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ENERGY & BUILDING SOLUTIONS

01.2017

A Magazine about Security, Efficiency, and Comfort in Commercial Buildings

The Willingness to Change

Page 8

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BOSCH
Invented for life

Powerful Model:
the RKK Hospital
Complex in Freiburg
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Quality of Life for
City Dwellers
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Strict Diet: Saving
Energy in Industrial
Production
Page 32



Dear reader,

Scarce resources, climate change, urbanization, demographic shifts, digitization, and demands for greater quality of life – the mega-issues of our time require major changes in our infrastructures and commercial buildings. The need for security, efficiency, and comfort is rising, as well as the demand for connected overall solutions.

The Internet of Things is opening up many new possibilities and opportunities. Connectivity is bringing scores of new developments! And one development is certain: key areas of building services will be closely interconnected in the future.

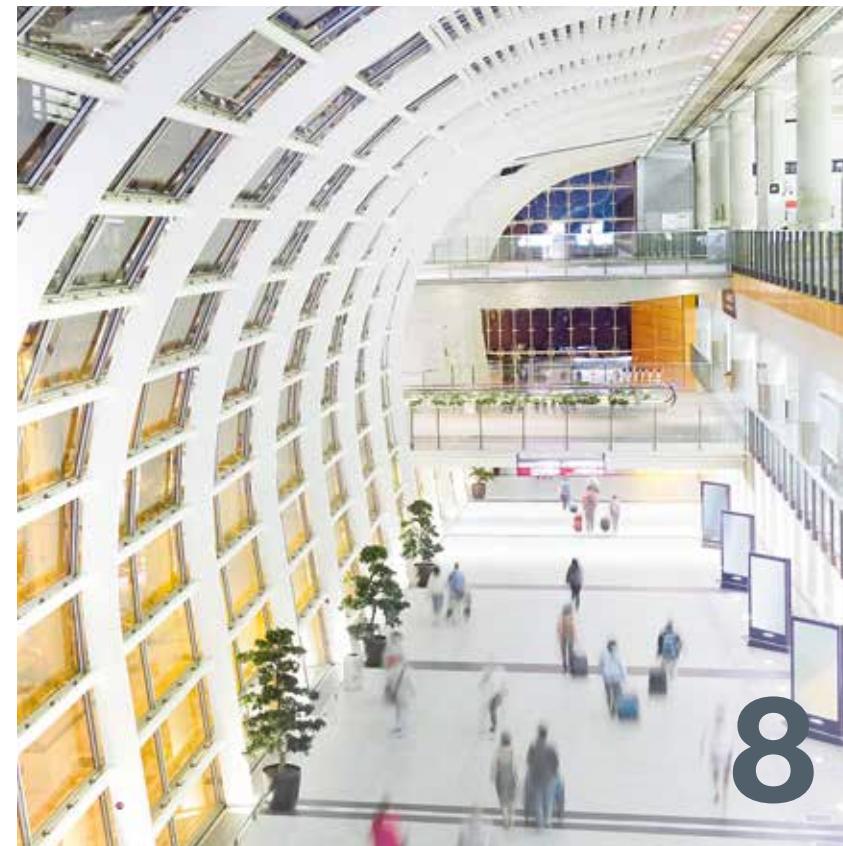
Leveraging and applying all the synergies in a sustainable way requires an integrated approach and course of action. We have the essential areas of expertise needed to integrate all key aspects into a single solution. And we are focused on a clear vision – to be your number-one choice for the technologies and services that make your buildings more secure, more comfortable, and more efficient.

Our new magazine shows you what this already looks like today. The magazine is addressed to you as a decision-maker, doer, and forward thinker. It describes challenges, solutions, and innovative ideas, and it opens a window into the future. Join us in a partnership and embark on a rewarding journey!

I wish you much reading pleasure.

THOMAS QUANTE

Executing Vice President, Integrator Business
Bosch Sicherheitssysteme GmbH



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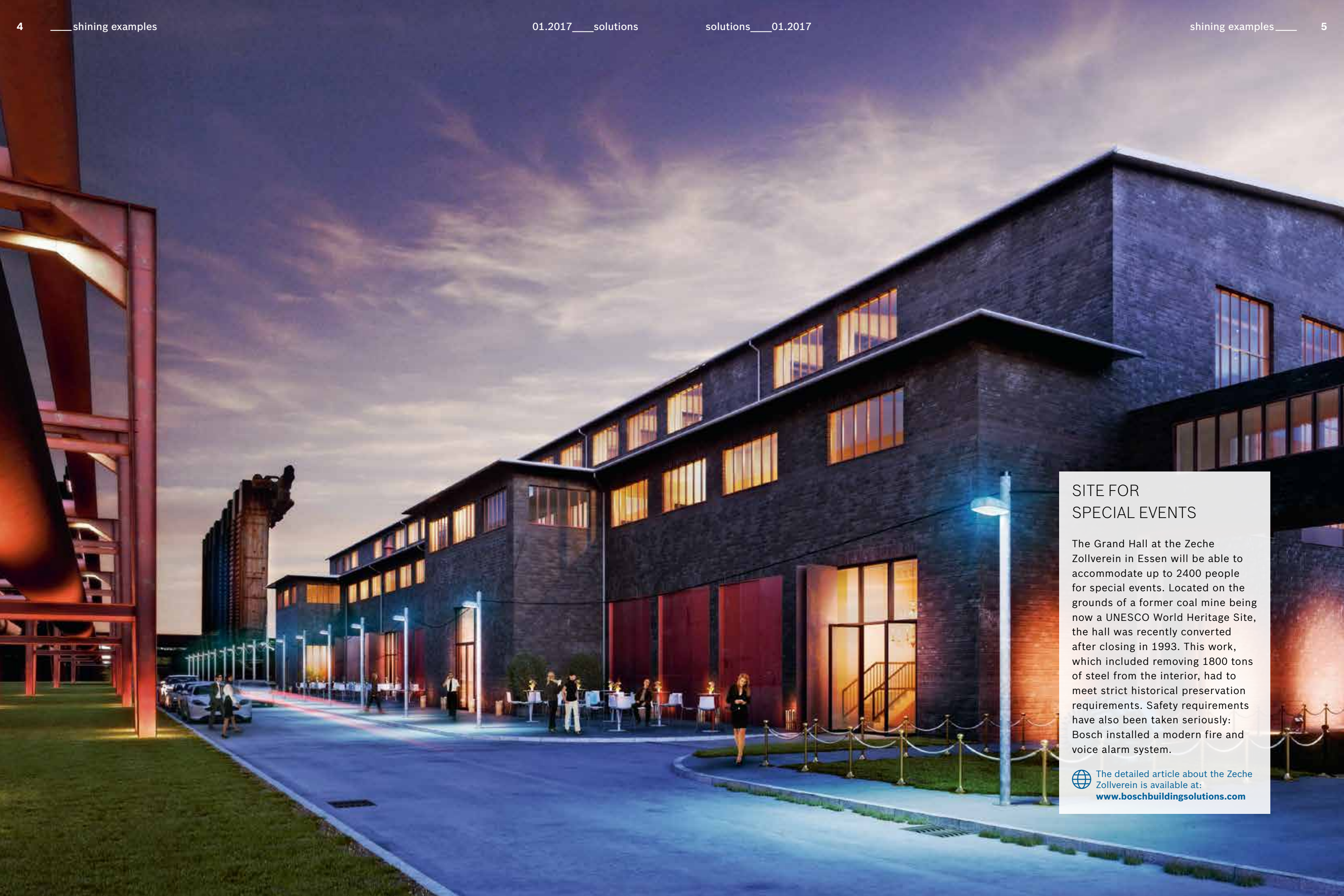
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ABOUT THE COVER

The new special-event location at the Zeche Zollverein in Essen, which features cutting-edge safety technology from Bosch.



SITE FOR SPECIAL EVENTS

The Grand Hall at the Zeche Zollverein in Essen will be able to accommodate up to 2400 people for special events. Located on the grounds of a former coal mine being now a UNESCO World Heritage Site, the hall was recently converted after closing in 1993. This work, which included removing 1800 tons of steel from the interior, had to meet strict historical preservation requirements. Safety requirements have also been taken seriously: Bosch installed a modern fire and voice alarm system.

