ENERGY AND BUILDING

SOLUTIONS

2019

A Magazine about Security, Comfort and Efficiency in Commercial Buildings

Nove Munich: Security with Style

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Invented for life

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Dear Readers,

our goal is to make life safer, more comfortable, and more efficient for people in commercial buildings.

In this context, the dialogue with you, our customers, is the crucial basis for achieving this. By being close to you, we can understand your challenges and needs in order to realise the right solution for you. This mutual exchange is at the same time the “oxygen” that makes our partnerships grow further.

As the world becomes more connected, our customers are often faced with unprecedented needs and challenges, and expect new, innovative solutions to meet them.

Then it’s up to us to come up with those solutions! Through exchanging with you and our partners, we develop creative ideas for future-proof solutions and implement them as a system integrator.

This allows us to provide an increasingly broad range of cutting-edge services that focus on different sector-specific needs and thereby improve people’s daily lives.

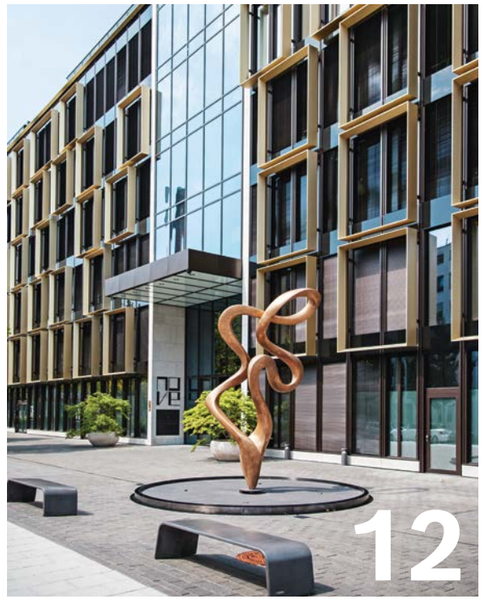
Use the following pages to be inspired by these projects and partnerships. And I would like to cordially invite you: Take part in this important dialogue with us – we look forward to it.

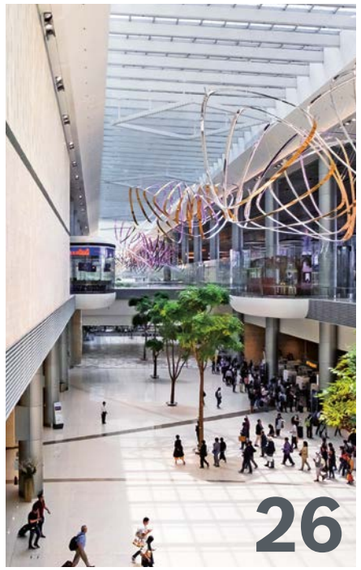
On this note, I wish you much pleasure reading this issue.

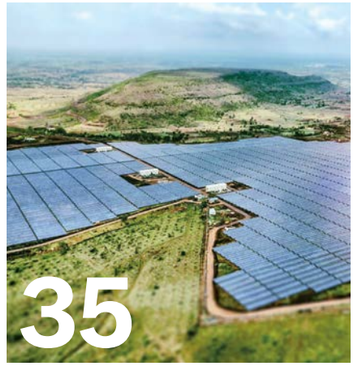
THOMAS QUANTE
Executive Vice President
Bosch Energy and Building Solutions

TO THE COVER

For the office complex NOVE in Munich Bosch realised a solution that meets with the hotel-like character of the building.







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Historic Preservation Goes Digital

Inconspicuous, yet efficient. Kulturpalast Dresden implemented a smart security solution as part of its latest modernization project.

Standing ovation in the concert hall of the Dresden Kulturpalast: On April 28, 2018, not only the Dresden Philharmonic was celebrated with thunderous applause. After six years of reconstruction, the fully modernized Kulturpalast in the historic center of Dresden opened its doors. To ensure that the large number of visitors can enjoy their visit in perfect safety, an unobtrusive and smart security solution that preserves the charm of the historical monument was implemented.

The newly built concert hall is the centerpiece of the Kulturpalast. With its striking architecture and outstanding acoustics, the hall offers an excellent backdrop for orchestral concerts of the Dresden Philharmonic and serves as a grand stage for musicians of all genres. In addition to the Philharmonic and a cabaret, the renovated Kulturpalast also houses the new municipal central library. More than 300,000 media are well tended after in the modern library space, while large foyers with culinary offerings and reading lounges invite visitors to stroll and linger awhile. Following its complete renovation, Kulturpalast Dresden is ⊖

now more open than ever. Serving as a space for the arts and knowledge, the building promotes cultural and social exchange, all day long and well into the night.

