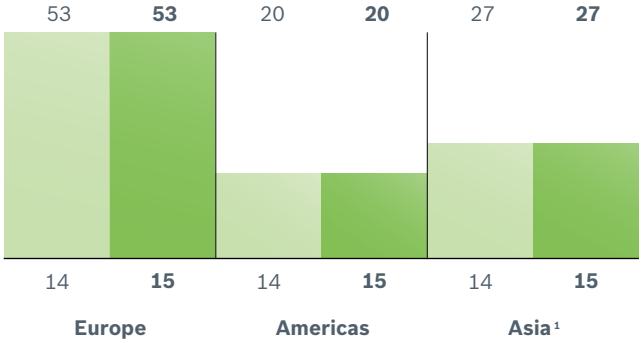
Development of sales revenue, 2014–2015
Figures in billions of euros



G.05

Bosch Group sales revenue
Regional comparison

Structure of sales revenue, 2014–2015
Percentage figures



Total 2014: 49.0 billion euros
Total 2015: 70.6 billion euros
[1] Including other countries

Course of business and sales trend

Strong growth for the Bosch Group as a whole

The Bosch Group's sales revenue rose to 70.6 billion euros, an increase of 44 percent compared with the figure of 49 billion euros recorded in the previous year. In our operations, i.e. compared with the pro-forma figure for 2014, with full inclusion of the Automotive Steering and BSH Hausgeräte subgroups, we increased our sales by around 10 percent in nominal terms. After adjusting for exchange-rate effects, sales increased by 3.8 percent compared with the pro-forma figure for 2014, and were within our target range of 3 to 5 percent for 2015. The figures for 2015 include Automotive Steering, which was fully consolidated for eleven months.

Positive exchange-rate effects on a like-for-like basis total approximately 4 billion euros. The most significant positive exchange-rate effects were due to the euro's weakness against the U.S. dollar, the Chinese yuan, the British pound, and the Swiss franc. Negative exchange-rate effects were minor by comparison, and relate in particular to the Russian ruble, the Turkish lira, and the Brazilian real.

The revenue effects arising from full consolidation of the former joint ventures BSH Hausgeräte and Automotive Steering, previously reported at equity, amounted to around 16.5 billion euros in 2015. Other notable positive revenue effects of some 180 million euros resulted from the first-time consolidation of Climatec. These effects were countered above all by the sale of the Drive and Control Technology division's large gearbox activities, though essentially this will not affect the sales figures until 2016. In December 2014, we also disposed of our Garden and Watering operating unit based in Peoria, IL (USA). All in all, consolidation effects amount to a net total of 16.6 billion euros.

Comparable regional sales structure

The first-time full consolidation of Automotive Steering and BSH Hausgeräte had no major impact on sales structure by region.

In 2015, we generated sales of around 37.3 billion euros in Europe, which again accounted for around 53 percent of total revenue. Calculated on a comparable basis, we increased our sales by about 3.8 percent, a stronger performance than in previous years. With total sales of 14.1 billion euros, the Americas once again accounted for approximately 20 percent of revenue. On a comparable basis, we increased our sales in North America by 25 percent, and by 6.7 percent after adjusting for exchange-rate effects. By contrast, sales in South America declined on a comparable basis by 13 percent, and were also down 3.7 percent on the previous year after adjusting for exchange-rate effects. Asia Pacific's share of total sales (including other countries) remained largely constant at 19.2 billion euros or around 27 percent. However, while sales in euros grew on a comparable basis by 17 percent year on year, they increased by only 2.8 percent after adjusting for exchange-rate effects. This was mainly due to subdued growth in China.

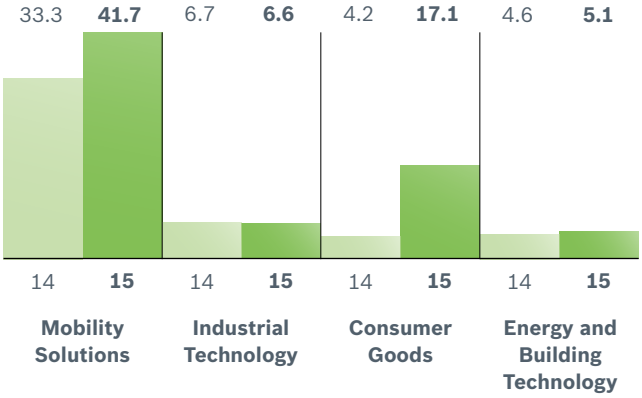
Substantial change in sales structure by sector

There were, however, considerable shifts in the sales structure by business sector, due to the integration of Automotive Steering into the Mobility Solutions business sector and, in particular, the full consolidation of the BSH Hausgeräte subgroup within the Consumer Goods business sector. The Mobility Solutions business sector generated sales of 41.7 billion euros in 2015, compared with around 33 billion euros the previous year. The sector's share of total sales declined to 59 percent, however. This was due to the Consumer Goods business sector quadrupling its sales to more than 17 billion euros. Its share of sales now stands at 25 percent. Industrial Technology and Energy and Building Technology now account for 9 percent and 7 percent of sales respectively.

G.06

Bosch Group sales revenue
Sectoral comparison

Development of sales revenue, 2014–2015
Figures in billions of euros

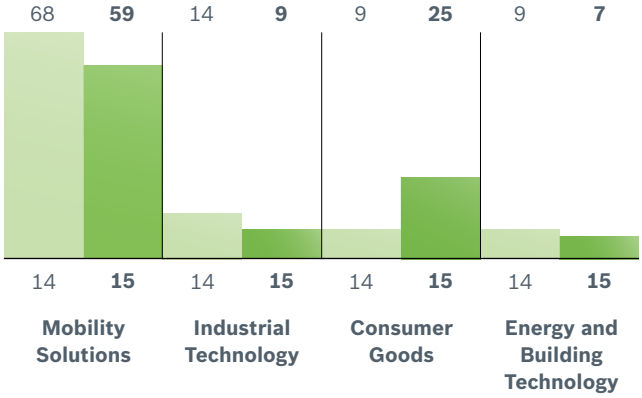


Total 2014: 49.0 billion euros
Total 2015: 70.6 billion euros

G.07

Bosch Group sales revenue
Sectoral comparison

Structure of sales revenue, 2014–2015
Percentage figures



Also in comparison with the pro-forma figures for 2014 (including Automotive Steering and BSH Hausgeräte), the Mobility Solutions and Consumer Goods business sectors achieved the largest sales increases relative to the other business sectors. Mobility Solutions performed much as expected, while Consumer Goods exceeded expectations.

Performance varies by segment

Mobility Solutions grows well

The Mobility Solutions business sector increased its sales to 41.7 billion euros. This was an increase of around 12 percent compared with the pro-forma figure for 2014 (including Automotive Steering), and of 4.6 percent after adjusting for exchange-rate effects. As a result, it significantly outperformed worldwide automobile production, benefiting from healthy demand for efficient powertrain systems and a substantial increase in market demand for driver assistance systems and modern display and infotainment systems. In all segments, we were successful with a large number of innovations and developments.

In powertrain technology, there was particularly strong demand once again in 2015 for gasoline direct injection systems, engine management systems, transmission control systems, air management components, and sensors. In diesel technology, we increased our sales thanks in particular to further growth in demand for modern fuel-injection and exhaust-gas treatment systems. Car Multimedia benefited above all from healthy demand for display and infotainment systems. In the starter motors and generators business, we developed new generations of products and benefited from growing international demand for start-stop systems. In Electrical Drives, innovations in e-scooter motors and the engine compartment actuator – the new Bosch brushless motor platform – paid off. We again enjoyed great success with drive systems and control units for e-bikes. Brake control systems also developed favorably. Moreover, electric steering systems for passenger cars were very much in demand. We also substantially increased our sales of sensors. The spare parts business was more subdued, though sales increased slightly overall; in particular, we achieved growth in western Europe and South America.

Industrial Technology suffering from a market downturn

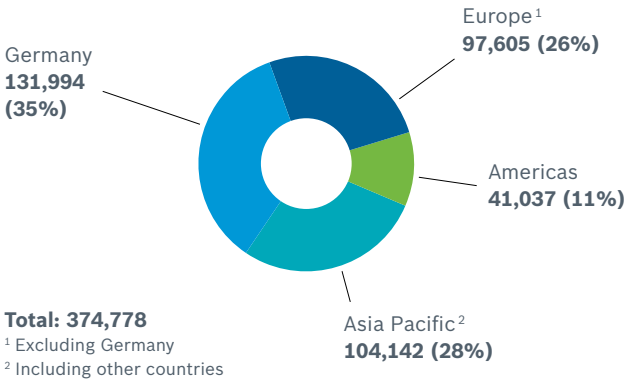
The Industrial Technology business sector was hit by a declining market trend in important mechanical engineering segments. Sales dropped nominally by 1.6 percent to 6.6 billion euros (6.5 percent after adjustment for currency effects). This unsatisfactory performance is attributable to the Drive and Control Technology division, particularly its Mobile Applications business unit. This is due to a significant market downturn for construction and agricultural machinery, and also in the mining sector. The companies that manufacture this machinery are reducing capacity, relocating to lower-cost countries, or closing down their plants. In addition, sales of construction equipment in China – the world's largest market – declined sharply. In the area of industrial applications, sectors important to Bosch such as mining, offshore, or metallurgy deferred investments due to low commodity prices. On the other hand, the market for factory automation proved stable and presented opportunities for growth in 2015. The division took advantage of these, also thanks to the tailwind provided by Industry 4.0.

The packaging machinery business developed positively, with order intake increasing substantially. In a regional comparison, sales growth was especially positive in Asia Pacific. The strongest growth was in packaging machinery for the food and confectionery industries and in services.

G.08

Associates
Bosch Group 2015, as per Dec. 31, 2015

By region

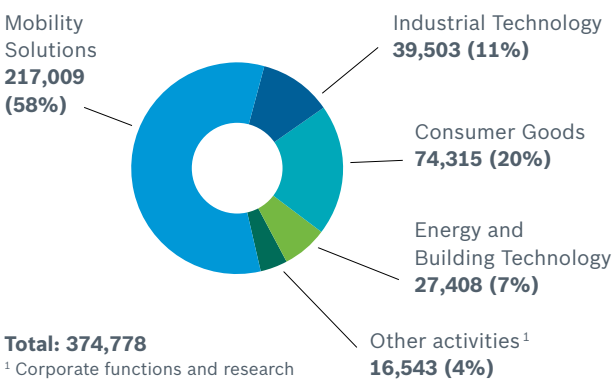


Total: 374,778
[1] Excluding Germany
[2] Including other countries

G.09

Associates
Bosch Group 2015, as per Dec. 31, 2015

By business sector



Total: 374,778
[1] Corporate functions and research

Consumer Goods exploiting market opportunities

Compared with the pro-forma figure for 2014 (including BSH Hausgeräte), sales in the Consumer Goods business sector increased by around 10 percent in nominal terms to 17.1 billion euros, or 5.7 percent after adjusting for exchange-rate effects. Power Tools and BSH Hausgeräte developed similarly favorably. Power Tools was particularly successful with its range of powerful cordless tools and with measuring devices. There was also strong demand for Dremel-brand tools and for accessories. Sales growth was encouraging in North America and western Europe, but less so in the major emerging markets of Brazil and Russia. BSH Hausgeräte benefited from sharply growing worldwide demand for household appliances. Based on its growth strategy, BSH Hausgeräte performed positively in nearly all regions of the world. Particular success was achieved with innovations such as a new range of kitchen stoves.

Energy and Building Technology gaining momentum

Sales of the Energy and Building Technology business sector, with the Security Systems and Thermotechnology divisions, increased far more strongly than in the previous year. Sales rose by 11 percent in nominal terms to 5.1 billion euros, or 7.2 percent allowing for exchange-rate effects. The improvement applied to both divisions. Security Systems increased its sales despite continuing difficulties in Russia, China, and Brazil, which affected the product business in particular. IP-based video systems and fire alarm systems were especially in demand. The sector's installation business and service solutions unit performed favorably.

In Thermotechnology, growth was supported by healthy sales performance in western and southern Europe. Growth improved in the important German market. There was particularly strong demand for wall-mounted gas appliances, water heaters, and floor-standing boilers, with powerful growth in internet-enabled devices. Encouraging sales growth was generated by Bosch Energy and Building Solutions, with its services for improving energy efficiency in its focus markets of Germany, Italy, and India.

Headcount

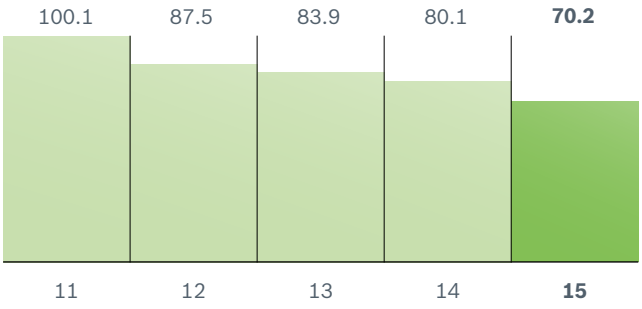
Substantial increase due to acquisitions

The total number of Bosch Group associates rose to 374,800 at the end of 2015, compared with 290,200 at the end of 2014. Most of the increase was due to the acquisition of Automotive Steering and BSH Hausgeräte, which resulted in 71,300 new associates. Another 1,800 associates were added due to other consolidations. This particularly concerns the newly acquired companies Climatec and Kliklok. These effects were countered above all by the disposal of the Drive and Control Technology division's large gearbox business, with around 1,100 associates. In all, 73,100 associates were added due to first-time consolidations, while 1,200 people ceased to be employed by the Bosch Group owing to deconsolidations and divestments. Furthermore, additional recruitments increased the number of associates by some 12,700 after allowing for personnel turnover; including associates recruited by Automotive Steering and BSH Hausgeräte in 2015, the figure was 16,400.

Regional shifts in the workforce structure compared with 2014 were small, despite substantial consolidation effects. At the end of 2015, around 229,600 associates were employed by the Bosch Group in Europe, compared with roughly 174,000 in 2014. Including Automotive Steering and BSH Hausgeräte, the 2014 figure was approximately 220,200 associates. In Germany, the number rose to about

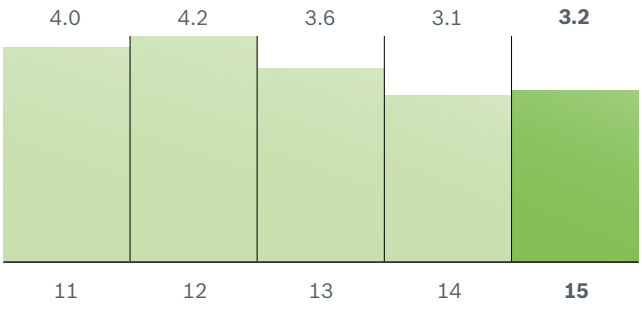
G.10

Development of CO_2 emissions
Bosch Group, 2011–2015
Metric tons of CO_2 per million euros value added[1]



G.11

Development of occupational health and safety
Bosch Group accident rate, 2011–2015
Accidents per million hours worked



[1] Difference between total net sales (third-party sales, intercompany sales, internal deliveries) and planned cost of materials procured externally; for 2011 per million euros internally generated output

132,000 associates compared with some 105,400 in the previous year, slightly above the pro-forma figure for 2014 of approximately 128,500. In Asia Pacific, the number of associates increased to roughly 104,100 during this period, compared with roughly 82,300 (pro-forma figure roughly 99,300). In the Americas, the number rose to some 41,000 from 33,900 (pro-forma figure roughly 38,300). The trends in North America and South America ran counter to each other. The number of associates in North America rose by some 2,800, but fell slightly in South America.

Changes in the workforce structure by business sector were far more pronounced. The number of associates in the Mobility Solutions business sector increased to approximately 217,000, from roughly 190,400 at the end of 2014. Around 12,000 new jobs were created compared with the pro-forma figure of roughly 204,800 (which includes Automotive Steering). Some 58 percent of all associates now work in this business sector, compared with 66 percent in the previous year. The changes in Consumer Goods were even more remarkable, owing to the full consolidation of BSH Hausgeräte. At the end of 2015, this business sector employed around 74,300 associates, or 20 percent of Bosch's workforce, compared with around 17,100 or 6 percent in 2014. Compared with the pro-forma figure of approximately 70,300 for 2014, the number of associates in the Consumer Goods business sector rose by around 4,000. Besides the disposal of the large gearbox business, the decline in the number of associates in the Industrial Technology business sector by some 1,900 to roughly 39,500 is also due to jobs being shed in the Drive and Control Technology division. On the other hand, the number of associates in the Energy and Building Technology business sector increased by around 1,300 to approximately 27,400.

Environmental protection, health and safety

Bosch has always considered environmental protection, resource conservation, and occupational health and safety to be very important. Moreover, Robert Bosch GmbH has been a member of the United Nations Global Compact since 2004, and is committed to its ten worldwide principles for responsible corporate governance. For us, "Invented for life" is also about reducing the environmental impact of our products and our production processes.

Further reduction of CO_2 emissions

We regard the reduction of CO_2 emissions as part of our social responsibility. It is our firm belief that, by using intelligent technological solutions, industry can make a significant contribution to climate protection. We will therefore continue to develop energy-saving measures. However, energy efficiency not only benefits the environment and society, but is also a key factor in making us more competitive.

Back in 2008, we set long-term targets for reducing CO_2 emissions from our locations relative to value added. These targets committed us to achieving a 20 percent reduction in carbon dioxide emissions by 2020 compared with 2007 levels (excluding Automotive Steering and BSH Hausgeräte). By 2015, we had already significantly exceeded this target, having achieved a reduction of some 26 percent. For Bosch, the lower energy consumption is already paying off financially. Between 2007 and 2014 alone, through in-house measures costing around 345 million euros, the company saved around 530 million euros in energy costs. In view of the improvements achieved so far, we are discussing a significantly higher long-term target for 2020 including Automotive Steering and BSH Hausgeräte, since we already achieved a roughly 30 percent reduction between 2007 and 2015 on this basis.

T.01

Most important items of the statement of income
FIGURES IN MILLIONS OF EUROS

	2015	2014
Sales revenue	70,607	48,951
Cost of sales	–46,675	–31,963
Gross profit	**23,932**	**16,988**
Distribution cost and administrative expenses	–13,787	–9,469
Research and development cost	–6,378	–4,959
Other operating income and expenses	864	214
Result from companies included at equity	–44	256
EBIT	**4,587**	**3,030**
Financial result	–98	345
Profit before tax	**4,489**	**3,375**
Income tax expense	–952	–714
Profit after tax		
from continuing operations	3,537	2,661
from discontinued operations		–24

At many Bosch locations, specially trained CO_2 coordinators are looking for ways to save energy. These experts and their teams analyze the energy consumption of production facilities and buildings, for example. Bosch also markets many of its energy-efficiency solutions to industrial customers, who can achieve energy savings of up to 30 percent.

We also focus on making our buildings eco-friendly. For example, the roofs of the new research campus in Renningen are covered with vegetation. In addition, all windows of the central building are triple-glazed and feature automatic solar protection. This combination means 20 to 30 percent less energy is needed to maintain pleasant temperatures in the building. In addition, photovoltaic systems at the site can save 200 metric tons of CO_2 emissions per year. We are conducting two pilot projects – concerning the value chain in the e-mobility sector and our future server structure for the internet of things – with the aim of making Bosch's energy use in these projects CO_2-neutral.

Furthermore, at the start of 2016 we set additional targets for waste avoidance and the economical use of water. Based on the success achieved so far and external benchmarks, our aim is a 2 percent year-on-year reduction in the relative volume of waste and relative water consumption each year between now and 2018.

Long-term target for occupational health and safety

After making steady progress in recent years, we defined a long-term target for occupational health and safety for the first time at the start of 2016. The target accident rate for the Bosch is now no more than 1.7 accidents for every million hours worked. We will step up our safety activities in order to achieve this goal. Safety is a key concern at all Bosch locations, alongside quality, delivery reliability, and efficiency improvements. The initiative also includes the "S-Basics" program. We plan to establish an intensive dialog between executives and associates. As well as methodological improvements, we will also provide further training in management behavior relating to occupational health and safety.

The accident rate for 2015 including Automotive Steering and BSH Hausgeräte was 3.2 per million hours worked. Excluding Automotive Steering and BSH Hausgeräte, the figure for 2015 is 2.8 accidents, which is a further improvement compared with the previous year's figure of 3.1. The total number of accidents in the workplace in the 2015 business year was 2,126 including Automotive Steering and BSH Hausgeräte, or 1,532 excluding those consolidations, compared with 1,660 accidents in 2014.

Results of operations

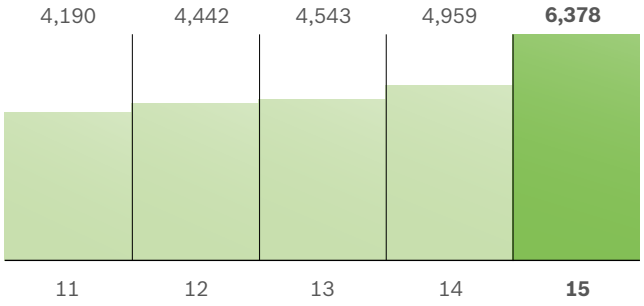
Bosch Group EBIT significantly increased

In 2015, we generated earnings before interest and taxes (EBIT) of 4.6 billion euros, compared with 3.0 billion euros in the previous year. Extraordinary effects with a positive effect on earnings and those with a negative effect canceled each other out. As a result, EBIT from operations (without extraordinary effects) comes to the same amount. This is equivalent to a margin of 6.5 percent. We thus considerably improved our earnings, and significantly exceeded our forecast. We had originally forecast only a slight improvement on the pro-forma 2014 figure for result (including Automotive Steering and BSH Hausgeräte), with an EBIT margin of just under 6 percent.

The positive extraordinary effects relate first of all to the first-time inclusion of Automotive Steering and BSH Hausgeräte in the Bosch Group's consolidated financial statements. Under IFRS, companies must be fully consolidated from the date when control commences. Shares previously held in a company must be remeasured at fair value as at the date when the remaining shares are acquired. The

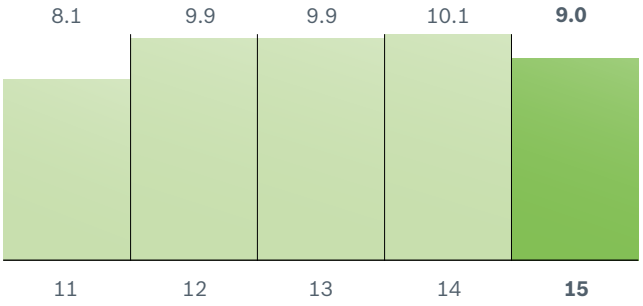
G.12

Total research and development cost[1]
Bosch Group, 2011–2015
Figures in millions of euros



G.13

Total research and development cost[1]
Bosch Group, 2011–2015
As a percentage of sales revenue



[1] Including development work charged directly to customers

full consolidation of Automotive Steering and BSH Hausgeräte thus resulted in one-off extraordinary income of 2.1 billion euros. The fair value of the shares previously held and the purchase price for the remaining shares must be allocated both to the existing assets and liabilities and to those recognized for the first time (purchase price allocation). The fair values form the basis for the allocation. Remeasurement of the assets results in additional depreciation and amortization, which is charged against extraordinary earnings. This resulted in net earnings of 1.3 billion euros in total.

These positive extraordinary earnings are counterbalanced by negative effects of the same amount. Roughly half this amount results from burdens in the Industrial Technology business sector. These relate to impairments on goodwill as a result of the unsatisfactory situation in the Drive and Control Technology division, as well as losses resulting from the sale of the large-gears business. The other half of this amount is due to additions to provisions in connection with legal risks.

Compared with the figure for total sales revenue, cost of sales increased by 0.8 percentage points year on year. There was an equivalent drop in gross profit in relation to sales. Disregarding the first-time consolidation of Automotive Steering and BSH Hausgeräte, gross margin is slightly better than in the previous year. Distribution and administrative cost increased at a slightly higher rate than sales. Without the above-mentioned first-time consolidation, however, its share of sales fell by more than one percentage point.

Considerable changes are evident in research and development costs. They came to approximately 6.4 billion euros in 2015, compared with 5 billion euros in the previous year. They include work amounting to some 1.3 billion euros charged to third parties.

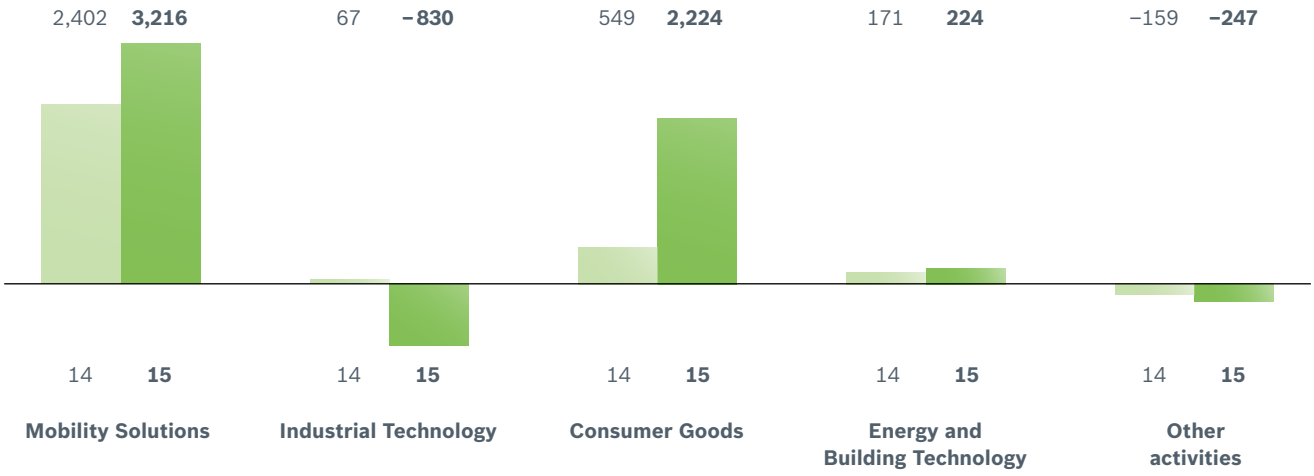
Due to the first-time consolidation of Automotive Steering and BSH Hausgeräte, the R&D cost ratio fell from 10.1 percent to 9 percent, despite an absolute increase in research and development cost. If Automotive Steering and BSH Hausgeräte had been included in the research and development costs for 2014, they would have come to around 5.6 billion euros, and the R&D cost ratio would also have been roughly 9 percent. The Mobility Solutions business sector accounted for 75 percent of development costs after 82 percent the previous year, Industrial Technology 6 percent compared with 8 percent the previous year, and Consumer Goods and Energy and Building Technology around 15 percent and 4 percent respectively (both 5 percent the previous year). Above all, the increase in other operating expenses and income reflects the earnings arising from the full consolidation of Automotive Steering and BSH Hausgeräte. These are offset by the extraordinary burdens mentioned above.

Profit before tax totals 4.5 billion euros, corresponding to a margin of 6.4 percent. The financial result, however, is negative and down significantly on the previous year. This is mainly due to lower net income from securities, as well as higher exchange rate-related losses. We thus report a result after tax of 3.5 billion euros, compared with 2.7 billion euros in the previous year.

Our internal control parameter, the operating value contribution, is calculated only for the consolidated group used in internal reporting for 2015. The figures for the whole of 2014 were calculated on a like-for-like basis. The operating value contribution fell to around 250 million euros in 2015, from the roughly 500 million-euro comparable figure for 2014. Compared with EBIT, the operating value contribution does not contain the extraordinary positive earnings arising from the full consolidation of Automotive Steering and BSH Hausgeräte. Nor does it include the goodwill impairments at Drive and Control Technology.