The detailed article about the Zeche Zollverein is available at:
www.boschbuildingsolutions.com

DC-ONE AG

Latest Technology for High-Performance Data Center in Switzerland

DC-ONE AG is active in the fields of consulting, design, project management and the construction and operation of data centers. For their new high-performance data center in Winterthur, Bosch has developed a customized solution that provides the highest data security for the customers of DC-ONE AG. Part of the solution are Micro 5000 and Outdoor 5000 cameras that monitor the interior and outdoor areas respectively. Another innovation is the access control system for the high-security area. Access is only granted to those who fulfill the



three-factor authentication process (ID, PIN code, palm veins). All actions are registered and archived using the MATRIX software 5000, making it possible to track who did what, where and for how long in the building.



BRICOCENTER

Italian Hardware Stores Save Energy

THE RETAIL CHAIN BRICOCENTER entered into the Energy Performance Contract with Bosch to improve energy and cost savings for 50 of its hardware stores. After checking each Building, Bosch will implement optimization measures for saving energy, reducing CO₂ emissions and improving environmental performance. The measures are mostly geared towards the modernization and replacement of lighting, air conditioning, and building automation systems. Bosch will also be completely responsible for the design and the administration. The standardizable energy management solutions can easily be implemented in any type of commercial building with a structure similar to that of the Bricocenter stores.

CUSTOMER SURVEY 2016

Totally Satisfied

THANKS TO the strong support of our customers, Bosch was also able to conduct a comprehensive customer satisfaction survey in the area of building security in 2016. This direct interaction with its customers gives the company the opportunity for continuous improvement. In 2016, more than 500 customers in Germany, Austria, and Switzerland were surveyed.

Customers were particularly satisfied with sales assistance, and the commercial area was also highly rated. Bosch was able to make improvements over the previous year in the area of complaint handling: here the number of highly satisfied custom-

ers rose by three percentage points. 79 percent of customers were very satisfied with assembly and technical support as well as service and inspection work. The majority of survey respondents reported to choose Bosch based on past positive experiences and appreciate the compatibility of the products with their own companies' technical environment. Nonetheless, Bosch will keep making improvements. To further increase customer satisfaction, Bosch has defined measures for all areas to be carried out in 2017. All our employees – from the back office to sales and marketing – are giving 100 percent.

4096

DETECTION POINTS

can be managed of the series 5000 modular fire panel. This system was also used in the headquarters of the Frischeis company. Bosch supports Austria's largest retailer of wood and timber materials in the area of fire protection technology and has installed 332 automatic fire detectors of the AVENAR detector 4000 series as well as 40 manual call points.

EEMSHAVEN POWER PLANT

Fully Automatic Evacuation

ENERGY GROUP RWE commissioned a new power plant in Eemshaven, Netherlands, in 2015 that supplies 3.5 million households with electricity. Bosch supported the company with a comprehensive solution in the area of fire detection and evacuation technology. The resultant integrated fire detector system is among the biggest in the Netherlands and it encompasses 23 fire panels of the series 5000 with more than 6400 detection points. In the case of fire, 2000 loudspeakers broadcast the emergency evacuation alerts fully automatically.



DOCUMENTARY

Focus on Beavers

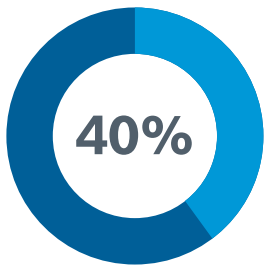
"HOLLAND – NATUUR IN DE DELTA" was released in Dutch cinemas in September 2015 as part of a trilogy seen by over 700,000 people. Cameras from Bosch Security Systems were used for filming in the nature

reserves in the Netherlands. Thanks only to the intelligent technology of the DINION IP Starlight 8000 MP and infrared cameras, the filmmakers were able to get footage of the shy, nocturnal beavers.

Total Networking: the Commercial Building of the Future

They already exist – the flagship offices of the future, which leverage technology to unify the themes of security, energy efficiency and comfort. Bosch too has an increasingly networked approach to energy and building technologies. One thing is clear: Companies that can provide state-of-the-art technology from a single source create added value for the operators and users of commercial properties.

Let's imagine ourselves in one of the most modern office buildings in the world. It's called "The Edge" and was completed in Amsterdam in 2015. Employees there have no fixed work stations. Each morning they can decide what's most suitable for the tasks on their agenda that day: a desk to sit at or one to stand at, an open-plan room or a cozy lounge area. Using a centralized smartphone app, employees can not only quickly find the ideal spot, but also individually configure the brightness and temperature of their work stations – however they see fit. When the station is no longer needed, it is automatically displayed as free, the light goes off, and the blinds rise. In "The Edge" employees are directly connected to the building technology through an app – some 40,000 sensors feed the software with information. The comprehen- ➤



Building automation alone can achieve energy savings of up to 40 percent.

sive building concept is the best example of a fully integrated solution. Through the optimal integration of data, processes, and technologies, comfortable working conditions are created with the utmost efficiency. For example, the building generates more energy than the employees consume. Solar panels on the south side of the 15-story atrium capture the strongest rays. The building is heated and ventilated by a thermal storage unit that produces energy 130 meters below the building. Plants and toilets are supplied or operated with rainwater. The independent Building Research Establishment (BREEAM), which evaluates the sustainability of commercial buildings around the world, rated "The Edge" with the highest score ever achieved to date.



In one of the most modern office buildings in the world, employees are connected to the building technology through an app

The high-tech building complex sets the bar extremely high for anyone wishing to work on subsequent projects. But for Bosch, "The Edge" is a perfect example of what the group wishes to achieve in the field of energy and building technology internationally.

The Internet of Things is driving the intelligent networking of commercial buildings

"The demand for such integrated solutions for commercial buildings is growing," says Hans-Joachim Mosch, who heads the Integrator Business for Bosch in Europe. Having grown out of the building security division, the unit underwent restructuring in 2016 in order to provide integrated comprehensive systems for commercial buildings. "Bosch has the very capabilities required to bring together all the different aspects in a single solution," explains Hans-Joachim Mosch. "Worldwide we currently have some 4000 employees working on state-of-the-art solutions for making buildings safer, more efficient, and more comfortable — while always bearing in mind the needs and requirements of our customers."

"The Edge" shows how the commercial buildings of the future will be able to enrich our lives with intelligent functions that will be efficient and cost-effective. At the end of the day it's about connecting people's rising demand for convenience and security with economic and environmental concerns. As more and more people spend a majority of their lives indoors, there is a real and growing need for solutions that will be shown to conserve resources while also being climate friendly. When it comes to the design of commercial buildings, this requires an integrated perspective that will open up new possibilities and new opportunities through the intelligent connection of both technologies and properties.



More than
130,000
customers are part
of the Integrator Business

Bosch's Integrator Business offers a wide range of custom security systems, energy services, and building automation solutions. "As a service provider, we offer all our services from a single source — from consulting to planning, implementation, operation, and so on. We are therefore a comprehensive partner for our customers and can meet their individual requirements optimally and over the long term." A full range of services

Bosch has the expertise to provide integrated solutions from a single source

and consulting for monitoring, maintenance, modernization, and operation as well as attractive and flexible rental, operator, and other financing models round off the portfolio. "The actual design of a project always begins with analyzing the needs of our cus-

tomers and also depends largely on the local parameters," explains Hans-Joachim Mosch. "So we focus on close partnerships, employ specialists on the ground where they are needed, and are familiar with the regional requirements." The sector is now active in Europe, the U.S. and India at more than 60 locations, and more than 130,000 customers use the services of the building experts from Bosch.

The unit is very much in demand as a partner in a variety of industries. One specialty is solutions for industrial and manufacturing sectors. Clients include the long-established brand Villeroy & Boch, which counts on the security expertise of Bosch at its headquarters and other locations. The solution implemented for the Oettinger Brewery was also innovative. Here, the particular challenge was to find a simple and efficient way to reconcile the constant coming and going of suppliers, customers, and service providers with the security guidelines ➡



Hans-Joachim Mosch, Senior Vice President, Integrator Business Europe, Bosch Sicherheitssysteme GmbH



Venugopalan CM
Head of Bosch Energy
and Building Solutions
India

at the site. Thanks to the unstaffed gate from Bosch, the grounds are now protected against unauthorized access around the clock. Moreover, the brewery is always kept abreast of current visits, and visitors are instructed in the use of the security technology, which is also kept in an audit-compliant manner.