Up to 1,700 spectators can be seated in the great hall, and the entire building can accommodate 2,800 people. But it is not only the streams of visitors that put the new security system to the test. Due to its special architecture, the listed building is subject to stringent requirements. Preservation regulation demand, for example, that the walls, ceilings, and floors of the Kulturpalast be changed as little as possible. At the same time, the security technology had to be integrated into the historic building in a highly unobtrusive manner. To meet these demands, the Kulturpalast relies on a tailor-made solution concept from Bosch that interconnects the individual components for fire protection, evacuation, access control, video surveillance, and building management. “We were aiming for an affordable, comprehensive solution that would do justice to the Kulturpalast and its unique features. The Bosch offer convinced us that they’re the right partner,” says Steffen Meyer, facility manager of the Kulturpalast.

Fire protection is a key safety concern in the building. “Since this is a public gathering place, we must observe strict fire safety requirements,” explains Meyer.

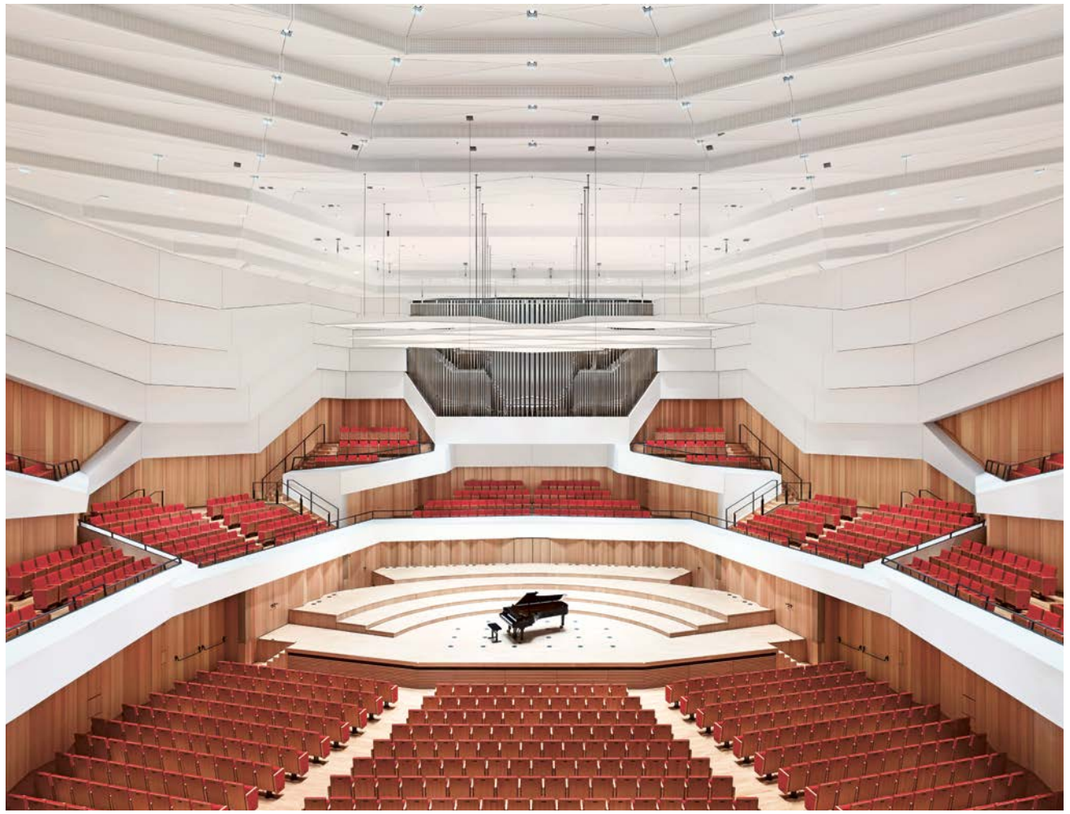
In order to preserve the aesthetics and acoustics of the architecture, complex 3D model calculations had to be carried out during the planning phase. Thanks to the comprehensive

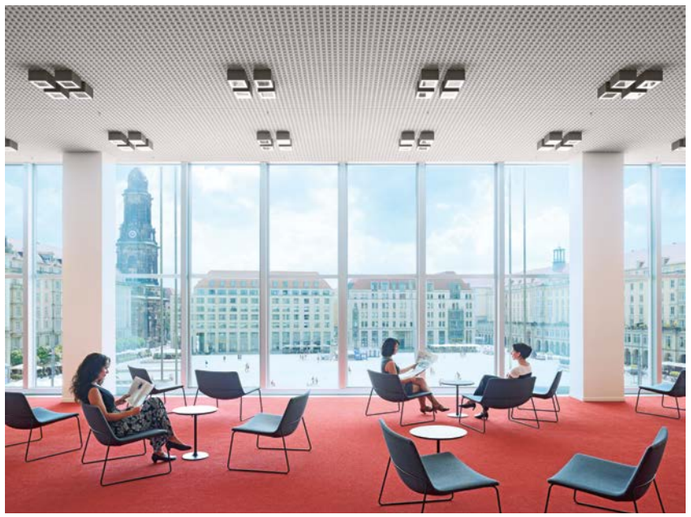
The new Kulturpalast brings a library, concert hall, and open foyers together all under one roof; the integrated solution from Bosch ensures security in every room

fire protection solution from Bosch, Fireray 3000 smoke detectors, for example, were integrated into the concert hall hidden from sight, thus preserving the special atmosphere of the hall. In the event of an emergency, loudspeakers in the halls automatically descend from the ceiling, their volume capable of drowning out any concert.

