

- [ 01 ] Bosch is making hospitals smart**
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# Press release

## Energy and Building Technology



**BOSCH**

### “Attention OR: helicopter landing!” Bosch is making hospitals smart

October 5, 2017  
PI 9806 RB bj/af

- ▶ Connected solutions for greater safety, convenience, and efficiency in hospitals
- ▶ Operators, staff, and patients benefit from connected services
- ▶ Bosch expects smart hospitals to generate sales of 100 million euros
- ▶ Energy and Building Technology business sector to grow by around five percent in 2017

Cologne / Stuttgart, Germany – Preventing the theft of expensive medical equipment, stopping unauthorized persons from entering restricted areas, and informing the OR of a rescue helicopter’s arrival: with the help of intelligently connected cameras, video technology, and much more, things that used to be impossible at hospitals – or were only possible as stand-alone, non-digital solutions – are now child’s play thanks to Bosch’s internet of things (IoT) expertise. According to the insurance industry, the theft of endoscopic devices results in millions of euros in damages for hospital operators throughout Europe. Sensor-based video technology in corridors and at points of entry and exit can provide crucial evidence for prosecuting criminals. Prevention is equally important. Intelligently controlled lighting, connected motion detectors on doors and windows, and intrusion alarm systems scare off burglars, prevent theft, and save operators the high cost of having to replace expensive medical equipment. “The internet of things has finally arrived at hospitals,” Dr. Stefan Hartung, the member of the board of management responsible for the Energy and Building Technology business sector at Bosch, said at a press conference. Safety and security are not the only benefits, he added: connected solutions also provide greater convenience and efficiency in hospitals. Bosch plans to generate sales of around 100 million euros with smart hospital projects in the years ahead. For the entire Energy and Building Technology business sector, Bosch expects sales growth of around five percent this year, more than double the sector’s growth rate last year.

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### **Contributing to hospitals' digitalization strategies**

According to a study by Roland Berger, almost 90 percent of all hospitals have developed a digitalization strategy to increase their efficiency and economic performance – and infrastructure is no exception. “We would like to benefit from these ambitions, which is why we will expand our business activities in the field of connected products and services for hospitals. Through our intelligent solutions, we want to make a contribution to greater quality of life, safety, and security at hospitals, as well as to greater resource conservation,” Hartung said.

### **Bosch: a service provider for smart hospitals**

Hospitals are under tremendous pressure. They have to function smoothly 24 hours a day, 365 days a year. Under constantly rising cost pressure, doctors and nurses have to care for patients, people and valuable equipment also have to be protected, and technical infrastructure has to be managed optimally. With smart hospital solutions, Bosch relieves the burden on hospital operators and staff when it comes to technical and administrative duties. Patients also benefit from new, connected services in their hospital rooms, such as interactive infotainment systems.

### **Connected control center at University Hospital in Munich**

At the Rechts der Isar hospital in Munich, one of Germany's largest medical centers, a connected control center ensures an optimal overview of the hospital's safety-relevant processes. From there, employees can monitor gates, intercoms, and the installed video cameras. Four multi-picture-display monitors make it possible to keep an eye on 34 clinics and departments. The system is also used to control safety-relevant access points. In addition, connected cameras and monitors register the landing of rescue helicopters, notify the OR directly of their arrival, and inform the relevant members of staff. To enable these new functions, Bosch has added internet capabilities to existing, non-digital surveillance cameras and networked them to create a single system, saving the cost of having to buy more than 70 cameras, cutting the facility's operating costs, and reducing the burden on employees.

### **Climatec: a long-standing partner in the U.S.**

In North America, the Bosch subsidiary Climatec is a long-standing partner of Banner Health. With 29 facilities in seven states, Banner Health is one of the largest non-profit healthcare providers in the U.S. Bosch plans, develops, and integrates solutions in new and retrofitted hospitals for this customer. At 15 Banner facilities, Bosch provides building automation, air conditioning, and fire

detection equipment, as well as nurse-call and infotainment systems for patients – integrated, connected, and from a single source. The goal is to use connected solutions to create comfortable environments for providing medical care to patients that are also economical and reliable.

### **NH hospital in Bangalore benefits from lower energy costs**

Since December 2016, Bosch has been an energy partner for a 750-bed cancer treatment center in Bangalore, India, which handles around 390,000 patients a year. The facility is part of the Narayana Hrudayalaya (NH) chain. With 30 hospitals at 18 locations, NH is one of the largest healthcare providers in India. At the heart of the project is a sensor- and software-based energy solution that will ensure a high degree of energy efficiency in the long term while guaranteeing outstanding convenience and comfort for patients and staff. Bosch is also supporting facility management in its day-to-day work with an innovative energy management and monitoring system, allowing the facility to cut costs by around twelve percent compared to its previous expenses. Staff members can use their smartphones, tablets, and desktop computers to access energy data at any time and react immediately to irregularities.

### **Indoor positioning can save lives**

Together with other partners, Bosch is dedicated to developing additional IoT-based services for the hospital sector. In emergencies, smart indoor solutions can make it possible to locate urgently needed medical equipment, for example, and transport it to certain areas of a hospital. Indoor positioning works by equipping essential medical equipment or other objects with sensors. Using sensor technology, they transmit their position or condition (such as their battery status) in real time via an internal network or a cloud to doctors and nursing staff. Such solutions speed up processes at hospitals and can even save lives – because in an emergency, every second counts.

**Press photos:** #1212134, #1212135, #1212133

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*The Bosch Group is a leading global supplier of technology and services. It employs roughly 390,000 associates worldwide (as of December 31, 2016). The company generated sales of 73.1 billion euros in 2016. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. 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 Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 120 locations across the globe, Bosch employs some 59,000 associates in research and development.*

*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 upfront 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.*

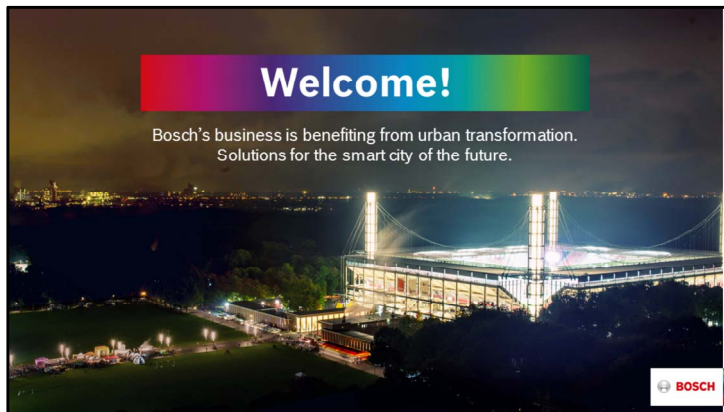
*Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.iot.bosch.com](http://www.iot.bosch.com), [www.bosch-press.com](http://www.bosch-press.com), [www.twitter.com/BoschPresse](https://twitter.com/BoschPresse).*