The team in India is also a respected partner for manufacturers. The focus here is on the consulting, planning, and implementation of solutions geared towards improving energy efficiency in order to reduce customer costs. For a manufacturer of rolled sections and agricultural machinery, for example, the team implemented a solution that vastly exceeded the efficiency standards to which

the factory had committed itself—and overall efficiency gains of 20 percent could be achieved. “Another focus is on the planning and implementation of photovoltaic systems. Within two years we were able to acquire solar projects with a total output of 50 megawatts,” says CM Venugopalan, Head of Bosch Energy and Building Solutions India. For the Cochin commercial airport, the experts erected a 12 MW photovoltaic system with which the airport generates all of the electricity requirements using solar energy—an unprecedented concept anywhere for an airport of its size. “Our services are very well received by companies. In the future, we would like to strengthen and expand our locations,” explains CM Venugopalan.



What is still in the build-up phase in Europe and India is already a reality in North America: Together with its subsidiary Climatec and its over 780 employees, Bosch is already an established full-service provider for building automation, energy and security solutions in the USA. With this interesting profile, Climatec targets a wide range of industries as a solution provider in all three domains. Climatec, which is based in Phoenix, Arizona, was acquired by Bosch in early 2015. Founded in 1975, the company still operates under its own brand name as

We are 100 percent focused on the wishes and demands of our customers

part of the new Integrator Business. “The work of all of our employees is always 100 percent focused on achieving optimal results for our customers. That is also the foundation of our success,” says Mauro Lima-Vaz, Managing Director of Climatec. ➔

“Networking Makes Many New Functions Possible”

Dr. Stefan Hartung sees networking as a megatrend that will change the way people use technical devices.



Dr. Hartung, in the Energy and Building Technology sector, you bring together many different products and services. What are they?

Dr. Hartung: Bosch offers intelligently networked energy and building technology that ensures greater comfort and security, saves energy, and reduces operating costs.

Why does it now make sense to offer energy and building technology from a single source?

There are many reasons for this. For one thing, I am firmly convinced that people don’t simply want to do without things. They don’t live by the slogan: Consume less energy, live more efficiently—but please no creature comforts! That’s too simple. We have to find a way to live more efficiently and with lower emissions, but without having to dispense with comfort and convenience. Networking makes that possible. It enables us to do things in a convenient way that used to be impractical.

For example?

It was inconvenient to regulate a heating system. You had to go to the furnace or the

radiator. With networked systems, we can do that automatically from any location. This could mean having sensors that detect when someone enters a room or leaves it, and using that information to adjust the lighting and the temperature. For a commercial building like a shopping center, airport, or office building, that can result in substantial savings.

What impact does the networking of devices have on security?

Networking makes many new functions possible. Smoke alarms and video ➔

cameras are traditional products in the field of security technology. If all of these devices are interconnected in a commercial building, they are much more effective than if they simply monitor a particular area. Information can be extracted from the collected data and used for other purposes as well – but always in compliance with guidelines on data protection and data security.

A product therefore becomes a service. Can you explain that?

A smoke alarm detects smoke. But it also measures the temperature at the same time so that it can sound the alarm as soon as it detects the high temperatures produced by a fire. If we have that sensor data, we can also use it for climate control in the room, for example. In doing so, we give the product a new meaning that for our customers takes the form of a service.

And what benefits does networked video technology bring?

A modern camera records not only images but also speeds, directions, colors, and much more. It can, for example, detect a fire in rooms or halls with high ceilings at a very early stage. But the integrated video sensor also counts how many people enter a room, whether they appear male or female, and how old they are. The intelligent evaluation of what we call metadata helps identify hazardous situations such as break-ins, fire or unattended luggage before a critical situation occurs. Because only relevant images are transmitted, the network load and memory requirements sink drastically – as do the operating costs.



DR. STEFAN HARTUNG

is a member of the board of management of Robert Bosch GmbH. He is responsible for the Energy and Building Technology business sector, with its Security Systems, Thermotechnology, and Global Services Solutions divisions. He is also responsible for the Robert Bosch Smart Home GmbH subsidiary.

What types of services will be key for the operators of commercial buildings in the future?

In a building that is used commercially, complex systems have to work together. The integration of these technologies, which are usually from different providers, is a service that commercial customers increasingly demand. At the moment, they usually operate the systems separately. In the future, areas such as air conditioning, smoke detection and access control technology will be much more interconnected. And cloud-based services such as remote monitoring and remote maintenance will be increasingly in demand.

What will change when all of the products and systems around us are connected with each other?

One thing is clear: Interconnectivity changes how we interact with technical devices and how they interact with each other. It's a catalyst for supplying systems and services from under one roof, and integration service providers like us can offer completely new, comprehensive services.

From very early on, Climatec has successfully concentrated on select customer segments whose characteristics were a good fit with the core competencies and service culture of the company. In particular, educational institutions such as universities and schools, health care facilities such as hospitals, and public-run buildings such as sporting facilities were quickly pinpointed as key customers. One of Climatec's principal calling cards is its work for Banner Health, one of the largest non-profit health care providers in the U.S., with 29 hospitals in seven states. Climatec is this customer's supplier of choice and has been developing and integrating intelligent building solutions for them that have ensured comfort, security, and efficiency in newly constructed and renovated hospitals for the past twenty years. The goal of Banner Health is to create comfortable environments for the provision of medical care in Arizona that are also economical and reliable. In addition to the control and optimization of the air conditioning systems in these buildings, Climatec has also installed a nurse calling system, which is connected both to the patient en-

Climatec has established itself as an absolutely reliable technology partner

tertainment system and the hospital's data management system. The automation of air conditioning systems in particular is no easy undertaking – especially in cities like Phoenix, where the sun shines 300 days a year and temperatures can range from frost in the winter to over 50°C in the summer. In spite of all of these challenges, Climatec is successful in finding the right technology and being an absolutely reliable partner for its clients.

Hans-Joachim Mosch appreciates the approach in the U.S. and is charting a similar

course for Europe: "There are outstanding technologies, but that alone is not enough anymore. The key is to have a partner that combines and integrates the technologies in an overall concept tailored to the needs of the customer. An optimal solution is founded on comprehensive consulting, planning, and setup as well as attentive customer support. Our customers can rest assured that they will be able to concentrate on their core business – while our specialists take care of ensuring optimal building performance."



Mauro Lima-Vaz,
Head of Climatec



In the U.S., over 1.2 million schoolchildren already benefit from how we increase the security, efficiency and comfort in schools

decide

**THORSTEN
STOLPE**

started working at Freiburg's Loretto hospital 20 years ago as the Technical Operations Director. Sixteen years ago he became the Head of Construction and Technical Operations for the RKK hospital complex. After training as a radio and television technician, he studied biomedical and hospital engineering in Lübeck.







Security First!

Hospitals need to uphold especially strict security requirements. The RKK hospital complex in Freiburg/Waldkirch is a trailblazer when it comes to security measures. Let's take stock of the situation.

When Thorsten Stolpe, who is the Technical Operations Director of the RKK (Regionalverbund kirchlicher Krankenhäuser) hospital complex in Freiburg/Waldkirch, talks about security, his voice resonates with concern. He's concerned about all the challenges hospitals have to master for their patients and staff which go above and beyond the standards defined in the legal provisions. Worrying trends are emerging at hospitals, which are sensitive environments that need special protection. For example, the fact that emergency room personnel are increasingly subject to attacks by aggressive patients. "We have to call the police an average of once a month," says Stolpe. "Time and again, egregious physical assaults on our staff members have occurred."

**ST. JOSEPH'S-
HOSPITAL,
FREIBURG**

-  Fire protection
-  360-degree camera
-  Emergency alarm
-  Intruder alarm system

Solutions from Bosch work behind the scenes of this Freiburg hospital, where they ensure the greatest possible security.

Each ward has a control unit for the fire alarm signals



Theft has also been on the rise. Intruders try to steal drugs, or to break into locked cabinets and vending machines. Expensive medical instruments such as endoscopes – which cost €30,000 to €80,000 apiece – are favorite targets for thieves

“The focus of our work is people and human relations”

THORSTEN STOLPE

across the country. Newspapers like the *Frankfurter Allgemeine Zeitung* reported last year that ultrasound equipment, monitors, and diagnostic systems disappear at many German hospitals. “This unfortunate trend is

a major problem for us too,” says Stolpe. Fortunately, Bosch Building Solutions provides solutions to all of these challenges from a single source. The RKK is something of a pioneer in this area: More Bosch security components have been installed at its three-member medical facility in Freiburg/Waldkirch than in any other hospital in Germany.