“In addition, there were further requirements from our side,” continues Meyer. For instance, Bosch not only installed intelligent security solutions for fire and burglary protection, but also a video system for counting visitors. Using state-of-the-art camera technology, the system insures that the Kulturpalast does not get overcrowded. At the same time, in the event of an evacuation, the security staff can always keep track of the number of people in the building.

Smart networking combined the various individual solutions into a holistic security concept. The separate components converge in a central management system, allowing for convenient and efficient operation





by Bosch-trained security personnel. Bosch Energy and Building Solutions supplied the new Kulturpalast with a security solution that intelligently interlinks the management system, smoke extraction system, fire and intrusion alarm systems, and video system. This made it possible to meet all visual and acoustic requirements posed by the building. “Whoever comes here for cultural experiences or social exchange should not be disturbed by technology,” concludes Meyer. With the Kulturpalast, the city of Dresden now has a new trend-setting cultural center. The Bosch solution significantly contributes to this.

END-TO-END SOLUTION

Automotive Manufacturer Saves Energy

ITALIAN COMPANY Albertini Cesare S.p.A. has contracted Bosch to carry out extensive renovation work. The manufacturer, which produces aluminum pressure die-casting components for the automotive industry, has signed an Energy Performance Contract (EPC) with Bosch Energy and Building Solution Italy for its plants in Villasanta and Quero. The improvements are projected to reduce annual energy consumption by around electrical 2,600 MWh, saving almost 1,000 tons of CO_2 emissions.

Bosch experts are using a comprehensive solution to boost energy efficiency. In the first phase, they will replace the existing lighting with LED systems, reducing energy consumption by nearly 60 percent. In addition, they will install vacuum evaporators operated using heat from the smelting furnaces. The plants will also receive a new combined heat and power unit. In the second phase, both sites could be equipped with photovoltaic installations and access control systems as well as building management systems to monitor and maintain the power systems. “Our experts help the customers procure the approvals necessary to install and operate the new systems,” explains Alberto Bollea, Head of Sales at Bosch Energy and Building Solutions Italy.

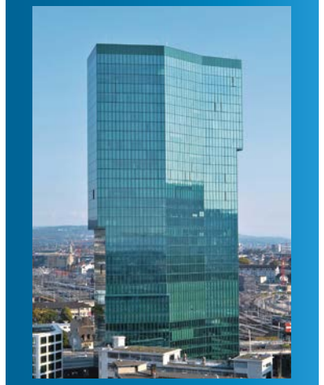
ACCESS CONTROL

Algorithm Detects Intruders

INTELLIGENT FUNCTIONS increase safety and efficiency: Associate and visitor IDs at a company determine who is able to open doors and when and where they are able to do so. Modern access control systems perform multiple duties simultaneously – they control points of access, activate or deactivate burglar alarm systems, and record attendance data. When these functions are combined with a self-learning algorithm, a number of additional useful features emerge. The algorithm is capable of many things, for example logging the standard movement patterns of a particular card carrier and then analyzing the data to determine if there are any noticeable deviations in the way the card has been used. For example, if an intruder enters a company building using a lost or stolen company ID, the algorithm analyzes the time at which the person enters the building and their pattern of movement while inside. Should the algorithm detect any deviations from the typical patterns of the authorized card holder, it triggers an alarm.

This analysis function not only safeguards property – it can protect people as well. If an associate spends an unusually long period of time in an area he or she normally passes through only briefly, the algorithm notes the deviation. In this way security service can check to make sure that nothing has happened to the associate. Naturally, it is crucial to protect personal data when using an intelligent algorithm. The application developed by Bosch fulfills all of the requirements of the EU’s General Data Protection Regulation (GDPR) and enables sensitive data to be automatically anonymized and deleted. In addition, the open interfaces ensure easy integration in existing access management systems without having to install new and expensive hardware components.

Read the whole story at
www.boschbuildingsolutions.com



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METERS – that’s the height of Prime Tower in Zurich, the city’s tallest building. Bosch combined both electronic and biometric access controls in this commercial sky-scraper: One hundred and twenty palm vein scanners were installed to ensure forgery-proof identification. An encrypted ID code ensures that people are only permitted to enter areas for which they have the proper authorization. All relevant information runs together in a management system. Bosch was responsible for project consultation and system planning and carried out all of the work needed to ensure that the installation could be completed during normal building operations.