G.14

EBIT by business sector
Bosch Group, 2014–2015
Figures in millions of euros



The fundamental difference between EBIT and the operating value contribution is the imputed 3.4 billion-euro (comparable previous-year figure: 3.1 billion euros) cost of capital, which reduces the operating value contribution compared with EBIT. Other differences in depreciation and amortization and other items total around 0.2 billion euros on the current basis (figure for the previous year on a comparable basis: approximately 0.1 billion euros).

Significant differences by segment

Of the business sectors, Mobility Solutions achieved EBIT of 3.2 billion euros and a margin of 7.7 percent, including extraordinary effects accruing to this business sector. In operational terms, the business sector achieved EBIT of 3.5 billion euros and a margin of 8.4 percent of sales. The business sector therefore significantly improved on the pro-forma figure (including Automotive Steering) of around 7 percent for 2014. This reflects a successful operational performance in most divisions.

The Industrial Technology business sector discloses a total loss of 830 million euros due to the difficult business situation in Drive and Control Technology, to the negative effects of necessary restructuring measures, and especially to substantial impairments and the losses in connection with the sale of its large-gears business. The business sector's operating loss excluding one-off extraordinary effects amounted to around 100 million euros. The Consumer Goods business sector achieved EBIT of approximately 2.2 billion euros including extraordinary effects accruing to the business sector; in operational terms as well, it achieved a good result with EBIT of 1.2 billion euros and an operating EBIT margin of 7.2 percent. The margin improved compared with the pro-forma figure of just under 7 percent for 2014. The Energy and Building Technology business sector increased its earnings power, with EBIT of around 220 million euros compared with 170 million euros in the previous year, and a margin of 4.4 percent versus 3.7 percent in the previous year.

Net assets and financial position

Balance sheet impacted by acquisitions

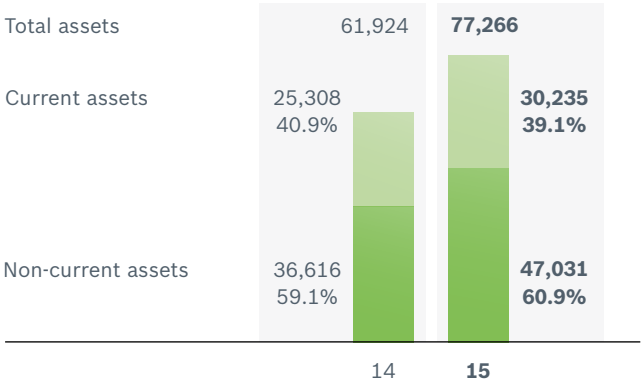
The acquisitions of former steering systems and household appliances joint ventures had a significant impact on the balance sheet. Under the equity method applied until 2014, these joint ventures were reported on the assets side of the balance sheet under non-current assets. Full consolidation in 2015 resulted in the assumption of individual assets and liabilities. The effects of remeasurement are added to this.

At the balance-sheet date, the balance-sheet total of the Bosch Group had risen by approximately 25 percent to 77.3 billion euros compared with 61.9 billion euros in the previous year. The main reason for this increase is the full consolidation of Automotive Steering and BSH Hausgeräte. In addition, there was a significant increase in the working budget for inventories and receivables. This is above all the result of higher sales. In addition, the non-current assets show the effect of the greater value of property, plant, and equipment as a result of the further increases in capital expenditure. Under the new structure for 2015 we report a very sound equity ratio of just under 45 percent, compared with around 48 percent in the previous year.

Despite substantial cash outflows following the acquisition of Automotive Steering and BSH Hausgeräte, liquidity as reported in the statement of financial position stood at 14.4 billion euros on the balance-sheet date, compared with 15.6 billion euros in the previous year. Apart from cash and cash equivalents, liquidity as per the

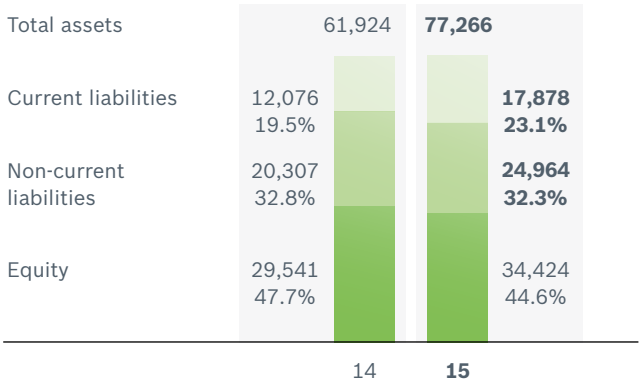
G.15

Structure of the statement of financial position
Bosch Group, 2014–2015
Assets
Figures in millions of euros and as a percentage of total net assets



G.16

Structure of the statement of financial position
Bosch Group, 2014–2015
Equity and liabilities
Figures in millions of euros and as a percentage of total net assets



statement of financial position includes marketable securities and bank balances with a term of more than 90 days.

The liabilities side was also significantly impacted by the full consolidation of Automotive Steering and BSH Hausgeräte. Other changes in current liabilities are mainly sales-related. The financing structure remains very sound. Current liabilities account for 23.1 percent. Standard & Poor's also reaffirmed Robert Bosch GmbH's long-term rating of AA- (with a "stable" outlook). This also benefits the subsidiary BSH Hausgeräte GmbH, which has a similar rating. Financial liabilities include bonds with a total volume of around 5 billion euros. The bond interest rates are between 1.543 percent and 5.125 percent. No new bonds were issued in the 2015 financial year. The bonds' average maturity and average coupon declined slightly compared with the previous year, mainly due to the first-time consolidation of BSH Hausgeräte and Automotive Steering. Most of the remaining financial liabilities are denominated in euros.

Significant rise in capital expenditure

Bosch Group capital expenditure amounted to 4.1 billion euros in 2015, compared with 2.6 billion euros in the previous year. The investment ratio rose to 5.7 percent of sales. As at the balance-sheet date, existing investment commitments as a result of orders already placed totaled roughly 630 million euros. Thanks to our very good liquidity position, we have ample financial resources at our disposal.

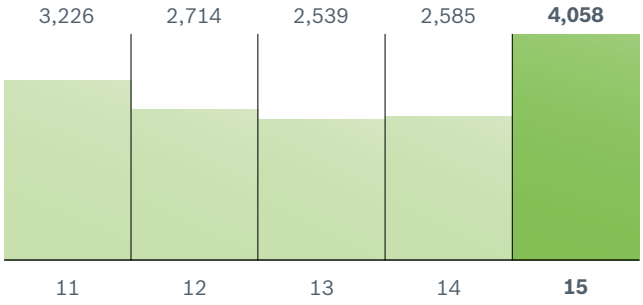
Broken down by business sector, total investment in the Mobility Solutions business sector rose to 3.1 billion euros, compared with 2.2 billion euros in the previous year. This sharp rise is due not only to the full consolidation of Automotive Steering, but also to higher capital expenditure requirements, particularly in diesel technology, gasoline direct injection, driver assistance systems, electrical drives, and infotainment systems, as well as in expanding capacity for semiconductors, sensors, and control units. In Industrial Technology, we invested some 140 million euros, after 170 million euros the previous year. In the Consumer Goods business sector, capital expenditure rose to some 650 million euros compared with 130 million euros in the previous year, due to the full consolidation of BSH Hausgeräte. Here too, the investment ratio increased owing to the expansion of capacity at Power Tools for accessories and at BSH Hausgeräte for dishwashers, cookers, and freezers. In Energy and Building Technology, capital investment rose to approximately 100 million euros, compared with 70 million euros the previous year. This mainly concerned cost-reduction and product-renewal projects at manufacturing, engineering, and sales locations.

We invested around 2.5 billion euros in our European locations, compared with 1.7 billion euros in the previous year. Capital expenditure in Germany was roughly 1.4 billion euros, compared with 1.1 billion euros the previous year. Focal points included the expansion of capacity for semiconductors and sensors, and new buildings at the Reutlingen location as well as in the areas of gasoline direct injection systems and diesel technology. We also completed the new research campus in Renningen, not far from the company's headquarters. Another large-scale, multi-year project is the expansion of the main distribution center for vehicle spare parts in Karlsruhe.

A major investment made in Europe outside Germany is the new automotive technology plant in Samara, Russia. However, we are diluting our plans somewhat in view of the current market situation. In Bursa, Turkey, we expanded our manufacturing operations for high-pressure injectors for diesel vehicles. We invested around 300 million euros in this in total between 2013 and 2015. In Hungary, we continued to expand the engineering center in Budapest, and at our location in

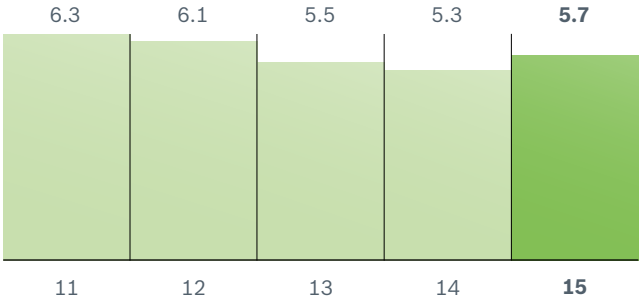
G.17

Capital expenditure
Bosch Group, 2011–2015
Figures in millions of euros



G.18

Capital expenditure
Bosch Group, 2011–2015
As a percentage of sales revenue



Jihlava, Czech Republic, we expanded our diesel technology manufacturing operations. BSH Hausgeräte is expanding production in Poland. In 2015, the company acquired a factory site from Fagor Mastercook S. A. in Wrocław, Poland, after the latter became insolvent. Cooking and refrigeration products will be manufactured there.

We invested around 1.1 billion euros in Asia Pacific, compared with 620 million euros in the previous year. In particular, we expanded locations where we produce diesel and gasoline direction injection systems, above all in China. We also set up a new diesel location in Qingdao, China. BSH Hausgeräte laid the foundation stone for its first dishwasher factory in China. After a construction phase lasting approximately two years, the new factory is scheduled to commence production in early 2018. The planned volume of investment is around 215 million euros over the next five years. In Ho Chi Minh City, Vietnam, we began the construction of a new engineering center. Another focal point was again India, where we invested around 140 million euros in the expansion of existing manufacturing facilities and further expansion of the software and engineering center at the Bengaluru location.

In North and South America, we invested some 460 million euros, compared with 220 million euros in 2013. Most of this activity in the Americas concerned the Mobility Solutions business sector. It included the expansion of the engineering location in Plymouth, MI (USA), the manufacturing facility in Charleston, SC (USA), and factories in Toluca, Juárez, and Aguascalientes in Mexico. In the Thermotechnology division, a new plant for instantaneous gas water heaters went into operation in 2015 in Tepotzotlán, near Mexico City.

Liquidity

Strong financial position and healthy liquidity situation

Despite the full acquisitions of the former automotive steering systems and household appliances joint ventures, the Bosch Group continues to have a strong financial position. In 2015, cash flow was 6.8 billion euros or 9.7 percent of sales, against comparative prior-year figures of 4.9 billion euros or 9.9 percent of sales. This increase also reflects the substantial improvement in result.

Liquidity at year-end as per the consolidated statement of cash flows (cash and cash equivalents) stood at 3.7 billion euros, compared with 5.5 billion euros the previous year. The decline was largely due to the acquisition of all shares in Automotive Steering and BSH Hausgeräte. The good earnings situation has had a stabilizing effect. In addition, the financing available to Robert Bosch GmbH under its euro medium-term note and commercial paper programs totaled 4.25 billion euros and 2 billion U.S. dollars.

Cash inflows from operating activities amounted to 6.0 billion euros, roughly 2.1 billion euros higher than in the previous year. Higher cash flow is one reason for this. However, this is offset by an increase in commitments in the working budget. Cash outflows from investing activities were 4.4 billion euros higher than in the previous year. Reasons include the substantial increase in cash outflows due to acquisitions, investments in participating interests, and investments in property, plant, and equipment. There was a cash outflow of 0.7 billion euros relating to financing activities in 2015, due to the repayment of financial liabilities and dividend payments. This compares with a net cash inflow in the previous year of 0.5 billion euros, which essentially resulted from the issuance of bonds.

The Bosch Group has a central financial and currency management system. This is designed to control payment flows to optimum effect and limit the risks of currency exposures at the Bosch Group level.

T.02

Bosch Group, statement of cash flows
FIGURES IN MILLIONS OF EUROS

	2015	2014
Cash flow	**6,835**	**4,866**
as a percentage of sales	**9.7**	**9.9**
Liquidity at the beginning of the year (Jan. 1)	5,513	3,799
Cash flows from operating activities	+5,959	+3,835
Cash flows from investing activities	–7,204	–2,772
Cash flows from financing activities	–655	+470
Other activities	+94	+181
Liquidity at the end of the year (Dec. 31)	**3,707**	**5,513**

Central financial management also manages our borrowings and investments. Our investment strategy is aimed at broad diversification of shares and interest-bearing securities.

Outlook

Only moderate growth expected in 2016

We expect global economic growth to remain subdued in 2016. A major reason is the continued weakness of growth in emerging markets. We expect global economic output to rise by around 2.5 percent. Growth will therefore remain similar to the 2015 level, and once again well below the long-term trend of 3.3 percent. The advanced economies are likely to achieve growth of just under 2 percent. In the United States, we expect slightly slower momentum compared with 2015, partly because economic risks have recently increased. In view of the continuing recession in Brazil, we do not expect any appreciable increase in the pace of growth in the Americas as a whole.

In Europe, we expect the European Union to achieve growth of 1.6 percent in 2016, about the same as in 2015. The global economic slowdown is especially a burden for the major export nations. At 1.5 percent, growth in Germany will likely be lower than in 2015. But in Spain and northern Europe as well, the pace of growth is expected to let up slightly. Consumption will have a stabilizing effect, since this will likely expand slightly due to the considerable number of refugees coming to western Europe. Growth in Europe as a whole in 2016 will be braked by the continuing difficulties in Russia and Turkey, and is expected to be somewhat weaker than in 2015.

The pace of growth in emerging markets will again exceed that of the advanced economies in 2016. However, with emerging markets growing around 3.5 percent only, we merely expect stabilization rather than a trend reversal. The slower pace of growth in China is a key factor in this regard. At 6.3 percent, its growth rate in 2016 is likely to be below the 2015 figure.

There are substantial risks to economic development in 2016 in view of the continuing euro crisis, growing geopolitical tensions, and structural deficits in emerging markets, particularly in countries heavily dependent on commodities. These risks contrast with the positive effects of low oil prices, which help stabilize developed economies in particular.

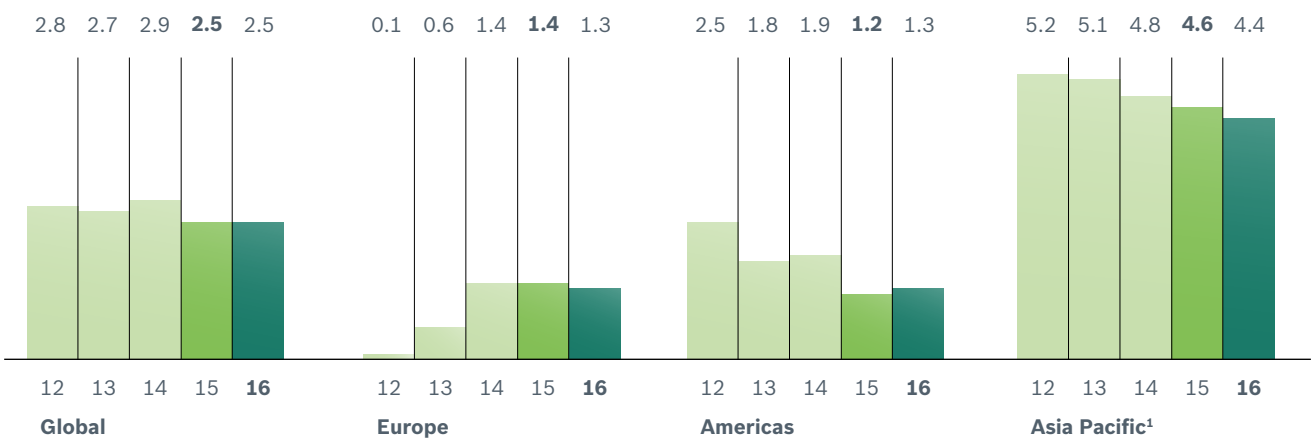
In our core markets, we expect production figures for passenger cars and commercial vehicles to grow by just under 2 percent to some 93 million vehicles. However, production of heavy trucks is expected to fall further, to 2.7 million units. Moderate growth is anticipated for all three major economic regions. In Asia Pacific, we expect only India and ASEAN to post further strong growth. In China, we expect automobile production to increase by 3 to 5 percent.

In mechanical engineering as a whole, we expect a slight drop in global production, following an only slight rise in 2015. Positive stimuli will likely come from Asia, while the markets in the Americas and Europe are expected to contract. The mobile applications market segment is likely to deliver a much weaker performance than the market as a whole. The Drive and Control Technology division is therefore expected to lag behind the overall market trend.

We forecast a slight global increase in private demand to around 2.5 percent. Especially in the southern European markets which are important for our business, stable growth is expected for 2016. In addition, low oil prices will increase purchasing power. In global construction activity – another important market – we expect slightly stronger growth in 2016 than in the previous year, at roughly 3.8 percent. Most stimuli here are expected to come from the euro zone.

G.19

Regional economic growth 2012–2016
Real GDP, percentage change on previous year
Percentage figures



[1] Including other countries

Sales growth and increase in profitability

Against the backdrop of a still subdued economic environment, we expect sales growth for the Bosch Group to remain within a range of 3 to 5 percent in the 2016 financial year. This does not take exchange-rate effects into account. The Mobility Solutions and Consumer Goods business sectors are expected to achieve higher sales growth than the company as a whole. The situation for the Industrial Technology business sector remains difficult.

We currently expect the Bosch Group to post an EBIT margin from operations that is roughly on a par with the previous year. Productivity gains and cost savings are countered by the negative effects of reorganizing the Drive and Control Technology division, costs for the integration of Automotive Steering, and the spin-off of Starter Motors and Generators. This forecast does not take account of the earnings impact of higher depreciation and amortization of roughly 500 million euros in total arising from the remeasurement of assets at Automotive Steering and BSH Hausgeräte. This applies equally to the Mobility Solutions and Consumer Goods business sectors, which are again likely to achieve the strongest growth. We expect performance as measured by the internal operating value contribution indicator to improve significantly.

Report on opportunities and risks

Opportunities

Overall, we continue to see good growth opportunities for the Bosch Group, reflected in a long-term annual sales growth target of 8 percent on average. Reasons for this include our favorable position as a result of a broad sectoral presence, our high level of innovation, and our strong international presence. Special strategic opportunities will arise as a result of the growing importance of energy efficiency (and hence resource conservation), electrification, automation, the further expansion of our presence in emerging markets, and increased connectivity, especially through the internet of things. For further explanations, see the “Outlook for the Bosch Group” section, which describes specific opportunities in more detail and the strategies that we are developing in response.

Risks

Comprehensive risk management system

The Bosch Group’s risk management system is part of strategic and operations control. From strategic planning at the group level through medium-term planning by the operating units to our operational controlling, we consistently use risk management tools. At all levels of risk management, a key element is defining and implementing measures derived from the risk management system. The board of management of Robert Bosch GmbH – with support from the corporate departments – is responsible for risks of group-wide importance. The executive management of

the divisions and the presidents of the regional organizations are responsible for identifying risks at the point of origin and for taking any necessary measures.

Strategic risks relate mainly to the way markets, competitors, and suppliers develop, to innovations in technologies and business models, to changes in the political, social, and economic environment, to acquisitions, and to the Bosch brand. We therefore constantly monitor developments at our main competitors, customers, and suppliers. We also carry out business-field, competitor, and scenario analyses. In addition, we prepare forward-looking assessments of planned positions of the Bosch Group in the technological fields and business models relevant to our company. Comprehensive strategic assessments of potential projects help control risks associated with acquisitions. To protect our brand, we carry out proactive reputation management, analyze social media, and carry out activities of our own in this area.

As part of operational controlling, an overview of all economically relevant transactions is compiled every month on the basis of a comprehensive reporting system, along with a list of major opportunities and risks. At meetings of committees such as the foreign exchange, raw materials, and investment committees, specific risks are examined on a regular basis. We have a group-wide liquidity planning system and permanently monitor our financial resources.

Overall risk assessment

We are not currently aware of any risks, beyond the market-related risks mentioned in the outlook above, the risks of the business sectors listed in this report, and litigation risks, which could materially affect the net assets, financial position, and results of operations of the Bosch Group in 2016. Nor does the Bosch Group have any risk exposures that could jeopardize the group's continued existence as a going concern. An overall assessment of all risks confirms that our forecast is plausible. There are no significant differences from the previous year that would affect this overall assessment.

Risks affecting the business sectors

We analyze the medium-term risks for the business sectors in the risk areas of market, customers, competition, purchasing, technology, value-creation model, and business environment. The risks for our company are predominantly in the areas of market, customers, technology, and the way the competition develops. We assess any medium-term risks that we identify. An important criterion here is the product of the estimated economic impact and the estimated probability of occurrence.

Probability of occurrence	Description
Low	Up to 17 percent
Medium	Up to 33 percent
High	Up to 50 percent

Risks with a probability of occurrence of at least 50 percent are considered in our annual or interim forecasts. The assessment is based on our current planning.

We categorize these risks' economic impact as low, medium, high, and very high in terms of their relation to the anticipated accumulated EBIT from operations of the respective business sector over a medium-term horizon of four years.

Degree of impact	Definition of impact
Low	Minor impact on the profitability of the business sector concerned
Medium	Some negative impact on the profitability of the business sector concerned
High	Considerable negative impact on the profitability of the business sector concerned
Very high	Damaging negative impact on the profitability and operations of the business sector concerned

Particular risks, that is to say, risks with at least a medium economic impact and probability of occurrence, relate in the case of the Mobility Solutions business sector to current discussions regarding the future viability of diesel engines. This could lead to a fall in demand for diesel injection systems and components. Furthermore, digital transformation processes pose a not immaterial risk for current business models and distribution channels in the aftermarket segment. We see a further risk in growing price pressure on the Chinese market.

In addition, a large number of individual risks exist, each with low economic impact and low probability of occurrence. These individual risks relate above all to achieving target market shares and delivery shares, price trends, market changes due to new business models, technologies, competitors, and environmental aspects. We counter these risks through extensive planning and tracking of results in acquiring delivery contracts, a broad customer and product portfolio, intensive market surveillance, and global trend scouting.

Added to this, extensive warranty exposure presents a fundamental risk. Due to automakers' extensive platform and modular-design strategies, quality issues relating to individual products can result in large-scale recalls. We counter these risks with continuous improvement of our quality management system.

In the Industrial Technology business sector, the Drive and Control Technology division is exposed to high and medium risks with at least a medium probability of occurrence. These relate to the particular volatility of markets, with increased price erosion and the possible entry of new competitors, especially from China and the United States. Furthermore, growing standardization in the field of hydraulic components increases the risk that these items may become technologically indistinguishable. We counter these risks with a product portfolio that is tailored specifically to the needs of the market and a comprehensive restructuring program.

In the Consumer Goods business sector, in which BSH Hausgeräte has been included for the first time, particular risks concern above all the threats emerging from the growing importance of sales over the internet. Measures include the consistent expansion of our own internet activities.

In the Energy and Building Technology business sector, we should mention in particular the risks of price erosion due to increasing competition from Chinese suppliers and sales risks due to the high pace of innovation in IP technologies. In addition, there are risks associated with a potential trend towards low-price products, and the proliferation of internet-based business models. Measures mainly concern the increased development of IP-enabled products and products for low-price market segments. We are also increasing productivity in the services business.

Due to our broad regional and sectoral presence, medium-term strategic and operating risks are on the whole broadly diversified. Our risk management system clearly presents the existing risks affecting each of the business sectors. By implementing deliberate measures, we limit both the probability of occurrence and the economic impact of the risks. Overall, the analysis of opportunities and risks shows that we operate in an environment rich in opportunities. Accordingly, there are currently no foreseeable sustained or severe threats to our profitability.

IT risks: We have put in place comprehensive measures, valid throughout the company, to provide organizational and technical protection against all types of data loss, manipulation, and theft. With our broad-based and well trained IT security and data-protection organization, we respond to constantly growing demands in the area of cyber-crime, protection of intellectual property and sabotage risks, as well as increasing awareness of data protection in social networks,. For our solutions with connected products in the internet of things, we apply an integrated security concept that we continually update using state-of-the-art technology, and verify its effectiveness with extensive security tests (penetration tests). We ensure high availability of IT systems through redundant systems that run independently of location.

Legal risks, compliance: There are no apparent legal risks that could materially impair the net assets, financial position, or results of operations of the Bosch Group in the 2016 financial year. This includes all risks resulting from ongoing or imminent litigation and compliance matters. The principle of legality is an integral part of Bosch's values. We deal rigorously with violations of applicable laws or the Bosch Code of Business Conduct. Reinforcing compliance and anchoring compliance within the organization is the task of our global compliance organization. Worldwide classroom-based programs, web-based training courses, and a great number of publications help ensure that there is group-wide awareness of the need to comply with existing laws, rules, and regulations. In addition, a compliance dialog between executives and associates was established worldwide in 2015, with the aim of moving from rules-based to values-based compliance.

At the start of 2015 we also set up a dedicated corporate department for compliance management. The chief compliance officer responsible for this department coordinates the compliance organization and reports directly to the board of management or, if necessary, directly to the chairman of the supervisory board. Functionally, the compliance officers in the regions and divisions report to the chief

compliance officer. Risk analyses are also performed on a regular basis. Based on these, measures are defined and taken to minimize the compliance risks that have been identified and confirmed.

Since 2010, the EU Commission and other antitrust authorities have been investigating a number of automotive suppliers for alleged anticompetitive behavior. The Bosch Group is also affected by these antitrust investigations. The company continues to cooperate fully with the authorities in their investigations into these allegations. In 2015, Bosch reached a settlement with the U.S. antitrust authority, the Department of Justice. Talks with the EU Commission have now reached an advanced stage. Risks for Bosch present themselves in the currently still ongoing official investigations as well as in potential civil-law claims. Since fall 2015, various authorities have raised allegations against Volkswagen with respect to the manipulation of the software contained in engine control units. In this context, civil actions in the U.S. have been grouped together into a class action, which also names Bosch as a defendant. As one of the world's biggest suppliers of fuel injection technology, Bosch takes these allegations very seriously.

Immediately after learning of the allegations, Bosch launched its own internal investigation. As this investigation is still ongoing, there are no final results available yet. There are no indications of criminally relevant action by the management bodies that would require adjustment or restatement of the financial statements of previous years. In connection with the circumstances surrounding the manipulation, the company is in contact with many investigating authorities both in Germany and internationally. Risks for Bosch thus exist in the official investigations still being carried out, above all in the U.S. and Germany, as well as in the form of civil-law proceedings, including class actions in the United States. On the basis of the facts relating to antitrust proceedings and engine control units that were available when the financial statements were prepared, and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions amounting to some 750 million euros have been set up.

Financial risks: The operating business of the Bosch Group is affected by fluctuations in exchange and interest rates. The aim of business policy is to limit these risks. Our strategy of maintaining a strong global presence with local production and worldwide purchasing activities generally reduces currency risks. A foreign exchange balance plan showing net positions per foreign currency is used as the basis for controlling currency risks. If necessary, these risks are hedged through centralized hedging transactions. Internal regulations and guidelines set down a mandatory framework and define responsibilities relating to payment transactions, investments, and hedging activities. According to our regulations, financial instruments such as forward transactions and interest swaps may only be used in connection with the operating business, financial investments, or financing transactions; speculative transactions are not allowed. Hedging transactions are entered into solely via banks whose creditworthiness is good. Their credit ratings are constantly monitored, and limits are adjusted accordingly.