Thorsten Stolpe, Head of Construction and Technical Operations for the RKK hospital complex since January 2000, and who heads a team of 29, starts by explaining the characteristic features of the hospital on a tour he gives to Michael Grom, Bosch Sales Representative for Freiburg and Area Sales Manager. “Our complex is run by the church, and the focus of our work is on people and

Sister Helene welcomes patients at the reception desk



An intrusion alarm system monitors access to the main pharmacy at St. Joseph's Hospital

8000

fire detectors are installed at the RKK hospital complex – to ensure exhaustive protection

PATIENT INFOTAINMENT

This is also part of the “smart hospital” of the future: Bosch helps hospitals choose suitable provider combinations of hardware and software platforms, mounts, billing models, and different multimedia services. Internet, phone, radio, cable or pay TV, games, audio books, and e-books can all be combined in flexible packages.

human relations,” he says, pausing to greet Sister Helene at the entrance. A member of the Sisters of Mercy of Saint Vincent de Paul, she is working at the reception today – the sisters are a unique presence at the RKK, and one that many patients appreciate.

The hospital’s reception area boasts all sorts of Bosch technology. The ceiling has smoke detectors from the AVENAR detector 4000 model series, along with a 360-degree camera that keeps the situation at the entrance under surveillance. Its images converge on a screen in a separate room behind the reception counter. Moving on to the ICU, it’s especially important that patients immobilized by severe conditions or injuries can still be evacuated as rapidly as possible in the event of an emergency. “There’s not a single corner or corridor in the hospital that does not have a fire detection,” says Stolpe, pointing to the control panel that is activated to send doctors and nurses a corresponding alert on their cell phones. The RKK hospital complex has around 8000 Bosch fire detectors – automatic, manual, and couplers – 3500 of them in St. Joseph’s Hospital.

In addition, internal and external emergency call systems from Bosch have been installed to counter the increase in break-ins and theft. A complex alarm system from the Bosch MAP 5000 family protects the main pharmacy, which has long, floor-to-ceiling shelves holding medication for 14 clinics and which is also able to produce medications for individual patients when needed.

“We’ve invested around €1.56 million in security systems over the past five years,” says Stolpe. A technical operations director, however, always needs to think ahead. More investments will follow over the next two years – in video surveillance, access control, and intrusion alarm systems. After all, security is of primary importance – and provides the basis for allowing the RKK hospitals to maintain their focus on people and human relations. ●

How Networked Do We Want to Be?

Topic of the future: Alanus von Radecki explains how intelligent cities can improve the lives of their residents.

Mr. von Radecki, can you sum up the smart city of the future in three words?

Von Radecki: Appealing, networked, sustainable.

What are the challenges for the city of the future and what solutions are needed?

Cities are facing myriad challenges – and as cities are essentially social and political entities, social issues are always high on the agenda for the people and authorities that manage them. So it's about establishing the right conditions for a prosperous economy, one that creates and protects jobs and promotes social equality in an era of digital transformation. What's more, cities must provide functioning infrastructure at affordable prices. Most important here is a working mobility system, but other important factors include urban safety and disaster management, adequate education and healthcare options, and affordable housing – in other words, everything it takes to make a city somewhere people actually want to live. As we become more and more prosperous, our cities are compelled to keep their finances in order and ensure the cheapest possible supply of power, heating, and cooling from renewable energy sources. They must also offer good recycling and waste-management services, clean air and water, and attractive conditions for innovative new businesses, students, and the scientific community. This all means cities need solutions that not only make them safe, efficient, and livable – with a first-rate mobility infrastructure, for example. At the same time, they need solutions that pave

the way for innovation and economic growth, such as a data-based mobility infrastructure that can be supplemented by new services like car sharing or neighborhood-level logistics services. The more problems a smart city platform can solve, the more likely it is to be adopted.

What are the technologies that make a smart city smart and innovative?

1. Hybrid energy systems in which the production, storage, and consumption of renewable energy can flow “freely” between buildings, power grids, heat networks, and consumers. Ideally this takes place through economic incentive schemes, such as tenant electricity models, which allow users to be both consumers and producers.

2. Multimodal transport systems largely based on power from renewables. These require not only conventional public transport systems, electric vehicles, and charging technologies, but also booking, routing, and information systems that make public mobility more appealing to users – thus making the private car obsolete for city travel.

3. Interoperable software platforms, with which all kinds of data can be combined, analyzed, and processed with the aim of improving urban services or launching new ones.

How will city dwellers enjoy a better quality of life and what benefits will a smart city offer them?

Smart cities offer better use of space, less traffic, cleaner air, and more efficient civic services, all of which increases quality of life. What's more, smart cities provide more career and economic opportunities as well as stronger links with the community.

How can city authorities take a more personal and customer-friendly approach to the services they offer?

City authorities must be active at many different levels – both through face-to-face interactions with the public in the form of participation processes or in community offices, and more indirectly through their digital presence. This involves improving their processes, networking their infrastructure, and going digital for all municipal services. ●

CALIFORNIA: SMART HOME FOR AN ENTIRE CITY

Climatec, a Bosch subsidiary, will be providing an entire city with services that are already standard in individual homes. All of San Leandro's 4730 streetlamps will be equipped with LED lights and connected to a network, allowing them to be adjusted automatically according to traffic flow and sunlight. The same database will be used to reconfigure the city's irrigation system.

ALANUS VON RADECKI



Alanus von Radecki is Head of the Competence Team Urban Governance Innovation

at Fraunhofer IAO and Director of the Morgenstadt: City Insights innovation network. In addition to his work coordinating and managing projects, his specialist areas are urban governance as well as systems analysis and complexity research related directly to urban systems. Von Radecki has spent many years working at the interface between cities' public institutions and private enterprise. Alongside his role at Fraunhofer IAO, he is Lead Expert for the URBACT Network SmartImpact, advising cities such as Stockholm, Manchester, Eindhoven, Porto, Dublin and Zagreb on how to transform their governance systems both within and beyond their administrative organizations.

Security in the Foyer and at the Counter

With an integrated video surveillance solution that has been tried and tested across the industry, Bosch is procuring more and more financial institutions as customers.

Bad Liebenzell in the northern Black Forest, December 2, 2016: It is 2:10 a.m. and residents on the street Kurhausdamm are woken up by a loud bang. In the foyer of the local branch of Volksbank, an unknown intruder is trying to blow up the ATM. He entered the room with a gas canister just a few minutes before the explosion. He flees – presumably with accomplices – in a sedan. Damage to the ATM and the building: around €70,000.

Crime scenes in bank foyers – statistics show that these aren’t a rarity: In 2016 alone, more than 250 ATMs – both in standalone locations and in the ATM vestibules of bank branches – were attacked with explosives, usually between midnight and 5 a.m. Over the last six years, the number of gas attacks on cash machines has thus quadrupled.



“With our partner MAKU, we are currently offering the best solution on the market”

MARTIN LIEBEZEIT

Six days later, it is the turn of the Kreissparkasse in Bautzen. An ATM vestibule in Bischofswerda, near the Czech border, is blown up. Pieces of concrete and shards of metal are strewn all around. The cash machine is destroyed and the strongboxes with more than €100,000 in cash disappear along with the perpetrators. Once again, the early hours of the morning have been chosen: 3:45 a.m.