## **Bosch Energy and Building Technology press briefing**

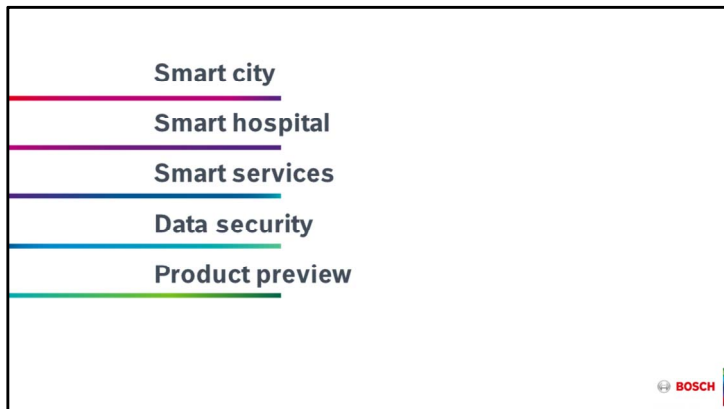
Presentation by Dr. Stefan Hartung,  
member of the board of management of Robert Bosch GmbH  
at the Bosch Energy and Building Technology 2017 press event on  
October 5, 2017  
in the Rheinenergiestadion, Cologne

Check against delivery.



## Welcome

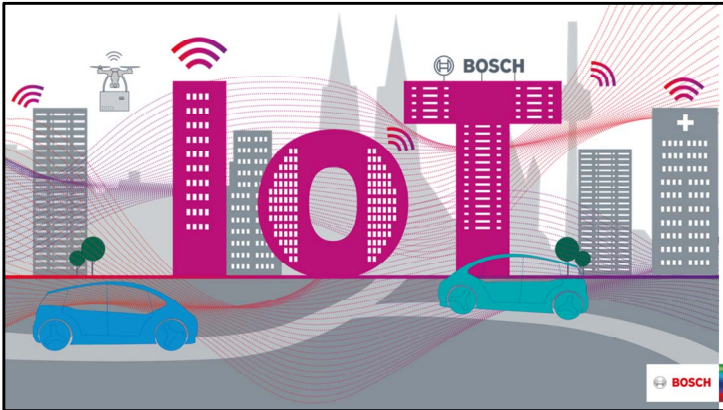
- Welcome to the Rheinenergiestadion in Cologne!
- This stadium, a place for sports, fun, and excitement, is the ideal venue for me to introduce to you our energy and building technology business.
- Safety, convenience, and efficiency lay the groundwork for fascination – a fascination with sports and technology alike.



## Agenda

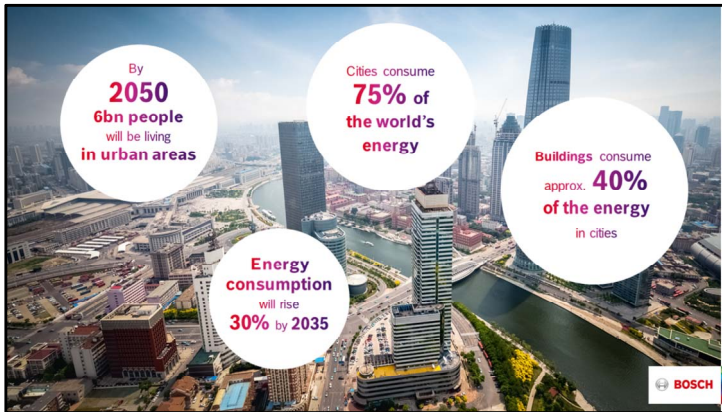
- As you will see, our Bosch solutions are fun to use and fascinate our customers.
- Today, I particularly wish to talk about smart cities and what Bosch can contribute to them.
- A city can become “smart” only if its buildings are smart; that’s why I also want to devote some time to the topic of smart hospitals.
- Besides smart buildings, a fundamental element of the smart city is smart services, so I will be introducing those to you today as well.
- I will also talk about the very important issue of data security.
- Finally, I will talk about the important issue of data security and provide a preview of the products in our exhibition.





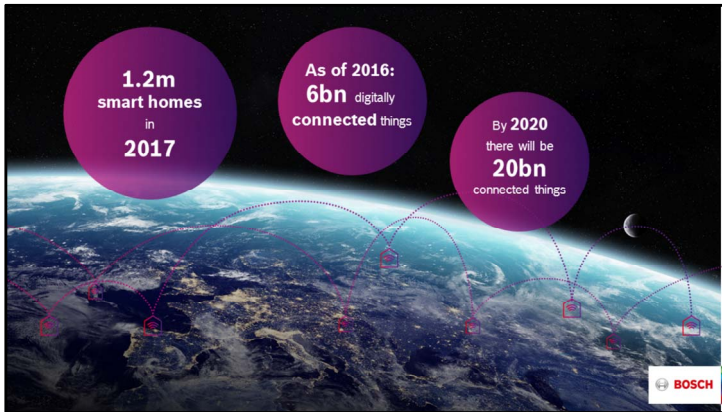
## Vision

- Let me start with a vision.
- Cologne, 2030:
- Energy is derived primarily from renewable sources. Virtual power plants – by which I mean a network of small distributed facilities that store power or feed it into the grid as needed – have replaced conventional facilities.
- Battery storage solutions are everywhere.
- All the buildings in the city are smart and intelligently connected to one another.
- Building maintenance no longer needs to be done by people; instead, smart services can monitor the condition of elevators or heating and air-conditioning systems in real time. In an emergency, a technician can be automatically notified.
- Access control for certain areas is automatic as well.
- Commuters can see in real time when and where it makes sense to switch to public electric transportation, avoiding traffic jams and emissions as far as possible.
- Residential buildings will feature interconnected household appliances, heating systems, and security systems.
- Why? Because this will allow us to offer our customers new services.
- All this and more is part of our vision of the smart city of the future.