MKM MANSFELDER KUPFER UND MESSING GMBH

Detecting Fire Quickly in Production Halls

PROTECTING PEOPLE, PRODUCTION, AND MACHINERY from fire – particularly in large production halls with metal-working operations, the limitations of traditional fire detection systems often become apparent due to high ceilings, increased fire load, and interfering light reflection. This was the challenge faced by MKM Mansfelder Kupfer und Messing GmbH (MKM). The company – a leading manufacturer of primary and semi-finished products made of copper and copper alloys – wanted to improve fire protection in two production halls at its Hettstedt site in the German state of Saxony-Anhalt. While looking for the best solution, the plant fire department tested several options, including a number of traditional fire alarm systems. The constantly changing degree of capacity utilization in the halls was just one of the difficulties faced. “The large dimensions of the two halls meant that ultimately there was just one possible solution for us – the AVIOTEC optical early fire detection system from Bosch,” says Christoph Dammann, fire alarm and warning system administrator at MKM, summing up their findings. AVIOTEC is the first video-based early fire detection system to be certified by VdS Schadenverhütung GmbH (VdS). Smoke and flames are detected early using intelligent algorithms integrated directly in the camera. Within the overall concept, the innovative technology was highly impressive, also from an economic point of view. The customized solution was planned by Bosch experts and integrated into the existing fire alarm system on site, and into the control center of the plant fire department. If the system now identifies a fire in one of the two production halls, the alarm is activated upon the plant‘s fire service being notified. The fire crew can then check on the video screen to see exactly where the fire is located and initiate further measures specifically targeting the situation at hand. The solution therefore does more than protect against fire; it also helps to prevent false alarms.

EU AWARD

Energy-Efficient School

MARINELLA Elementary School in Bruino near Turin is one of the first buildings in Italy’s Piedmont region to be awarded the EU’s NZEB certification (Nearly Zero Energy Building). This means that the building meets nearly all of its power needs through the use of renewable energy. Experts from Bosch Energy and Building Solutions Italy first renovated the building, insulating the walls and installing a photovoltaic system and a heat pump. Bosch was awarded the contract as part of a project initiated by the city of Turin, over the course of which 18 public buildings will be renovated by 2020.

“Creating Added Value for the Customer”

Tanja Rückert has been president of the Board of Management for Bosch Building Technologies since August last year. In this interview, the former SAP top manager explains the significant opportunities that IoT offers, particularly in the area of security and building technology.

Ms Rückert, have you made your life easier today with the help of digital features?
I’d say our home is already pretty smart and networked, and we use some digital ‘helpers’ in our daily lives. It starts with controlling the lights or blinds and ends with energy management. We control some things via an app, a lot – like for instance light or music – is done via voice control. Particularly when one’s out of the house, the ability to control devices at home remotely using your smartphone or tablet is very practical, and energy saving of course.

How does someone with a PhD in Chemistry become an expert in the software industry?
While I was studying Chemistry I realized that I prefer to work with people than just in the lab. I wanted to be involved in more than ‘logical, chemical reactions with often surprisingly colorful outcomes.’ That’s why I also completed a business economics foundation course alongside my PhD. At SAP, I then had the opportunity to advise companies from the chemicals industry on software implementation – which was naturally a very good fit. Over the years my passion for software and, coupled with this, for topics such as IoT, digital transformation, and Artificial Intelligence (AI), has been growing. It emerged and was also consolidated by the very close cooperation with many customers from extremely diverse sectors and regions, whose businesses were heavily impacted by increasing digitalization. The impact of IoT on our lives will become much greater than many people anticipate today. IoT will change our world. It does not only entail technical devices and new software. What’s crucial is that all data and information is available in real time.

So have you switched from the theoretical to the practical side of things, so to speak?
Let me put it another way: First of all, in the software industry you are more directly involved with the Internet and cloud applications. But to a certain extent you are designing a ’castle in the sky in software form.’ Whether everything will fit together and work in practice in the end is a different matter. So what particularly fascinates me about Bosch are the ‘things,’ the hardware, the place where data is generated, so to speak. It’s about the combination of hardware and software, about the benefit of real data, about sensors, actuators. This is what I’m more involved in now and I can actively help to design and therefore implement things I could only previously describe.

How does that impact your tasks at Bosch Building Technologies?
As president of the management board, I’m primarily responsible for strategy, technology, and innovation in close collaboration with our customers and partners. Here I can contribute my knowledge of IoT, AI, and analytics and combine it with the exceptional expertise of the whole team and products of Bosch. It’s precisely this combination that we want to use to offer an attractive overall solution for our customers, which provides maximum added value. This customer focus and the close cooperation in our partner network is one of the reasons why I was looking forward to this role.