We have extensive financial assets. These are subject to interest-rate and exchange-rate risks. We control these risks by means of an investment process geared to our financial exposure. The objective is to secure appropriate, risk-adjusted returns on invested capital. Here, we endeavor to spread our investments as widely as possible. A limit system is used to closely monitor investment risk. Prescribed risk limits for the specific investment categories limit the potential loss. The impact of changes in interest rates on borrowed funds is sharply limited over the short and medium term by balancing the maturities of financial liabilities. Changes in financial assets and liabilities are monitored on an ongoing basis. We identify liquidity risks as part of our liquidity planning. Thanks to our good credit rating and existing financing arrangements, we have good access to the capital markets.

Consolidated financial statements
of the Bosch Group

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Income statement

for the period from January 1 to December 31, 2015

T.01

FIGURES IN MILLIONS OF EUROS	Note	12/31/2015	12/31/2014
Sales revenue	1)	**70,607**	**48,951**
Cost of sales		–46,675	–31,963
Gross profit		**23,932**	**16,988**
Distribution and administrative cost	2)	–13,787	–9,469
Research and development cost	3)	–6,378	–4,959
Other operating income	4)	3,932	1,126
Other operating expenses	5)	–3,068	–912
Profit from entities consolidated using the equity method		–44	256
EBIT		**4,587**	**3,030**
Financial income	6)	2,987	2,114
Financial expenses	6)	–3,085	–1,769
Profit before tax		**4,489**	**3,375**
Income taxes	7)	–952	–714
Profit after tax from continuing operations		**3,537**	**2,661**
Profit after tax from discontinued operations			–24
Profit after tax		**3,537**	**2,637**
of which attributable to non-controlling interests	8)	344	227
of which attributable to parent company		3,193	2,410

Statement of comprehensive income

for the period from January 1 to December 31, 2015

T.02

FIGURES IN MILLIONS OF EUROS	12/31/2015	12/31/2014
Profit after tax	**3,537**	**2,637**
Change from marketable financial instruments recognized in other comprehensive income	38	420
of which attributable to non-controlling interests	14	11
transferred to profit or loss	–149	–209
of which attributable to non-controlling interests	–2	–2
Adjustment item from currency translation of entities outside the euro zone	924	1,149
of which attributable to non-controlling interests	66	125
Items that will be reclassified to profit or loss	**813**	**1,360**
of which entities consolidated using the equity method	–1	110
Remeasurement of pension provisions	811	–1,837
of which attributable to non-controlling interests		–1
Items that will not be reclassified to profit or loss	**811**	**–1,837**
of which entities consolidated using the equity method		–178
Other comprehensive income	**1,624**	**–477**
Comprehensive income	**5,161**	**2,160**
of which attributable to non-controlling interests	422	360
of which attributable to parent company	4,739	1,800

Statement of financial position

for the year ended December 31, 2015

T.03

ASSETS
FIGURES IN MILLIONS OF EUROS

	Note	12/31/2015	12/31/2014
Current assets			
Cash and cash equivalents	10)	3,707	5,513
Trade receivables	11)	13,240	8,785
Other financial assets	12)	1,833	2,109
Income tax receivables		300	469
Other assets	13)	1,504	1,238
Inventories	14)	9,651	7,194
		30,235	**25,308**
Non-current assets			
Financial assets	15)	11,534	10,468
Income tax receivables		81	104
Property, plant, and equipment	16)	18,142	13,251
Intangible assets	17)	12,490	7,338
Investments measured at equity		152	1,666
Other assets		161	84
Deferred taxes	7)	4,471	3,705
		47,031	**36,616**
Total assets		**77,266**	**61,924**

EQUITY AND LIABILITIES FIGURES IN MILLIONS OF EUROS	Note	12/31/2015	12/31/2014
Current liabilities			
Trade payables	18)	6,184	3,599
Other financial liabilities	19)	2,195	1,094
Income tax liabilities		233	254
Other liabilities	20)	5,494	3,706
Income tax provisions		109	184
Other provisions	20)	3,663	3,239
		17,878	**12,076**
Non-current liabilities			
Financial liabilities	19)	5,343	5,112
Other liabilities	20)	247	78
Pension provisions	21)	11,262	9,935
Income tax provisions		816	611
Other provisions	20)	4,841	3,425
Deferred taxes	7)	2,455	1,146
		24,964	**20,307**
Equity	22)		
Issued capital		1,200	1,200
Capital reserve		4,557	4,557
Retained earnings		26,948	22,460
Unappropriated earnings		142	102
Non-controlling interests		1,577	1,222
		34,424	**29,541**
Total equity and liabilities		**77,266**	**61,924**

Statement of changes in equity

T.04

FIGURES IN MILLIONS OF EUROS

		Retained earnings			
	Issued capital	Capital reserve	Earned profit	Treasury stock	Currency translation
1/1/2014	**1,200**	**4,557**	**23,060**	**–62**	**–606**
Comprehensive income					1,024
Dividends					
Transfer to retained earnings			2,308		
Other changes					
12/31/2014	**1,200**	**4,557**	**25,368**	**–62**	**418**
Comprehensive income					858
Dividends					
Transfer to retained earnings			3,051		
Other changes					
12/31/2015	**1,200**	**4,557**	**28,419**	**–62**	**1,276**

Other comprehensive income						
Securities	Other	Total	Unappropriated earnings	Equity parent company	Equity non-controlling interests	Group equity
527	**–1,998**	**–2,077**	**88**	**26,766**	**920**	**27,686**
202	–1,836	–610	2,410	1,800	360	2,160
			–88	–88	–88	–176
			–2,308			
	–159	–159		–159	30	–129
729	**–3,993**	**–2,846**	**102**	**28,319**	**1,222**	**29,541**
–123	811	1,546	3,193	4,739	422	5,161
			–102	–102	–291	–393
			–3,051			
	–109	–109		–109	224	115
606	**–3,291**	**–1,409**	**142**	**32,847**	**1,577**	**34,424**

Statement of cash flows

T.05

FIGURES IN MILLIONS OF EUROS	Note 23	2015	2014
EBIT[1]		4,587	3,006
Depreciation and amortization[2]		4,359	2,341
Increase in pension provisions		95	24
Increase in non-current provisions		793	45
Gains on disposal of non-current assets		–100	–86
Losses on disposal of non-current assets		127	104
Remeasurement of investments		–2,136	
Result from investments measured at equity		44	–256
Financial income, cash effective		1,507	828
Financial expenses, cash effective		–1,630	–980
Interest and dividends received		475	679
Interest paid		–242	–209
Paid income taxes		–1,044	–630
Cash flow		**6,835**	**4,866**
Increase in inventories		–148	–385
Change in receivables and other assets		385	–474
Decrease in liabilities		–489	–457
Change in current provisions		–624	285
Cash flows from operating activities (A)		**5,959**	**3,835**
Acquisition of subsidiaries and other operating units		–3,507	–27
Disposal of subsidiaries and other operating units		19	–18
Additions to non-current assets		–4,848	–3,140
Proceeds from disposal of non-current assets		456	268
Purchase of securities		–9,844	–6,516
Disposal of securities		10,520	6,661
Cash flows from investing activities (B)		**–7,204**	**–2,772**
Borrowing		486	1,159
Repayment of financial liabilities		–748	–513
Dividends paid		–393	–176
Cash flows from financing activities (C)		**–655**	**470**
Change in liquidity (A+B+C)		**–1,900**	**1,533**
Liquidity at the beginning of the period (January 1)		**5,513**	**3,799**
Exchange-rate related increase in liquidity		90	123
Increase in liquidity due to changes in the consolidated group		4	58
Liquidity at the end of the period (December 31)		**3,707**	**5,513**

[1] Previous year: EBIT including discontinued operations
[2] Previous year: After offsetting reversals of impairments of EUR 28 million

Notes to the financial statements

Principles and methods

General explanations

The consolidated financial statements of the Bosch Group for the year ended December 31, 2015, have been prepared according to the standards issued by the *International Accounting Standards Board* (IASB), London. The *International Financial Reporting Standards* (IFRSs) and the Interpretations of the *IFRS Interpretations Committee* (IFRS IC) applicable in the EU at the end of the reporting period have been applied. The previous-year figures have been determined using the same principles.

The consolidated financial statements are in line with the provisions of Sec. 315a HGB ["*Handelsgesetzbuch*": German Commercial Code] and Regulation (EC) no. 1606/2002 of the European Parliament and of the Council of July 19, 2002, on the application of international accounting standards.

In 2015, the EU endorsed the following amendments to International Financial Reporting Standards:

- November 23, 2015: Amendments to IAS 16 *Property, Plant, and Equipment* and IAS 41 *Agriculture*
- November 24, 2015: Amendments to IFRS 11 *Joint Arrangements*
- December 2, 2015: Amendments to IAS 16 *Property, Plant, and Equipment* and IAS 38 *Intangible Assets*
- December 15, 2015: *Annual Improvements to IFRS, 2012-2014 Cycle*
- December 18, 2015: Amendments to IAS 1 *Presentation of Financial Statements*

The aforementioned amendments are mandatory for fiscal years beginning on or after January 1, 2016; none will be early-adopted by the Bosch Group. First-time application of the amended standards is not expected to have any material effects on the consolidated financial statements of the Bosch Group. The effects on the Bosch Group of IFRS 9 *Financial Instruments* and IFRS 15 *Revenue Recognition*, which are still pending endorsement by the EU, are currently being reviewed.

To enhance the clarity and transparency of the consolidated financial statements, individual items of the consolidated income statement and the consolidated statement of financial position have been combined. These items are explained separately in the notes to the consolidated financial statements. The income statement has been prepared using the function of expense method.

The group currency is the euro (EUR). Unless otherwise stated, all figures are in millions of euros (EUR million).

The consolidated financial statements prepared as of December 31, 2015, were authorized for disclosure by management on March 15, 2016. The consolidated financial statements and group management report will be filed with the Federal Gazette [*Bundesanzeiger*] and published there.

Basis of consolidation

Besides Robert Bosch GmbH, the consolidated financial statements include all subsidiaries for which Robert Bosch GmbH fulfills the criteria pursuant to IFRS 10 *Consolidated Financial Statements*. These entities are included in the consolidated financial statements from the date on which the Bosch Group obtains control. Conversely, subsidiaries are no longer fully consolidated when control of the entity is lost.

The capital of the companies consolidated in the fiscal year for the first time is consolidated pursuant to IFRS 3 *Business Combinations*, using the acquisition method of accounting. At the time of combination, the purchase cost of the shares acquired is offset against pro-rata revalued equity. Assets, liabilities, and contingent liabilities are carried at fair value. Remaining debit differences are accounted for as goodwill. Any credit differences are recognized with effect on income. Any difference resulting from the purchase of additional non-controlling interests is offset against equity.

Joint ventures as defined by IFRS 11 *Joint Arrangements* are accounted for using the equity method.

Pursuant to IAS 28 *Investments in Associates and Joint Ventures*, investments are included in consolidation using the equity method if significant influence can be exercised. At present, no associates have been accounted for using the equity method. For reasons of materiality, investments in associates are valued at amortized cost.

Within the consolidated group, intercompany profits and losses, sales, expenses, and other income, as well as all receivables and liabilities or provisions, are eliminated. In the case of consolidation measures with an effect on income, the effects for income tax purposes are considered and deferred taxes recognized.

Currency translation

In the separate financial statements of the group companies, all receivables and liabilities denominated in currencies other than the euro are measured at the closing rate, regardless of whether they are hedged or not. Exchange-rate gains and losses from revaluations are recorded in profit or loss.

The financial statements of the consolidated companies outside the euro zone are translated into euros in accordance with IAS 21 *The Effects of Changes in Foreign Exchange Rates*. Assets and liabilities are translated at the closing rate, while equity is translated at historical rates. The line items of the income statement are translated into euros at the annual average exchange rates. Any resulting exchange-rate differences are recorded directly in equity until the disposal of the subsidiaries, and disclosed as a separate line item in equity.

For the most important non-euro currencies of the Bosch Group, the following exchange rates apply:

T.06

		Closing rate		Average rate	
	1 EUR =	12/31/15	12/31/14	2015	2014
Australia	AUD	1.49	1.48	1.48	1.47
Brazil	BRL	4.31	3.22	3.70	3.12
China	CNY	7.10	7.46	6.91	8.17
Czech Republic	CZK	27.03	27.73	27.28	27.53
Hungary	HUF	313.12	314.89	309.90	308.65
India	INR	72.02	76.72	71.20	81.04
Japan	JPY	131.07	145.23	134.31	140.31
Korea	KRW	1,280.78	1,324.80	1,256.54	1,398.14
Poland	PLN	4.26	4.27	4.18	4.18
Russian Federation	RUB	79.70	68.34	67.81	50.82
Switzerland	CHF	1.08	1.20	1.07	1.21
Turkey	TRY	3.18	2.83	3.03	2.91
United Kingdom	GBP	0.73	0.78	0.73	0.81
USA	USD	1.09	1.21	1.11	1.33

Accounting policies

Cash and cash equivalents comprise cash, reserve bank deposits, and bank balances with an original maturity of less than 90 days. Measurement is at amortized cost.

Trade receivables, income tax receivables, and **other assets,** as well as **other financial assets** that are allocated to "Loans and receivables," are measured at amortized cost. All discernible specific risks and general credit risks are accounted for by appropriate valuation allowances. According to internal group guidelines, the carrying amounts of receivables are generally corrected via a valuation allowance account.

Inventories include raw materials, consumables, and supplies; work in process, finished goods, and merchandise; and prepayments. Inventories are stated at purchase cost or cost of conversion using the average cost method. In addition to direct cost, cost of conversion includes an allocable portion of necessary materials and production overheads as well as production-related depreciation that can be directly allocated to the production process. Appropriate allowance is made for risks associated with holding and selling inventories due to obsolescence. Inventories are written down further when the net realizable value of the inventories has fallen below cost.

Property, plant, and equipment are measured at cost of purchase or production cost less depreciation and, if necessary, impairment losses. Depreciation is charged on a straight-line basis over the economic useful life.

Depreciation is based on the following ranges of useful lives:

T.07

	Useful life
Buildings	10 – 50 years
Plant and equipment	8 – 11 years
Other equipment, fixtures, and furniture	3 – 25 years

In accordance with IAS 36 *Impairment of Assets*, impairment losses are recorded on property, plant, and equipment if the recoverable amount has fallen below the carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply. Repair costs are recognized in the income statement.

In accordance with IAS 17 *Leases*, leased items of property, plant, and equipment which, from a substance-over-form perspective, are deemed to be purchases of assets with long-term financing (finance leases) are recognized at the time of addition at the lower of the fair value of the leased assets or present value of the minimum lease payments. Depreciation is charged over the economic useful life. If it is uncertain whether title to the leased asset will be transferred, the asset is depreciated over the term of the lease agreement (if shorter than the economic useful life). The finance expense from these leases is disclosed under other financial result.

Investment property is measured at depreciated cost in accordance with IAS 40 *Investment Property*.

Government grants are only recognized pursuant to IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance* if it is sufficiently certain that the assistance will be granted and the conditions attached to the assistance are satisfied. Grants related to assets are deducted in order to calculate the carrying amount of the asset. Grants related to income are presented as part of profit or loss in the period in which the related expenses are incurred.

Purchased and internally generated intangible assets are capitalized pursuant to IAS 38 *Intangible Assets* if a future economic benefit will flow to the entity from the use of the asset and the cost of the asset can be reliably determined. These assets are generally carried at cost and amortized using the straight-line method over their economic useful life. As a rule, the useful life is four years. Intangible assets accounted for in the course of business combinations have a useful life of up to 50 years.

As a rule, **borrowing costs** are not included in the cost of assets. If they are directly attributable to the acquisition, construction, or production of a qualifying asset they are included in the cost of that asset in accordance with IAS 23 *Borrowing Costs*. Write-downs on capitalized borrowing costs are reported in the cost of sales.

Goodwill from business combinations represents the difference between the purchase price on the one hand and the pro-rata fair value of the equity at the time of acquisition on the other. Goodwill is allocated to the cash-generating units and tested annually for impairment. If the recoverable amount of the cash-generating unit does not cover the carrying amount of the net asset, impairment losses are charged in accordance with the requirements of IAS 36. Pursuant to IFRS 1 *First-time Adoption of International Financial Reporting Standards*, goodwill existing as of January 1, 2004 (date of transition), was transferred at the carrying amount in accordance with the provisions of the German Commercial Code. Goodwill is also tested for impairment pursuant to the provisions of IAS 36.

Intangible assets with an indefinite useful life are tested annually for impairment. Intangible assets subject to wear and tear are only tested for impairment if there is any indication that they may be impaired. Impairment losses are recorded in accordance with IAS 36 if the recoverable amount of the asset concerned has fallen below the carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply.

Shares in jointly controlled entities are included in the consolidated financial statements using the equity method. The carrying amount of these shares is subsequently measured in accordance with the change in equity of the jointly controlled entity attributable to the Bosch Group.

As a rule, **financial instruments** are determined as of the settlement date. Financial instruments are accounted for at amortized cost or fair value. In the case of a financial asset or financial liability not accounted for at fair value through profit or loss, transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability are taken into account.

When determining the fair value, the input factors of the measurement methods pursuant to IFRS 13 *Fair Value Measurement* are categorized as follows:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the accounting entity can access at the measurement date
- Level 2: Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs that are not based on observable market data

The fair value of current financial assets and liabilities is assumed to correspond to the carrying amount.

In accordance with IAS 39 *Financial Instruments: Recognition and Measurement*, the following categories of financial instruments are used in the Bosch Group:

- Held-to-maturity investments
- Loans and receivables
- Financial liabilities measured at amortized cost
- Assets and liabilities held for trading
- Available-for-sale financial assets

The fair-value option pursuant to IAS 39 is not exercised.

Financial investments held to maturity, loans and receivables, and current and non-current financial liabilities are measured at amortized cost using the effective interest method. Impairments of loans and receivables to allow for anticipated credit risks based on past experience are recognized in the form of specific and general doubtful debt allowances. When determining valuation allowances for the general credit risk, financial assets that could potentially be impaired are grouped together by similar credit risk characteristics, collectively tested for impairment, and, if necessary, written down.

Financial assets and liabilities held for trading are measured at fair value. Changes in value are recognized in profit or loss. These are derivative financial instruments which are mainly used to limit currency, interest, and commodity risks in accordance with internal risk management. Hedge accounting is not used in the Bosch Group.

Available-for-sale financial assets are those non-derivative financial assets that cannot be allocated to any of the three preceding categories. They are carried at fair value. Unrealized gains and losses from changes in market value are disclosed in equity, net of deferred taxes, until they are realized. Interest received is generally recognized through profit or loss using the effective interest method. Dividends are recognized through profit or loss as soon as payment is legally enforceable. If impairment losses are necessary, the accumulated net loss is eliminated from equity and disclosed in profit or loss. If an impairment loss recorded on equity instruments is reversed in accordance with IAS 39, this is offset directly against equity. Reversals of impairment losses on debt instruments may not exceed the amount for which the impairment loss was recorded. The amount of the reversal is recognized in profit or loss.

If the fair value of available-for-sale financial assets cannot be reliably determined, they are accounted for at acquisition cost. These are investments for which there is no active market. Necessary impairment losses are recognized in profit or loss and are not reversed.

As of every reporting date, the carrying amounts of the financial assets which are not measured at fair value through profit or loss are examined for substantial objective indications that an asset may be impaired. Such indications may, for instance, be serious financial difficulties suffered by the debtor, the high probability that insolvency proceedings will be instituted against the debtor, the loss of an active market for the financial asset, a permanent drop in the fair value of the financial asset below amortized cost, or significant changes in the technological, economic, legal, or market environment of the issuer. A possible impairment loss is given if the fair value of the asset is lower than the carrying amount. The fair value of loans and receivables is the present value of the estimated future cash flows discounted using the original effective interest rate.

In accordance with IAS 12 *Income Taxes*, **deferred tax assets and liabilities** are recorded for temporary differences between the tax carrying amounts and the carrying amounts in the consolidated statement of financial position unless they arise from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affect neither the profit before tax nor the taxable income. Deferred tax assets arising from tax losses and tax credits are recognized only where there is assurance beyond any reasonable doubt that they can be used in the future. The deferred tax item equals the estimated tax burden or relief in later periods. The tax rate applicable at the time of realization is taken as a basis. Tax implications from profit distributions are generally not considered until the resolution for the appropriation of profits has been adopted. If it is uncertain whether recognized deferred taxes can be realized, they are adjusted accordingly.

Assets and liabilities held for sale are classified as held for sale if most of their carrying amount is redeemed by a sale and the sale is highly likely to be effected. They are valued at the lower of carrying amount or fair value, less selling cost.

For **finance leases** under which the Bosch Group is the lessor, a receivable is recognized at the net investment value and disclosed under financial assets. Liabilities from finance leases are disclosed under financial liabilities, at the present value of the future lease payments. Leases under which substantially all risks and rewards in connection with ownership have been transferred to the lessee are classified as finance leases.

Pursuant to IAS 19 *Employee Benefits*, **pension provisions** are recognized using the projected unit credit method, taking estimated future increases in pensions and salaries into account, among other things.

Tax provisions pertain to obligations relating to income tax and other taxes. Deferred taxes are disclosed in separate line items of the statement of financial position.

Pursuant to IAS 37 *Provisions, Contingent Liabilities, and Contingent Assets,* **other provisions** are recognized if there is a current obligation from a past event which will probably lead to an outflow of resources embodying economic benefits in the future. In addition, it must be possible to reliably estimate the amount of this outflow. Other provisions are measured at full cost. Provisions due in more than one year are stated at their discounted settlement amount. They are discounted at the capital market interest rate for equivalent maturities.

Revenue from the supply of products and goods or from the provision of services is recognized when title and risk is transferred to the purchaser, less sales deductions. Interest and lease income is recorded according to the contractual agreement and, where appropriate, accrued pro rata temporis. In the case of finance leases, the payments are divided up using actuarial methods.

Cost of sales contains the cost of internally manufactured goods and the cost price of resold merchandise. The production cost of internally manufactured goods contains materials and production cost that can be allocated directly, the allocable parts of indirect overheads, including the depreciation of production equipment and the amortization of other intangible assets, and the devaluation of inventories.

Development cost that cannot be recognized is released to profit or loss in the period incurred.

Assumptions and estimates

The preparation of consolidated financial statements in accordance with IFRSs requires that assumptions and estimates be made for some line items. These assumptions and estimates have an effect on the amount and disclosure of the assets and liabilities, income and expenses, and contingent liabilities disclosed in the reporting period. Estimates and assumptions concern the following in particular:

The determination of valuation allowances on receivables is based on estimates and assumptions with respect to the credit standing of individual customers and sovereign risks. The discounted future cash flows used as a basis for testing goodwill and other intangible assets for impairment are based on estimates. Assumptions are also made in the determination of the discount rates and growth rates used. The recognition of deferred tax assets is premised on their future recoverability being probable. Consequently, assumptions have to be made regarding future taxable income and the expected timing of the reversal of temporary differences. Pension provisions and similar obligations are measured using actuarial methods. This requires various assumptions, including with respect to life expectancy, salary trends, and the pension growth rate. The recognition and measurement of other provisions is based on estimates of the amount and probability of future events. To the extent possible, such estimates are based on past experience, and are regularly reviewed and adjusted as necessary.

Changes in presentation of financial and non-financial assets and liabilities in the statement of financial position

In the fiscal year it was decided to change the disclosure of financial and non-financial assets and liabilities in the statement of financial position, and thereby convey more reliable information about these line items of the statement of financial position. On the assets side of the statement of financial position, the reclassifications concern the line items current securities, current other assets, and non-current financial assets; on the equity and liabilities side, they concern the line items

current and non-current financial liabilities and other liabilities. Also affected are the corresponding tables in the notes to the financial statements. The previous-year figures were adjusted accordingly. It was decided not to present a statement of financial position as of January 1, 2014, on the grounds of immateriality. The table below presents the effects of the changes in presentation on the previous-year figures in the statement of financial position and the figures as of January 1, 2014:

T.08

FIGURES IN MILLIONS OF EUROS	12/31/2014 before reclassification		12/31/2014 after reclassification	1/1/2014 before reclassification		1/1/2014 after reclassification
Assets						
Current assets						
Securities	1,076	–1,076		593	–593	
Other assets	2,271	–1,033	1,238	1,921	–882	1,039
Other financial assets		2,109	2,109		1,475	1,475
Non-current assets						
Financial assets	10,552	–84	10,468	10,461	–75	10,386
Other assets		84	84		75	75
Equity and liabilities						
Current liabilities						
Financial liabilities	185	–185		538	–538	
Other financial liabilities		1,094	1,094		1,444	1,444
Other liabilities	4,615	–909	3,706	4,305	–906	3,399
Non-current liabilities						
Financial liabilities	5,028	–5,028		4,003	–4,003	
Financial liabilities		5,112	5,112		4,123	4,123
Other liabilities	162	–84	78	186	–120	66

Consolidation

Consolidated group

Robert Bosch GmbH is headquartered in Stuttgart, Germany. The shareholders of Robert Bosch GmbH are Robert Bosch Stiftung GmbH, Stuttgart (92.0 percent of the shares), the Bosch family (7.4 percent of the shares), and Robert Bosch Industrietreuhand KG, Stuttgart, which performs the entrepreneurial ownership functions. Robert Bosch GmbH holds treasury stock equivalent to 0.6 percent of capital.

Besides Robert Bosch GmbH, the consolidated group comprises a further 442 (previous year: 340) fully consolidated companies. The group developed as follows:

T.09

	Germany	Outside Germany	Total
Included in consolidation at January 1, 2014	**63**	**298**	**361**
Additions/formations in fiscal year 2014	7	11	18
Disposals/mergers in fiscal year 2014	4	34	38
Included in consolidation at December 31, 2014	**66**	**275**	**341**
Additions/formations in fiscal year 2015	21	95	116
Disposals/mergers in fiscal year 2015	2	12	14
Included in consolidation at December 31, 2015	**85**	**358**	**443**

The consolidated group includes 10 special funds, as well as other investments.

In the fiscal year 2015, the following companies were consolidated for the first time:

- BD Kompressor GmbH, Lollar, Germany
- BD Kompressor Holding GmbH & Co. KG, Lollar, Germany
- BeYond GmbH, Hildesheim, Germany
- Bosch Rexroth Guss GmbH, Lohr am Main, Germany
- Bosch Rexroth Vermögensverwaltung GmbH, Lohr am Main, Germany
- BSH Hausgeräte GmbH, Munich, Germany (the subgroup comprises 75 entities)
- ProSyst Software GmbH, Cologne, Germany
- Robert Bosch Automotive Steering GmbH, Schwäbisch Gmünd, Germany (the subgroup comprises 17 entities)
- Robert Bosch Elektronik Thüringen GmbH, Arnstadt, Germany
- ProSyst Labs EOOD, Sofia, Bulgaria
- Bosch Automotive Systems (Wuxi) Co., Ltd., Wuxi, China
- Bosch (Shanghai) Investment Consulting Co., Ltd., Shanghai, China
- Bosch (Shanghai) Venture Capital Investment Co., Ltd., Shanghai, China
- Robert Bosch Service Solutions – Costa Rica Sociedad Anónima, Heredia, Costa Rica
- Robert Bosch Ltda., Bogotá, Colombia
- Robert Bosch S.A.C., Lima, Peru
- Robert Bosch Inc., Manila, Philippines
- Bosch Packaging Technology (Thailand) Co., Ltd., Thailand
- Climatec LLC, Phoenix, AZ, USA
- Kliklok Corporation, Decatur, GA, USA
- Klikwood Corporation, Decatur, GA, USA
- Osgood Industries Inc., Oldsmar, FL, USA
- Robert Bosch Asset Management I LLC, Farmington Hills, MI, USA
- Robert Bosch Asset Management I LP, Farmington Hills, MI, USA
- Seeo, Inc., Hayward, CA, USA
- Kliklok International Limited, Bristol, United Kingdom

Due to changes to the consolidated group, sales revenue increased by EUR 16,638 million, while total assets increased by EUR 13,968 million.