## Market

- By 2050, experts predict there will be more than 6 billion people living in urban areas around the world – twice as many as there are now, and comprising 70 percent of the total global population.
- Cities account for some 75 percent of power consumption around the world, with 40 percent going to buildings alone.
- By 2035, global energy consumption will rise by 30 percent.



## Market

- The internet of things (IoT), meaning the number of connected devices, is seeing enormous growth.
- In 2016, more than 6 billion things were already digitally connected.
- By 2020, this number is expected to exceed 20 billion.



## Market

- Market research company Gartner predicts that, in the year 2022, an average family household will have 500 smart, connected objects.
- Motion detectors, smoke alarms, and cameras will be connected to the internet, as well as classic tablets, TVs, smartphones, electricity meters, and the many domestic appliances in the kitchen and laundry room.
- By 2020, some 230 million homes around the world will feature smart connectivity – or approx. 15 percent of all households.
- Experts predict the global market will be worth 250 billion dollars by 2020 as well.
- We at Bosch would like to tap into this potential.
- In 2016, Bosch sold 27 million connected products.
- Also in 2016, the Energy and Building Technology business sector’s 30,300 associates worldwide generated sales of 5.2 billion euros.
- Sales are expected to grow some 5 percent in 2017 – more than twice the rate of the previous year.
- This growth is being driven in part by solutions for smart cities, smart homes, and smart services.



## Market

- We want to use connected technologies to make people's everyday lives safer, more convenient, and more efficient.
- And we will do that with vibrant, attractive, sustainable, and connected communities – whether here in Cologne, in Shanghai, San Francisco, or Mexico City.
- More and more, this everyday life will be located in megacities and other urban centers. Cities that will be increasingly connected. Cities that connectivity will once again turn into vibrant, attractive, and sustainable living environments for people.



## Market

- How does a city become intelligent? How does it become a “smart city”?
- The technical explanation is the internet of things (IoT).
- When it comes to the IoT, Bosch is better positioned than any other company, from sensors to software to services.
  - **Sensors:** Bosch is one of world’s biggest manufacturers of micromechanical sensors, the “sensory organs” of the IoT.
  - **Software:** Bosch employs more than 20,000 software engineers worldwide, nearly 4,000 of them for the IoT alone.
  - **Services:** Bosch is developing not only technology, but new business models as well. In the future, services will account for more than half the IoT market.
- And of course, we have already been successful in the hardware segment for decades.
- Bosch’s broad portfolio is the key to making the smart connected city a technological and commercial success.



## Smart city projects

- We are already applying the full scope of our IoT expertise in smart city projects:
  - In June 2017, we signed a contract for a strategic partnership with the Chinese port city of Tianjin.
  - Objective: to jointly implement the “Smart Tianjin” initiative.
  - The idea is to refit the port city to make it smart.
  - For its part in the initiative, Bosch will draw on expertise gained in smart city projects that are already in progress.
  - They include urban projects in Singapore, San Francisco, Stuttgart, Berlin, and the Hamburg docks.
  - For example, in San Leandro, near San Francisco, we have installed intelligent street lights. They help conserve energy. Our sensors there can also measure and assess air quality. Intelligent cameras monitor traffic.
  - Bosch is currently pursuing beacon projects in 14 different cities.
- It’s important to realize that “smart” is not reserved for cities that still exist only on the drawing board, like so many in Asia. Instead, it is more so the cities that already exist today that must solve urgent problems such as energy shortages and crime – and can do so with our technologies.



## Smart city projects

- For smart cities, Bosch offers solutions for mobility, energy, buildings, security, and safety, as well as e-governance, or digital city administration.
- In the field of energy, our portfolio includes virtual power plants; energy-efficient heating, hot-water, and cooling systems; and energy storage systems.
- The safety and security solutions cover systems for fire protection, access control, and video surveillance.
- For residential buildings, Bosch offers smart-home technology and connected household appliances as well as related services.
- And as the world's largest automotive supplier, Bosch also offers mobility solutions for the smart city of tomorrow.





## Smart city projects

- Let's take a look at San Francisco. The first Europeans settled there in 1776. Now, 240 years later, the continent's fourth-largest city is changing to adapt to the needs of the future.
- As part of the FivePoint project, the two new city districts of San Francisco Shipyard and Candlestick Point are being built on the site of an old navy shipyard and a former sports stadium.
- The plans call for 12,000 homes, a large shopping center, numerous office buildings, and 300 art studios.
- It is the largest urban development project in San Francisco's history since the earthquake of 1906.
- As a technical partner of FivePoint, the project developer, Bosch is devising smart solutions locally.



## Smart city projects

- One of the solutions for city administration is the city data platform: an administrative tool essential for monitoring all the data generated on site, whether from the traffic, power, or security systems.
- Residents all receive a smart community app with which they can adjust entry control systems or call up localized real-time information about public transportation.
- Connected communications make it easier for the city and its residents to exchange information.
- More security, less stress – that is what people in the connected city should experience.



## Outlook for the smart city market

- In the period up to 2020, the smart-city market will grow 19 percent each year, reaching a volume of 700 billion euros.
- In cross-departmental projects, Bosch has already doubled its sales in this sector over the past two years.
- As early as 2016, Bosch had achieved around 1 billion euros in sales through cross-selling projects, which combine all elements of Bosch expertise – products, solutions, and services.
- Bosch’s broad portfolio is the key to making the smart connected city a technological and commercial success.



## Smart hospital

- A city is only as smart as the smart buildings in it. Along with residential buildings, factories, and office buildings, these include other commercial structures such as hospitals.
- I am pleased to introduce to you today a new Bosch business area:
- *With building and energy solutions, Bosch serves as a consultant, installer, and service provider to support hospitals on their path to becoming smart hospitals!*



## Smart hospital

- Hospitals and clinics have the highest standards when it comes to reliability and availability.
- After all, they must be available 24 hours a day, 356 days a year.
- The rising complexity and connectivity of building, communication, IT, and medical technology are driving up personnel expenses at the same time that cost pressure is increasing.
- According to a study by Roland Berger, this is why nearly 90 percent of all hospitals have developed a digitalization strategy focused on improving their efficiency and profitability.