What objectives are you pursuing?
We want to offer comprehensive solutions. Thanks to increasing connectivity and the intelligent use of data, we can add new models and offerings to our traditional business that tended to be rather product-oriented. This means we are combining hardware, software, and services so that the benefit for our customers goes far beyond that from previous silo solutions. Our strong customer focus and in-depth product knowledge mean we are perfectly equipped for using IoT and AI. This will also create added value for our partners and customers. But we’re also providing comprehensive, smart solutions today.

Can you give us some examples?
In a typical building project, like the NOVE office complex in Munich, networked use and integration of safety and security aspects from a single source is key, for example. In a safety and security project like the Eurasia Tunnel in Istanbul, where video analysis and fire detection technology are used, networked systems ensure that traffic flows smoothly and safely. And in the J-Village – the new home of the Italian football giant Juventus – an integrated energy solution, including maintenance and monitoring, ensures very efficient energy management.

Can you see further potential here?
Absolutely. We have already done a lot of work regarding the connectivity of our products and are now taking the next steps with services such as in-store analytics or the video-based fire detection system Aviotec. Another example is condition monitoring, a service that builds on remote maintenance. This gives customers an ongoing overview of the condition of a system, for example, the degree to which a fire detector is contaminated. This enables maintenance work and necessary investment to be planned in advance and to avoid system malfunctions. But there will also be many other steps to follow. Particularly in the area of security and building technology we have the opportunity to bring together all aspects of IoT and digitalization – i.e. hardware, software, data, and new technologies like artificial intelligence – and to create solutions for our customers that are of considerable value. I find it very exciting to be part of this development.

Where do you see the biggest opportunities in the future for ‘creating added value for the customer’?
For me there are three areas in particular: connectivity and intelligence, sustainability, and security. That means that the manufacturer’s promises to be able to use data more intelligently are also realized in practice. Through our close customer contact and by combining technical expertise with new technologies we are perfectly positioned to create this real benefit. Also, it’s increasingly about sustainability. In buildings this particularly means the increasing need for efficiency, so automation and control systems are needed, and energy consulting will ultimately also play an increasingly important role. And finally in a global world security in itself is important. Alongside the safety of people, this also means data security. The need for security was and still is a very important one. I think it’s great that, as industry experts, we can contribute to fulfilling this need.

solutions____2019

Security with Style

The networked infrared fire alarms detect even the smallest of smoke particles in the top floors

The building experts at Bosch connect the NOVE office complex in Munich with innovative solutions. These solutions not only ensure greater safety, they also enhance the comfortable, hotel-like character of the NOVE.

We are right by Donnersbergerbrücke, a busy overpass in the heart of Munich, but none of the traffic noise can be heard here in the sunlit lobby of the NOVE. There is a warm, peaceful atmosphere in this building complex, which holds LEED Platinum certification. The U.S. LEED model (Leadership in Energy and Environmental Design) is an internationally recognized certification system that sets worldwide standards in the development of highly efficient green buildings. The NOVE was designed by Italian star ⊕

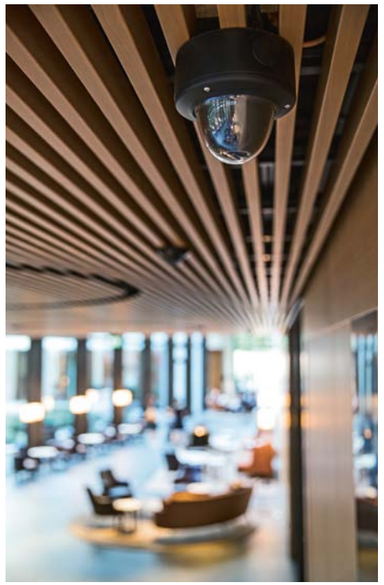
architect Antonio Citterio, who succeeded in combining efficiency, elegance, and a relaxed atmosphere.

FIVE-STAR WORKPLACE

You can sense this combination from the moment you arrive at the reception. The concierges greet the visitors from behind the round, leather counter and lead them to the elevator while people in business attire, seated in premium leather armchairs, busily work on their laptops. And if guests require assistance, the concierges are ready to help – by calling a taxi, taking clothes to be cleaned, and much more. Caring about guests and making them feel welcome is a standard part of the NOVE's service culture. It feels like a five-star hotel.

However, you won't find any tourists checking in here; it is reserved for the associates and visitors of the eight companies that the NOVE hosts. Tim Wiesener, CEO of Salvis Consulting, believes it's the "most modern office building in Munich." Around 1,300 people work here across 27,500 square meters of gross floor space. In addition to the associates, the NOVE receives around 300 visitors daily.