Condensed financial information on fully consolidated subsidiaries with material non-controlling interests

T.10

FIGURES IN MILLIONS OF EUROS

	Bosch Automotive Diesel Systems Co., Ltd., Wuxi, China		United Automotive Electronic Systems Co., Ltd., Shanghai, China		ZF Shanghai Steering Systems Group, Shanghai, China	Bosch Ltd., Bengaluru, India	
	2015	2014	2015	2014	2015	2015	2014
Current assets	650	725	1,155	966	441	803	822
Non-current assets	389	331	1,385	1,308	358	992	686
Current liabilities	289	276	962	807	422	411	344
Non-current liabilities			92	154	2	37	38
Sales revenue	1,344	1,228	2,315	1,663	970	1,418	1,182
Profit after tax	329	218	320	224	85	156	144
Comprehensive income	329	301	320	372	85	168	271
Cash flows from operating activities	485	70	392	251	136	225	148
Cash flows from investing activities	–90	–48	–206	–91	–86	–178	–107
Cash flows from financing activities	–399	–17	–230	–136	–72	–45	–25
Share of capital attributable to non-controlling interests	34.0%	34.0%	49.0%	49.0%	49.0%	28.8%	28.8%
Profit/loss attributable to non-controlling interests	112	74	157	110	41	45	41
Equity attributable to non-controlling interests	255	265	728	549	184	389	325
Dividends paid to non-controlling interests	136		98	73	35	13	7

The condensed financial information of the respective entities corresponds to the figures before consolidation entries.

Joint ventures

The following entities are joint ventures and were accounted for using the equity method in accordance with IFRS 11:

- Bosch Mahle Turbo Systems GmbH & Co. KG, Stuttgart, Germany (50 percent)
- EM-motive GmbH, Hildesheim, Germany (50 percent)
- KB Wiper Systems Co., Ltd., Daegu, Korea (50 percent)
- Hytec Holdings (Pty.) Ltd., Johannesburg, South Africa (50 percent)
- Associated Fuel Pump Systems Corporation, Anderson, SC, USA (50 percent)

The share of capital corresponds to the share of voting rights.

The joint venture KB Wiper Systems Co., Ltd., Daegu, Korea, was established in the previous year as a wholly-owned subsidiary of the Bosch Group. During the fiscal year, the share held by the Bosch Group decreased to 50 percent through the contribution of the business operations by the co-venturer.

The carrying amount of investments measured using the equity method in the consolidated financial statements of the Bosch Group corresponds to the proportionate share in equity.

There were no obligations to joint ventures as of the reporting date (previous year: EUR 1 million).

Material joint ventures

The fifty-fifty joint venture Bosch Mahle Turbo Systems GmbH & Co. KG, Stuttgart, Germany, was established in 2008 by Robert Bosch GmbH and MAHLE GmbH, Stuttgart. The company develops and manufactures exhaust-gas turbo-chargers for gasoline and diesel engines for use in passenger cars and commercial vehicles.

The companies BSH Hausgeräte GmbH (formerly BSH Bosch und Siemens Hausgeräte GmbH), Munich, Germany, and Robert Bosch Automotive Steering GmbH (formerly ZF Lenksysteme GmbH), Schwäbisch Gmünd, Germany, which were reported as material joint ventures in the previous year, were fully consolidated for the first time in the fiscal year. The joint venture BSH Bosch and Siemens Hausgeräte GmbH was established in 1967 together with Siemens AG, Munich, Germany. The company is one of the world's leading players in the household-appliances industry. Effective January 5, 2015, the Bosch Group acquired all shares in BSH Bosch und Siemens Hausgeräte GmbH; the company has since been renamed BSH Hausgeräte GmbH and has been included in the consolidated financial statements of the Bosch Group since January 1, 2015. ZF Lenksysteme GmbH, the joint venture with ZF Friedrichshafen AG, Friedrichshafen, Germany, was established in 1999. The company develops, manufactures, and sells steering systems for passenger cars and commercial vehicles worldwide. Effective January 30, 2015, the Bosch Group acquired all shares in ZF Lenksysteme GmbH. The company has since been renamed Robert Bosch Automotive Steering GmbH and has been included in the consolidated financial statements of the Bosch Group since January 31, 2015.

The condensed financial information on material joint ventures is presented in the table below. It corresponds to the figures from the IFRS financial statements of the aforementioned joint ventures.

T.11

FIGURES IN MILLIONS OF EUROS	Bosch Mahle Turbo Systems GmbH & Co. KG, Stuttgart		BSH Bosch und Siemens Hausgeräte GmbH, Munich	ZF Lenksysteme GmbH, Schwäbisch Gmünd
	2015	2014	2014	2014
Sales revenue	263	137	11,389	4,388
Depreciation and amortization	–23	–18	–330	–244
EBIT	–117	–65	705	249
Interest income	0	0	45	5
Interest expenses	–1	0	–129	–7
Profit before tax	–130	–65	637	248
Income taxes	0	0	–190	–64
Profit after tax	–130	–65	447	184
Other comprehensive income	1	–2	–41	–96
Comprehensive income	–129	–67	406	88
Current assets	138	79	5,454	1,474
of which cash and cash equivalents	9	8	493	265
Non-current assets	160	123	3,692	1,519
Current liabilities	130	55	3,591	1,055
of which financial liabilities	19	5	300	49
Non-current liabilities	10	10	3,168	1,072
of which financial liabilities			1,151	105
Equity	158	137	2,387	866
of which attributable to non-controlling interests			3	172
Pro-rata equity attributable to the group	79	69	1,192	347
Dividends received			250	

Condensed financial information on individually immaterial joint ventures

T.12

FIGURES IN MILLIONS OF EUROS	2015	2014
Carrying amount of the investments	73	57
Group share of profit after tax	12	0
Group share of other comprehensive income of the period	0	–1
Group share of comprehensive income	12	–1

Business combinations

T.13

FIGURES IN MILLIONS OF EUROS					
Company	**Activity and absorbing business sector**	**First-time consolidation**	**Share of voting rights**	**Acquisition cost**	**Profit share since first-time consolidation**
BSH Hausgeräte Group, Munich, Germany	Household appliances BBG	Jan. 1, 2015	100%	5,835	237
Climatec LLC, Phoenix, AZ, USA	Energy, building, and security solutions BBE	Jan. 1, 2015	100%	184	–7
ProSyst Group, Cologne, Germany	Software Other segments	Jan. 1, 2015	100%	53	–2
Automotive Steering Group, Schwäbisch Gmünd, Germany	Steering Systems BBM	Jan. 31, 2015	100%	1,759	–45
Seeo Inc., Hayward, CA, USA	Development of solid-state cells BBM	Aug. 17, 2015	100%	85	–5
Kliklok Group, Decatur, GA, USA	Packaging machinery BBI	Nov. 30, 2015	100%	55	–2

BBM Mobility Solutions business sector
BBI Industrial Technology business sector
BBG Consumer Goods business sector
BBE Energy and Building Technology business sector

Robert Bosch GmbH already previously held 50 percent of the share capital of BSH Hausgeräte GmbH (formerly BSH Bosch und Siemens Hausgeräte GmbH), Munich, Germany, and Robert Bosch Automotive Steering GmbH (formerly ZF Lenksysteme GmbH), Schwäbisch Gmünd, Germany. On January 5, 2015, Robert Bosch GmbH acquired 50 percent of the shares in BSH Hausgeräte GmbH from Siemens AG, Munich. The complete takeover serves to strengthen Robert Bosch GmbH's consumer goods business. A further objective is to build up the Bosch Group's activities in the area of connected buildings and appliances. Effective January 30, 2015, 50 percent of the shares in Robert Bosch Automotive Steering GmbH were acquired from ZF Friedrichshafen AG, Friedrichshafen, Germany. With the acquisition, the Bosch Group is strengthening its position in the field of electric steering, a key technology for automated driving, more efficient vehicles, and electric cars.

The acquisition cost presented in the table refers to 100 percent of the shares, and thereby comprises the purchase for 50 percent of the shares in each case together with the equity interest previously held by Robert Bosch GmbH remeasured at fair value as part of an acquisition achieved in stages. The purchase price for the 50 percent equity interest in BSH Hausgeräte GmbH came to EUR 3,014 million; the acquisition-date fair value equity interest already previously held came to EUR 2,821 million. Remeasurement of the equity interest already held resulted in income of EUR 1,627 million. The 50 percent equity interest in Robert Bosch Automotive Steering GmbH was acquired for EUR 882 million; the equity interest already previously held was measured at an acquisition-date fair value of EUR 877 million. Income resulting from the remeasurement of the equity interest came to EUR 494 million. The capitalized goodwill mainly expresses some of the anticipated synergy effects and potential income, and is not deductible for tax purposes.

The effects of the acquisitions on the assets and liabilities of the Bosch Group as of the date of first-time consolidation are presented in the table below.

T.14

FIGURES IN MILLIONS OF EUROS	BSH Hausgeräte Group		Automotive Steering Group	
	Fair values	Carrying amounts acquired	Fair values	Carrying amounts acquired
Current assets	**5,719**	**5,436**	**1,697**	**1,667**
of which cash and cash equivalents	493	493	278	278
of which trade receivables	2,954	2,954	883	883
Non-current assets	**8,069**	**3,484**	**3,100**	**1,558**
Financial assets	1,063	1,063	33	33
Property, plant, and equipment	2,372	1,859	1,441	1,182
Intangible assets	4,123	59	1,375	92
of which goodwill	548		108	
Deferred tax assets	511	503	251	251
Current liabilities	**3,591**	**3,591**	**1,246**	**1,246**
Non-current liabilities	**4,362**	**3,141**	**1,575**	**1,155**
Provisions	1,908	1,908	927	927
Liabilities including deferred taxes	2,454	1,233	648	228
Non-controlling interests			217	201

T.15

FIGURES IN MILLIONS OF EUROS	Climatec	ProSyst	Seeo	Kliklok	Total of fair values	Total of carrying amounts acquired
Current assets	**43**	**4**	**4**	**28**	**79**	**76**
of which cash and cash equivalents		2	4	4	10	10
of which trade receivables	37	2	0	6	45	45
Non-current assets	**171**	**61**	**82**	**60**	**374**	**27**
Property, plant, and equipment	2		2	10	14	8
Intangible assets	169	61	79	47	356	
of which goodwill	71	26	39	16	152	
Deferred tax assets			1	3	4	19
Current liabilities	**29**	**2**	**1**	**14**	**46**	**46**
Non-current liabilities	**1**	**10**		**19**	**30**	**7**
Provisions	1			3	4	4
Liabilities including deferred taxes		10		16	26	3

In the course of the acquisition transactions, previously unrecognized intangible assets (excluding goodwill) of EUR 98 million were disclosed at Climatec, of EUR 35 million at ProSyst, of EUR 40 million at Seeo, and of EUR 31 million at Kliklok.

In addition, Osgood Industries Inc., Oldsmar, FL (USA), was acquired for EUR 15 million in the fiscal year.

The aforementioned business combinations were primarily paid for through the transfer of cash and cash equivalents.

Assuming that the aforementioned entities had already been consolidated for the first time as of January 1, 2015, the Bosch Group's total sales revenue would have come to EUR 70,994 million, with profit after tax of EUR 3,541 million.

Discontinued operations

No decisions were made in the fiscal year concerning the sale of parts of companies or subsidiaries falling within the scope of IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*.

In the previous year, the production facilities and a large portion of the assets of Bosch Solar Energy AG, the module activities at the Prenzlau (Germany) site of AS Abwicklung und Solar-Service AG i.L. (formerly aleo solar AG i.L.), and the module plant in Vénissieux, France, were sold.

The result of discontinued operations in the previous year broke down as follows:

T.16

FIGURES IN MILLIONS OF EUROS	2014
Sales revenue	20
Other income	
Expenses	–44
Result of discontinued operations	**–24**
Income taxes	
Profit after tax	**–24**
of which attributable to non-controlling interests	
of which attributable to parent company	–24

The effects of discontinued operations on the statement of comprehensive income in the previous year are presented below:

T.17

FIGURES IN MILLIONS OF EUROS	2014
Profit after tax	**–24**
Items that will be reclassified to profit or loss	
Items that will not be reclassified to profit or loss	
Comprehensive income	**–24**
of which attributable to non-controlling interests	
of which attributable to parent company	–24

The cash flows of discontinued operations broke down as follows in the previous year:

T.18

FIGURES IN MILLIONS OF EUROS	2014
Operating activities	–16
Investing activities	0
Financing activities	0

The large gearboxes unit of the Drive and Control Technology division was sold as of November 30, 2015. The transaction led to a loss of EUR 176 million (including the provisions recognized in connection with the sale).

Notes to the income statement

1 Sales revenue

Sales revenue amounted to EUR 70,607 million (previous year: EUR 48,951 million). The Mobility Solutions business sector accounted for EUR 41,657 million (previous year: EUR 33,318 million) of this total, the Industrial Technology business sector for EUR 6,603 million (previous year: EUR 6,709 million), the Consumer Goods business sector for EUR 17,140 million (previous year: EUR 4,179 million), and the Energy and Building Technology business sector for EUR 5,134 million (previous year: EUR 4,627 million). Sales revenue that cannot be allocated to the business sectors came to EUR 73 million (previous year: EUR 118 million). EUR 20 million of the previous year's sales revenue was allocable to discontinued operations, but could not be allocated to any business sector.

2 Distribution cost and administrative expenses

T.19

FIGURES IN MILLIONS OF EUROS	2015	2014
Administrative expenses	3,692	2,528
Distribution cost	10,095	6,949
	13,787	**9,477**
Discontinued operations		–8
	13,787	**9,469**

The distribution cost includes personnel and indirect costs, depreciation charged in the distribution function, customer service, logistics, market research, sales promotion, shipping, advertising, and warranty costs.

3 Research and development cost

Research and development cost contains both research cost and development cost that cannot be capitalized, as well as depreciation on capitalized development cost. In addition, it includes development work charged directly to customers.

T.20

FIGURES IN MILLIONS OF EUROS	2015	2014
Total research and development cost	6,455	4,997
Development cost recognized in the reporting period	–236	–225
Depreciation on recognized development cost	159	188
	6,378	**4,960**
Discontinued operations		–1
	6,378	**4,959**

4 Other operating income

T.21

FIGURES IN MILLIONS OF EUROS	2015	2014
Income from exchange-rate fluctuations	1,057	520
Income from the disposal of non-current assets	97	73
Income from rent and leases	13	10
Income from the reversal of provisions	53	74
Income from remeasurement of investments	2,136	
Sundry other operating income	576	449
	3,932	**1,126**

Income from the remeasurement of investments mainly stems from the remeasurement of the net assets arising from the first-time full consolidation of BSH Hausgeräte GmbH (formerly BSH Bosch und Siemens Hausgeräte GmbH) and of Robert Bosch Automotive Steering GmbH (formerly ZF Lenksysteme GmbH).

The income from exchange-rate fluctuations is offset by expenses which are disclosed in other operating expenses. These items contain the effective exchange-rate results and the results from foreign-currency derivatives allocable to the operating business.

Leases are accounted for according to the rules pertaining to operating leases, provided that substantially all the risks and rewards incidental to ownership lie with the lessor. The assets concerned are recognized in property, plant, and equipment, and the lease payments received, provided they are not disclosed as sales revenue, are recorded in other operating income.

Government grants related to income amounted to EUR 136 million (previous year: EUR 88 million). They are offset against the respective expenses. If there are no such expenses, the grants are disclosed in sundry other operating income.

5 Other operating expenses

T.22

FIGURES IN MILLIONS OF EUROS	2015	2014
Expenses from exchange-rate fluctuations	1,115	436
Valuation allowances on receivables and other assets	74	43
Expenses from the disposal of non-current assets	115	102
Other taxes	66	64
Expenses from the recognition of provisions	698	92
Impairment of goodwill	565	
Sundry other operating expenses	435	189
	3,068	**926**
Discontinued operations		–14
	3,068	**912**

The expenses from the recognition of provisions include additions to the provisions for legal risks.

6 Financial result

T.23

FIGURES IN MILLIONS OF EUROS	2015	2014
Investment income	21	42
Result from the disposal of investments	–10	11
Result from investments	**11**	**53**
Interest and similar income	421	356
Interest and similar expenses	–270	–178
Interest result	**151**	**178**
Gains on disposal of securities	683	458
Losses on disposal of securities	–201	–111
Exchange-rate gains	1,058	917
Exchange-rate losses	–1,290	–659
Gains on derivatives	771	311
Losses on derivatives	–896	–610
Other income	33	19
Other expenses	–418	–211
Other financial result	**–260**	**114**
Financial result, total	**–98**	**345**
of which financial income	2,987	2,114
of which financial expenses	–3,085	–1,769

The line items “gains/losses on derivatives” contain transactions to hedge financial assets. The line item “other expenses” contains impairments of securities totaling EUR 283 million (previous year: EUR 100 million).

Capitalized borrowing costs of EUR 12 million (previous year: EUR 16 million) were deducted from interest expenses. The underlying borrowing rate is 3.0 percent (previous year: 3.5 percent).

Interest income and expenses are attributable to financial instruments not measured at fair value through profit or loss as follows:

T.24

FIGURES IN MILLIONS OF EUROS	2015		2014	
	Interest income	Interest expenses	Interest income	Interest expenses
Loans and receivables	99		88	
Available-for-sale financial assets	312		267	
Financial liabilities measured at amortized cost		258		178
	411	**258**	**355**	**178**

7 Income taxes

Income taxes are classified according to their origin as follows:

T.25

FIGURES IN MILLIONS OF EUROS	2015	2014
Current taxes	1,330	597
Deferred taxes	–378	117
	952	**714**

Deferred taxes are calculated on the basis of the tax rates that apply or are expected to apply given the current legislation in the individual countries at the expected time of realization. The corporate income tax rate for German companies is 15 percent. Taking into account the solidarity surcharge of 5.5 percent and the trade tax levied on profits recorded in Germany, the total tax rate is 29 percent. The tax rates outside Germany range between 9 percent and 38 percent (previous year: between 9 percent and 38 percent).

As of December 31, the deferred tax assets and liabilities presented in the statement of financial position are attributable to the following items:

T.26

FIGURES IN MILLIONS OF EUROS	2015		2014	
	Assets	Liabilities	Assets	Liabilities
Receivables, other assets, and inventories	646	206	455	153
Securities, investments	36	297	2	362
Property, plant, and equipment	132	995	135	437
Intangible assets	222	1,572	175	581
Other assets	154	0	114	1
Liabilities	901	91	656	63
Provisions	2,578	66	2,466	51
Other liabilities	1	160	1	151
Unused tax losses and tax credits	733		354	
Total	**5,403**	**3,387**	**4,358**	**1,799**
Netting	–932	–932	–653	–653
	4,471	**2,455**	**3,705**	**1,146**

In the fiscal year, write-downs on deferred tax assets came to EUR 401 million (previous year: EUR 333 million).

There are EUR 1,053 million in unused tax losses for which no deferred tax assets have been recognized (previous year: EUR 731 million). Of that amount, EUR 54 million (previous year: EUR 27 million) will be forfeited within the next three years. In addition, deferred tax assets were not recognized on tax credits of EUR 21 million (previous year: EUR 142 million).

Consolidation measures give rise to deferred tax assets of EUR 221 million (previous year: EUR 114 million) and deferred tax liabilities of EUR 1 million (previous year: EUR 9 million).

In the fiscal year, changed tax rates in the Bosch Group resulted in a deferred tax expense of EUR 19 million (previous year: EUR 38 million).

In the reporting period, deferred taxes of EUR 140 million (previous year: EUR 746 million) were recorded directly in equity. Of this total, EUR 96 million increases (previous year: decrease of EUR 55 million) the surplus from securities and EUR 236 million decreases retained earnings due to the change in actuarial parameters in accordance with IAS 19 (previous year: increase of EUR 801 million).

The basis for the expected income tax expense is the German tax rate of 29 percent. The difference between expected and disclosed income tax expense is attributable to the following factors:

T.27

FIGURES IN MILLIONS OF EUROS		
	2015	**2014**
Profit before tax	4,489	3,375
Expected income tax expense	1,302	979
Variances due to tax rate	–38	–20
Non-deductible expenses	258	101
Zero-rated income	–315	–360
Remeasurement of investments	–619	
Other differences	364	14
Income tax expense disclosed	**952**	**714**
Effective tax rate	21%	21%

8 Non-controlling interests

Profits attributable to non-controlling interests amount to EUR 366 million (previous year: EUR 233 million). They are counterbalanced by losses of EUR 22 million (previous year: EUR 6 million).

9 Other notes to the income statement

In the reporting period, personnel expenses of EUR 20,369 million (previous year: EUR 15,325 million) were incurred.

Cost of materials amounted to EUR 32,003 million (previous year: EUR 21,810 million).

Information about amortization and depreciation is contained in the notes on non-current assets.

Notes to the statement of financial position

10 Cash and cash equivalents

T.28

FIGURES IN MILLIONS OF EUROS	2015	2014
Bank balances (term up to 90 days)	3,694	5,502
Cash and reserve bank deposits	13	11
	3,707	**5,513**

The bank balances are partly invested as secured deposits in tri-party repo transactions. As of the reporting date, the carrying amount of the secured deposits is EUR 500 million (previous year: EUR 2,490 million). The bank provided collateral of the same amount in the form of securities.

11 Trade receivables

In the fiscal year, trade receivables came to EUR 13,240 million (previous year: EUR 8,785 million). Of that amount, EUR 7 million (previous year: EUR 9 million) have a term of more than one year.

Information about valuation allowances on trade receivables is contained in the credit risk section of note 26 “Capital and risk management.”

12 Current other financial assets

T.29

FIGURES IN MILLIONS OF EUROS	2015	2014
Securities	608	1,076
Bank balances (term of more than 90 days)	213	303
Loan receivables	378	331
Derivative financial assets	142	52
Receivables from finance leases	32	29
Sundry other financial assets	460	318
	1,833	**2,109**

The securities classified as current are listed securities with a residual term of less than one year as well as securities which are intended for sale within a year.

Note 27 “Leases” contains additional disclosures on receivables from finance leases.

13 Current other assets

T.30

FIGURES IN MILLIONS OF EUROS	2015	2014
Prepaid expenses	179	192
Receivables from tax authorities (without income tax receivables)	1,218	944
Sundry other assets	107	102
	1,504	**1,238**

14 Inventories

T.31

FIGURES IN MILLIONS OF EUROS	2015	2014
Raw materials, consumables, and supplies	2,946	2,266
Work in process	1,510	1,364
Finished goods and merchandise	4,969	3,330
Prepayments	226	234
	9,651	**7,194**

Of the total amount of inventories, an amount of EUR 485 million (previous year: EUR 234 million) is carried at net realizable value. In the fiscal year, impairment losses of EUR 245 million (previous year: reversals of impairment losses of EUR 31 million) were recognized in profit or loss. No inventories were pledged as collateral.

15 Non-current financial assets

T.32

FIGURES IN MILLIONS OF EUROS	2015	2014
Securities	9,831	8,731
Investments	1,158	1,179
Loan receivables	171	269
Derivative financial assets	81	58
Receivables from finance leases	152	146
Other financial assets	141	85
	11,534	**10,468**

Loan receivables with a residual term of more than five years amount to EUR 60 million (previous year: EUR 1 million). There are no other receivables due in more than five years.

Information about valuation allowances on loan receivables and finance lease receivables is contained in the credit risk section of note 26 “Capital and risk management.”

Note 27 “Leases” contains further details on receivables from finance leases.

Non-current securities and investments

The securities consist of interest-bearing and other securities as well as shares.

The pledged securities have a carrying amount of EUR 1,051 million (previous year: EUR 1,075 million). The pledged securities satisfy the legal requirement to secure obligations to employees and bank guarantees. Medium-term interest-bearing securities and units equivalent to at least the value of the claims were pledged.

Investments include unlisted investments amounting to EUR 581 million (previous year: EUR 577 million). There is no active market for these investments; they are therefore carried at amortized cost. There were no material divestments of unlisted investments in the reporting period or in the previous year.

As of the reporting date, the group plans to sell unlisted investments on a small scale.

16 Property, plant, and equipment

T.33

FIGURES IN MILLIONS OF EUROS	Land, buildings belonging to operating assets	Investment property	Plant and equipment	Other equipment, fixtures and furniture, leased assets	Prepayments and assets under construction	Total
Gross values 1/1/2014	**7,451**	**113**	**17,784**	**6,835**	**1,423**	**33,606**
Changes in consolidated group	55		24	–40	12	51
Additions	193		715	570	1,107	2,585
Reclassifications	250	–7	640	196	–1,079	
Disposals	–334	–2	–1,263	–507	–44	–2,150
Exchange rate differences	173	2	513	135	45	868
Gross values 12/31/2014	**7,788**	**106**	**18,413**	**7,189**	**1,464**	**34,960**
Depreciation 1/1/2014	**3,308**	**36**	**12,860**	**5,134**	**24**	**21,362**
Changes in consolidated group	–7		–12	–34		–53
Additions	197	1	1,019	651		1,868
Reclassifications	–6		34	–21	–7	
Disposals	–281	–1	–1,149	–452	–3	–1,886
Write-ups	–3		–24	–1		–28
Exchange rate differences	54		303	88	1	446
Depreciation 12/31/2014	**3,262**	**36**	**13,031**	**5,365**	**15**	**21,709**
Carrying amounts 12/31/2014	**4,526**	**70**	**5,382**	**1,824**	**1,449**	**13,251**
Gross values 1/1/2015	**7,788**	**106**	**18,413**	**7,189**	**1,464**	**34,960**
Changes in consolidated group	1,811	12	3,930	2,280	564	8,597
Additions	232	1	1,200	826	1,799	4,058
Reclassifications	303		1,025	403	–1,731	
Disposals	–171	–27	–1,047	–654	–60	–1,959
Exchange rate differences	158	1	172	89	18	438
Gross values 12/31/2015	**10,121**	**93**	**23,693**	**10,133**	**2,054**	**46,094**
Depreciation 1/1/2015	**3,262**	**36**	**13,031**	**5,365**	**15**	**21,709**
Changes in consolidated group	625	1	2,497	1,620	4	4,747
Additions	278	2	1,540	966	2	2,788
Reclassifications	1		–28	27		
Disposals	–25	–1	–937	–595	–3	–1,561
Exchange rate differences	69		130	69	1	269
Depreciation 12/31/2015	**4,210**	**38**	**16,233**	**7,452**	**19**	**27,952**
Carrying amounts 12/31/2015	**5,911**	**55**	**7,460**	**2,681**	**2,035**	**18,142**

The total depreciation charge for the fiscal year contains the following impairment losses:

- Land and buildings: EUR 7 million (previous year: EUR 0 million)
- Plant and equipment: EUR 16 million (previous year: EUR 0 million)
- Other equipment, fixtures, and furniture: EUR 22 million (previous year: EUR 0 million)

The carrying amounts contain the following amounts from finance leases under which the Bosch Group is the lessee:

- Land and buildings: EUR 14 million (previous year: EUR 7 million)
- Plant and equipment: EUR 2 million (previous year: EUR 1 million)
- Other equipment, fixtures, and furniture: EUR 9 million (previous year: EUR 12 million)

The obligations entered into to purchase items of property, plant, and equipment amounted to EUR 630 million (previous year: EUR 499 million); restrictions on title totaled EUR 8 million (previous year: EUR 6 million). Government grants for assets of EUR 13 million (previous year: EUR 19 million) were deducted from the additions in the reporting period.