## Smart hospital

- With the help of intelligently connected camera and video technology, Bosch can prevent the theft of expensive medical equipment, prohibit unauthorized persons from entering secure areas, and notify the OR of the arrival of a rescue helicopter.
- The insurance industry reports that hospital operators across Europe are incurring losses in the millions due to theft of endoscopic equipment. Sensor-based video technology in entryways, at exits, and in corridors can provide crucial evidence for prosecuting any offenders.
- Prevention is just as important: intelligently controlled lighting, connected motion sensors on doors and windows, and intrusion alarm systems deter break-ins, prevent theft, and save hospital operators the high cost of replacing expensive medical equipment.
- Bosch aims to improve all a hospital's processes across domains, which benefits operators, doctors, and nursing staff.
- Most importantly, though, smart hospitals mean more time for patients. Doctors and nurses will be able to devote more time to their most important target group.
- Ladies and gentlemen, the internet of things has thus finally arrived in hospitals.
- Allow me to name a few specific examples where Bosch is actively involved.



## Smart hospital

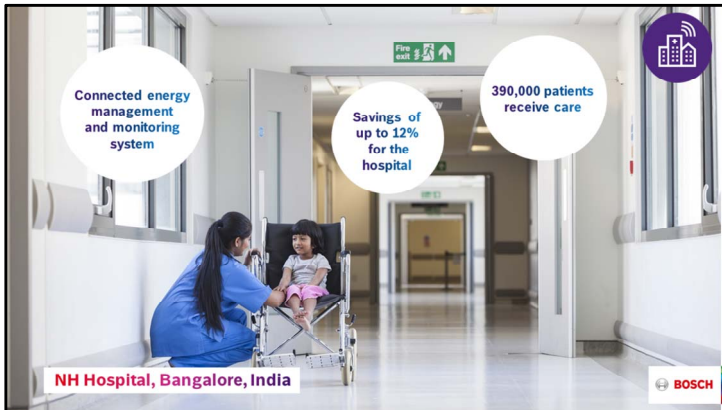
- In Germany, we provide the University Hospital Rechts der Isar with connected security technology.
- Its gates, intercom systems, fire alarms, and intruder alert and theft alarm systems are all supplied by Bosch.
- Four screens with multi-image display function make it possible to seamlessly monitor 34 clinics and departments.
- Connected cameras and monitors record the landing of a rescue helicopter, send notice of its arrival directly to the OR, and notify the relevant staff.
- Costs of acquiring more than 70 cameras were avoided.
- Operating costs were cut.
- Staff workload was eased.



## Smart hospital

- Through its North American subsidiary Climatec, Bosch has been a partner to Banner Health for many years. The company is one of the largest nonprofit healthcare providers in the U.S. (29 facilities in 7 states).
- Bosch develops and integrates solutions in new and retrofitted hospitals.
- In 15 different facilities, Bosch is the hospital operator's main point of contact.
- Installed solutions include: building automation, air conditioning, fire alarms, and nurse-call and infotainment systems for patients.
- Integrated and connected, from a single source. The aim is to use connected solutions to create environments for conveniently providing medical care to patients, environments that are both economically sound and safe to operate.





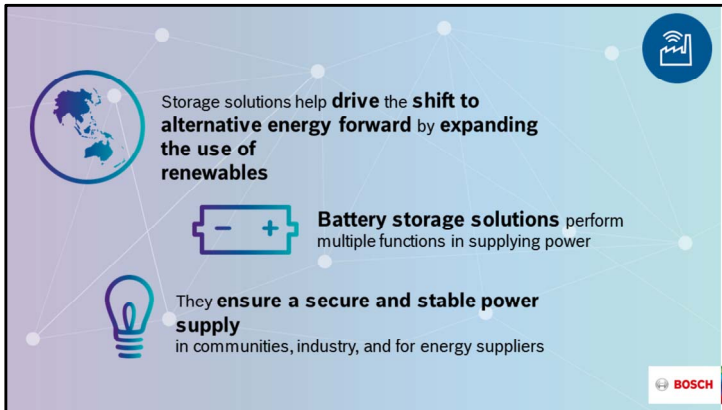
## Smart hospital

- Since December 2016, Bosch has been an energy partner for a cancer treatment center in Bangalore.
- The Mazumdar Shaw Medical Center has 750 beds and treats some 390,000 patients a year.
- The center is part of the NH network (Narayana Hrudayalaya), one of India's largest healthcare providers with 30 facilities at 18 locations.
- NH Hospital in India uses our connected energy management solution.
- Bosch has also equipped the hospital with a facility management solution, complete with an energy management and monitoring system.
- Ultimately, the new concept saves the hospital some 12 percent of its overall costs.
- Staff enjoy improved processes, receive energy data in real time on their smartphone, tablet, or desktop computer, and can respond immediately if they spot anything out of the ordinary.
- Here, connectivity provides the basis for further optimization measures in energy efficiency, and also offers an opportunity for integrating other areas, such as patient care.
- Smart energy management thus offers significant benefits...



### **Battery storage solutions**

- ...but Bosch is also concerned with storing energy.
- In India as in many parts of the world, a stable power supply is not a given.
- Our solutions can lessen the impact of the consequences.
- In Germany, too, we aim to provide a stable and secure power supply. After all:



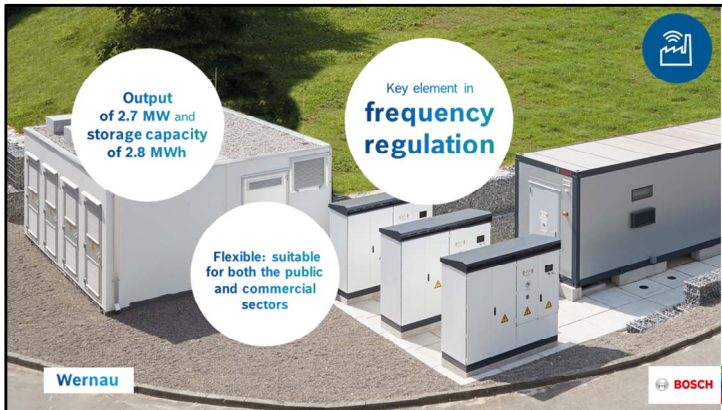
## Battery storage solutions

- Over the next few years, energy consumption will rise by some 30 percent around the world.
- This energy should come from renewable sources if possible, as this is the only way to achieve the climate targets of the Paris accord.
- For Bosch, therefore, it is important to assist in the shift toward renewable energy, for example by supplying energy storage units to Braderup in Schleswig-Holstein, Germany.