For Martin Liebezeit, Vertical Manager for Financial Institutions at Bosch Sicherheits-systeme GmbH, there is no doubt: Savings banks, cooperative banks and private financial institutions must find new and innovative solutions in order to prevent attacks in foyers as proactively as possible. Liebezeit is familiar with the situation faced by financial institutions from his day-to-day work: “At Bosch, we look after more than 10,000 bank branches in Germany. We have seen a very clear change in the threat level over the last few years. The use of modern cash register security concepts makes it considerably more difficult for bank employees to access cash. ➔

The damage caused by explosions in bank foyers is considerable

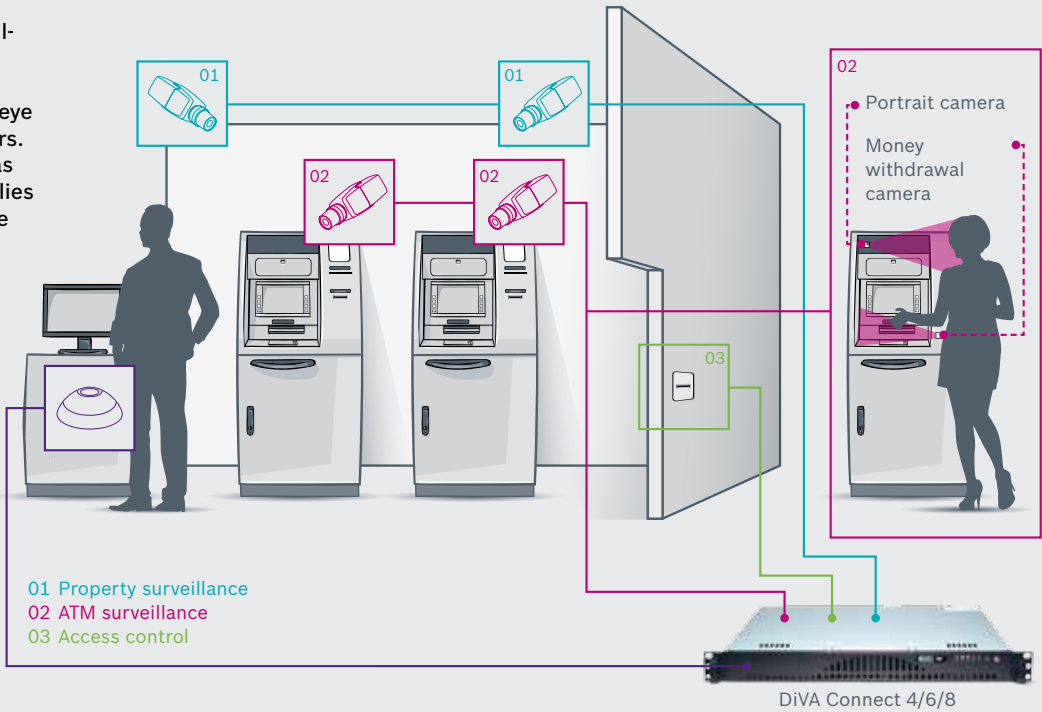
CRIME SCENE:
BANK FOYERS ALL
OVER GERMANY

- Video surveillance
- Alarm technology
- Access control
- Intrusion alarm technology
- Control center

Very special security provisions apply to financial institutions. The solution developed by Bosch meets the highest standards.

Integrated video solutions for financial institutions

360-degree surveillance: The Bosch/MAKU innovation keeps a constant eye on ATMs and foyers. Intelligent cameras report any anomalies immediately to the service control center



Always keeping an eye on the security of banks: Martin Liebezeit, Vertical Manager at Bosch Sicherheits-systeme GmbH

Since access to cash can require a wait of up to ten minutes, depending on the amount requested and the type of cash register security in place, there is less of an incentive for thieves to attempt a robbery. It does, however, mean that thieves have shifted operations from the service area to the ATMs.”

In the case of financial institutions, video surveillance of foyers has a key role to play; it is a significant component of a security concept. “With our partner MAKU and its video surveillance system DiVA, we can offer one of the best industry solutions for video surveillance currently available on the market.” MAKU Informationstechnik (based in Essen) has been cooperating with Bosch since 2012. MAKU Managing Director Stefan Schlick sees great benefit to customers in the partnership: “Financial institutions can now obtain these tried-and-tested premium solutions from a single supplier, as well as

many services such as support, training or a service control center.

The modular and networked Bosch system combines DiVA with access control, time monitoring, gateway functions as well as burglar and intrusion alarm technology. In this way, both the IP and video surveillance cameras in public areas of the bank as well as the ATMs and card readers have a direct connection to the video security server, which has been specially developed for financial institutions. Liebezeit: “Browser-based system management with cross-branch networking and centralized software maintenance allows software updates to be carried out quickly without the need for an employee to be present in the branch.” The video surveillance system from Bosch/MAKU ensures maximum flexibility, saves on staff and travel times, and does not require any additional workspaces with hardware stations.

“Intelligent algorithms in the cameras detect critical situations automatically and trigger a silent alarm,” says Martin Liebezeit about one of the advantages. In concrete terms, this means that the camera in the foyer will be activated via a door contact, motion sensor or the Intelligent Video Analytics in the camera itself as soon as someone gains

“Bosch is market leader in security technology, as we are in video surveillance”

STEFAN SCHLICK, MAKU

access, and the control center, which then receives a call with a video connection, can initiate intervention measures before an actual crime takes place. The Intelligent Video Analytics in the IP cameras can also be used to identify people loitering in the foyer, meaning that any uninvited guests or potential criminals can be recognized.

The video surveillance software DiVA has been certified by recognized classification committees such as the German Statutory Accident Insurance (DGUV) and the IT Center of the Sparkassenorganisation GmbH (SIZ). The IT service providers within the Sparkasse group as well as cooperative banks have verified the Bosch/MAKU solution and given the green light for it to be installed in the banks’ own IT networks. More and more financial institutions are therefore choosing the innovative complete solution from Bosch. One of the most recent customers for network video surveillance is the Sparkasse in Neumarkt in der Oberpfalz (Bavaria).

The networked security solution is tailor-made for the new generation of branch offices, fulfills all accident-prevention requirements, and offers a wide range of additional features.

A question about insurance

The threat scenario for financial institutions has changed. What do you recommend your customers do?

R+V advises its bank customers to take a holistic approach. It starts with a risk analysis for the location in question in order to come up with measures for hazard prevention. The options vary and range from simple monitored locking of the foyer at night to particularly robust ATMs, the retrofitting of gas neutralization systems or ignition systems, on to video monitoring with the possibility of spraying the premises with mist. It is very important to have an intervention plan in place for the procedure and the timeline between the alarm being raised and the arrival of security guards or the police.

The associations of financial institutions exchange information with the police and our burglary specialists and pass on recommended courses of action. Sometimes there are also events organized by the associations, the police, the insurance company or manufacturers of security technology to demonstrate prevention methods and discuss the use of various systems. We do not think that legislative regulation is necessary.

Harald Schmidt

Managing Executive, Group Leader, Banks/VSV Department at R+V Insurance

“Energy Efficiency to Maintain a Competitive Advantage”

As part of ongoing measures to improve energy efficiency, Hirschvogel Aluminium GmbH relies on a holistic energy solution with the compressed-air-and-heat system from Bosch.

The Hirschvogel Automotive Group is a conglomerate with eight production sites in Europe, Asia, and America. The company, which was founded in the Bavarian town of Denklingen in 1938, supplies the automobile industry with components for diesel and gasoline injection and the drive train, as well as engine, transmission, and chassis components.

“Using natural gas to generate compressed air gives us a considerable cost advantage”

JOHANNES KLEINSTEUBER

These make important contributions to reducing consumption and emissions through lightweight construction, downsizing, transmission and engine optimization, and electrification. But it is not only Hirschvogel's products that stand for conservation of resources and reductions in emissions, but also the production processes themselves,

as Johannes Kleinsteuber, Energy Management Officer and CE Coordinator at Hirschvogel Eisenach GmbH and Hirschvogel Aluminium GmbH at the Marksuhl location, reports: “The standard we set for ourselves is to protect the environment sustainably while taking economic and ecological concerns into consideration. Therefore the Hirschvogel Automotive Group attaches great importance in all its activities to the best possible use of resources and a responsible treatment of the environment. One proof of our commitment is the certification of our environmental and energy management systems in accordance with the international standards DIN EN ISO 14001 and DIN EN ISO 50001.”

As part of these ongoing measures to increase energy efficiency, Hirschvogel's Marksuhl plant is implementing a holistic energy supply solution with a Bosch com-

On site:
The Bosch employees
Norbert Nitsche,
Christoph Armbruster
and Thomas Beinschrodt
(from left to right)



For Plant
Manager Detlef
Lumm (left),
energy manage-
ment ranks high



pressed-air-and-heat system. Previously, the classic way to generate compressed air was by means of on/off load compressors. The compressors from 1994 and 1991 were replaced by a speed-controlled compressor with the most modern IE4 motors for peak-load requirements and the compressed-air-and-heat system as the base-load machine. “We looked for an efficient alternative for part of the provision of compressed air in a more cost-effective way than that offered by traditional solutions. The aim was to increase the energy efficiency of compressed air generation in the plant and thus gain

experience with this new technology for the entire Hirschvogel Automotive Group,” according to Energy Manager Kleinsteuber, who first learned about the innovative compressed-air-and-heat system when Bosch was commissioned to analyze the group's energy consumption in production.