Investment property comprises rented properties which were measured at amortized cost. Measured at fair value, the portfolio comes to EUR 115 million (previous year: EUR 150 million). The fair values were calculated at corporate headquarters. The residential property in Germany and Asia allocated to level 3 of the fair-value hierarchy pursuant to IFRS 13 is measured using the discounted earnings or comparative method, based on the ImmoWertV (*Verordnung über die Grundsätze für die Ermittlung der Verkehrswerte von Grundstücken*: Ordinance on principles to assess the market value of land) and taking the current fabric and market values of the individual properties into account. Rental income from investment property came to EUR 10 million (previous year: EUR 7 million), maintenance expenses totaled EUR 5 million (previous year: EUR 3 million).

A review of the useful lives of property, plant, and equipment revealed that special-purpose machinery is used for a longer period than previously estimated. The useful life on which depreciation is based was therefore extended to eight years. The effect of this change on the depreciation of property, plant, and equipment is presented in the following table:

T.34

FIGURES IN MILLIONS OF EUROS	2015	2016	2017	2018–2020
Depreciation of property, plant, and equipment	–19	22	43	238

17 Intangible assets

T.35

FIGURES IN MILLIONS OF EUROS	Acquired intangible assets (without goodwill)	Acquired goodwill	Internally generated intangible assets	Total
Gross values 1/1/2014	**3,628**	**5,441**	**1,171**	**10,240**
Changes in consolidated group	13	–29		–16
Additions	185	4	270	459
Disposals	–96	–668	–199	–963
Exchange rate differences	178	100		278
Gross values 12/31/2014	**3,908**	**4,848**	**1,242**	**9,998**
Amortization 1/1/2014	**1,697**	**790**	**575**	**3,062**
Changes in consolidated group	1			1
Additions	274		227	501
Disposals	–89	–668	–199	–956
Exchange rate differences	46	6		52
Amortization 12/31/2014	**1,929**	**128**	**603**	**2,660**
Carrying amounts 12/31/2014	**1,979**	**4,720**	**639**	**7,338**
Gross values 1/1/2015	**3,908**	**4,848**	**1,242**	**9,998**
Changes in consolidated group	4,899	827	67	5,793
Additions	303	10	283	596
Disposals	–179	–29	–129	–337
Exchange rate differences	233	130		363
Gross values 12/31/2015	**9,164**	**5,786**	**1,463**	**16,413**
Amortization 1/1/2015	**1,929**	**128**	**603**	**2,660**
Changes in consolidated group	–136		49	–87
Additions	802	565	204	1,571
Disposals	–158		–129	–287
Exchange rate differences	62	4		66
Amortization 12/31/2015	**2,499**	**697**	**727**	**3,923**
Carrying amounts 12/31/2015	**6,665**	**5,089**	**736**	**12,490**

The amount of amortization for the fiscal year contains the following impairment losses:

- Acquired intangible assets (without goodwill): EUR 7 million (previous year: EUR 0 million)
- Internally generated intangible assets: EUR 16 million (previous year: EUR 64 million)

The goodwill of EUR 5,089 million (previous year: EUR 4,720 million) is attributable to the divisions (cash-generating units) as follows:

T.36

FIGURES IN MILLIONS OF EUROS	2015	2014
Gasoline Systems	356	300
Diesel Systems	54	54
Automotive Aftermarket	400	351
Automotive Steering	108	
Drive and Control Technology	1,545	2,115
Packaging Technology	130	96
Power Tools	383	362
BSH Hausgeräte GmbH	548	
Security Systems	449	351
Thermotechnology	1,012	998
Other	104	93
	5,089	**4,720**

Goodwill is subjected to an annual impairment test. An impairment loss is recorded when the recoverable amount is below the carrying amount of the cash-generating unit. The recoverable amount is defined as the value in use that is derived from the future cash flows. The cash flows are determined by reference to budget planning with a planning period of five years and based on the medium-term planning approved by management. This planning is based on expectations with respect to future market shares, growth in the respective markets, and the profitability of products and services. Cash flows after the detailed planning period are determined by reference to an expected long-term growth rate.

The parameters used in impairment testing are presented in the following table:

T.37

PERCENTAGE FIGURES	Mobility Solutions		Industrial Technology		Consumer Goods		Energy and Building Technology	
	2015	2014	2015	2014	2015	2014	2015	2014
Growth rate	1.0	1.0	1.0	2.0	1.0	2.0	1.0	2.0
Pre-tax discount rate	11.5	11.9	10.7	11.4	9.6	11.2	9.8	10.4

A risk-free interest rate of 1.3 percent (previous year: 2.1 percent) and a market risk premium of 6.0 percent (previous year: 6.0 percent) are assumed. The standard tax rate used is 29 percent (previous year: 29 percent).

In the fiscal year, the annual impairment test indicated that an impairment loss of EUR 565 million had to be recognized on goodwill. Of that amount, EUR 550 million is allocable to the Drive and Control Technology division (Industrial Technology business sector). The impairment loss was due to persistently weak market conditions, severe price erosion, and more intense competitive pressure on account of excess capacity worldwide. An increase in the discount rate by 0.5 of a percentage point would have led to an additional impairment of EUR 255 million; a decrease in the growth rate by 0.5 of a percentage point would have led to an additional impairment of EUR 197 million.

In addition, an impairment loss of EUR 15 million was charged on goodwill in the Energy and Building Solutions unit.

For all other goodwill that was not impaired in the fiscal year, neither an increase in the discount rate by 0.5 of a percentage point nor a decrease in the growth rate by 0.5 of a percentage point would have led to an impairment.

18 Trade payables

T.38

FIGURES IN MILLIONS OF EUROS	2015	2014
Trade payables	6,111	3,578
Notes payable	73	21
	6,184	**3,599**

There are no trade payables which are due in more than one year.

19 Other current and non-current financial liabilities

T.39

FIGURES IN MILLIONS OF EUROS	2015		2014	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Bonds	855	4,163		4,223
Promissory loans		219		154
Liabilities to banks	397	838	185	648
Loans	86	29	83	10
Derivative financial liabilities	154	23	94	16
Finance lease obligations	3	23	4	14
Other financial liabilities	700	48	728	47
	2,195	**5,343**	**1,094**	**5,112**

Financial liabilities amounting to EUR 2,507 million (previous year: EUR 2,576 million) are due in more than five years.

Note 27 “Leases” contains additional disclosures on finance lease obligations.

20 Other liabilities and provisions

Other liabilities

T.40

FIGURES IN MILLIONS OF EUROS	2015		2014	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Accruals in the personnel area	2,244		1,671	
Accruals in the sales and marketing area	1,231		521	
Other accruals	549		368	
Tax liabilities (without income tax liabilities)	563		413	
Prepayments received for inventories	483		484	
Deferred income	154	10	142	
Deferred income from tooling compensation received	15	137	16	23
Sundry other liabilities	255	100	91	55
	5,494	**247**	**3,706**	**78**

EUR 6 million of the sundry other liabilities (previous year: EUR 0 million) are due in more than five years.

The accruals in the personnel area mainly relate to vacation and salary entitlements as well as accrued special payments, while those in the sales and marketing area mainly pertain to bonus and commission payments.

Provisions (without income tax provisions and pension provisions)

T.41

FIGURES IN MILLIONS OF EUROS	2015		2014	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Tax provisions (without income tax provisions)	62	89	25	66
Provisions in the personnel area	637	1,711	709	1,208
Provisions in the sales and marketing area	2,286	1,152	1,937	933
Other provisions	678	1,889	568	1,218
	3,663	**4,841**	**3,239**	**3,425**

Provisions developed as follows:

T.42

FIGURES IN MILLIONS OF EUROS	At 1/1/2015	Changes in consolidated group	Amounts used	Amounts reversed	Increase incl. increase in discounted amount	Exchange rate adjustments	At 12/31/2015
Tax provisions	886	169	–261	–39	340	–19	1,076
Provisions in the personnel area	1,917	135	–416	–111	820	3	2,348
Provisions in the sales and marketing area	2,870	764	–1,424	–480	1,633	75	3,438
Other provisions	1,786	258	–375	–119	1,007	10	2,567
	7,459	**1,326**	**–2,476**	**–749**	**3,800**	**69**	**9,429**

Of the total increase in provisions, an amount of EUR 39 million (previous year: EUR 49 million) relates to increases in the discounted amount.

Provisions in the personnel area relate to obligations from personnel adjustment measures, from early phased retirement, and from other special benefits for which the timing or amount cannot yet be precisely determined. Provisions in the sales and marketing area mainly take account of losses from delivery and warranty obligations, including risks from recall, exchange, and product liability cases. Other provisions are recognized, among other things, for risks from purchasing obligations, environmental protection obligations, litigation risks, restructuring, and legal risks.

Since 2010, the EU Commission and other antitrust authorities have been investigating a number of automotive suppliers for alleged anticompetitive behavior. The Bosch Group is also affected by these antitrust investigations. The company continues to cooperate fully with the authorities in their investigations into these allegations. In 2015, Bosch reached a settlement with the U.S. antitrust authority, the Department of Justice. Talks with the EU Commission have now reached an advanced stage. Risks for Bosch present themselves in the currently still ongoing official investigations as well as in potential civil-law claims. Since fall 2015, various authorities have raised allegations against Volkswagen with respect to the manipulation of the software contained in engine control units. In this context, civil actions in the U.S. have been grouped together into a class action, which also names Bosch as a defendant. As one of the world's biggest suppliers of fuel injection technology, Bosch takes these allegations very seriously. Immediately after learning of the allegations, Bosch launched its own internal investigation. As this investigation is still ongoing, there are no final results available yet. There are no indications of criminally relevant action by the management bodies that would require adjustment or restatement of the financial statements of previous years. In connection with the circumstances surrounding the manipulation, the company is in contact with many investigating authorities both in Germany and internationally. Risks for Bosch thus exist in the official investigations still being carried out, above all in the U.S. and Germany, as well as in the form of civil-law proceedings, including class actions in the United States. On the basis of the facts relating to antitrust proceedings and engine control units that were available when the financial statements were prepared, and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions amounting to some 750 million euros have been set up.

Contingent liabilities and other financial obligations

No provisions were recognized for the following contingent liabilities, as it is more likely than not that they will not occur:

T.43

FIGURES IN MILLIONS OF EUROS	2015	2014
Contingent liabilities related to notes issued and transferred	16	25
Contingent liabilities from guarantees	16	14
Other contingent liabilities	11	16
	43	**55**

21 Pension provisions and similar obligations

The workforce of the companies included in the consolidated financial statements have certain rights in connection with the company pension scheme, depending on the conditions existing in the various countries. The benefit obligations include both currently claimed benefits and future benefit obligations of active associates or associates that have left the company.

The group's post-employment benefits include both defined contribution plans and defined benefit plans. In the case of defined contribution plans, the company pays voluntary contributions to state or private pension or insurance funds, based on legal or contractual provisions. No further payment obligations arise for the company from the payment of these contributions. The defined benefit plans are funded or unfunded pension systems, or systems financed by insurance premiums.

The major pension and post-retirement medical-care plans operated by the Bosch Group are described below. These plans are subject to actuarial risks such as longevity risks, interest fluctuation risks, and capital market risks.

Germany

The company pension scheme (Bosch bAV Plan), which was introduced on January 1, 2006, is a contribution-based plan with salary-based contributions. The Bosch bAV Plan is partly funded via external pension funds. The value of the assets of the external pension fund is offset against the pension obligation calculated using the projected unit credit method. In Germany, the external pension funds are Bosch Pensionsfonds AG and Bosch Hilfe e.V.

During the vesting period, employer and employee contributions are added to the assets of Bosch Pensionsfonds AG up to the tax-allowed ceiling. Contributions that exceed the tax-allowed ceiling are allocated to the unfunded obligation. The benefit amount rises in line with the performance of Bosch Pensionsfonds. Grandfather provisions were transferred to the Bosch bAV Plan. For a constantly decreasing number of members of the workforce in the vesting period, a transitional arrangement guarantees a fixed rate of return on the defined benefit obligation.

At the companies BSH Hausgeräte GmbH and Robert Bosch Automotive Steering GmbH, which were consolidated for the first time in the fiscal year, pension benefits are granted in the form of contribution-based capital components with salary-based contributions or a salary-based pension component.

On reaching retirement, or in the event of occupational disability or death, the earned benefits are paid out in the form of a lump-sum payment, pension payments, or a lifelong annuity.

Japan

The majority of the pension obligations are corporate pension plans (CPPs), generally in the form of funded career average pension plans. The benefits are based on salary-based contributions that are subject to interest. The rate of return depends on the structure of the plan.

There are also obligations from unfunded retirement allowance plans (RAPs), the benefits of which are based on years of service and final salary.

All the benefits are paid out in the form of lump-sum payments on termination, death, or reaching retirement age. In some CPPs, annuity payments are possible for members of the workforce after a certain period of service.

Switzerland

Bosch has a funded pension plan. The Bosch pension plan is organized as a foundation. All the demographic and financial risks are borne by the foundation and regularly assessed by the foundation's board of trustees. In the case of a deficit, adjustments can be made such as a change in the pension factors or an increase in future contributions.

Pension plans are governed by the BVG (*Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge*: Swiss Pension Fund Law). All benefits are defined by law, and the BVG stipulates the minimum benefits to be paid. The Bosch pension plan meets all legal requirements.

Both employer and workforce make contributions to the Bosch pension plan. The benefits are paid out either as a lump sum or a lifelong annuity.

United Kingdom

Bosch finances a closed final-salary defined benefit plan. The obligation is funded via a trust association which is legally independent of Bosch, and which is operated in accordance with the law. The trustees are required to comply with the legal requirements. The plan has a deficit that is being closed through a restructuring plan.

The benefits earned are paid out on reaching retirement age, or in the event of occupational disability or death.

United States

Bosch maintains the Bosch pension plan and eleven additional smaller pension plans, all of which are funded and in line with the ERISA requirements. The legal minimum funding provisions therefore apply to these plans. The Bosch pension plan is a cash balance plan under which the benefits depend on age, years of service, and salary. Benefits are paid out on reaching retirement age or in the event of death. The plan does not accept new members.

Two unfunded pension plans are also closed for new members; these provide benefits for certain members of management or for members of the Bosch pension plan whose income lies above the statutory contribution assessment basis. The benefits depend on age, years of service, and salary, and are paid out on reaching retirement age or in the event of death.

In addition, Bosch finances 14 unfunded plans for post-employment medical care. Eight plans are already closed. The level of benefits and the contributions for pensioners vary depending on location, age, and years of service. The benefits include healthcare benefits and life assurance contributions for pensioners and their spouses.

Actuarial calculations and estimates are made for all defined benefit plans. Besides assumptions about life expectancy, and taking index-linked developments into account, the calculations are based on the following parameters, which vary from one country to another depending on local economic circumstances:

T.44

PERCENTAGE FIGURES

	Germany		Japan		Switzerland		U.K.		USA		Total	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Discount factor	2.3	2.0	0.6	0.6	0.9	1.4	3.8	3.4	4.3	4.0	2.5	2.3
Projected salaries	3.0	3.0	2.1	2.5	1.5	2.0	2.8	3.8	3.5	3.5	3.0	3.0
Projected pensions	1.8	1.8	n.a.	n.a.	0.0	0.1	2.8	3.0	n.a.	n.a.	1.6	1.6

n.a. not applicable

To determine the discount factor in the euro zone, reference was made to bonds rated AA by at least one rating agency as of the reporting date.

Projected salaries are future salary increases estimated on the basis of the economic situation and inflation, among other things.

The pension plans are measured using the current mortality tables as of December 31 of the fiscal year concerned. As of December 31, 2015, the following mortality tables are used:

T.45

Germany	Heubeck 2005G mortality tables
Japan	2015 MHLW Standard Table
Switzerland	BVG 2010 generation tables for pensioners, BVG 2010 P20 for future beneficiaries
U.K.	105% for males, 96% for females of S2PXA tables with 2014 CMI projections
USA	RP2006, projected by MP2015; aggregate for some plans, collar adjustments for others

As of December 31, 2014, the following mortality tables were used in the key countries:

T.46

Germany	Heubeck 2005G mortality tables
Japan	EPF 2009
Switzerland	BVG 2010 generation tables for pensioners, BVG 2010 P19 for future beneficiaries
U.K.	S1PXA with 2011 CMI projections
USA	RP2014, projected by MP2014; unadjusted

For the key regions, the present value of the defined benefit obligation can be reconciled to the provision as follows:

T.47

FIGURES IN MILLIONS OF EUROS

	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
At 12/31/2015					
Germany	12,919	–2,708			10,211
Japan	235	–232	28		31
Switzerland	1,214	–1,090			124
U.K.	354	–312	10		52
USA	1,939	–1,470			469
Other	555	–185		5	375
	17,216	**–5,997**	**38**	**5**	**11,262**
At 12/31/2014					
Germany	11,409	–2,400			9,009
Japan	217	–203	14		28
Switzerland	997	–961	2		38
U.K.	281	–203			78
USA	1,796	–1,320			476
Other	458	–160	1	7	306
	15,158	**–5,247**	**17**	**7**	**9,935**

The development of the net liability of the defined benefit obligation is presented in the following table:

T.48

FIGURES IN MILLIONS OF EUROS	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
At 1/1/2015	**15,158**	**–5,247**	**17**	**7**	**9,935**
Pension cost charged to profit or loss					
Current service cost	626				626
Past service cost	0				0
Gains from plan settlements not related to past service cost	0				0
Net interest income/expense	393	–146		1	248
Other		6			6
	1,019	**–140**	**0**	**1**	**880**
Remeasurement					
Losses on plan assets (excluding amounts included in net interest)		76			76
Gains arising from changes in demographic assumptions	–26				–26
Gains arising from changes in financial assumptions	–1,103				–1,103
Experience losses	32				32
Other adjustments				–2	–2
	–1,097	**76**	**0**	**–2**	**–1,023**
Contributions					
Employer		–363			–363
Beneficiaries	19	–19			0
	19	**–382**	**0**	**0**	**–363**
Benefits paid	–666	230			–436
Special effects (plan settlement)	–11	11			0
Transfers	12	–4			8
Currency translation	351	–300		–1	50
Changes in consolidated companies	2,431	–241			2,190
Changes in other assets			21		21
At 12/31/2015	**17,216**	**–5,997**	**38**	**5**	**11,262**

T.49

FIGURES IN MILLIONS OF EUROS	Present value of the obligation	Plan assets	Other assets	Unrecog-nized asset	Provision
At 1/1/2014	**12,142**	**–4,556**	**15**	**12**	**7,613**
Pension cost charged to profit or loss					
Current service cost	439				439
Past service cost	–7				–7
Gains from plan settlements not related to past service cost	–2				–2
Net interest income/expense	427	–172		2	257
Other		6			6
	857	**–166**	**0**	**2**	**693**
Remeasurement					
Return on plan assets (excluding amounts included in net interest)		–196			–196
Losses arising from changes in demographic assumptions	46				46
Losses from changes in financial assumptions	2,356				2,356
Experience losses	65				65
Other adjustments				–7	–7
	2,467	**–196**	**0**	**–7**	**2,264**
Contributions					
Employer		–335			–335
Beneficiaries	16	–16			0
	16	**–351**	**0**		**–335**
Benefits paid	–536	189			–347
Special effects (plan settlement)					0
Transfers	12	1			13
Currency translation	251	–192			59
Changes in consolidated companies	–51	24			–27
Changes in other assets			2		2
At 12/31/2014	**15,158**	**–5,247**	**17**	**7**	**9,935**

The plan assets comprise the following components:

T.50

PERCENTAGE FIGURES

	Germany		Japan		Switzerland		U.K.		USA	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Cash and cash equivalents	1	1	1	1	0	6	0		1	3
Equity instruments	38	38	37	40	26	25	37	40	44	43
of which Europe	52	50	9	10	54	52	54	58	14	14
of which North America	23	23	23	25	32	34	27	22	73	72
of which Asia Pacific	17	18	68	65	7	7	15	16	8	8
of which emerging markets	8	9			5	5	4	4	5	6
of which other	0				2	2	0		0	0
Debt instruments	46	48	57	54	31	23	53	54	55	54
of which government bonds	39	41	85	85	30	33	40	28	37	35
of which corporate bonds	53	50	5	5	56	52	60	72	63	65
of which other debt instruments	8	9	10	10	14	15				
Property	9	8			35	33	1			
Insurance	0		5	5			4	4		
Other	6	5		0	8	13	5	2		

Quoted prices in an active market are available for the asset class “equity instruments.” For most other classes of assets, there are no quoted prices in an active market.

Duration and estimated maturities of the pension obligation

The weighted duration of the pension obligation as of December 31, 2015, is 15.4 years (previous year: 15.5 years).

Estimated maturities of the undiscounted estimated pension payments

T.51

FIGURES IN MILLIONS OF EUROS	2015	2014
Less than one year	664	565
Between one and two years	680	550
Between two and three years	722	580
	2,066	**1,695**

The estimated additions to plan assets in the fiscal year 2016 amount to EUR 331 million (previous year: EUR 318 million).

The estimated benefits to be paid directly in the fiscal year 2016 amount to EUR 416 million (previous year: EUR 354 million).

Sensitivity of the defined benefit obligation in relation to actuarial parameters

T.52

PERCENTAGE FIGURES	Germany		Japan		Switzerland		U.K.		USA	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Discount factor										
Increase of 0.5 percentage points	–5.4	–6.7	–4.5	–4.9	–5.2	–4.9	–7.7	–9.0	–6.4	–6.5
Decrease of 0.5 percentage points	6.4	7.4	4.8	5.3	5.9	5.5	8.6	10.2	7.1	7.3
Projected salaries										
Increase of 0.25 percentage points	0.1	0.1	0.7	0.7	0.3	0.3	0.9	0.9	0.0	0.0
Decrease of 0.25 percentage points	–0.1	–0.1	–0.7	–0.7	–0.3	–0.3	–0.8	–0.8	0.0	0.0
Projected pensions										
Increase of 0.25 percentage points	0.8	0.7	n.a.	n.a.	2.5	2.5	1.5	1.5	n.a.	n.a.
Decrease of 0.25 percentage points	–0.8	–0.6	n.a.	n.a.	–2.4	–2.4	–1.4	–1.4	n.a.	n.a.
Life expectancy										
Increase by one year	2.3	2.1	n.a.	n.a.	3.3	3.3	3.8	4.1	2.7	2.7

n.a. not applicable

The sensitivity analyses of the defined benefit obligation for the main actuarial assumptions are based on the same methods as those used for the post-employment benefit obligations presented in the consolidated statement of financial position (projected unit credit method). In each case, one assumption was changed leaving the other assumptions unchanged. This means that possible correlation effects were not considered.

Defined contribution plans

Expenses for defined contribution plans amounted to EUR 1,212 million (previous year: EUR 899 million).

22 Equity

The issued capital of EUR 1,200 million and capital reserve of EUR 4,557 million correspond to the items of the statement of financial position disclosed by Robert Bosch GmbH. The issued capital is divided between the shareholders as follows:

Shareholders of Robert Bosch GmbH

T.53

PERCENTAGE FIGURES		
	Shareholding	**Voting rights**
Robert Bosch Stiftung GmbH	92.0	
Robert Bosch Industrietreuhand KG		93.2
Bosch family	7.4	6.8
Robert Bosch GmbH (treasury stock)	0.6	

Retained earnings contain profits that have not been distributed and that were generated in the past by the entities included in the consolidated financial statements, as well as other comprehensive income. The effects of changes in actuarial parameters in the pension provisions are disclosed in the “Other changes” column of other comprehensive income. This position also contains differences between purchase price and purchased pro-rata equity of additional share purchases.

Retained earnings also consider treasury stock of EUR 62 million.

The unappropriated earnings of the group match those of Robert Bosch GmbH.

Non-controlling interests

The shares of non-controlling interests in the equity of the consolidated subsidiaries mainly comprise the non-controlling interests in United Automotive Electronic Systems Co., Ltd., Shanghai, Bosch Automotive Diesel Systems Co., Ltd., Wuxi, ZF Shanghai Steering Systems Group, Shanghai, all China, and Bosch Ltd., Bengaluru, India.

Changes primarily stem from the first-time full consolidation of ZF Shanghai Steering Systems Group, Shanghai, China.

Other notes

23 Statement of cash flows

The statement of cash flows presents cash inflows and outflows from operating activities, investing activities, and financing activities.

The cash flow is derived indirectly, starting from EBIT. EBIT is earnings before taxes and before the financial result. Cash inflows from operating activities are adjusted for non-cash expenses and income (mainly depreciation of non-current assets), and take into account cash-effective financial expenses, financial income, and taxes, as well as changes in working capital.

The investing activities mainly comprise additions to non-current assets, including leased assets, and the purchase and disposal of subsidiaries and other operating units, as well as of securities.

Financing activities combine the inflows and outflows of cash and cash equivalents from borrowing and repayment of financial liabilities, from dividends, and from the acquisition of non-controlling interests.

Changes in items of the statement of financial position contained in the statement of cash flows cannot be directly derived from the statement of financial position, as these have been adjusted for exchange-rate effects and changes in the consolidated group. The change in accounting for pensions is adjusted to eliminate actuarial gains and losses.

The liquidity contained in the statement of cash flows contains cash of EUR 3,707 million (previous year: EUR 5,513 million). In the reporting period, there was no transfer restriction for cash and cash equivalents.

Effects of acquisitions on the cash flow are explained in the “Business combinations” section.

24 Segment reporting

Disclosures on business sectors

Sales and result of continuing operations

T.54

FIGURES IN MILLIONS OF EUROS

	Mobility Solutions		Industrial Technology		Consumer Goods	
	2015	2014	2015	2014	2015	2014
External sales	41,657	33,318	6,603	6,709	17,140	4,179
EBIT	3,216	2,402	–830	67	2,224	549

Disclosures including discontinued operations

T.55

FIGURES IN MILLIONS OF EUROS

	Mobility Solutions		Industrial Technology		Consumer Goods	
	2015	2014	2015	2014	2015	2014
External sales	41,657	33,318	6,603	6,709	17,140	4,179
Intersegment sales	255	254	290	237	77	35
Total sales	41,912	33,572	6,893	6,946	17,217	4,214
EBIT	3,216	2,402	–830	67	2,224	549
of which: profit from entities consolidated using the equity method	–46	32	2	1		223
Non-cash expenses (without depreciation)	2,942	2,425	582	456	728	210
Amortization and depreciation	2,427	1,769	259	254	848	127
Impairment losses on intangible assets and property, plant, and equipment	24	64	550		29	
Non-cash income	1,029	448	121	102	1,767	35
Assets	13,137	10,881	2,732	2,901	6,786	1,664
Investments measured at equity	123	445	29	29		1,192

	Energy and Building Technology		All other segments		Consolidation		Group	
	2015	2014	2015	2014	2015	2014	2015	2014
	5,134	4,627	73	118			70,607	48,951
	224	171	–247	–159			4,587	3,030

	Energy and Building Technology		All other segments		Consolidation		Group	
	2015	2014	2015	2014	2015	2014	2015	2014
	5,134	4,627	73	138			70,607	48,971
	20	17			–642	–543		
	5,154	4,644	73	138	–642	–543	70,607	48,971
	224	171	–247	–183			4,587	3,006
							–44	256
	223	244	154	135			4,629	3,470
	162	135	30	20			3,726	2,305
	15		15				633	64
	68	95	34	55			3,019	735
	1,692	1,586	242	257			24,589	17,289
							152	1,666

Based on the internal management and reporting structure, the Bosch Group is divided into four business sectors. These are the reportable segments and result from the combination of divisions in accordance with the criteria set forth in IFRS 8 *Operating Segments*. The operating business within the business sectors is the responsibility of the divisions.