## Battery storage solutions

- Stationary energy storage systems solve one of the challenges presented by renewable energy: what should you do with energy that has been generated but is not needed right away?
- One of Europe's largest hybrid battery systems stores electricity generated by a community wind farm in Braderup and feeds it into the grid as required.
- Bosch designed and built the hybrid system with a total capacity of three megawatt hours (3 MWh). The system consists of a lithium-ion component (2 MWh) and a vanadium redox flow unit (1 MWh).
- Bosch also developed the electronic solution for managing the system plus the necessary software.
- Some ten kilometers of underground cable link the hybrid battery system to the grid operated by Schleswig-Holstein Netz AG.
- Whenever the power grid is unable to absorb any more clean electricity, the batteries step in and store the electricity for it to be released later.
- So there is no need to shut down the wind farm or turn its turbines out of the wind when the grid is overloaded.
- The double battery can store energy over the short and long term.
- With a total peak capacity of 2,325 kilowatts, the Braderup hybrid battery facility stores enough power to cover the electricity needs of 40 single-family homes for an entire week.



## Battery storage solutions

- This project was also an important research project for us. We took the experience gathered from our assessments and incorporated it into further refinements to our energy storage solutions.
- A few weeks ago, a newly developed battery storage system went into operation at Bosch Thermotechnik GmbH in the town of Wernau, near Stuttgart.
- It has an output of 2.7 MW and storage capacity of 2.8 MWh.
- This pilot facility is a standardized, modular solution that can serve a wide range of customers and applications.
- What makes it special is the air-conditioning system installed in the unit next to the batteries, thus ensuring that they have a long service life.
- Three inverters with a total rated output of 2,700 kVA and transformers convert the stored energy from direct current into alternating current, so it can be fed into the grid.
- If there should be a sudden power failure, Wernau's innovative battery storage system can supply customers with electricity usage of around 3,900 KWh/year.
- The system is suitable for use in both the public and the commercial sectors.
- In contrast to our solution in Braderup, the Wernau system has only lithium-ion batteries. Due to their structure, they can be charged and discharged faster than the vanadium redox flow units.
- It was primarily developed to improve frequency regulation in the power grid.



## Services

- Ladies and gentlemen, as I said at the beginning, services will play a crucial role in connectivity, both for customer benefits and for commercial success.
- Bosch aims to make connectivity technically feasible with its sensors and software, but it is also looking beyond that: we want to develop services that help enhance convenience and quality of life.
- We expect that by 2020, every web-enabled device will come with a service included.
- In our exhibition, my colleagues will present several examples of those services. I will just name them briefly now.



## Services

- Bosch developed its In-Store Analytics solution for retail businesses. It allows them to study their customers' behavior from anonymized data in a way that is compliant with all data privacy laws.
- Sales of products often depend on their placement within the store and at what point shoppers see them on their journey across the retail floor. In-Store Analytics provides those responsible for retail design and product-range planning with dedicated tools that improve how they track customer interaction in the store and help them incorporate those insights into the store design.
- Bosch IP panoramic cameras capture customers as they move through the store and record data on their positions. This makes it possible to precisely analyze what route customers take and how long they linger at different points throughout the store.
- Retailers can fully rely on the highly accurate KPIs delivered by In-Store Analytics. This level of data precision is made possible by a multistep analysis process. First, Intelligent Video Analytics faithfully translate shoppers' movements into anonymized position data. Then the data is further filtered by cloud-based algorithms, analyzed, and processed into reliable KPIs and graphics. The accuracy of the data is also monitored throughout the entire system uptime and corrected where necessary.
- In many other systems, customer movement is analyzed by an additional and expensive server PC, which usually has only a limited number of cameras to work with. The advantage of the Bosch solution is the distributed data generation in the cameras, which function as smart sensors to enable the analysis even of large retail spaces.



## Services

- Another service we wish to introduce to you today is predictive maintenance for elevators.
- We are taking our expertise from industrial manufacturing and applying it to elevators as well.
- Sensors and cameras can detect malfunctions in elevators before they cause real damage.
- This makes it possible to schedule maintenance well in advance. Unexpected breakdowns, such as the well-known scenario of getting stuck in the elevator, can be minimized.
- Another service Bosch offers is connecting the elevator's emergency call system to the Bosch control center, in which case a technician will arrive within 30 minutes to fix the problem.





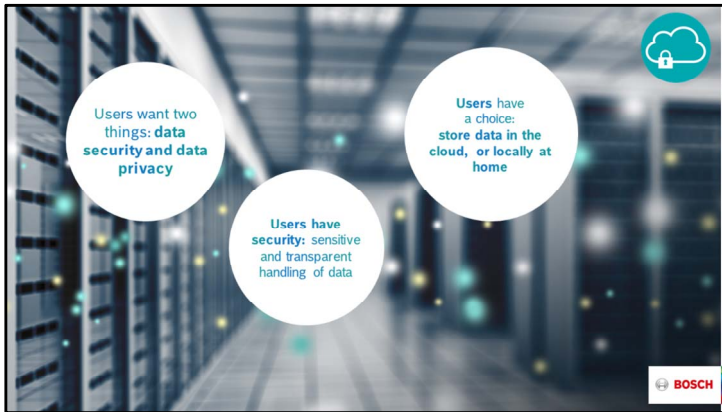
## Services

- One service that is very important to us is Bosch secure truck parking.
- According to its Federal Transport Ministry, Germany has a shortage of some 14,000 parking spaces for trucks – a figure that is set to rise sharply. This shortage, especially of secure parking options, has several consequences: TAPA EMEA (Transported Asset Protection Association Europe) reports that cargo theft in Europe is causing losses of over 16 billion euros per year.
- With the Bosch solution, parking lot operators can offer spaces they have available on an online platform.
- An app informs dispatchers and drivers about available spaces and their details. The security ranking feature in particular provides detailed information on the security measures in place at a parking lot.
- Freight forwarders, dispatchers, and truck drivers can book these available spaces directly on the platform. This eliminates the long search for a parking space and keeps them from having to park on the side of the road.
- Fewer trucks have to park at the side of the freeway.
- The cargo is secure, and drivers can enjoy a safe night of stress-free rest.



### **Data security**

- We can protect not only our customers, but also the data that they have entrusted to us.
- We want to be sure that our data is secure, especially in the places we feel safest: at home, within our own four walls, as well as at work or on the road.
- A survey indicates that data security is a special concern for 92 percent of those who already use smart home applications.