Another part of the NOVE's culture of hospitality is that visitors are permitted to stay and work in the building at any hour of the day. "Traditional nine-to-five jobs are increasingly rare. People want to work whenever they feel like it. We are addressing the needs of those people," explains Wiesener.



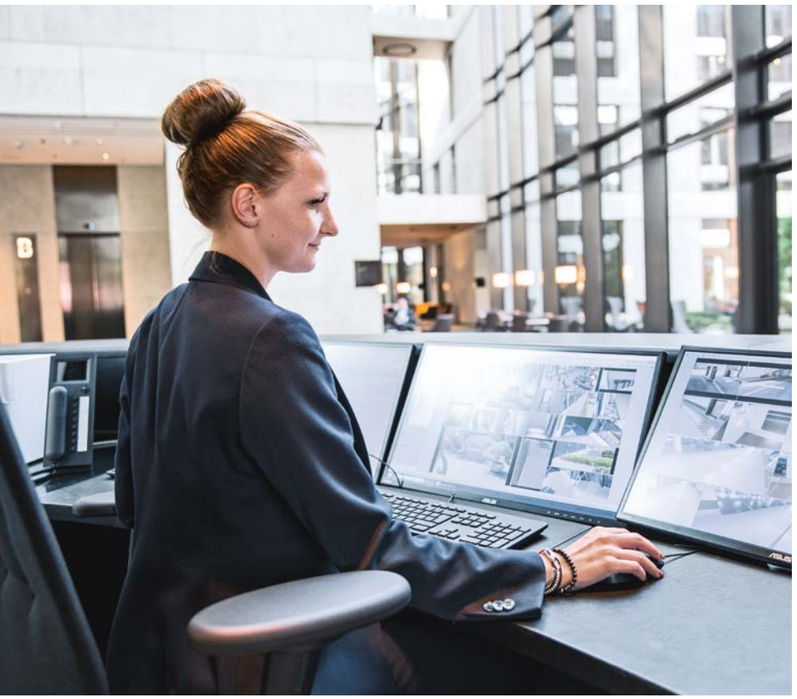
The security cameras at the entrance way have been integrated into the NOVE design to make them practically invisible to visitors

WELCOME SECURITY

Another factor in creating a pleasant atmosphere in a building this size and with such a high volume of visitors is security. And security in the NOVE doesn't lack style either: "We always envisaged security technology that would meet our high standards. Technology that would enhance the NOVE's atmosphere," says Wiesener.

In pursuit of this vision, Wiesener and his colleagues began searching for a reliable partner three years ago. "We wanted someone on the team who understood our philosophy," says Wiesener. "An experienced industrial company that would be able to look with us into the future, that already knows now what will be modern five years from now." It's understandable, given that a building like this can take several years to construct, from planning to completion. In terms of building security, Wiesener had no problem selecting a partner: "Bosch is our number one."

After years of working together with Bosch, the team came up with a ⟶



The Building Integration System (BIS) from Bosch provides the concierge service an overview of all the important areas in the building on two monitors

smart, holistic security solution that works precisely and is virtually invisible.

SERVICE AND SECURITY WITH A SMILE

The best example of this can be found right at the entrance. It is the concierges, who work double duty. In addition to the services they provide, they also work as trained security experts. “A boring office entrance with a turnstile wouldn’t go with our character,” says Wiesener. “So why not combine security and style?”

At least one of the concierges keeps a watchful eye on two monitors behind the counter that display images from more than a hundred surveillance cameras. He can control the cameras from a central control panel. The camera system includes both fixed and adjustable cameras installed inside and outside the building.

All other security information is collected for the concierges in Bosch’s Building Integration System (BIS): The software lets them manage video surveillance as well as fire and intrusion alarms.

Efficient access control: The ‘BoVisit’ management system enables concierges to prepare and manage visitor IDs

The reception is the main point of contact for all visitors and, like in any good hotel, provides round the clock service. The concierges use Bo-Visit, Bosch’s visitor management system, to serve the visitors. The software allows them to efficiently manage visitor badges and quickly assign the guests to the associates. “The software makes it much easier to process visitors,” says Wiesener. “Although you can hardly use the word ‘process’ to describe our first-class service.”

Bo-Visit is a centralized system that registers each visitor so that the concierges always know who is in the building and where. This is particularly important in emergency situations: At the push of a button, the system provides a critical overview of the number of people on the premises and from which areas they need to be evacuated.

IT’S ALL IN THE DETAILS

Each individual hardware component has also been integrated discreetly into the NOVE architecture and is barely noticeable. “Everyone knows that buildings like the NOVE are under surveillance,” says Wiesener. “But we don’t want our tenants and visitors to feel disturbed by the cameras.” Careful consideration was therefore given to the installation of each individual component. Even the smoke detector in the white-walled underground parking garage and the 360-degree camera perched between the wooden slats of the ceiling in the 23-meter-high atrium have been painted the same color as their surroundings.