The Mobility Solutions business sector mainly consists of the following areas of business: injection technology for internal-combustion engines, alternative powertrain concepts, efficient and connected powertrain peripherals, systems for active and passive driving safety, assistance and convenience functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, concepts, technology, and services for the automotive aftermarket, and steering systems for passenger cars and commercial vehicles.

The Industrial Technology business sector combines the following activities:
- Automation technology (technologies for drives, controls, and motion)
- Packaging technology (machinery and packaging lines for the confectionery, foodstuffs, beverage, and tobacco industry, as well as for the pharmaceuticals industry)

The operations of the Consumer Goods business sector comprise the production and distribution of
- Power tools (tools for the trade, industry, and DIY, accessories, garden tools, as well as industrial tools and measuring equipment)
- Household appliances (appliances for cooking, washing-up, washing, drying, cooling, freezing, floor care, etc.). These business activities were included in the consolidated financial statements as of December 31, 2014, using the equity method; they are fully consolidated from the beginning of the fiscal year.

The Energy and Building Technology business sector comprises the following activities:
- Heating systems (heating and hot-water boilers including open- and closed-loop control systems)
- Security systems (video surveillance, public address systems, evacuation systems, and access control)
- Services to increase energy-efficiency in non-residential buildings

Business segments which are not reportable are combined and presented in the category “All other segments.” This mainly relates to financial, holding, and other service companies as well as the remaining activities in the photovoltaics area.

Items attributable to financing activities are not included in segment reporting.

Operating value contribution is the main controlling parameter of our value-based management. In addition to this earnings ratio, the internal reporting to management also reports EBIT at segment level.

Transfer prices between the business segments are determined at arm’s length.

The main items included in non-cash expenses are bad debt allowances, additions to provisions, as well as losses on the disposal of items of property, plant, and equipment and of intangible assets.

The main items included in non-cash income are income from the reversal of provisions, gains on the disposal of items of property, plant, and equipment and of intangible assets, as well as income from remeasurement of investments.

Segment assets comprise trade receivables as well as inventories, in both cases before valuation allowances.

Reconciliation statements

T.56

FIGURES IN MILLIONS OF EUROS	2015	2014
Sales		
Sales by reportable segment	71,176	49,376
Sales of all other segments	73	138
Consolidation	–642	–543
	70,607	**48,971**
Discontinued operations		20
Group sales	**70,607**	**48,951**
Result		
EBIT by reportable segment	4,834	3,189
EBIT of all other segments	–247	–183
Financial income	2,987	2,114
Financial expenses	–3,085	–1,769
	4,489	**3,351**
Discontinued operations		–24
Profit before tax	**4,489**	**3,375**
Assets		
Assets by reportable segment	24,347	17,032
All other segments	242	257
Impairment losses on segment assets	–1,698	–1,310
Other current assets	7,344	9,329
Non-current assets	47,031	36,616
Group assets	**77,266**	**61,924**

Disclosures by important country

T.57

FIGURES IN MILLIONS OF EUROS	Sales by registered office of the customer		Non-current assets[1]	
	2015	2014	2015	2014
Europe	**37,346**	**26,057**	**19,849**	**13,554**
of which Germany	14,179	10,858	12,347	8,859
of which France	2,996	2,211	450	218
of which the U.K.	3,638	2,302	495	263
of which Italy	2,244	1,799	511	485
Americas	**14,052**	**9,939**	**3,756**	**2,340**
of which the U.S.	11,018	7,352	3,195	1,820
Asia	**18,225**	**12,308**	**6,927**	**4,646**
of which China	11,133	6,383	5,039	3,000
of which Japan	2,009	1,962	507	468
Other regions	**984**	**667**	**100**	**49**
	70,607	**48,971**	**30,632**	**20,589**
Discontinued operations		20		
Group	**70,607**	**48,951**	**30,632**	**20,589**

[1] Non-current assets consist of intangible assets and property, plant, and equipment.

The customer structure of the Bosch Group in the reporting period does not reveal any concentration on individual customers.

25 Additional notes on financial instruments

Net profit/loss by category

The table below presents the net effects of financial instruments recognized in the income statement, classified by the categories defined in IAS 39:

T.58

FIGURES IN MILLIONS OF EUROS	2015	2014
Loans and receivables	111	230
Available-for-sale financial assets	663	693
Assets and liabilities held for trading	–203	–285
Financial liabilities measured at amortized cost	–727	–213

The net profit/loss contains the result of the receivables and loan valuation, the result of the reversal of the reserve from securities in equity, exchange-rate gains and losses, interest income and expenses, as well as the result from derivatives.

The valuation gains and losses from securities and equity investments are presented in the statement of comprehensive income.

Book values, carrying amounts, and fair values by category

T.59

FIGURES IN MILLIONS OF EUROS	Category pursuant to IAS 39	Carrying amount 2015	Carrying amount pursuant to IAS 39			Carrying amount pursuant to IAS 17	Fair value 2015
			(Amortized) cost	Fair value recognized in other comprehensive income	Fair value recognized in profit or loss		
Assets							
Cash and cash equivalents	LaR	3,707	3,707				
Trade receivables	LaR	13,240	13,240				
Current other financial assets		1,833					
Securities	AfS	608		608			608
Bank balances	LaR	213	213				
Loan receivables	LaR	378	378				
Derivative financial assets	FAHfT	142			142		142
Receivables from finance leases	n.a.	32				32	
Sundry other financial assets	LaR	460	460				
Non-current financial assets		11,534					
Securities	AfS	9,831		9,831			9,831
Investments	AfS	1,158	581	577			577
Loan receivables	LaR	171	171				187
Derivative financial assets	FAHfT	81			81		81
Receivables from finance leases	n.a.	152				152	
Other financial assets	LaR	141	141				141

T.59

FIGURES IN MILLIONS OF EUROS

	Category pursuant to IAS 39	Carrying amount 2015	Carrying amount pursuant to IAS 39			Carrying amount pursuant to IAS 17	Fair value 2015
			(Amortized) cost	Fair value recognized in other comprehensive income	Fair value recognized in profit or loss		
Equity and liabilities							
Trade payables	FLAC	6,184	6,184				
Current other financial liabilities		2,195					
Bonds	FLAC	855	855				
Liabilities to banks	FLAC	397	397				
Loans	FLAC	86	86				
Derivative financial liabilities	FLHfT	154			154		154
Finance lease obligations	n.a.	3				3	
Other financial liabilities	FLAC	700	700				
Non-current financial liabilities		5,343					
Bonds	FLAC	4,163	4,163				4,474
Promissory loans	FLAC	219	219				249
Liabilities to banks	FLAC	838	838				866
Loans	FLAC	29	29				29
Derivative financial liabilities	FLHfT	23			23		23
Finance lease obligations	n.a.	23				23	
Other financial liabilities	FLAC	48	48				48

LaR Loans and receivables
AfS Available-for-sale financial assets
FAHfT Financial assets held for trading
FLAC Financial liabilities measured at amortized cost
FLHfT Financial liabilities held for trading
n.a. Not applicable

T.60

FIGURES IN MILLIONS OF EUROS	Category pursuant to IAS 39	Carrying amount 2014	Carrying amount pursuant to IAS 39			Carrying amount pursuant to IAS 17	Fair value 2014
			(Amortized) cost	Fair value recognized in other comprehensive income	Fair value recognized in profit or loss		
Assets							
Cash and cash equivalents	LaR	5,513	5,513				
Trade receivables	LaR	8,785	8,785				
Current other financial assets		2,109					
Securities	AfS	1,076		1,076			1,076
Bank balances	LaR	303	303				
Loan receivables	LaR	331	331				
Derivative financial assets	FAHfT	52			52		52
Receivables from finance leases	n.a.	29				29	
Sundry other financial assets	LaR	318	318				
Non-current financial assets		10,468					
Securities	AfS	8,731		8,731			8,731
Investments	AfS	1,179	577	602			602
Loan receivables	LaR	269	269				266
Derivative financial assets	FAHfT	58			58		58
Receivables from finance leases	n.a.	146				146	
Other financial assets	LaR	85	85				85

FIGURES IN MILLIONS OF EUROS	Category pursuant to IAS 39	Carrying amount 2014	Carrying amount pursuant to IAS 39			Carrying amount pursuant to IAS 17	Fair value 2014
			(Amortized) cost	Fair value recognized in other comprehensive income	Fair value recognized in profit or loss		
Equity and liabilities							
Trade payables	FLAC	3,599	3,599				
Current other financial liabilities		1,094					
Liabilities to banks	FLAC	185	185				
Loans	FLAC	83	83				
Derivative financial liabilities	FLHfT	94			94		94
Finance lease obligations	n.a.	4				4	
Other financial liabilities	FLAC	728	728				
Non-current financial liabilities		5,112					
Bonds	FLAC	4,223	4,223				4,735
Promissory loans	FLAC	154	154				188
Liabilities to banks	FLAC	648	648				677
Loans	FLAC	10	10				11
Derivative financial liabilities	FLHfT	16			16		16
Finance lease obligations	n.a.	14				14	
Other financial liabilities	FLAC	47	47				48

LaR Loans and receivables
AfS Available-for-sale financial assets
FAHfT Financial assets held for trading
FLAC Financial liabilities measured at amortized cost
FLHfT Financial liabilities held for trading
n.a. Not applicable

The carrying amounts of the financial assets and liabilities, classified by the categories of IAS 39, are as follows:

T.61

FIGURES IN MILLIONS OF EUROS	2015	2014
Loans and receivables	18,310	15,604
Available-for-sale financial assets	11,597	10,986
Financial assets held for trading	223	110
Financial liabilities measured at amortized cost	13,519	9,677
Financial liabilities held for trading	177	110

Composition of the derivative financial instruments

T.62

FIGURES IN MILLIONS OF EUROS	Market values				Nominal values	
	2015	2015	2014	2014	2015	2014
	up to 1 year	more than 1 year	up to 1 year	more than 1 year		
Derivatives with a positive market value						
Interest derivatives	**2**		**0**		**194**	**2**
of which interest swaps	1				120	
of which other interest derivatives	1		0		74	2
Foreign currency derivatives	**139**	**20**	**45**	**1**	**7,195**	**1,568**
Other derivatives	**1**	**61**	**7**	**57**	**50**	**80**
Derivatives with a negative market value						
Interest derivatives	**0**	**2**	**1**	**1**	**36**	**77**
of which interest swaps		2	0	1	10	11
of which other interest derivatives	0		1		26	66
Foreign currency derivatives	**42**	**0**	**66**	**1**	**3,678**	**4,413**
Other derivatives	**112**	**21**	**27**	**14**	**546**	**398**

The foreign currency derivatives are mainly forward exchange contracts.

The fair values of the financial assets and financial liabilities in accordance with IFRS 13 are derived as follows:

T.63

FIGURES IN MILLIONS OF EUROS	Category pursuant to IAS 39	Level 1[1]		Level 2[2]		Total	
		2015	2014	2015	2014	2015	2014
Financial assets							
Securities	AfS	3,461	3,829	6,978	5,978	10,439	9,807
of which current		154	563	454	513	608	1,076
of which non-current		3,307	3,266	6,524	5,465	9,831	8,731
Investments	AfS	577	602			577	602
Derivative financial instruments	FAHfT		5	223	105	223	110
of which current			5	142	47	142	52
of which non-current				81	58	81	58
Financial liabilities							
Derivative financial instruments	FLHfT		2	177	108	177	110
of which current			2	154	92	154	94
of which non-current				23	16	23	16

[1] Fair value is calculated on the basis of listed, unadjusted market prices on active markets
[2] Fair value is determined on the basis of market data such as share prices, exchange rates, or interest curves using market-based valuation techniques (e.g. discounted cash flow method or Black-Scholes model)

At the end of the fiscal year, items are reviewed to determine whether they need to be reclassified between individual levels of the fair-value hierarchy. No items were reclassified in the current fiscal year.

26 Capital and risk management

Capital management

The main objective of the centralized capital management of the Bosch Group is to maintain the company's sound financial substance and thus to secure the financial independence and flexibility required for further growth.

The operating value contribution is the central controlling variable of our financial management accounting system. It is calculated by deducting the cost of capital from EBIT. Additional adjustments are also made in certain other respects, such as recognition of impairment losses, pension provisions, and provisions for losses arising from delivery commitments. The development of the operating value contribution is the yardstick used to assess performance. It is also used for portfolio management. It is supplemented for capital management purposes by the conventional financial, liquidity, and indebtedness indicators.

Hedging policy and financial derivatives

The operative business of the Bosch Group is impacted in particular by fluctuations in exchange and interest rates as well as commodity price risks on the procurement side. Business policy aims to limit these risks by means of hedging. All hedging transactions are managed at corporate level.

Internal regulations and guidelines set down a mandatory framework and define the responsibilities related to investment and hedging transactions. According to these regulations, derivatives may only be used in connection with operative business, financial investments, or financing transactions; speculative transactions are not allowed. Trading limits are an important component of the guidelines. Hedges are concluded solely via banks whose creditworthiness is regarded as good. The rating given by leading agencies as well as current developments in the financial markets are taken into account. The creditworthiness of the banking partners of the Bosch Group is closely monitored and the risk mitigated by counterparty limits.

To reduce the credit risk of the bank, fixed term deposits are in some cases entered into as secured deposits in tri-party repo transactions. In such cases, the bank provides predefined securities as collateral. The transactions themselves, as well as the management and valuation of the securities, are managed by a clearing center. For details, please refer to note 10 "Cash and cash equivalents."

The decision-making bodies are committees for commodities, foreign currencies, and investments that meet at regular intervals. There is a spatial and functional segregation of trading, settlement, and control functions. Key tasks of the control function include determining risks using the value-at-risk method as well as the basis-point-value method, and ongoing compliance checks with instructions and guidelines.

Each month, the risk of financial investments is calculated using the value-at-risk concept for the next month. Prescribed risk limits for the various investment categories limit the potential loss. The forecast quality of the value-at-risk method is tested by means of monthly backtesting. Management is informed monthly about risk analyses and the results of investments and hedges.

Currency risk

Currency risks of the operative business are mitigated by the central management of selling and purchasing currencies. The currency risk is determined on the basis of the worldwide consolidated cash flows in the respective currencies. Based on the business plan, estimated inflows and outflows in the various countries for the planning period are aggregated in a foreign exchange balance plan. The resulting net position is used for the central management of currency exposures.

The largest net currency position of the planned cash flows is in CNY and USD.

Hedging largely takes the form of forward exchange contracts; currency options and currency swaps to secure group financing are used to a lesser extent. These transactions, which are only entered into with banks, are subject to minimum requirements with respect to nature, scope, and complexity.

The risk of the entire operative foreign currency position is determined using the value-at-risk concept, supplemented by worst-case analyses. These risk analyses and the hedge result are determined monthly and presented to management.

To present the currency risks in accordance with IFRS 7 *Financial Instruments: Disclosures* for the most important foreign currencies, all monetary assets and monetary liabilities denominated in foreign currency for all consolidated companies were analyzed at the end of the reporting period and sensitivity analyses carried out for the respective currency pairs, in terms of the net risk.

A change in the EUR of 10 percent (starting from the closing rate) against the foreign currencies listed in the table would have the following implications for the profit before tax:

T.64

FIGURES IN MILLIONS OF EUROS	10% increase in EUR		10% decrease in EUR	
	2015	2014	2015	2014
CHF	22	18	–21	–17
CNY	–34	–38	31	37
CZK	–34	–42	37	46
GBP	16	2	–19	–2
HUF	–16	–10	19	12
JPY	14	1	–15	0
PLN	–6	–5	6	5
RUB	–22	–15	21	14
TRY	–51	–66	51	68
USD	21	–41	–25	41

A change in the USD of 10 percent (starting from the closing rate) against the foreign currencies listed in the table would have the following implications for the profit before tax:

T.65

FIGURES IN MILLIONS OF EUROS	10% increase in USD		10% decrease in USD	
	2015	2014	2015	2014
CNY	–20	–27	20	27

The effects on earnings shown here mainly result from loans within the Bosch Group which, by way of an exception, were granted in a currency other than the local currency of the borrower, e.g. because it can be repaid from expected cash flows in this currency. The currency risk for the statement of financial position does not correspond to the economic risk, which is determined on the basis of forecast cash flows.

Interest-rate risks

Risks from anticipated changes in interest rates on investments and borrowings are limited by select use of derivative financial instruments. These are mainly interest swaps and interest futures.

An analysis of the interest risk was carried out in accordance with IFRS 7. The sensitivity analysis considered assets and liabilities subject to floating interest rates, fixed-rate securities, and interest derivatives. Mutual funds and money market funds are not considered.

A change in the market interest level by 100 basis points (starting from interest rate on the cut-off date) would have the following effect on the reserve from securities in equity and the profit before tax:

T.66

FIGURES IN MILLIONS OF EUROS	Increase in market interest level by 100 basis points		Decrease in market interest level by 100 basis points	
	2015	2014	2015	2014
Reserve from securities	–212	–235	212	235
Profit before tax	17	25	–17	–25

Share-price risks

Derivatives are used on a small scale to limit the risks from investments in shares.

The analysis of the share-price risk in accordance with IFRS 7 took into account share portfolios, the investments measured at fair value, as well as share derivatives with a total carrying amount of EUR 3,821 million (previous year: EUR 3,493 million).

A change in the share price of 10 percent (starting from share price on the cut-off date) would have the following effect on the reserve from securities in equity and the profit before tax:

T.67

FIGURES IN MILLIONS OF EUROS	10% increase in share price		10% decrease in share price	
	2015	2014	2015	2014
Reserve from securities	384	350	–320	–318
Profit before tax	1	2	–65	–34

Other price risks

Derivatives and physical fixed-price contracts are used to limit the risks of fluctuating commodity prices. The analysis of the commodity-price risk in accordance with IFRS 7 took into account commodity derivatives measured as of the reporting date.

A change in the forward-rate level of 10 percent (starting from forward rate on the reporting date) would have the following effect on the profit before tax:

T.68

FIGURES IN MILLIONS OF EUROS	10% increase in forward rates		10% decrease in forward rates	
	2015	2014	2015	2014
Profit before tax	40	39	–40	–39

As of the reporting date, the Bosch Group is not aware that it is exposed to any significant other price risks as defined by IFRS 7.

Credit risks

The maximum credit risk for each class of financial instrument is the carrying amount of the financial assets recognized in the statement of financial position.

The credit risk from customer receivables is recorded and monitored on an ongoing basis. Responsibilities and duties relating to credit risks are governed by an internal directive. This mainly concerns the stipulation of payment terms, fixing of credit limits, release of deliveries, and receivables monitoring.

The credit risk for trade receivables is reduced by processing invoices with the corresponding credit notes in a single work step; the net amount is reported in the statement of financial position. This procedure is only performed if there is a legal right to offset and there is an intention to settle the receivable based on the net amount or to settle the receivable by offsetting against the corresponding liability. Moreover, trade receivables are partly secured by retention of title. For some trade receivables, collateral has been additionally provided in the form of guarantees, property liens, and mortgages.

The table below shows the remaining credit risk for trade receivables:

T.69

FIGURES IN MILLIONS OF EUROS	2015	2014
Trade receivables (gross value)	13,959	9,173
Offsetting of credit notes	–719	–388
Trade receivables (carrying amount)	13,240	8,785
Collateral (received)	–1,427	–91
Remaining credit risk	**11,813**	**8,694**

The change in valuation allowances for specific risks as well as for the general credit risk is presented in the following table:

T.70

FIGURES IN MILLIONS OF EUROS	Trade receivables	Loan receivables
At 1/1/2014	**472**	**6**
Change in the valuation allowance for specific risks	–25	–1
Change in the valuation allowance for the general credit risk	21	0
At 12/31/2014	**468**	**5**
Change in the valuation allowance for specific risks	85	4
Change in the valuation allowance for the general credit risk	59	–1
At 12/31/2015	**612**	**8**

Apart from this, valuation allowances were recognized on a small scale on receivables from finance leases.

At the end of the reporting period, there is no indication of any significant defaults of trade receivables or of other financial assets exposed to credit risks that are neither impaired nor past due.

The table below shows a maturity analysis of the unimpaired trade receivables:

T.71

FIGURES IN MILLIONS OF EUROS	2015	2014
Trade receivables	13,240	8,785
of which not impaired and not past due at the end of the reporting period	3,729	1,056
of which not impaired and past due at the end of the reporting period	141	99
for less than one month	95	50
for more than one month, but less than three months	26	16
for more than three months	20	33

Of the loans and receivables from finance leases (both current and non-current), an amount of EUR 189 million (previous year: EUR 319 million) is not impaired and not past due. There are no loan receivables and receivables from finance leases (both current and non-current) which are not impaired but past due.

Derivative transactions are entered into in accordance with the German master agreement or the ISDA (International Swaps and Derivatives Association). These do not satisfy the set-off criteria of IAS 32 *Financial instruments: Presentation*, as netting is only enforceable in the case of insolvency.

The credit risk for derivatives that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency of the contracting party) is presented in the following table:

T.72

FIGURES IN MILLIONS OF EUROS	2015	2014
Derivatives with a positive market value (carrying amount)	223	110
Value of derivatives not netted in the statement of financial position	–19	–11
Remaining credit risk	**204**	**99**

Liquidity risks

The development of financial assets and liabilities is monitored on an ongoing basis. Internal directives regulate the duties and responsibilities of liquidity management and planning. The company has liquidity reserves in the form of highly liquid assets totaling EUR 4,315 million (previous year: EUR 6,589 million). In addition to that, there is a Euro commercial paper program with a volume of EUR 1,000 million and a U.S. commercial paper program with a volume of USD 2,000 million, neither of which had been drawn at the end of the reporting period. There is also a medium-term-note program with a volume of EUR 7,500 million, of which EUR 4,250 million had been drawn.

The liquidity risk is reduced by processing invoices for trade payables with the corresponding credit notes received in a single work step. This procedure is only performed if there is a legal right to offset and there is an intention to settle the liability based on the net amount or to settle the liability by offsetting against the corresponding receivable. Moreover, collateral is provided in the form of guarantees.

The table below shows the remaining liquidity risk for trade payables:

T.73

FIGURES IN MILLIONS OF EUROS	2015	2014
Trade payables (gross value)	6,903	3,987
Offsetting of credit notes	–719	–388
Trade payables (carrying amount)	6,184	3,599
Collateral (granted)	–6	–7
Remaining liquidity risk	**6,178**	**3,592**

The liquidity risk for derivatives that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency) is presented in the following table:

T.74

FIGURES IN MILLIONS OF EUROS	2015	2014
Derivatives with a negative market value (carrying amount)	177	110
Value of derivatives not netted in the statement of financial position	–19	–11
Remaining liquidity risk	**158**	**99**

The undiscounted cash flows of the non-derivative and derivative financial liabilities are presented in the tables below:

T.75

FIGURES IN MILLIONS OF EUROS	Carrying amount	Undiscounted cash flows					
	2015	2016	2017	2018	2019	2020	2021 ff.
Non-derivative financial liabilities							
Trade payables	6,184	6,184					
Bonds	5,018	987	915	140	375	566	2,949
Promissory loans	219	10	75	9	157		
Liabilities to banks	1,235	422	377	395	87		
Finance lease obligations	26	6	8	6	4	3	12
Loans	115	87	6	6	6	4	8
Other financial liabilities	748	714	33	5	2	2	7
Derivative financial liabilities							
Gross settlement	56						
Cash outflows		3,654	18	44	1		
Cash inflows		3,596	16	42	0		
Net settlement	121						
Cash outflows		102	21				

T.76

FIGURES IN MILLIONS OF EUROS	Carrying amount	Undiscounted cash flows					
	2014	2015	2016	2017	2018	2019	2020 ff.
Non-derivative financial liabilities							
Trade payables	3,599	3,599					
Bonds	4,223	136	866	786	71	365	2,980
Promissory loans	154	9	9	9	9	157	
Liabilities to banks	833	199	79	287	304		
Finance lease obligations	18	6	6	5	3	2	8
Loans	93	85	5	3	2	1	
Other financial liabilities	775	736	40	3	4	1	1
Derivative financial liabilities							
Gross settlement	68						
Cash outflows		2,866	89	1	1	1	
Cash inflows		2,800	87	0	0	0	
Net settlement	42						
Cash outflows		29	13				

The undiscounted cash flows contain interest and principal payments. All on-call financial liabilities are allocated to the earliest possible period. The variable interest payments were determined using the last interest rate determined before the respective reporting date.

27 Leases

The receivables from finance lease agreements mainly stem from products leased by the Security Systems division. As a rule, the agreed term is ten years. The receivables are due as follows:

T.77

FIGURES IN MILLIONS OF EUROS	2015	2014
Gross investment in finance leases		
due not later than one year	42	39
due later than one year and not later than five years	125	121
due later than five years	59	54
	226	**214**
Present value of outstanding minimum lease payments		
due not later than one year	32	29
due later than one year and not later than five years	100	98
due later than five years	52	48
	184	**175**
Unearned finance income	**42**	**39**

There were no unguaranteed residual values.

Finance lease obligations primarily stem from vehicle lease agreements with terms of three to six years and the lease on a factory building. The liabilities are due as follows:

T.78

FIGURES IN MILLIONS OF EUROS	2015	2014
Future minimum lease payments		
due not later than one year	5	6
due later than one year and not later than five years	21	16
due later than five years	12	8
Interest portion contained in the future minimum lease payments		
due not later than one year	2	2
due later than one year and not later than five years	8	6
due later than five years	2	4
Present value of future minimum lease payments		
due not later than one year	3	4
due later than one year and not later than five years	13	10
due later than five years	10	4
	26	**18**

The outstanding minimum lease payments from operating lease agreements with entities of the Bosch Group as lessors mainly stem from activities of the Security Systems division, and are due as follows:

T.79

FIGURES IN MILLIONS OF EUROS	2015	2014
Due not later than one year	44	49
Due later than one year and not later than five years	125	125
Due later than five years	47	43
	216	**217**

Obligations from operating lease agreements with entities of the Bosch Group as lessors mainly pertain to lease agreements for technical equipment, for IT equipment, for vehicles, and for buildings. The minimum amount of the undiscounted future payments from operating leases amounts to EUR 1,392 million (previous year: EUR 670 million).

The obligations are due as follows:

T.80

FIGURES IN MILLIONS OF EUROS	2015	2014
Due not later than one year	427	213
Due later than one year and not later than five years	738	372
Due later than five years	227	85
	1,392	**670**

The payments of the period of EUR 514 million (previous year: EUR 249 million) recognized in profit or loss are contained in the costs of the functional areas (cost of sales, and distribution, administrative, and research and development cost).

28 Related parties disclosures

As shareholder, Robert Bosch Industrietreuhand KG exercises majority voting rights at Robert Bosch GmbH. In addition, Robert Bosch Industrietreuhand KG is accountable for the internal audit of the Bosch Group. The costs incurred for this of EUR 13 million (previous year: EUR 13 million) were borne by Robert Bosch GmbH.

A part of the pension obligations and funds has been outsourced to Bosch Pensionsfonds AG. Robert Bosch GmbH is the sole shareholder of Bosch Pensionsfonds AG. Bosch Hilfe e.V. provides assistance to associates of co-owners in emergencies (emergency assistance). Bosch Hilfe e.V. is co-owned by Robert Bosch GmbH, Stuttgart, Germany, Robert Bosch Car Multimedia Holding GmbH, Hildesheim, Germany, and Robert Bosch Elektronik GmbH, Salzgitter, Germany. A part of the asset portfolio of Bosch Hilfe e.V. consists of its ownership in Robert Bosch Wohnungsgesellschaft mbH, Stuttgart, Germany, which builds and rents property for Bosch associates.