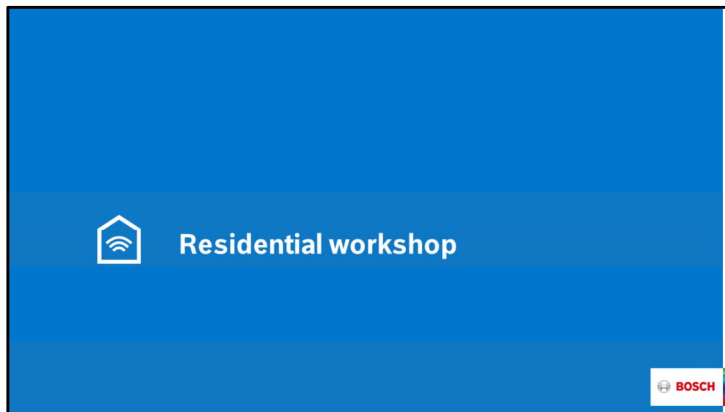
## Data security

- At Bosch, we pledge the following: to transparently handle data in a way that inspires trust. We believe that doing so will set us apart from the competition.
- Our users have the option of uploading their data to our cloud or storing it locally at home. Neither option limits the benefits of the services. In other words, customers have full control over what happens to their data.



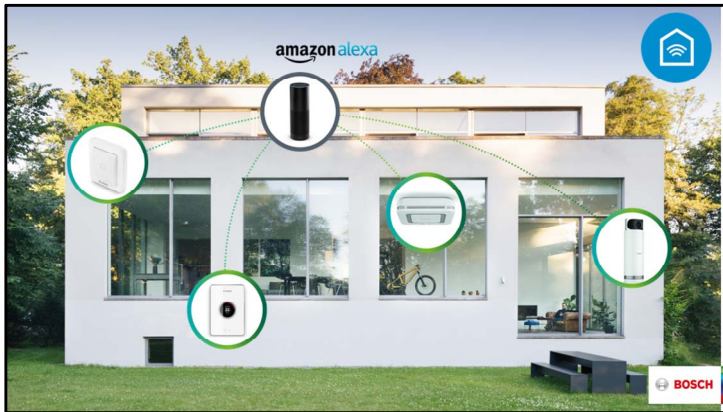
## Data security

- Bosch solutions meet the highest standards of systems security, data privacy, and data security.
- The security of our smart home solutions has now also been confirmed by a renowned independent institute for IT security.
- We received the AV certification's highest possible rating thanks to our stringent standards in data privacy, encrypted communication and connections, active authentication, and secure remote management.
- Data privacy and information security are a fixed element of our corporate policy.



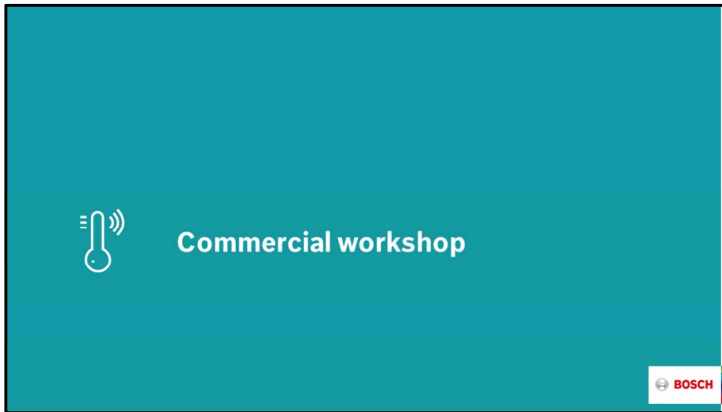
### **Product announcements**

- I have now reached the end of my presentation, and wish to turn your attention to the workshops that will be taking place afterwards.
- We have split our exhibition into a residential and a commercial workshop.



## Product announcements

- In the residential workshop, we're introducing innovations in thermotechnology and the smart home.
- These include our smart home portfolio – for example, the 360-degree camera.
- Customers can now control many of our solutions using Amazon Alexa, too.



### **Product announcements**

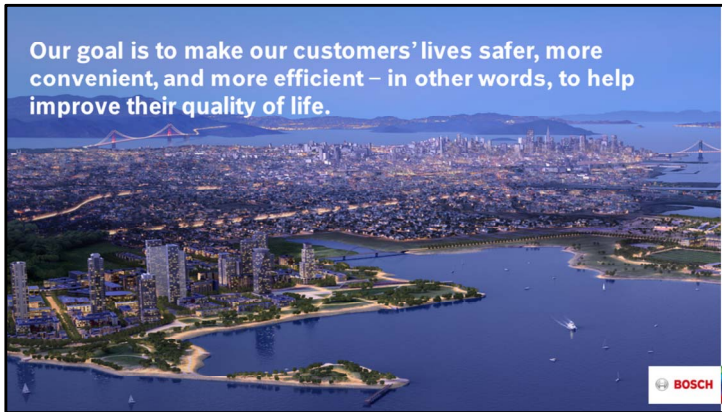
- In our commercial workshop, our experts will present our services.
- There we will showcase products that are designed especially for use in commercial buildings.



## Product announcements

- Besides the latest solutions in security technology, in the commercial workshop you will see for example Air Quality Monitoring, a solution for analyzing and adjusting the indoor climate. The result is more fresh air, a more pleasant climate, and increased employee satisfaction.





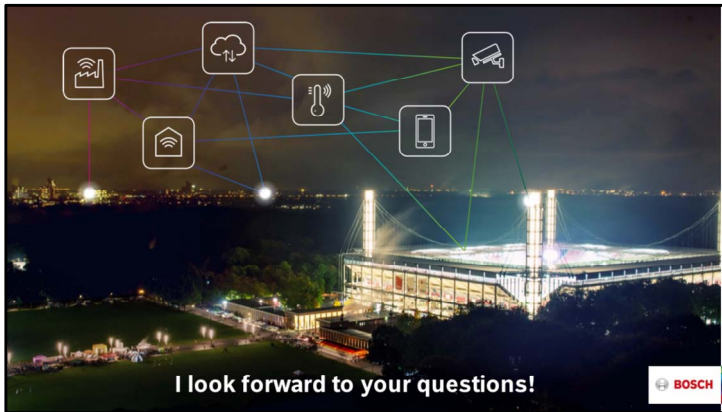
## Outlook

- As you will see, not only are we making the smart city a reality, but we are also working to improve your safety and security.
- We help make your healthcare, your power, your buildings, and your data secure.
- Our goal is to make our customers' lives safer, more convenient, and more efficient – in other words, to help improve their quality of life.