Bosch is a holistic partner for its customers and oversees the entire project including advanced analyses, planning, implementation, supply of the technology, and the after-sales service. “For us, the greatest benefit is that we can generate compressed air using natural gas, and in doing so have a cost advantage. In addition, the heat, which can reach high temperatures of up to 90 °C, is intended to be used as process heat,” Kleinsteuber continues. Hirschvogel chose Bosch as their energy services provider as he wanted a skilled and experienced partner “who, on the one hand, would be able to provide us with this new and very energy-efficient compressed-air generation method as part of an overall concept and, on the other hand, would also support its entire design and set-up.”

The CHP project was funded by the “Green Invest” program of the Thüringer Aufbaubank (TAB). This measure includes funding for technology companies based in Thuringia that reduce energy consumption. Having an energy consultant listed by TAB is one of the criteria. For a measure recommended by the consultant, companies can obtain funding of up to 80 percent of the investment costs – up to a maximum of €200,000.

In addition to this funding, the greatest impact and benefits of this overall solution for the Hirschvogel plant are the considerable electricity and cost savings that can be

Johannes Kleinsteuber, Energy Management-Officer and CE Coordinator at Hirschvogel Eisenach GmbH and Hirschvogel Aluminium GmbH at the Marksuhl location



attained compared to a standard variant. Yet there are even more measures being implemented at Hirschvogel to increase energy efficiency. “There is currently a joint project being planned in conjunction with the Bosch ‘World of Energy Experience’ (‘Energie-Erlebniswelt’). Our employees will be given targeted training in energy efficiency in production. In this way, we want to link our annual instruction to the standard DIN EN ISO 50001,” says Energy Manager Kleinsteuber.

“As an energy-intensive company, it is important to us to be able to continuously improve our energy efficiency and thus maintain our competitiveness. Hirschvogel is a company that places its trust in innovative technologies, such as the current solution involving the compressed-air-and-heat system; we want to continue innovating in the area of energy efficiency as well,” says Johannes Kleinsteuber. For Hirschvogel, this means developing solutions in conjunction with partners – in this case, Bosch – that not only reduce its own energy consumption over the long term, but also make the energy supply more flexible. Kleinsteuber: “This ensures that we are already prepared for future requirements and will be able to fulfill our customers’ needs even in the future, thus guaranteeing us a competitive advantage.”

 You can find out exactly how the compressed-air-and-heat system works at www.boschbuildingsolutions.com

COMPRESSED AIR GENERATION WITHOUT ELECTRICITY USING THE COMPRESSED-AIR-AND-HEAT SYSTEM FROM BOSCH

Compressed air generation is one of the largest energy consumers in industry, which means that it represents a large and continually growing potential for savings. To do this, and also to cover heating and process heat requirements, Bosch’s compressed-air-and-heat system CHP CA 570 NA offers a cost-efficient solution. In many conventional compressed air production systems in use up to now, the compressor is operated with

electricity. The heat required is often provided by a separate gas-powered boiler. Continuously rising electricity costs make systems like this increasingly uneconomical, however.

In the case of the compressed-air-and-heat system from Bosch, in contrast, a gas engine drives an oil-cooled screw compressor. Heat exchangers are used to recuperate over 80 percent of the primary energy from the com-

pressor oil, motor coolant, and exhaust and to return it to the heating circuit. In order to keep noise levels at the installation location as low as possible, all components – including the gas motor and the screw compressor – are mounted on a low-vibration frame and housed in a soundproof cabin. This system allows companies to be less dependent on changes in energy prices and political conditions, to save hard cash and – due to their lower consumption of resources and a halved CO₂ footprint – to protect the environment.

COUNTRY REPORT

A Project to Harness India’s Sun

MORE THAN 300 DAYS of sun and, in many regions, more than 2,500 hours of sunshine over the course of the year mean that India, as a tropical country, boasts ideal conditions for generating solar energy. And in future, the country plans to make better use of these conditions. The world’s third-largest emitter of greenhouse gases, India signed the historic Paris climate change agreement in October 2016, and set itself ambitious goals in terms of renewable energies: By 2022, it aims to generate five times as much energy by means of wind or solar power than before.

One flagship project that already demonstrates the commitment to this energy transition policy is the power supply for the international airport in Cochin in the Indian state of Kerala. This is where Bosch Energy and Building Solutions built the largest solar plant ever constructed for an airport in India in 2015. Covering an area spanning 50 hectares in size the 46,150 solar modules produce an average of 48,000 kilowatt-hours of electricity every day. The modules, each weighing 23 kilos and with a glass surface measuring around 1.5 meters by 1 meter, together add up to an impressive capacity of 12 megawatts.

The solar array was erected in close proximity to the airport’s runway. One of the main challenges involved in planning and con-

structing this major project was to exclude any possibility that objects could ever end up on the airfield. Another challenge was to ensure pilots are not distracted when taking off and landing their aircraft, namely by preventing them from being dazzled by light reflected by the solar modules. During the construction phase, around 100 employees and contractors, including engineers and materials and safety experts, also repeatedly battled heavy rainfall. But even that failed to knock the timetable off course. “The experts from Bosch completed the project to the highest standards and within the allotted time. We are extremely pleased with the outcome,” says VJ Kurian, Managing Director of Cochin International Airport Limited (CIAL).

Within two years’ time, the team in India has secured commissions for projects representing a total capacity of 70 megawatts. The airport in Cochin is also continuing to expand. A new terminal is due to go up in 2017. Bosch Energy and Building Solutions won the contract to plan and erect a second solar array on the CIAL site – on the basis of the successful model that the existing solar plant represents.



INDIA IN NUMBERS

- **Capital:** New Delhi
- **Area:** 3,287,263 km²
- **Population:** 1,259,350,000 (2013)
- **Population density:** 383 per square kilometre
- **GDP:** 2250 billion USD (2016)
- **Employees per sector:** Agriculture 49.7%, Industry 21.5%, Services 28.7% (2013)
- **Official languages:** Hindi, English, 22 other regional languages

Source: Statista



Mr. Rett Lights a Fire

Flames and smoke are his profession: In a laboratory near Munich, Robert Rett plays with fire to make fire detection systems safer.

Robert Rett is completely alone in the control room of Bosch's fire laboratory in Ottobrunn near Munich. Through a glass pane, he gazes into a white-tiled room that has polyurethane plates on the floor, and presses a button. He only triggers a small flame, but within seconds, the plastic starts to smoke,

and only two minutes later the view into the room is completely blocked with thick, white smoke. On the screen in front of him, Rett observes when and how the fire detectors mounted on the ceiling of the fire laboratory are triggered. This test, known as Fire Test 4, is one of the standard tests that all fire detection products made by Bosch Sicherheitssysteme must undergo. It is standard because it is one of many fire tests necessary to gain approval by the testing institution VdS (Verband der Sachversicherer) Schadenverhütung GmbH. "We carry out all norm tests under the same conditions as in the test laboratory. Faults that only became apparent during the certification process would result in huge delays," explains Rett.

Faults – that might mean that fire detectors are triggered too late or not at all. It could



ROBERT RETT

The qualified electrician has been responsible for the laboratory for the last six years. In addition to standardized tests, he also subjects fire detectors to stress tests of his own devising



Robert Rett observes the tests from the control room

1592

fire alarms per work-day were installed by Bosch for customers in 2015. That is the equivalent of approximately one every 18 seconds

also mean that they are triggered although there is no fire. That is a problem because repeated false alarms mean that people no longer believe they are in any danger. "Fire detectors protect life and property and must therefore be reliable," says Rett. For the last six years, the qualified electrician has been responsible for precisely that in the fire laboratory. "Knowledge about fires and the way we use them here in standard conditions is not something you can train somebody for; it just takes experience," explains Rett. This is exactly what fascinates this level-headed man, who is now piling up small logs for the next test. Every time he works in the fire laboratory, there are different products or different conditions being tested. Today, in addition to a range of fire detectors, three AVIOTEC cameras, which are used to facilitate video-based early fire detection, are suspended from the ceiling.