Robert Bosch Stiftung GmbH, Stuttgart, is the tenant of several properties belonging to Robert Bosch GmbH, Stuttgart.

Dealings with related parties

Related parties of the Bosch Group include the joint ventures as well as the entities in which a minority interest is held. Dealings with these entities are presented in the following table:

T.81

FIGURES IN MILLIONS OF EUROS	Goods and services sold		Goods and services purchased		Receivables		Liabilities	
	2015	2014	2015	2014	2015	2014	2015	2014
Joint ventures	72	171	73	85	58	93	24	24
Investees	57	48	118	70	19	10	11	13

All transactions with related parties were at arm's length.

Total remuneration of management in key positions

The members of management in key positions are the general partners of Robert Bosch Industrietreuhand KG, the members of the supervisory board, and the members of the board of management of Robert Bosch GmbH.

The total remuneration of members of management in key positions totals EUR 49 million in fiscal year 2015 (previous year: EUR 27 million) and breaks down as follows:

T.82

FIGURES IN MILLIONS OF EUROS	2015	2014
Short-term benefits	23	18
Post-employment benefits	15	6
Other long-term benefits	11	3

Share-based payments are not made.

There are no provisions (valuation allowances) for doubtful debts due from key management personnel. Moreover, no expenses were incurred for uncollectible or doubtful receivables.

The Bosch Group pays other related parties compensation totaling EUR 0.6 million (previous year: EUR 0.6 million) for various services, mainly consulting activities. At the end of the fiscal year there were neither receivables nor liabilities from such business transactions. Guarantees have neither been given nor received.

29 Additional disclosures pursuant to Sec. 315a HGB

Remuneration of members of the board of management and supervisory board

The total remuneration of the members of the board of management (including provisions) comes to EUR 28 million in the fiscal year 2015 (previous year: EUR 16 million), and that of the former members of the board of management and their dependants to EUR 14 million (previous year: EUR 15 million). The remuneration of the members of the supervisory board comes to approximately EUR 2 million. An amount of EUR 176 million (previous year: EUR 169 million) has been accrued at Robert Bosch GmbH for pension obligations to former members of the board of management and their surviving dependants.

Headcount

T.83

	Annual average 2015	Annual average 2014
EU countries	202,287	158,276
Rest of Europe	23,575	14,630
Americas	40,437	33,714
Asia, Africa, Australia	102,534	79,464
	368,833	**286,084**

Auditor's fees

The fees of the group auditor for audit and advisory services in Germany amount to:

T.84

FIGURES IN MILLIONS OF EUROS	2015	2014
Fees for		
Audit services	5.2	4.1
Audit-related services	0.1	0.1
Tax advisory services	1.2	1.6
Other services	10.9	2.6

List of shareholdings of the Bosch Group as of December 31, 2015

1 Consolidated group

T.85

	Name of company	Registered office	Percentage share of capital
Germany	Robert Bosch GmbH	Stuttgart	
	AS Abwicklung und Solar-Service AG i.L.	Oldenburg	100.0
	AS Abwicklung und Solar-Service Deutschland GmbH i.L.	Oldenburg	100.0
	AS Abwicklung Dritte Produktion GmbH i.L.	Oldenburg	100.0
	Ampack GmbH	Königsbrunn	100.0 [1]
	BD Kompressor Holding GmbH & Co. KG	Lollar	50.0
	BD Kompressor GmbH	Lollar	100.0
	Beissbarth GmbH	Munich	100.0 [1,2]
	BeYond GmbH	Hildesheim	100.0 [1]
	Bosch Access Systems GmbH	Würselen	100.0 [1]
	Bosch Automotive Service Solutions GmbH	Pollenfeld	100.0 [1]
	Bosch Communication Center Magdeburg GmbH	Magdeburg	100.0 [1]
	Bosch Connected Devices and Solutions GmbH	Reutlingen	100.0 [1]
	Bosch Emission Systems GmbH & Co. KG	Stuttgart	100.0 [3]
	Bosch Energy and Building Solutions GmbH	Ditzingen	100.0 [1]
	Bosch Engineering GmbH	Abstatt	100.0 [1]
	Bosch Engineering Holding GmbH	Abstatt	100.0 [1,2]
	Bosch Healthcare Solutions GmbH	Waiblingen	100.0 [1]
	Bosch Industriekessel GmbH	Gunzenhausen	100.0 [1]
	Bosch KWK Systeme GmbH	Lollar	100.0 [1]
	Bosch Packaging Systems GmbH	Remshalden	100.0 [1]
	Bosch Pensionsgesellschaft mbH	Stuttgart	100.0 [1]
	Bosch Power Tec GmbH	Böblingen	100.0
	Bosch Rexroth AG	Stuttgart	100.0 [1,2]
	Bosch Rexroth Guss GmbH	Lohr am Main	100.0 [1]
	Bosch Rexroth Vermögensverwaltung GmbH	Lohr am Main	100.0 [1]
	Bosch Sensortec GmbH	Kusterdingen	100.0 [1]
	Bosch Sicherheitssysteme Engineering GmbH	Nuremberg	100.0 [1]
	Bosch Sicherheitssysteme GmbH	Stuttgart	100.0 [1,2]
	Bosch Sicherheitssysteme Montage und Service GmbH	Weimar	100.0 [1]
	Bosch Silicon Trading GmbH	Obernissa	100.0
	Bosch Software Innovations GmbH	Berlin	100.0 [1]
	Bosch Solar CISTech GmbH	Brandenburg/ Havel	100.0 [1]
	Bosch Solar Energy AG	Arnstadt	100.0 [1,2]
	Bosch Solar Thin Film GmbH	Arnstadt	100.0 [1]
	Bosch Solarthermie GmbH	Wettringen	100.0 [1]

	Name of company	Registered office	Percentage share of capital
	Bosch Technology Licensing Administration GmbH	Gerlingen	100.0 [1]
	Bosch Telecom Holding GmbH	Stuttgart	100.0 [1,2]
	Bosch Thermotechnik GmbH	Wetzlar	100.0 [1,2]
	Bosch Thermotechnik Vermögensverwaltung 1 GmbH	Wetzlar	100.0 [1]
	BSH Hausgeräte GmbH	Munich	100.0 [1,2]
	BSH Hausgeräte Service GmbH	Munich	100.0 [1]
	BSH Hausgeräte Service Nauen GmbH	Nauen	100.0 [1]
	BSH Hausgerätewerk Nauen GmbH	Nauen	100.0 [1]
	BSH Vermögensverwaltungs-GmbH	Munich	100.0 [1]
	BSH Zweite Verwaltungs GmbH	Munich	100.0 [1]
	Buderus Guss GmbH	Breidenbach	100.0 [1]
	Buderus Immobilien GmbH	Wetzlar	96.0 [1]
	CONSTRUCTA Gesellschaft mit beschränkter Haftung	Munich	100.0
	Constructa-Neff Vertriebs-GmbH	Munich	100.0
	Elektra-Versicherungsvermittlungs-GmbH	Frankfurt	100.0 [1]
	ETAS GmbH	Stuttgart	100.0 [1,2]
	EVI Audio GmbH	Straubing	100.0 [1]
	Gaggenau Hausgeräte GmbH	Munich	100.0 [1]
	Hawera Probst GmbH	Ravensburg	100.0 [1]
	Holger Christiansen Deutschland GmbH	Wilnsdorf	100.0 [1]
	Hüttlin GmbH	Schopfheim	100.0 [1]
	Landau Electronic GmbH	Mörfelden-Walldorf	100.0 [1]
	Matra-Werke GmbH	Hainburg	100.0 [1]
	Moehwald GmbH	Homburg/Saar	100.0 [1]
	Neff GmbH	Munich	100.0 [1]
	Pharmatec GmbH	Dresden	100.0 [1]
	Pollux Solar-Service GmbH	Arnstadt	100.0
	ProSyst Software GmbH	Cologne	100.0
	Robert Bosch Automotive Steering GmbH	Schwäbisch Gmünd	100.0 [1,2]
	Robert Bosch Automotive Steering Bremen GmbH	Bremen	100.0 [1]
	Robert Bosch Battery Systems GmbH	Stuttgart	100.0 [1]
	Robert Bosch Car Multimedia GmbH	Hildesheim	100.0 [1]
	Robert Bosch Car Multimedia Holding GmbH	Hildesheim	100.0 [1,2]
	Robert Bosch Elektronik GmbH	Salzgitter	100.0 [1]
	Robert Bosch Elektronik Thüringen GmbH	Arnstadt	100.0 [1]

	Name of company	Registered office	Percentage share of capital
	Robert Bosch Elektrowerkzeuge GmbH	Sebnitz	100.0 [1]
	Robert Bosch Fahrzeugelektrik Eisenach GmbH	Eisenach	100.0 [1]
	Robert Bosch Fünfte Vermögensverwaltungsgesellschaft mbH	Gerlingen	100.0 [1]
	Robert Bosch Hausgeräte GmbH	Munich	100.0
	Robert Bosch Immobilienverwaltungs GmbH & Co. KG	Stuttgart	100.0
	Robert Bosch Lizenzverwaltungsgesellschaft mbH	Holzkirchen	100.0
	Robert Bosch Risk and Insurance Management GmbH	Stuttgart	100.0 [1]
	Robert Bosch Venture Capital GmbH	Gerlingen	100.0 [1]
	Robert Bosch Vierte Vermögensverwaltungsgesellschaft mbH	Gerlingen	100.0 [1]
	Robert Bosch Zweite Vermögensverwaltungsgesellschaft mbH	Stuttgart	100.0 [1]
	SEG Hausgeräte GmbH	Munich	100.0
	sia Abrasives Deutschland GmbH	Solingen	100.0
	Sieger Heizsysteme GmbH	Siegen	100.0 [1]
	UC Vermögensverwaltung GmbH	Stuttgart	100.0 [1]

[1] These companies make use of the exemption provided for in Sec. 264 (3) HGB.
[2] These companies make use of the exemption provided for in Sec. 291 (2) HGB.
[3] The company makes use of the exemption provided for in Sec. 264b HGB.

	Company name	Registered office	Percentage share of capital
Europe			
Austria	Bosch Industriekessel Austria GmbH	Bischofshofen	100.0
	Bosch Rexroth GmbH	Pasching	100.0
	BSH Finance and Holding GmbH	Vienna	100.0
	BSH Hausgeräte Gesellschaft mbH	Vienna	100.0
	Robert Bosch AG	Vienna	100.0
	Robert Bosch Holding Austria GmbH	Vienna	100.0
	SBM Schoeller-Bleckmann-Medizintechnik GmbH	Ternitz	100.0
Belgium	Bosch Rexroth N.V.	Brussels	100.0
	Bosch Thermotechnology N.V. / S.A.	Leuven-Heverlee	100.0
	BSH Home Appliances S.A.	Brussels	100.0
	Robert Bosch Produktie N.V.	Tienen	100.0
	Robert Bosch S.A.	Anderlecht (Brussels)	100.0
	sia Abrasives Belgium N.V. / S.A.	Mollem	100.0
Bulgaria	BSH Domakinski Uredi Bulgaria EOOD	Sofia	100.0
	ProSyst Labs EOOD	Sofia	100.0

	Company name	Registered office	Percentage share of capital
Croatia	BSH kućanski uređaji d.o.o.	Zagreb	100.0
Cyprus	SDA SUPPLY Limited i.L.	Larnaca	100.0
Czech Republic	Bosch Diesel s.r.o.	Jihlava	100.0
	Bosch Rexroth spol. s.r.o.	Brno	100.0
	Bosch Thermotechnika s.r.o.	Krnov	100.0
	BSH domácí spotřebiče s.r.o.	Prague	100.0
	Robert Bosch odbytova s.r.o.	Prague	100.0
	Robert Bosch, spol. s.r.o.	České Budějovice	100.0
Denmark	Bosch Rexroth A/S	Hvidovre	100.0
	BSH Hvidevarer A/S	Ballerup	100.0
	Holger Christiansen A/S	Esbjerg	100.0
	Robert Bosch A/S	Ballerup	100.0
Finland	Bosch Rexroth Oy	Vantaa	100.0
	BSH Kodinkoneet Oy	Helsinki	100.0
	Robert Bosch Oy	Vantaa	100.0
France	Bosch Automotive Service Solutions S.a.r.l.	La Ferté-Bernard	100.0
	Bosch Centre de Service S.A.S.	Freyming-Merlebach	100.0
	Bosch Rexroth DSI S.A.S.	Vénissieux	100.0
	Bosch Rexroth S.A.S.	Vénissieux	100.0
	Bosch Security Systems France S.A.S.	Clamart	100.0
	Bosch Thermotechnologie S.A.S.	Saint Thégonnec	100.0
	BSH Electroménager S.A.S.	Saint-Ouen	100.0
	e.l.m. leblanc S.A.S.	Drancy	100.0
	Gaggenau Industrie S.A.S.	Lipsheim	100.0
	Holger Christiansen France S.A.S.	Olivet	100.0
	Robert Bosch (France) S.A.S.	Saint-Ouen	100.0
	Robert Bosch Automotive Steering Marignier S.A.S.	Marignier	100.0
	Robert Bosch Automotive Steering Vendôme S.A.S.	Vendôme	100.0
	sia Abrasives France S.a.r.l.	Villepinte	100.0
Greece	BSH Ikiakes Syskeves A.B.E.	Athens	100.0
	Robert Bosch S.A.	Koropi (Athens)	100.0

	Company name	Registered office	Percentage share of capital
Hungary	Bosch Rexroth Kft.	Budapest	100.0
	BSH Háztartási Készülék Kereskedelmi Kft.	Budapest	100.0
	Robert Bosch Elektronika Gyártó Kft.	Hatvan	100.0
	Robert Bosch Energy and Body Systems Kft.	Miskolc	100.0
	Robert Bosch Kft.	Budapest	100.0
	Robert Bosch Automotive Steering Kft.	Eger	100.0
	Robert Bosch Power Tool Elektromos Szerszámgyártó Kft.	Miskolc	100.0
	Zelmer Magyarország Kereskedelmi Kft.	Budapest	100.0
Ireland	Robert Bosch Ireland Ltd.	Dublin	100.0
Italy	ARESI S.p.A.	Brembate	100.0
	AS Solar Service Italia S.r.l. i.l.	Treviso	100.0
	Bosch Automotive Service Solutions S.r.l.	Parma	100.0
	Bosch Energy and Building Solutions Italy S.r.l.	Cinisello Balsamo	100.0
	Bosch Rexroth Oil Control S.p.A.	Milan	100.0
	Bosch Rexroth S.p.A.	Cernusco	100.0
	Bosch Security Systems S.p.A.	Milan	100.0
	BSH Elettrodomestici S.p.A.	Milan	100.0
	Centro Studi Componenti per Veicoli S.p.A.	Modugno (Bari)	100.0
	Freud S.p.A.	Brugherio	100.0
	Holger Christiansen Italia S.r.l.	Bologna	100.0
	ROBERT BOSCH S.p.A. Società Unipersonale	Milan	100.0
	SICAM S.r.l.	Correggio	100.0
	Tecnologie Diesel e Sistemi Frenanti S.p.A.	Modugno (Bari)	100.0
	VHIT S.p.A.	Offanengo	100.0
Kazakhstan	Zelmer Kazakhstan Sp. z o.o.	Almaty	100.0
Luxembourg	Ferroknepper Buderus S.A.	Esch-sur-Alzette	100.0
	BSH électroménagers S.A.	Senningerberg	100.0
Malta	Robert Bosch Finance Malta, Ltd.	St. Julians	100.0
	Robert Bosch Holding Malta, Ltd.	St. Julians	100.0
	Robert Bosch IC Financing Malta Limited	St. Julians	100.0
Netherlands	Bosch Communications Center B.V.	Nijmegen	100.0
	Bosch Packaging Technology B.V.	Schiedam	100.0
	Bosch Rexroth B.V.	Boxtel	100.0
	Bosch Security Systems B.V.	Eindhoven	100.0

	Company name	Registered office	Percentage share of capital
	Bosch Thermotechniek B.V.	Deventer	100.0
	Bosch Transmission Technology B.V.	Tilburg	100.0
	BSH Huishoudapparaten B.V.	Amsterdam	100.0
	Nefit Vastgoed B.V.	Deventer	100.0
	Robert Bosch B.V.	Boxtel	100.0
	Robert Bosch Holding Nederland B.V.	Boxtel	100.0
	Robert Bosch Investment Nederland B.V.	Boxtel	100.0
	Robert Bosch Licensing Administration C.V.	Boxtel	100.0
	Robert Bosch Packaging Technology B.V.	Weert	100.0
	Skil Europe B.V.	Breda	100.0
	Telex Holding Germany B.V.	Boxtel	100.0
	Telex Holding Hong Kong B.V.	Boxtel	100.0
	Telex Holding Singapore B.V.	Boxtel	100.0
Norway	Bosch Rexroth A/S	Ski	100.0
	BSH Husholdningsapparater A/S	Oslo	100.0
	Robert Bosch A/S	Ski	100.0
Poland	Bosch Rexroth Sp. z o.o.	Pruszków	100.0
	BSH Sprzęt Gospodarstwa Domowego Sp. z o.o.	Warsaw	100.0
	ROBERT BOSCH Sp. z o.o.	Warsaw	100.0
	Zelmer S.A.	Rzeszów	100.0
Portugal	Bosch Car Multimedia Portugal, S.A.	Braga	100.0
	Bosch Security Systems, S.A.	Ovar	100.0
	Bosch Termotechnologia, S.A.	Aveiro	100.0
	BSHP Electrodomésticos, S.U., Lda.	Carnaxide	100.0
	Robert Bosch Portugal, SGPS, S.A.	Lisbon	100.0
	Robert Bosch, S.A.	Lisbon	100.0
Romania	Bosch Service Solutions S.R.L.	Timişoara	100.0
	Bosch Rexroth S.R.L.	Blaj	100.0
	BSH Electrocasnice S.R.L.	Bucharest	100.0
	ROBERT BOSCH S.R.L.	Bucharest	100.0
Russian Federation	OOO “Construction & investments”	Khimki	100.0
	OOO Bosch Power Tools	Engels	100.0
	OOO Bosch Rexroth	Moscow	100.0
	OOO Bosch Thermotechnik	Moscow	100.0

	Company name	Registered office	Percentage share of capital
	OOO BSH Bytowaja Technika	Moscow	100.0
	OOO BSH Bytowije Pribory	St. Petersburg	100.0
	OOO Robert Bosch	Moscow	100.0
	OOO Robert Bosch Saratow	Engels	100.0
	Zelmer Russia O.O.O.	Moscow	100.0
Serbia	BSH Kućni Aparati d.o.o. Beograd	Belgrade	100.0
	Robert Bosch DOO	Belgrade	100.0
Slovakia	BSH Drives and Pumps s.r.o.	Michalovce	100.0
	Holger Christiansen Produktion Slovakia s.r.o.	Bernolákovo	100.0
Slovenia	BSH Hišni Aparati d.o.o.	Nazarje	100.0
	Indramat elektromotorji d.o.o.	Škofja Loka	100.0
Spain	Bosch Rexroth, S.L.U.	Madrid	100.0
	Bosch Security Systems S.A.U.	Madrid	100.0
	BOSCH SISTEMAS DE FRENADO, S.L.U.	Madrid	100.0
	BSH Electrodomésticos España, S.A.	Zaragoza	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA CASTELLET S.A.U.	Castellet	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA MADRID S.A.U.	Madrid	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA TRETO S.A.U.	Treto	100.0
	ROBERT BOSCH ESPAÑA GASOLINE SYSTEMS S.A.U.	Aranjuez	100.0
	ROBERT BOSCH ESPAÑA, S.L.U.	Madrid	100.0
	sia Abrasives Espana S.A.U.	Madrid	100.0
Sweden	Bosch Rexroth Mellansel AB	Mellansel	100.0
	Bosch Rexroth Teknik AB	Stockholm	100.0
	Bosch Thermoteknik AB	Tranås	100.0
	BSH Home Appliances AB	Stockholm	100.0
	Robert Bosch AB	Kista	100.0
Switzerland	Bosch Packaging Services AG	Beringen	100.0
	Bosch Packaging Systems AG	Beringen	100.0
	Bosch Packaging Technology SA	Ecublens	100.0
	Bosch Pouch Systems AG	Beringen	100.0
	Bosch Rexroth Schweiz AG	Buttikon	100.0
	BSH Hausgeräte AG	Geroldswil	100.0
	Buderus Heiztechnik AG	Pratteln	100.0

	Company name	Registered office	Percentage share of capital
	Robert Bosch AG	Zuchwil	100.0
	Robert Bosch Internationale Beteiligungen AG	Zuchwil	100.0
	Sapal S.A.	Ecublens	100.0
	Scintilla AG	Solothurn	100.0
	sia Abrasives Industries AG	Frauenfeld	100.0
Turkey	Bosch Fren Sistemleri Sanayi ve Ticaret A.S.	Bursa	84.5
	Bosch Rexroth Otomasyon Sanayi ve Ticaret A.S.	Bursa	100.0
	Bosch Sanayi ve Ticaret A.S.	Bursa	100.0
	Bosch Termoteknik Sanayi ve Ticaret A.S.	Manisa	100.0
	BSH Ev Aletleri Sanayi ve Ticaret A.Ş.	Istanbul	100.0
Ukraine	TOV BSH Pobutova Technika	Kiev	100.0
	Holger Christiansen Production Ukraine	Krakovets	100.0
	MBT Trade T.B.O.	Kiev	100.0
	Zelmer Ukraine T.B.O.	Kiev	100.0
United Kingdom	Bosch Automotive Service Solutions Ltd.	Brixworth	100.0
	Bosch Lawn and Garden Ltd.	Stowmarket	100.0
	Bosch Packaging Technology Limited	Derby	100.0
	Bosch Rexroth Ltd.	St. Neots	100.0
	Bosch Security Systems Ltd.	Denham	100.0
	Bosch Thermotechnology Ltd.	Worcester	100.0
	BSH Home Appliances Limited	Milton Keynes	100.0
	Hägglunds Drives Limited	Wakefield	100.0
	Kliklok International Limited	Bristol	100.0
	Robert Bosch Investment Ltd.	Worcester	100.0
	Robert Bosch Ltd.	Denham	100.0
	Robert Bosch UK Holdings Limited	Denham	100.0
	sia Abrafoam Ltd.	Alfreton	100.0
	sia Abrasives (G.B.) Ltd.	Greetland	100.0
	sia Abrasives Holding Ltd.	Greetland	100.0
	sia Fibral Ltd.	Greetland	100.0
	Worcester Group plc	Worcester	100.0
Americas			
Argentina	Bosch Rexroth S.A.I.C.	Buenos Aires	100.0
	BSH Electrodomésticos S.A.	Buenos Aires	100.0
	Robert Bosch Argentina Industrial S.A.	Buenos Aires	100.0

	Company name	Registered office	Percentage share of capital
Brazil	Bosch Rexroth Ltda.	Atibaia	100.0
	Bosch Solutions Serviços Automotivos Ltda.	São Paulo	100.0
	Robert Bosch Ltda.	Campinas	100.0
	Robert Bosch Centro de Comunicação Limitada	Campinas	100.0
	Robert Bosch Direção Automotiva Ltda.	Sorocaba	100.0
	Robert Bosch Tecnologia de Embalagem Ltda.	Alphaville	100.0
	sia Abrasivos Industriais Ltda.	São José dos Pinhais	100.0
Canada	Bosch Rexroth Canada Corporation	Welland, ON	100.0
	BSH Home Appliances Ltd./ Électroménagers BSH Ltée	Mississauga, ON	100.0
	Extreme CCTV Inc.	Burnaby, BC	100.0
	Freud Canada Inc.	Mississauga, ON	100.0
	ROBERT BOSCH INC.	Mississauga, ON	100.0
Chile	Robert Bosch S. A.	Santiago de Chile	100.0
Colombia	Robert Bosch Ltda.	Bogotá	100.0
Costa Rica	Robert Bosch Service Solutions - Costa Rica Sociedad Anonima	Heredia	100.0
Mexico	Bosch Rexroth, S.A. de C.V.	Mexico City	100.0
	Frenados Mexicanos, S.A. de C.V.	Aguascalientes	100.0
	Robert Bosch Mexico Sistemas de Frenos, S. de R.L. de C.V.	Juárez	100.0
	Robert Bosch Mexico Holding, S.A. de C.V.	Mexico City	100.0
	Robert Bosch México S.A. de C.V.	Mexico City	100.0
	Robert Bosch México Sistemas Automotrices, S.A. de C.V.	San Luis Potosí	100.0
	Robert Bosch Sistemas Automotrices, S.A. de C.V.	Juárez	100.0
	Robert Bosch Tool de Mexico, S.A. de C.V.	Mexicali	100.0
	Robert Bosch, S. de R.L. de C.V.	Toluca	100.0
	Robert Bosch México Sistemas de Seguridad S.A. de C.V.	Hermosillo	100.0
Peru	BSH Electrodomésticos S.A.C.	Callao/Lima	100.0
	Robert Bosch S.A.C.	Lima	100.0
United States	AS Solar Service NA, Inc.	Denver, CO	100.0
	Bosch Automotive Service Solutions Inc.	Warren, MI	100.0
	Bosch Brake Components LLC	Broadview, IL	100.0
	Bosch Packaging Services Inc.	Raleigh, NC	100.0
	Bosch Packaging Technology, Inc.	New Richmond, WI	100.0
	Bosch Rexroth Corporation	Lehigh Valley, PA	100.0

	Company name	Registered office	Percentage share of capital
	Bosch Security Systems Inc.	Burnsville, MN	100.0
	Bosch Thermotechnology Corp.	Londonderry, NH	100.0
	BSH Home Appliances Corporation	Irvine, CA	100.0
	Climatec, LLC	Phoenix, AZ	100.0
	Compu-Spread Corporation	Delano, MN	100.0
	ETAS Inc.	Ann Arbor, MI	100.0
	FHP Manufacturing Company	Fort Lauderdale, FL	57.0
	Freud America Inc.	High Point, NC	100.0
	Kliklok Corporation	Decatur, GA	100.0
	Klikwood Corporation	Decatur, GA	100.0
	Osgood Industries, Inc.	Oldsmar, FL	100.0
	Ovonic Energy Products, Inc.	Orion, MI	100.0
	Robert Bosch Asset Management I LLC	Wilmington, DE	100.0
	Robert Bosch Asset Management I LP	Wilmington, DE	100.0
	Robert Bosch Automotive Steering LLC	Florence, KY	100.0
	Robert Bosch Battery Systems LLC	Orion, MI	100.0
	Robert Bosch Finance LLC	Broadview, IL	100.0
	ROBERT BOSCH FUEL SYSTEMS LLC	Kentwood, MI	100.0
	Robert Bosch Healthcare Systems, Inc.	Farmington Hills, MI	100.0
	Robert Bosch LLC	Broadview, IL	100.0
	Robert Bosch North America Corporation	Broadview, IL	100.0
	Robert Bosch Packaging Technology Inc.	Minneapolis, MN	100.0
	Robert Bosch Tool Corporation	Mt. Prospect, IL	100.0
	Seeo, Inc.	Hayward, CA	100.0
	sia Abrasives, Inc. USA	Charlotte, NC	100.0
Venezuela	Inversiones 421-10, C.A.	Caracas	100.0
	Skil Venezolana SRL	Caracas	100.0
Asia			
China	AUTOBOSS Tech, Inc.	Shenzhen	100.0
	Bosch (Ningbo) e-scooter Motor Co., Ltd.	Ningbo	60.0
	Bosch (Shanghai) Investment Consulting Co., Ltd.	Shanghai	100.0
	Bosch (Shanghai) Security Systems Ltd.	Shanghai	100.0
	Bosch (Shanghai) Venture Capital Investment Co., Ltd.	Shanghai	100.0
	Bosch (Zhuhai) Security Systems Co., Ltd.	Zhuhai	100.0
	Bosch Automotive Aftermarket (China) Co., Ltd.	Nanjing	100.0
	Bosch Automotive Components (Changchun) Co., Ltd.	Changchun	55.0
	Bosch Automotive Diagnostics Equipment (Shenzhen) Ltd.	Shenzhen	100.0