## Outlook

- More and more, the products, systems, and infrastructure Bosch offers its customers for residential and commercial buildings are intelligently connected and can be combined with services to form integrated solutions:
- Smart buildings, smart energy, and smart services.
- In just a few moments, right here in the stadium, you can experience for yourselves what that means: we will show you in our workshops and with a tour of the Rheinenergiestadion here in Cologne.
- One final important point: Bosch connected products are fun!
- And I hope you will have fun, too, as you experience our new product solutions.



- I now look forward to answering any questions you may have.



## **Greater security, greater comfort, greater possibilities: Bosch Smart Home new products and solutions at IFA 2017**

August 30<sup>th</sup>, 2017  
PI 9787 HOME AF

- ▶ Simple, comfortable operation of the Bosch Smart Home System as you wish: with Amazon's voice-controlled assistant Alexa, the Bosch Smart Home app, the new Universal Switch or even fully automated
- ▶ The 360° Indoor Camera and Eyes Outdoor Camera, both will be integrated into the Bosch Smart Home System, are among the first cameras to be controlled with Amazon Alexa
- ▶ The premium Twinguard Smoke Alarm with Air Quality Sensor also alerts friends and neighbours in emergencies
- ▶ The Bosch Smart Home Shutter and Light Control Systems turn existing light switches, electric shutters and blinds into smart devices for greater home security
- ▶ Successive integration of Bosch and Siemens household appliances into the Smart Home System, starting with washing machine, dishwasher and dryer

Stuttgart/Berlin – enjoy life to the fullest, safe in the knowledge that everything is under control at home: Bosch Smart Home gives you a sense of security and takes care of everyday tasks for you on demand. And it is easier to operate than ever. At IFA 2017, Bosch will be presenting Smart Home innovations and solutions that introduce greater comfort, security and flexibility to home living.

### **As unique as its users' needs – comfortable operation even without a smartphone**

No matter whether you prefer using the app, Universal Switch or voice control: the Bosch Smart Home System is easy and intuitive to operate in any situation. While the smartphone app gives you access to all functions in one place – at any time and in any location –, the new Universal Switch offers you greater freedom in its own way. Simply install it in any location in your house and all residents can use it. (If your neighbours come around to water the flowers, they can use it, too!) No cables are required for the installation. The flexible, portable Universal Switch Flex can also be carried around at home as a mobile control element. Both vari-

ants can store up to four functions: for example activate one of the new, pre-defined “good morning” scenarios with just one touch of a finger to have your shutters opened, your radiator-thermostats set to the specified temperature, and the kettle put on in the kitchen for the morning cup of tea by way of the Smart Plug. When you leave the house, simply activate the “leaving home” scenario via the Universal Switch, and the system will secure your home automatically.

Bosch Smart Home even has a solution for residents coming home with their arms full of shopping bags: voice control. Thanks to Alexa, the voice-controlled assistant by Amazon Echo, you will be able to control the camera solutions by voice from the autumn of 2017 – and your complete Bosch Smart Home system from the spring of 2018.

The scenario manager function takes the Bosch Smart Home System another step further: it makes your everyday life easier by automating routine tasks completely. At specific times of the day, scenarios can be initiated automatically. Why not have your blinds open precisely at sunrise every day? Alternatively, specific device states can be set as triggers. You can have all lights in the house switch on when the kids are looting the sweets stash, for instance, or receive a push notification on your smartphone after the postman has delivered the post. Of course, you can still initiate scenarios by tapping the Universal Switch, via a widget or in the Bosch Smart Home app.

### **More options for securing your home with our award-winning cameras**

Both the 360° Indoor Camera and the Eyes Outdoor Camera, winners of the Red Dot and IF Design Award 2017, are being upgraded. Currently available as stand-alone solutions, you can also have them integrated into the Bosch Smart Home System. They can also be controlled via the Bosch Smart Home app or the Universal Switch then. In addition, their integration upgrades your alarm system: as soon as an alarm is triggered, the situation can be verified using the camera recording.

From the autumn of 2017, both cameras will be among the first cameras in the world that are compatible with the Amazon Alexa voice control system. The camera image can even be viewed on a TV via Fire TV.

### **Double security with the premium Smoke Alarm with Air Quality Sensor**

The Bosch Smart Home Twinguard offers you an extra level of security. Thanks to its professionally tried-and-tested Dual Ray technology, it recognises hazards even more reliably, which prevents false alarms. The Twinguard automatically sends an alert to your smartphone and informs you about the situation by means of a push notification or a phone call. On top of that, it allows you to specify

friends and neighbours to be contacted automatically in case of an emergency – free of charge. While you are on holiday for example, the defined circle of people back home will be notified; they can verify the alarm and alert the police or fire services if necessary.

In addition, the air quality sensor that is integrated into the Twinguard turns the emergency device into an everyday tool. By measuring the temperature, humidity and air purity, it helps you improve the indoor climate in your home.

### **Continuous expansion of the Bosch Smart Home System**

Bosch Smart Home intends to make smart technology as user-friendly as possible. We are continuously optimising, integrating and expanding existing solutions so you can control the increasing number of connectible devices in your home with one single app.

The new Bosch Smart Home In-wall controls for lights and shutters allow users to upgrade regular electric switches for blinds, shutters, awnings and lighting systems completely invisibly. Existing lights, blinds and shutters can be controlled as part of the Bosch Smart Home System or operated manually as before. Integrating them into your scenarios improves your home security even further. Take the presence simulation, for instance: irregular activation of the lights or blinds puts off burglars by creating the illusion of your home being used, even while you are away.

The gradual integration of household appliances into the Bosch Smart System saves you further time and effort. At IFA 2017, Bosch will be presenting its integration of selected Home Connect washing machines, dryers and dishwashers by Bosch and Siemens into its Smart Home System. More Home Connect appliances such as stoves, refrigerators and coffee machines will follow in 2018.