Despite meticulous planning, there is room for improvement here and there. Wiesener, a perfectionist with an eye for detail, goes through the building on a regular basis, taking note of even the smallest flaws. The security technology does not escape his attention. “At the beginning, we found blind spots that were not covered by the cameras.” According to Wiesener, Bosch always provided immediate support and resolved any problems as quickly as possible: “The team is just as passionate as I am about creating a coherent system.”

For Wiesener, the NOVE exemplifies smartness. “It combines security with efficiency and comfort. The product is only complete when all three of these criteria are met.” The best approach was to work with a network of household technology, building technology, and security technology rather than isolated solutions.

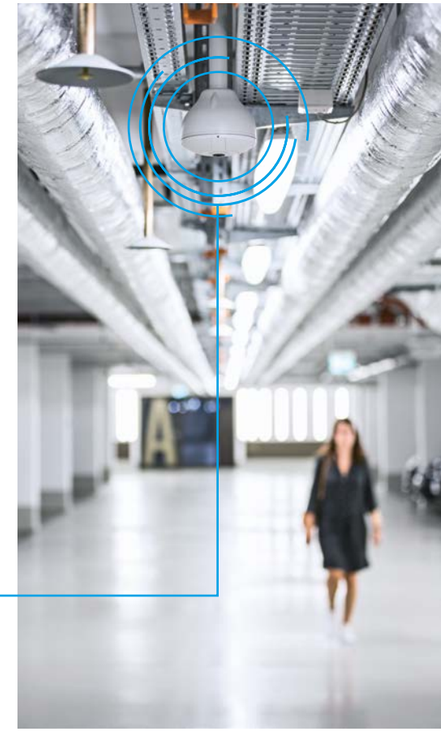
“One intelligent building on a greenfield site is not enough.”

TIM WIESENER

The next step for Wiesener is to build a smart district. He and his team are already in the planning phase: “One intelligent building on a greenfield site is not enough.” He believes that one of the key challenges of the future is to create an entire district that relies on the same networking of technologies already implemented successfully in buildings like the NOVE. The question of how to combine mobility, energy efficiency, security, and the networking of buildings with each other in a sustainable way will play an essential role in this development.

Whether Bosch and Wiesener are working on a smart district or an office building, the focus of their cooperation is ultimately on people. “The important thing is the feeling we want to evoke in our buildings. In a world where life is becoming increasingly virtual, offline meeting places are more important than ever,” says Wiesener.

The underground parking garages are monitored by swivel-mounted 360° video cameras



decide

COUNTRY PROFILE

From Ski Lifts to the National Theater

From its Vienna head office, Bosch Energy and Building Solutions Austria has made a name for itself, in the space of just a few years, as a building safety and security expert providing customized solutions. Even in the snow, you come across satisfied customers.

Fun on the slopes at the Semmering ski resort. The snow conditions are perfect. From an altitude of 1,782 meters, you can let yourself glide down easily into the valley at the eastern edge of the Alps – against a spectacularly theatrical backdrop. With the stunning scenery and proximity to nearby towns, the Stuhleck mountain has become one of Austria's most popular skiing areas that is close enough to visit for the day. Carving up the slopes goes hand in hand with stopping off in one of the mountain hut cafés to refuel. And when the famous song about skiing by Austropop sensation Wolfgang Ambros is ringing out from the hut's loudspeakers, most people's thoughts turn to their next alcoholic Jagertee – and no one is thinking about fire protection.

But this is exactly what the associates of Bosch Energy and Building Solutions Austria have been doing. They have been in intensive dialog with experts from the Stuhleck ski lift to find an appropriate solution. The approximately three million people that visit each year should be able to enjoy their runs on the 26 kilometers of downhill trails free from worry. All four-seater chair lifts are now fitted with state-of-the art fire alarm technology from Bosch. The connected nature of the entire solution is particularly impressive. Five fire alarm receiving panels, interlinked by fiber optic cable, and 66 optical fire detectors ensure that any fire is detected quickly and reliably, the alarm is raised, and countermeasures are taken. Bosch service technicians oversee the system, providing reliable and professional maintenance. This is an important measure to minimize unwanted downtime of the cableway, so that neither skiers, ski schools, nor hut operators are left stranded. Maximum safety combined with additional customer benefit is always the goal of Bosch Energy and Building Solutions Austria, no matter how diverse the projects and the associated requirements may be. "We collaborate very closely with the customer," says Alexander Liess, head of Energy and Building Solutions Austria. "We don't just listen to their needs and challenges, we also understand them." And solve them. "We bring the latest technology together into an overall concept and integrate the appropriate systems," says Liess. In doing so, Energy and Building Solutions frequently relies on the support of regional fitters and electricians. Teamwork that both sides benefit from. The tradespeople learn a lot from Bosch expertise and, in return, also offer Bosch solutions to their customers in the future.