	Company name	Registered office	Percentage share of capital
	Bosch Automotive Diesel Systems Co., Ltd.	Wuxi	66.0
	Bosch Automotive Products (Changsha) Co., Ltd.	Changsha	100.0
	Bosch Automotive Products (Chengdu) Co., Ltd.	Chengdu	100.0
	Bosch Automotive Products (Suzhou) Co., Ltd.	Suzhou	100.0
	Bosch Automotive Service Solutions (Suzhou) Co., Ltd.	Suzhou	100.0
	Bosch Automotive Steering (Jinan) Co., Ltd.	Jinan	100.0
	Bosch Automotive Steering (Nanjing) Co., Ltd.	Nanjing	100.0
	Bosch Automotive Steering Jincheng (Nanjing) Co., Ltd.	Nanjing	70.0
	Bosch Automotive Steering Management (Shanghai) Co., Ltd.	Shanghai	100.0
	Bosch Automotive Systems (Wuxi) Co., Ltd.	Wuxi	100.0
	Bosch Car Multimedia (Wuhu) Co., Ltd.	Wuhu	60.0
	Bosch (China) Investment Ltd.	Shanghai	100.0
	Bosch Inspection Technology (Shanghai) Co., Ltd.	Shanghai	100.0
	Bosch Laser Equipment (Dongguan) Limited	Dongguan	100.0
	Bosch Packaging Technology (Chengdu) Co., Ltd.	Chengdu	100.0
	Bosch Packaging Technology (Hangzhou) Co., Ltd.	Hangzhou	100.0
	Bosch Power Tools (China) Ltd.	Hangzhou	100.0
	Bosch Rexroth (Beijing) Hydraulic Co., Ltd.	Beijing	100.0
	Bosch Rexroth (Changzhou) Co., Ltd.	Changzhou	100.0
	Bosch Rexroth (China) Ltd.	Hong Kong	100.0
	Bosch Rexroth (Xi'an) Electric Drives and Controls Co., Ltd.	Xi'an	100.0
	Bosch Security Systems Ltd.	Hong Kong	100.0
	Bosch Steering Systems (Shanghai) Co., Ltd.	Shanghai	100.0
	Bosch Thermotechnology (Beijing) Co., Ltd.	Beijing	100.0
	Bosch Trading (Shanghai) Co., Ltd.	Shanghai	100.0
	BSH Electrical Appliances (Jiangsu) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances Co., Ltd.	Chuzhou	100.0
	BSH Home Appliances Ltd.	Hong Kong	100.0
	BSH Home Appliances (China) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances Holding (China) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances Service Jiangsu Co., Ltd.	Nanjing	100.0
	BSW Household Appliances Co., Ltd.	Wuxi	100.0
	ETAS Automotive Technology (Shanghai) Co., Ltd.	Shanghai	100.0
	Hägglunds Drives Shanghai Ltd.	Shanghai	100.0
	Robert Bosch Company Ltd.	Hong Kong	100.0
	Shanghai Bosch Rexroth Hydraulics & Automation Ltd.	Shanghai	100.0
	Taixiang Vehicle Replace Parts (Shenzhen) Co., Ltd.	Shenzhen	100.0
	United Automotive Electronic Systems Co., Ltd.	Shanghai	51.0
	ZF Shanghai Steering Systems Co., Ltd.	Shanghai	51.0

	Company name	Registered office	Percentage share of capital
	ZF Shanghai Steering System (Wuhan) Co., Ltd.	Wuhan	51.0
	ZF Shanghai Steering System (Yantai) Co., Ltd.	Yantai	51.0
India	Bosch Automotive Electronics India Private Ltd.	Bengaluru	100.0
	Bosch Chassis Systems India Ltd.	Pune	97.9
	Bosch Electrical Drives India Private Ltd.	Chennai	89.2
	Bosch Ltd.	Bengaluru	71.2
	Bosch Rexroth (India) Ltd.	Ahmedabad	97.0
	BSH Home Appliances Private Limited	Mumbai	100.0
	BSH Household Appliances Manufacturing Private Limited	Mumbai	100.0
	Robert Bosch Automotive Steering Private Limited	Pune	74.0
	Robert Bosch Engineering and Business Solutions Private Ltd.	Bengaluru	100.0
Indonesia	PT BSH Home Appliances	Jakarta	100.0
	P.T. Robert Bosch	Jakarta	100.0
Israel	BSH Home Appliances Ltd.	Herzlia	100.0
Japan	Bosch Automotive Service Solutions Corporation	Tokyo	100.0
	Bosch Corporation	Tokyo	100.0
	Bosch Packaging Technology K.K.	Tokyo	100.0
	Bosch Rexroth Corporation	Tsuchiura-shi	99.9
	ETAS K.K.	Yokohama	100.0
	Bosch Security Systems Inc.	Tokyo	100.0
	FA Niigata Co., Ltd.	Niigata	100.0
	Fuji Aitac Co., Ltd.	Gunma	100.0
	Gunma Seiki Co., Ltd.	Gunma	100.0
	Nippon Injector Corporation	Odawara	50.0
Korea	Bosch Electrical Drives Co., Ltd.	Sejong	100.0
	Bosch Rexroth Korea Ltd.	Busan	100.0
	Robert Bosch Korea Limited Company	Daejeon	100.0
Malaysia	Bosch Power Tools Engineering Sdn. Bhd.	Penang	100.0
	Bosch Rexroth Sdn. Bhd.	Shah Alam	100.0
	Bosch Solar Energy Malaysia Sdn. Bhd.	Penang	100.0
	BSH Home Appliances Sdn. Bhd.	Kuala Lumpur	100.0
	ROBERT BOSCH (MALAYSIA) SDN. BHD.	Penang	100.0
	Robert Bosch Automotive Steering Sdn. Bhd.	Penang	100.0

	Company name	Registered office	Percentage share of capital
	ROBERT BOSCH POWER TOOLS SDN. BHD.	Penang	100.0
	Robert Bosch Sdn. Bhd.	Kuala Lumpur	100.0
Philippines	Bosch Service Solutions, Inc.	Manila	100.0
	Robert Bosch Inc.	Manila	100.0
Saudi Arabia	BSH Home Appliances Saudi Arabia LLC	Dschidda	51.0
Singapore	Bosch Packaging Technology (Singapore) Pte. Ltd.	Singapore	100.0
	Bosch Rexroth Pte. Ltd.	Singapore	100.0
	BSH Home Appliances Pte. Ltd.	Singapore	100.0
	Robert Bosch (South East Asia) Pte. Ltd.	Singapore	100.0
	Robert Bosch Security Solutions Pte.	Singapore	100.0
Taiwan	Bosch Rexroth Co. Ltd.	Taipei	100.0
	BSH Home Appliances Private Limited	Taipei	100.0
	Robert Bosch Taiwan Co., Ltd.	Taipei	100.0
	Unipoint Electric MFG Co., Ltd.	Taipei	100.0
Thailand	Bosch Automotive Thailand Co. Ltd.	Rayong	87.9
	Bosch Packaging Technology (Thailand) Co., Ltd.	Chonburi	100.0
	BSH Home Appliances Ltd.	Bangkok	100.0
	Robert Bosch Ltd.	Bangkok	100.0
	Robert Bosch Automotive Technologies (Thailand) Co., Ltd.	Rayong	100.0
United Arab Emirates	BSH Home Appliances FZE	Dubai	100.0
	BSH Home Appliances General Trading LLC	Dubai	100.0
	Robert Bosch Middle East FZE	Dubai	100.0
Vietnam	Bosch Vietnam Co., Ltd.	Dong Nai Province	100.0
Rest of world			
Australia	Australian Industrial Abrasives Pty. Ltd.	Rowville	100.0
	Bosch Automotive Service Solutions Pty. Ltd.	Melbourne	100.0
	Bosch Rexroth Pty. Ltd.	Kings Park	100.0
	Bosch Security Systems Pty. Ltd.	Sydney	100.0
	BSH Home Appliances Pty. Ltd.	Heatherton	100.0
	Robert Bosch (Australia) Pty. Ltd.	Clayton	100.0

	Company name	Registered office	Percentage share of capital
	sia Abrasives Australasia Holding Pty. Ltd.	Rowville	100.0
	sia Abrasives Australia Pty. Ltd.	Rowville	100.0
Morocco	BSH Electroménagers (SA)	Casablanca	100.0
New Zealand	Bosch Security Systems Ltd.	Auckland	100.0
	BSH Home Appliances Ltd.	Auckland	100.0
South Africa	BSH Home Appliances (Pty.) Ltd.	Johannesburg	100.0
	Robert Bosch (Pty.) Ltd.	Brits	100.0

2 Investments measured using the equity method

	Company name	Registered office	Percentage share of capital
Germany	Bosch Mahle Turbo Systems GmbH & Co. KG	Stuttgart	50.0
	EM-motive GmbH	Hildesheim	50.0
Korea	KB Wiper Systems Co., Ltd.	Daegu	50.0
South Africa	Hytec Holdings Pty. Ltd.	Johannesburg	50.0
United States	Associated Fuel Pump Systems Corporation	Anderson, SC	50.0

3 Investments measured at amortized cost

	Company name	Registered office	Percentage share of capital
Germany	AIG Planungs- und Ingenieurgesellschaft mbH	Stuttgart	100.0
	Alltrucks GmbH & Co. KG	Munich	33.3
	Asanetwork GmbH	Willstätt	23.3
	BD Kompressor Management GmbH	Lollar	100.0
	Bosch Emission Systems Verwaltungs-GmbH	Stuttgart	100.0
	Bosch Mahle Turbo Systems Verwaltungs GmbH	Stuttgart	50.0
	Bosch Management Support GmbH	Leonberg	100.0
	Bosch Pensionsfonds AG	Stuttgart	100.0

	Company name	Registered office	Percentage share of capital
	Bosch Rexroth Interlit GmbH	Joachimsthal	100.0
	Bosch Rexroth Monitoring Systems GmbH	Dresden	100.0
	Bosch SoftTec GmbH	Hildesheim	100.0
	BS Systems GmbH & Co. KG	Zusmarshausen	50.0
	BSH Altersfürsorge GmbH	Munich	100.0
	CDE - Packaging GmbH	Glauburg-Stockheim	49.0
	ECP Energiecontracting GmbH	Heidelberg	81.0
	Energiespeicher Nord GmbH & Co. KG	Braderup	45.0
	Energiespeicher Nord Verwaltungs GmbH	Braderup	45.0
	escrypt GmbH Embedded Security	Bochum	100.0
	GFI Gesellschaft für Infrastrukturdienste mbH	Reutlingen	100.0
	Home Connect GmbH	Munich	100.0
	Integrated Management Consulting GmbH	Schwäbisch Gmünd	100.0
	JCB Management GmbH	Hannover	20.0
	Johnson Controls Autobatterie GmbH & Co. KGaA	Hannover	20.0
	Knorr-Bremse Systeme für Nutzfahrzeuge GmbH	Munich	20.0
	Koller + Schwemmer GmbH	Nuremberg	100.0
	Lithium Energy and Power GmbH & Co. KG	Stuttgart	50.0
	Makat Candy Technology GmbH	Dierdorf	100.0
	Mobility Media GmbH	Berlin	100.0
	mozaiq operations GmbH	Frankfurt/Main	33.3
	part GmbH	Bad Urach	50.0
	Profilo Elektrogeräte-Vertriebsgesellschaft mbH	Munich	100.0
	Prüfzentrum Boxberg GmbH	Boxberg	100.0
	Robert Bosch Battery Solutions GmbH	Eisenach	100.0
	Robert Bosch Immobilien GmbH	Stuttgart	100.0
	Robert Bosch Lollar Guss GmbH	Lollar	100.0
	Robert Bosch Power Tools GmbH & Co. KG	Leinfelden-Echterdingen	100.0
	Robert Bosch Smart Home GmbH	Stuttgart	100.0
	Robert Bosch Start-Up GmbH	Stuttgart	100.0
	Robert Bosch Starter Motors Generators Holding GmbH	Schwieberdingen	100.0
	Robert Bosch Technical and Business Solutions GmbH	Stuttgart	100.0
	Service- und Betriebsgesellschaft Heidehof GmbH	Stuttgart	100.0

	Company name	Registered office	Percentage share of capital
	SupplyOn AG	Hallbergmoos	42.1
	Valicare GmbH	Frankfurt/Main	100.0
Europe			
Austria	Bosch General Aviation Technology GmbH	Vienna	100.0
	RobArt GmbH	Linz	22.0
	ZENO Track GmbH	Vienna	100.0
Belarus	Robert Bosch OOO	Minsk	100.0
Belgium	EpiGaN NV	Leuven	22.0
Bulgaria	Robert Bosch EOOD	Sofia	100.0
Croatia	Robert Bosch d.o.o.	Zagreb	100.0
Denmark	Moeller & Devicon A/S	Sandved	100.0
Estonia	Robert Bosch OÜ	Tallinn	100.0
France	BD Kompressor France S.a.r.l.	Trevoux	100.0
	Bosch Packaging Technology S.A.S.	Saint-Ouen	100.0
	ETAS S.A.S.	Saint-Ouen	100.0
Georgia	Robert Bosch Ltd.	Tiflis	100.0
Greece	Bosch Rexroth S.A.	Athens	100.0
Hungary	Bosch Electronic Service Kft.	Kecskemét	100.0
	Bosch Packaging Systems Kft.	Pécel	100.0
Italy	BARI SERVIZI INDUSTRIALI Società consortile a r.l.	Modugno	50.0
	Dana Rexroth Transmission Systems S.r.l.	Arco	50.0
	DECA S.r.l.	Lugo	100.0
	Oleodinamica Gambini S.r.l.	Modena	20.0

	Company name	Registered office	Percentage share of capital
Kazakhstan	TOO Robert Bosch	Almaty	100.0
Latvia	Robert Bosch SIA	Riga	100.0
Lithuania	UAB Robert Bosch	Vilnius	100.0
Netherlands	Bosch Thermotechnology Netherlands Holding B.V.	Boxtel	100.0
	Tradeplace B.V.	Amsterdam	20.0
Poland	Loos Centrum Sp.z o.o.	Warsaw	26.0
Russian Federation	Bosch Heating Systems LLC	Engels	100.0
	Evroradiators LLC	Engels	100.0
	Robert Bosch Samara LLC	Chernovskiy	100.0
Slovakia	Robert Bosch spol. s.r.o.	Bratislava	100.0
	Valicare s.r.o.	Trencin	51.1
Slovenia	BSH I.D. Invalidska družba d.o.o.	Nazarje	100.0
	Robert Bosch d.o.o.	Ljubljana	100.0
Spain	Bosch Automotive Service Solutions S.A.U.	Madrid	100.0
Switzerland	Bosch Automotive Service Solutions AG	Kriens	100.0
	Rotzinger AG	Kaiseraugst	46.7
Ukraine	Robert Bosch Ltd.	Kiev	100.0
United Kingdom	ETAS Ltd.	York	100.0
	LAGTA Group Training Limited	Motherwell	100.0
	LAGTA Limited	Motherwell	100.0
	Spore Holdings Ltd.	Daventry	100.0
Americas			
Brazil	Bosch Soluções Integradas Brasil Ltda.	Campinas	100.0
	Bosch Management Support Ltda.	Campinas	99.9
	Bosch Termotecnologia Ltda.	São Paulo	100.0
	Metapar Usinagem Ltda.	Curitiba-Paraná	100.0

	Company name	Registered office	Percentage share of capital
Chile	Bosch Rexroth Chile S.p.A.	Santiago de Chile	100.0
Ecuador	Robert Bosch Sociedad Anónima - Ecuabosch	Guayaquil	100.0
Mexico	Bosch Automotive Service Solutions S.A. de C.V.	Mexico City	100.0
	Bosch Management Services Mexico, S.C.	Mexico City	100.0
Panama	Robert Bosch Panama S.A.	Panama City	100.0
	Robert Bosch Panama Colon, S.A.	Colon	100.0
United States	Akustica Inc.	Pittsburgh, PA	100.0
	Bosch Energy Storage Solutions LLC	Palo Alto, CA	100.0
	Bosch Management Services Corporation	Wilmington, DE	100.0
	Bosch Software Innovations Corp.	Chicago, IL	100.0
	Bosch Solar Energy Corp.	Detroit, MI	100.0
	BSE PV LLC	Palo Alto, CA	100.0
	Escrypt Inc.	Ann Arbor, MI	100.0
	Industrial Pharmaceutical Resources, Inc.	Bartlett, IL	49.0
	KX2 Holding Building Technologies Group, LP	Phoenix, AZ	100.0
	North America Fuel Systems Remanufacturing LLC	Kentwood, MI	50.0
	PBR International USA Ltd.	Knoxville, TN	100.0
	Robert Bosch Start-up Platform North America LLC	Wilmington, DE	100.0
	RoboToolz Inc.	Mountain View, CA	100.0
Venezuela	Bosch Rexroth S.A.	Caracas	100.0
	Robert Bosch S.A.	Caracas	100.0
Asia			
Bangladesh	Robert Bosch (Bangladesh) Ltd.	Dhaka	100.0
Cambodia	Robert Bosch (Cambodia) Co., Ltd.	Phnom Penh	100.0
China	Bosch (Donghai) Automotive Test & Technology Center Co., Ltd.	Donghai	100.0
	Bosch (Hulunbeier) Automotive Test and Technology Centre Co., Ltd.	Yakeshi	100.0
	Bosch (Shanghai) Smart Life Technology Ltd.	Shanghai	100.0
	Bosch Automotive (Wuhu) Co., Ltd.	Wuhu	100.0
	Bosch Automotive Technical Service (Beijing) Co., Ltd.	Beijing	100.0
	Bosch Electronics Trading (Suzhou) Co., Ltd.	Suzhou	100.0

	Company name	Registered office	Percentage share of capital
	Bosch Thermotechnology (Shandong) Co., Ltd.	Zibo	100.0
	Bosch Thermotechnology (Shanghai) Co., Ltd.	Shanghai	100.0
	Bosch Thermotechnology (Wuhan) Co., Ltd.	Wuhan	100.0
	BSH Home Appliance Trading Co., Ltd.	Shanghai	100.0
	Freud International Trading (Shanghai) Co., Ltd.	Shanghai	100.0
	Guangzhou sia Abrasives Company Ltd.	Guangzhou	100.0
	HEFEI M&B Air Conditioning Equipment Co., Ltd.	Heifei	40.0
	Loos China Ltd.	Hong Kong	100.0
	Nanjing Bovon Power Tools Co.	Nanjing	50.0
	Seeo Battery Systems Co., Ltd.	Shanghai	100.0
	sia Abrasives Company Ltd.	Hong Kong	100.0
India	ETAS Automotive India Private Ltd.	Bengaluru	100.0
	Klenzaids Contamination Controls Private Limited	Mumbai	49.0
	Newtech Filter India Private Limited	Bengaluru	100.0
	MIVIN Engineering Technologies Private Ltd.	Bengaluru	100.0
	Precision Seals Manufacturing Ltd.	Pune	100.0
	ZF Steering Gear (India) Ltd.	Pune	26.0
Indonesia	P.T. Bosch Rexroth	Jakarta	100.0
	P.T. Robert Bosch Automotive	Jakarta	100.0
Iran	Bosch Tejarat Pars	Tehran	100.0
Israel	Utilight Ltd.	Yavne	22.3
Japan	Advanced Driver Information Technology Corporation	Kariya-shi	50.0
	Bosch Engineering K.K.	Tokyo	100.0
	Daito Hydraulics Co., Ltd.	Nasu-gun	100.0
	Kanto Seiatsu Kogyo Co., Ltd.	Honjo	94.9
	Knorr-Bremse Commercial Vehicle Systems Japan, Ltd.	Tokyo	20.0

	Company name	Registered office	Percentage share of capital
Korea	ETAS Korea Co., Ltd.	Seoul	100.0
Malaysia	Pacific BBA (Malaysia) Sdn. Bhd.	Shah Alam	100.0
	Robert Bosch (Penang) Sdn. Bhd.	Penang	100.0
Sri Lanka	Robert Bosch Lanka Pvt. Ltd.	Colombo	100.0
Thailand	FMP Distribution Ltd.	Rayong	50.1
	FMP Group (Thailand) Ltd.	Rayong	50.7
	Pacific BBA (Thailand) Ltd.	Bangkok	100.0
Vietnam	Robert Bosch Engineering and Business Solutions Vietnam Co. Ltd.	Ho Chi Minh City	100.0
Rest of world			
Australia	FMP Group (Australia) Pty. Ltd.	Ballarat	49.0
	Pacifica Group Pty. Ltd.	Melbourne	100.0
Egypt	Bosch Packaging Technology Ltd.	Cairo	100.0
	Robert Bosch Ltd.	Cairo	100.0
Kenya	Robert Bosch East Africa Ltd.	Nairobi	100.0
New Zealand	Bosch Rexroth Ltd.	Auckland	100.0
	Robert Bosch Ltd.	Auckland	100.0
Nigeria	Robert Bosch Limited	Lagos	100.0
South Africa	Hägglunds Drives South Africa (Pty.) Ltd.	Fourways	100.0
Tunisia	Robert Bosch Tunisie SARL	Tunis	100.0

Stuttgart, March 15, 2016

Robert Bosch GmbH
The board of management

Auditor’s report

Independent Auditor's Report

To Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart

Report on the Consolidated Financial Statements

We have audited the accompanying consolidated financial statements of Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart, and its subsidiaries, which comprise the income statement, the statement of comprehensive income, the statement of financial position, the statement of changes in equity, the statement of cash flows and the notes to the consolidated financial statements for the business year from January 1, 2015 to December 31, 2015.

Managing Directors' Responsibility for the Consolidated Financial Statements

The Managing Directors of Robert Bosch Gesellschaft mit beschränkter Haftung are responsible for the preparation of the consolidated financial statements. This responsibility includes that these consolidated financial statements are prepared in accordance with International Financial Reporting Standards, as adopted by the EU, and the additional requirements of German commercial law pursuant to § (Article) 315a Abs. (paragraph) 1 HGB (“Handelsgesetzbuch”: German Commercial Code) and that these consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the group in accordance with these requirements. The Managing Directors are also responsible for the internal controls Management deems necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with § 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW) and additionally observed the International Standards on Auditing (ISA). Accordingly, we are required to comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing audit procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The selection of audit procedures depends on the auditor's professional judgment. This includes the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In assessing those risks, the auditor considers the internal control system relevant to the entity's preparation of consolidated financial statements that give a true and fair view. The aim of this is to plan and perform audit procedures that are appropriate in the given circumstances, but not for the purpose of expressing an opinion on the effectiveness of the group's internal control system. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Managing Directors, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Audit Opinion

According to § 322 Abs. 3 Satz (sentence) 1 HGB, we state that our audit of the consolidated financial statements has not led to any reservations.

In our opinion based on the findings of our audit, the consolidated financial statements comply, in all material respects, with IFRSs, as adopted by the EU, and the additional requirements of German commercial law pursuant to § 315a Abs. 1 HGB and give a true and fair view of the net assets and financial position of the Group as at December 31, 2015 as well as the results of operations for the business year then ended, in accordance with these requirements.

Report on the Group Management Report

We have audited the accompanying group management report of Robert Bosch Gesellschaft mit beschränkter Haftung for the business year from January 1, 2015 to December 31, 2015. The Managing Directors of Robert Bosch Gesellschaft mit beschränkter Haftung are responsible for the preparation of the group management report in accordance with the requirements of German commercial law applicable pursuant to § 315a Abs. 1 HGB. We conducted our audit in accordance with § 317 Abs. 2 HGB and German generally accepted standards for the audit of the group management report promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany) (IDW). Accordingly we are required to plan and perform the audit of the group management report to obtain reasonable assurance about whether the group management report is consistent with the consolidated financial statements and the audit findings, as a whole provides a suitable view of the Group's position and suitably presents the opportunities and risks of future development.

According to § 322 Abs. 3 Satz 1 HGB, we state that our audit of the group management report has not led to any reservations.

In our opinion based on the findings of our audit of the consolidated financial statements and group management report, the group management report is consistent with the consolidated financial statements, as a whole provides a suitable view of the Group's position and suitably presents the opportunities and risks of future development.

Stuttgart, March 15, 2016

PricewaterhouseCoopers
Aktiengesellschaft
Wirtschaftsprüfungsgesellschaft

Harald Kayser
Wirtschaftsprüfer

Marcus Nickel
Wirtschaftsprüfer

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Robert Bosch Stiftung

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Group management report

Consolidated financial statements of the Bosch Group

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Ten-year summary of the Bosch Group

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FIGURES IN MILLIONS OF EUROS	2006	2007	2008	2009	2010	2011	2012[1]	2013	2014	2015
Sales	**43,684**	**46,320**	**45,127**	**38,174**	**47,259**	**51,494**	**44,703**	**46,068**	**48,951**	**70,607**
of which generated outside Germany (as a percentage)	74	75	74	76	77	77	77	77	78	80
Research and development cost	3,348	3,583	3,889	3,603	3,810	4,190	4,442	4,543	4,959	6,378
as a percentage of sales revenue	7.7	7.7	8.6	9.4	8.1	8.1	9.9	9.9	10.1	9.0
Capital expenditure	2,670	2,634	3,276	1,892	2,379	3,226	2,714	2,539	2,585	4,058
of which in Germany	968	1,138	1,610	928	1,023	1,161	988	913	1,098	1,394
of which outside Germany	1,702	1,496	1,666	964	1,356	2,065	1,726	1,626	1,487	2,664
as a percentage of sales revenue	6.1	5.7	7.3	5.0	5.0	6.3	6.1	5.5	5.3	5.7
as a percentage of depreciation	116	108	136	80	100	142	101	126	138	146
Depreciation of property, plant, and equipment	2,309	2,428	2,410	2,374	2,373	2,265	2,689	2,008	1,868	2,788
Annual average number of associates (thousands)	258	268	283	275	276	295	273	280	286	369
of which in Germany	110	111	114	113	112	117	109	108	105	131
of which outside Germany	148	157	169	162	164	178	164	172	181	238
as of 12/31 of the year	261	271	282	271	284	303	273	281	290	375
Personnel expenses	12,534	12,896	12,994	12,787	14,132	14,719	14,198	14,907	15,325	20,369
Total assets	**46,940**	**48,568**	**46,761**	**47,509**	**52,683**	**54,616**	**52,611**	**55,725**	**61,924**	**77,266**
Equity	22,482	24,825	23,009	23,069	26,243	26,917	26,900	27,686	29,541	34,424
as a percentage of total assets	48	51	49	49	50	49	51	50	48	45
Cash flow	4,521	5,052	4,032	1,910	5,460	4,959	4,053	3,956	4,866	6,835
as a percentage of sales revenue	10.3	10.9	8.9	5.0	11.6	9.6	9.1	8.6	9.9	9.7
Profit after tax	2,170	2,850	372	–1,214	2,489	1,820	2,304	1,251	2,637	3,537
Unappropriated earnings	69	72	75	67	82	88	88	88	102	142

[1] Adjusted for changes in accounting policies
[2] Including development work charged directly to customers

PatRec me!

For the first time, this annual report makes use of PatRec, the mobile pattern recognition technology developed by Bosch in 2015 for recognizing objects such as products and print media.

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