### **Market launch**

- ▶ Bosch Smart Home Universal Switch and Universal Switch Flex: autumn of 2017 in Germany, Austria, France and Great Britain
- ▶ Bosch Smart Home Shutter Control In-Wall : autumn of 2017 in Germany and Austria
- ▶ Bosch Smart Home Light Control In-Wall : autumn of 2017 in Germany and Austria
- ▶ Scenario manager expansion: autumn of 2017 as a free update
- ▶ Option of integrating the Bosch Smart Home cameras into the system: autumn of 2017
- ▶ Voice control for the Bosch Smart Home cameras via Amazon Alexa: autumn of 2017

- ▶ Voice control for the Bosch Smart Home System via Amazon Alexa: spring of 2018
- ▶ Bosch Smart Home Twinguard Smoke Alarm with Air Quality Sensor: autumn of 2017 in Germany, Austria, France and Great Britain
- ▶ Integration of selected Home Connect washing machines, dryers and dishwashers by Bosch and Siemens into the Smart Home System: autumn of 2017
- ▶ Two-step integration of additional Home Connect appliances into the Bosch Smart Home System: spring and summer of 2018

### **Recommended retail prices (including 19% VAT)**

Bosch Smart Home Universal Switch: € 49.95

Bosch Smart Home Universal Switch Flex: € 59.95

Bosch Smart Home Shutter Control In-Wall: € 69.95

Bosch Smart Home Light Control In-Wall: € 64.95

Bosch Smart Home 360° Indoor Camera: € 249.95

Bosch Smart Home Eyes Outdoor Camera: € 349.95

Bosch Smart Home Twinguard Smoke Alarm with Air Quality Sensor Starter Set:  
€ 199.95

Bosch Smart Home Twinguard Smoke Alarm with Air Quality Sensor: € 149.95

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*Robert Bosch Smart Home GmbH was founded as a wholly-owned subsidiary of Robert Bosch GmbH. Based in Stuttgart-Vaihingen, the company offers smart end customer solutions for the connected home from a single source.*

*Bosch Smart Home makes life in the home simpler by controlling routine tasks in the background, offering greater comfort, security, and energy efficiency.*

*For more information, please visit [www.bosch-smarthome.com](http://www.bosch-smarthome.com)*

*The Bosch Group is a leading global supplier of technology and services. It employs roughly 390,000 associates worldwide (as of: 31/12/2016). The company generated sales of 73.1 billion euros in 2016. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading provider of innovative solutions for the Internet of Things (IoT), Bosch specialises in Smart Homes, Smart Cities, Connected Mobility and Industry 4.0. Its expertise in the fields of sensors, software and services and its own IoT cloud allows the company to offer its customers complete, networked solutions that work across domains. 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 Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, the Bosch global manufacturing and distribution association is present in al-*

*most all countries. The basis for the company's future growth is its innovative strength. Bosch employs 59,000 associates in research and development at 120 locations across the globe.*

*Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.bosch-press.com](http://www.bosch-press.com), [twitter.com/BoschPresse](https://twitter.com/BoschPresse)*





## **Bosch Secure Truck Parking to be launched** Digital parking for enhanced predictability and security

03.08.2017

PI 9764 SO Ha

- ▶ Book truck parking spaces in Europe now via the online platform
- ▶ Cooperation with companies near the motorway creates parking space
- ▶ The booking platform provides information on the security of parking spaces

Frankfurt am Main – Germany alone lacks around 14,000 truck parking spaces; the situation is similar in our neighboring countries: Often, truckers have to drive past several parking lots to find parking space or park unsafely next to the motorway. The result: Accidents happen, freight is stolen. None of that – thanks to the Bosch solution. The Europe-wide booking platform, Bosch Secure Truck Parking helps you in searching for a suitable parking space. This allows better planning of travel and rest times. The platform is now online after successful testing at the employee parking lot at the Bosch site in Karlsruhe. The principle: Bosch records the occupancy of truck parking spaces in real-time. Forwarders and truck drivers can reserve parking spaces along their route in advance or during the trip via a free online portal or through app in the future.

### **Use of existing parking space on company premises**

The innovative approach of Bosch takes advantage of the sharing economy. In addition to parking spaces at truck stops, the booking platform also includes parking spaces on the premises of companies such as forwarders. The Gebrüder Weiss forwarding company is also involved in Maria Lanzendorf near Vienna. Alexander Horak, Head of the Industry Vertical High-Tech at Gebrüder Weiss, hopes for many fellow takers for secure truck parking: "As soon as further forwarding companies join, we can better help each other with available and urgently needed parking spaces." The fact that access is only granted to trucks registered on the platform makes the parking space particularly secure.

### **Safety equipment of truck parking spaces made transparent**

Bosch Secure Truck Parking does not only indicate the available parking spaces. The booking portal also provides valuable information about their safety equip-

ment. "We enhance the efficiency, convenience and security of truck parking", says Dr. Jan-Philipp Weers, Head of Bosch Secure Truck Parking. "In addition to the available parking spaces, our platform also provides information on the safety equipment of the individual areas via a filter function – this is particularly important from the freight security point of view. It also provides information on the convenience features, such as sanitary facilities with showers or restaurant services", adds Dr. Jan-Philipp Weers.

### **Automatic and cashless billing via the portal**

Parking fees are billed to the freight forwarder at the end of the month, doing without any annoying paperwork. "With the Bosch solution, dispatchers can easily and quickly book a truck parking space at my truck stop", says Rolf Küstner, Managing Partner of the Thiersheim truck stop. "I am pleased that the platform now gives me direct access to the dispatchers". As one of the first truck stops, the Bavarian truck stop in Thiersheim offers 10 truck parking spaces via the Bosch platform.

### **Safety technology protects drivers, vehicles and freight**

In principle, Bosch offers the rest area operators to also equip the areas with in-house safety technology. Also offered: Video monitoring via a Bosch Security Control Center, including virtual guard rounds. Different access control systems can also be connected via the platform. The parking space, for instance, at the Thiersheim truck stop is under video surveillance. A camera captures the number plate of the truck upon entry and exit and compares it with the booking data. Bosch customers also have a terminal with a voice connection to a 24/7 service line.

### **Further information incl. Booking platform login:**

[www.bosch-secure-truck-parking.com](http://www.bosch-secure-truck-parking.com)

### **Explore and Experience:**

<https://www.bosch.com/explore-and-experience/secure-truck-parking>

**Press images:** #1100197, #1150658, #1150659, #1150660, #1150662, #1150663

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ty, Monitoring, and Customer Experience. Around 8,000 associates at 27 locations support national and international customers in more than 35 languages, primarily from the automotive, travel and transportation, and logistics sectors as well as information and communication technology.

More information at [www.boschservicesolutions.com](http://www.boschservicesolutions.com)

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Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.iot.bosch.com](http://www.iot.bosch.com), [www.boschpress.com](http://www.boschpress.com), [www.twitter.com/BoschPresse](https://www.twitter.com/BoschPresse).