They are among the latest Bosch developments for public and industrial use in enclosed spaces: The networked cameras can reliably detect smoke and flames – as already shown in the first test, it is these cameras that report the fire in the laboratory first. "AVIOTEC cameras are IP-based and can be used via a shared user interface within the network, which we have set up especially for this purpose. The system is then put through its paces," explains Rett. Spotlights that shine directly into the camera have been set up. Various ventilation conditions have been simulated using fans that blow the smoke in all directions. Photo canvases have been used to see if AVIOTEC can detect fires correctly even against different backdrops. Rett also carries out this kind of especially conceived tests for conventional fire detectors. He refers to them as "disturbance tests," and they often consist of him using cigarettes, sparklers, or steam to test the alarms' reliability. Tests of this nature are not legally required, but as Robert Rett knows from experience: "Better safe than sorry."

think ahead

BOSCH HOMBURG PLANT, GERMANY

Reducing energy consumption

Intelligent data analysis

The initial goal was to lower costs. The Energy Platform constituted the arrival of a software product for comprehensive energy management.

Fabian Bucksch
Member of the
Homburg energy
team

When the machines on the factory floor at the Homburg plant in Saarland boot up on a Monday morning, Fabian Bucksch can watch the process from his office. One lamp after another lights up on his screen. Only a quick glance is needed to see if there are start-up problems anywhere. The machines stir from their deep sleep and kick into life – in standby mode, they consume just a fifth of the electricity they needed five years ago. “We have improved our management of the shutdown process enormously,” says the 24-year-old energy expert. This improvement can be partly attributed to the instructions given to employees on how to turn the machines on and off, but is also a result of some technical modifications. “These alone save the plant more than 1.2 million euros per year.”

1.2

million euros
are saved annually through the
switch-off management policy at the
Homburg plant

The optimized shutdown management procedure is just one of many energy-saving measures that allowed energy consumption at the plant to be pushed down by almost 11 million euros. The measures were derived from the Energy Platform, software that provides full transparency on how much energy a machine is consuming at any given time. The platform allows a deep insight into plant machinery consumption patterns. “Upper and lower thresholds, as well as comparisons between machines, allow us to immediately identify which ones are using an excessively large amount of electricity and which ones are underutilized,” says Bucksch. Constant monitoring is not necessary: The platform sends a message to the relevant employee if any deviations occur.

The Energy Platform emerged as a logical consequence: “We started in 2007 with individual saving measures, and then we gradually and systematically worked out how much potential there is,” says Bucksch who now, together with an energy team of 14 staff, is improving energy efficiency at the Homburg plant on an ongoing basis. [🔗](#)

Watch Those Kilowatts!

Ever since the staff at the Homburg plant has been able to monitor the energy consumption of its machines, a strict diet has been imposed. Thanks to the Energy Platform, the plant is now saving several million euros every year.

Bucksch's
colleague
Bernhard
Kohl tracks
the energy
consumption
of a grinding
machine in
real time



The story behind this is that the amount of energy required to run the Homburg plant is huge. In order to assess consumption accurately and make the achievements visible, all machines were fitted with sensors. The

“We’re introducing only those measures that can pay for themselves within two years”

FABIAN BUCKSCH

measured data are processed in the Energy Platform and displayed in a clear structure.

This morning sees Bucksch and colleagues looking at the compressed air consumed by four new grinding machines. By comparing certain key figures, they realize that one of the machines needs more compressed air than the other. “This points to a leak somewhere,” says Bernhard Kohl from the Energy team. “Without the Energy Platform, we probably wouldn’t have located the leak until the next round of maintenance.” And the operators also find out something else about the condition of the machine. “From the key figures profile, we can also assess the state of the components in terms of wear,” ex-



Bernard Kohl uses a leakage-detection device to determine the cause of the increase in compressed air consumption



Fabian Bucksch, Andreas Theis and Arne Köngeter (right) examine the energy value stream on a large screen

chines there are now hooked up to the platform. “Next, we want to link up our production with the plant’s energy control center,” says Bucksch. Using this data as a basis, load management could be improved. Bucksch provides an example: “On Monday mornings when all machines are starting up,

this generates a peak load that our transmission system operators charge us lots of money for. If the platform can forecast this peak, then we can cap it by selectively controlling our energy supply.”

“The key figures tell us what the situation is regarding component wear and tear”

ANDREAS THEIS

The company’s departmental heads are willing partners to the Energy Team. “A lot of companies haven’t even started looking at this issue yet,” remarks Arne Köngeter, Head of Production at Plant 1. The standard options of saving money by means of automation or staff cuts have largely been exhausted – while energy costs continue to rise. The staff at the plant has long since been made aware of all of this. Köngeter: “We always turn off the lights even when we leave the staff room.”

plains Andreas Theis, Head of the Technical Functions department. As a result, the maintenance staff no longer changes components on a preventative basis after fixed time intervals. Instead, they implement a “predictive and current-status-based approach,” as Theis explains, “in order to reduce maintenance costs to a best-case minimum”. For maintenance staff, this alarm function is useful. If a spindle on a grinding machine needs to be replaced, the Energy Platform informs the staff in good time. “This saves us buying a new spindle and prevents quality defects and weeks of machine downtime.”

The switch-off management policy has great potential for saving energy

3 QUESTIONS FOR THE EXPERTS

What potential does the Energy Platform have?
Energy efficiency provides a competitive edge and is becoming increasingly important. The EP provides companies with energy data transparency that allows previously untapped energy potential to be fully maximized.

Who is the Energy Platform aimed at?
It is aimed primarily at the manufacturing and production market. However, the Energy Platform can also be used across a range of industries. Our customers include, for example, chain stores and public sector agencies.

What requirements are there?
If a potential client doesn’t have sensors or meters, these can easily be retrofitted in the building. It doesn’t matter who manufactures the sensors; the platform can be integrated into existing systems. The modular design can cater to the requirements of the customer.



Daniel Sinorkyan, Product Manager



Secure Networks

The IT security legislation obliges energy providers to maintain the latest standards in order to stave off attacks by hackers. Other industries will soon be subject to the legislation.

A CITY in darkness. A power plant in the hands of cybercriminals: Rather than storm the control center, they've hacked into the IT network and are now demanding the payment of a ransom. Meanwhile run-of-the-mill criminals use the cover of darkness to commit burglaries, and the city's

larly affects companies that support what are called "critical infrastructures" (Kritis): in other words, utilities that supply electricity and water or enterprises that provide food for the population. Hospitals and airports also fall under the reach of this legislation, or at least will do so when the second part of the critical infrastructures directive enters into effect in spring 2017.

"Without cybersecurity, digitalization will not succeed; it is one of the key prerequisites for ensuring its success"

ARNE SCHÖNBOHM, BSI PRESIDENT

inhabitants sit in their cold living rooms and are terrified. We know these scenarios from films, but luckily, not from real experience. Nonetheless: "The complexity of threat scenarios is increasing as are the related risks for digitalization," says Arne Schönbohm, President of the German Federal Office for Information Security (BSI). His office has therefore launched legislation that regulates the IT security standards for certain sectors of industry. The first part of the IT security legislation came into force in May 2016, and particu-

cerns responsible for supplying to more than 500,000 people. According to the regulation, operators of critical infrastructures are obliged to protect and secure their IT in line with the "latest technological standards," and these security provisions must be monitored every two years. Any IT security incidents must also be reported to the BSI. Manufacturers of products in the area of critical infrastructures are required by the new legislation to actively cooperate towards rectifying and preventing malfunctions. Non-compliance can result in

hefty fines. "Manufacturers must adapt to the higher demands and service requests of their customers," says Lukas Linke, expert at the German Electrical and Electronic Manufacturers' Association (ZVEI). This is confirmed by Bernd Giegerich, Head of Department at Bosch Sicherheitssysteme. "Even at the product development stage for security technology components, such as electro-acoustic systems or video systems, we have to keep IT security in mind," says Giegerich. The amount of software involved in security systems is increasing rapidly. The systems are more frequently linked with the IT networks of customers – and so must contain no weak spots hackers could exploit. It is not just the individual components of a security system that are vital to staving off cyberattacks. Equally important is proper and careful installation: The maxim at Integrator Business should not be the "least expensive possible", but "the most secure possible". It may be true that IT security legislation has only been relevant to large companies up to now. But Bernd Giegerich is already looking ahead: "The issue is not given sufficient priority by many small and medium-sized companies."

RENNINGEN, GERMANY

How Smart Tech Benefits Research

THE RESEARCH CAMPUS in Renningen is the hub of global activities for researchers and developers at Bosch. To be able to drive forward research activity at a global level, ongoing investment is made in the latest technologies. It is important that both the security of research equipment as well as data security are comprehensively guaranteed, which is a significant challenge considering that the site contains 14 buildings



with a variety of uses. Bosch Energy and Building Solutions supports the campus through intelligent security systems: More than 800 control systems are monitored. This ensures that the entire product area is protected. Installations include an intelligent fire detection system, media technology, a voice alarm system, video surveillance, and an intrusion alarm system – controlled via a security management system.

FRAUREUTH, GERMANY

Setting and Achieving Energy Goals

THEIR ABILITY TO ENHANCE ENERGY EFFICIENCY in production is something Bosch experts have also demonstrated for Spindel- und Lagerungstechnik Fraureuth GmbH (SLF). Among other things, an energy management system was implemented to bring the company into line with the standard DIN EN ISO 50001. "The fact is that we now know where energy gets used within the company and where we can intervene to reduce energy use," said Managing Director Dr. Frank Schlegel, explaining how the collaboration had succeeded. A vital contribution to achieving SLF's objectives related to its energy use is the Bosch World of Energy Experience. Through this program, production staff is made aware of – and encouraged to be proactive regarding – the consequences of wasting energy and the benefits of responsible use of resources.



LISBON, PORTUGAL

Good Partner for the Stadium of Light

THE "ESTADIO DA LUZ" is home to soccer team Benfica Lisbon and is a trademark of the club, which boasts fans numbering 14 million worldwide. 65,000 spectators flock into the stadium for home games, with thousands of helpers and staff present too. Ensuring safety here without spoiling the atmosphere requires high security technology standards as well as ongoing analysis and further development.



"Bosch security systems help us to maintain a great atmosphere while also providing the highest level of security and safety," says José Pedro Ribeiro, Infrastructure and Operations Manager at Benfica. The Bosch Building Integration System looks after future security here. Based on a standardized platform, it integrates data from devices and equipment, data analyses, and new technologies from Bosch or other suppliers. A homogeneous user interface enables stadium management to monitor all vital safety and security functions: fire detection technology, access control, video surveillance, and loud-speaker announcements.

CALENDAR 2017

Events and Dates



- 4/24
TO 4/28

HANNOVER MESSE TRADE FAIR, HANOVER
With the Bosch Energy Platform, we explain live at our booth how Industry 4.0 can contribute to reducing the consumption of energy and resources in production. Booth number: Hall 7 Booth 11/16
- 4/25
TO 4/27

CONNECTING HEALTHCARE IT, BERLIN
The conhIT fair is Europe’s leading event for Health IT. At our booth, experience first hand our customized solutions for the technical infrastructure of your healthcare institution. Booth number: Hall 4.2 Booth E-111
- MARCH
TO JUNE

IN YOUR VICINITY: BOSCH PLANNING DAYS
Partner-based discussion and consultation: Talk to our experts about current market-related topics and find out about new trends and developments as well as new standards and guidelines. More information: www.bosch-planertage.de
- 11/13
TO 11/16

MEDICA, DÜSSELDORF
With technical infrastructure becoming ever more complex, there are increasing challenges for your hospital. At our booth, we present you with individual security and energy concepts

 More information about events is available at www.boschbuildingsolutions.de/events

YOU CAN ALSO MEET OUR EXPERTS AT THESE EVENTS

- | | | |
|---|---|--|
| 3/7 to 3/8
BHE Congress “Fire Protection”, Fulda | 3/22 to 3/23
“Bau und Betrieb Krankenhäuser” (Hospital construction and operation) conference, Berlin | 10/4 to 10/5
Interpack, Düsseldorf |
| 3/16 to 3/17
Intersec Forum at the ISH, Frankfurt am Main | | 11/14 to 11/17
“Sicherheit” (Safety and Security) trade fair, Zurich |



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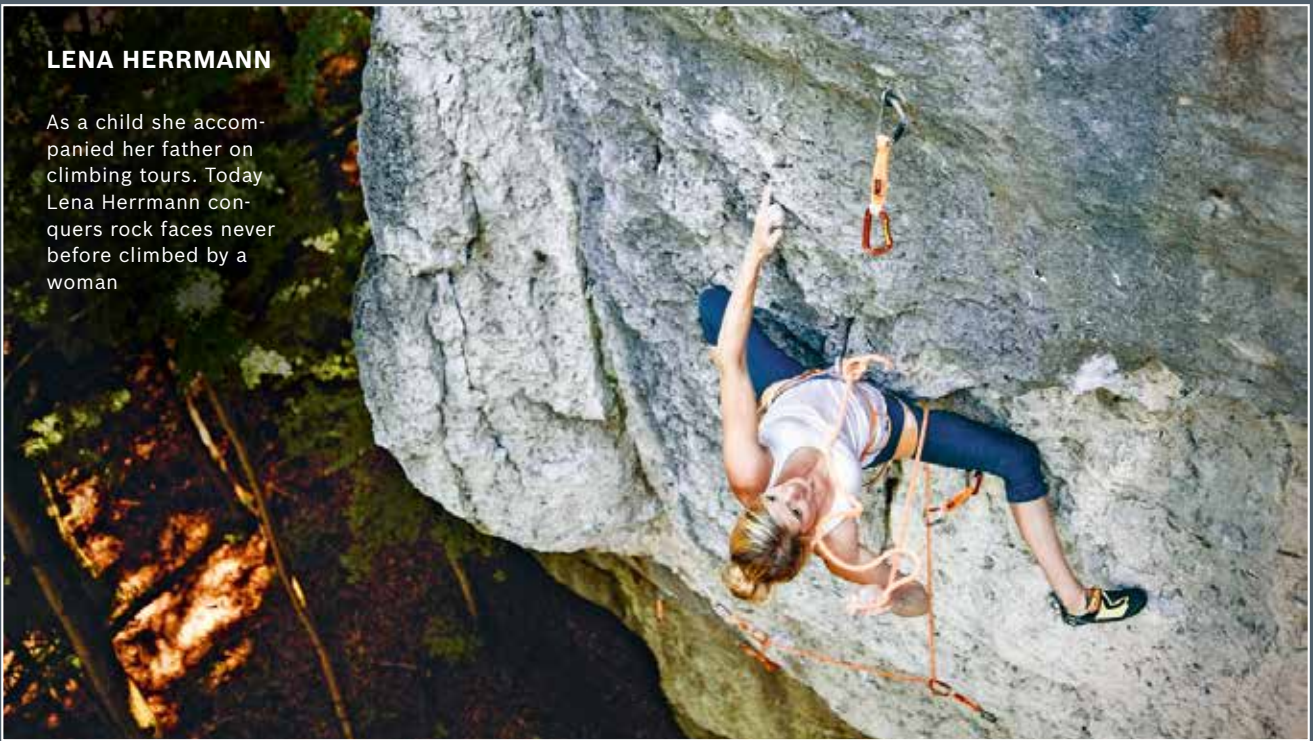
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You can order this issue at www.boschbuildingsolutions.com

LENA HERRMANN

As a child she accompanied her father on climbing tours. Today Lena Herrmann conquers rock faces never before climbed by a woman



BEYOND THE NORM

“It’s Only Possible If You Have a Partner You Trust”

For Lena Herrmann, safety means not having to think about it. Talking to Germany’s best female climber.

What does safety when climbing mean to you?

It means having total confidence in my safety partner and being fully prepared. In addition to that, my hardware has to work perfectly. Damaged equipment is one of the biggest sources of danger. You could also put it like this: For me, safety when climbing is when I don’t actually have to think about it.

Ever had any hardware trouble?

No, I’ve been lucky. On my last vacation in France, I was on the second

pitch of the rock face and wanted to turn back halfway. That meant that I had to abseil from a hook in the rock face. And on this route all the hooks were unbelievably rusty! While I was abseiling, I was just hoping that the rusty thing would hold fast. And it did, thankfully.

You actually started climbing when you were a child. Do climbers get a bit more careless as time goes by?

Yes, in some cases. Especially when you have a lot of experience and noth-

ing has ever happened to you. Naivety is the first stage towards becoming careless. It happens to me when I make the drops bigger, because I have virtually no fear of falling. So I often skip some interim belays so that I can climb more efficiently. But that could actually lead to big trouble.

What would you never climb because of worries about safety?

I would never climb a route “solo,” meaning without any safety measures in place. I do get the attraction of doing that, but for me climbing solo is the height of selfishness. I know that there are people to whom I mean a lot. And I wouldn’t want to risk hurting these people just so I can get an adrenalin rush.



Lena Herrmann, born in Hildesheim, is currently a student in Bayreuth