Alexander Liess, Head of Energy and Building Solutions Austria

AUSTRIA IN FIGURES

- **Area:** 83,879 km²
- **Population:** 8,820,000 (2018)
- **Population density (km²):** 105 (2016)
- **GDP:** € 369.9 billion (2017)
- **Employment by sector:** Agriculture 4.3 %, Manufacturing 25.6 %, Services 70.1 % (2017)
- **Capital city:** Vienna
- **Official language:** German

Source: Statista

Across all activities, the office in Vienna is also supported by Robert Bosch AG Austria. This makes it possible to continually offer new services to customers of Bosch Energy and Building Solutions. These include flexible financing and leasing models, which have been rather uncommon in Austria to date, unlike in other countries, and have rarely been used. Without the parent company in the background, such services would not be possible. Together with the considerable commitment of associates, these factors have helped the unit, which started off as a small team in Vienna in 2014, to grow into a successful competitor in Austria. Proximity to the customer, not least in geographical terms, is underpinned further with sites in Hallein, Linz, and Innsbruck. And the customer base is correspondingly spread widely. Safety technology from Bosch can also be found in historically important buildings such as the Burgtheater in Vienna, Austria's national theater.

Bosch Energy and Building Solutions Austria is currently looking into the future together with CA Immo, a company which specializes in developing, leasing, and operating high-end office buildings as part of a joint project called Galleria Wien. The entire complex originates from 1885, and its over 14,500 square meters accommodate 41 shops, as well as offices and apartments. The role of Energy and Building Solutions Austria was to realize a public address and voice alarm system, and to make the switch from an analog to a digital video system – the entire project being made more difficult by the rules governing older buildings. An connected PA and video solution encompassing 80 IP cameras was ultimately installed. The new system provides a basis for further connected solutions, which are being derived in partnership with the customer. Alexander Liess: "Bosch has many reference projects in this area. We are benefiting from this experience." And the customers are benefiting, too.

“The Solution Must Cater to the Organization’s Needs”

sfm medical devices GmbH relies on integrated security solutions from Bosch – and thus meets the strict security requirements applicable to the medical industry as well as the high demands of the family business.

At sfm medical devices, safety is a matter of course. The mid-sized family business based in Wächtersbach, in the heart of Germany, is a leading provider of medical and pharmaceutical technology. The sfm’s products are used in the fields of dermatology, pain therapy, and anesthesia.

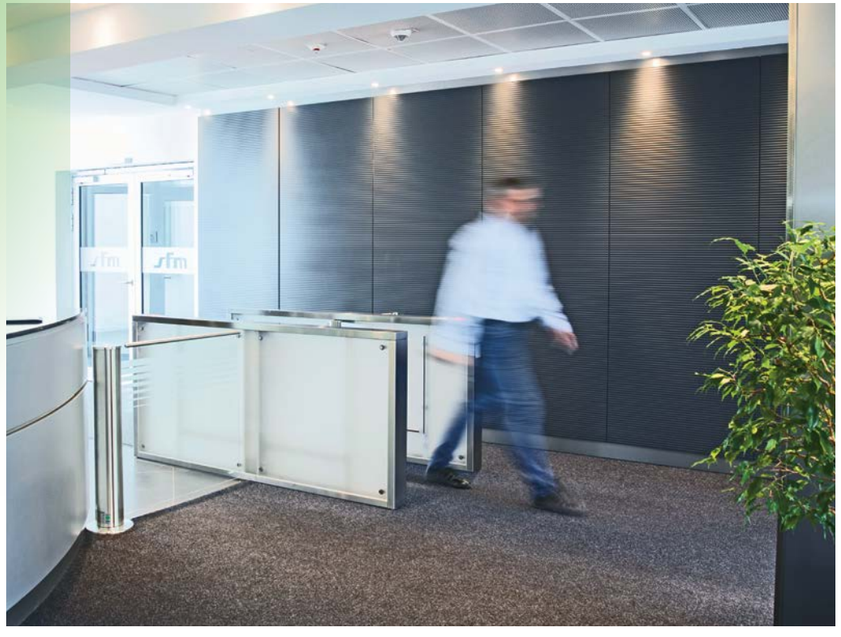
As an industrial company operating in the medical technology sector, sfm has particularly high standards in this area and must meet numerous legal requirements. Alwin Greb, head of operating technology at sfm, draws the following conclusion: “This is why we are continuously modernizing our company in terms of safety technology.”

ADAPTIVE TECHNOLOGY

“To stay competitive in the industry,” says Greb, “we needed a partner who was able to implement our safety vision.” sfm has found this ideal partner in Bosch – and has remained loyal to it. To date, the two companies’ partnership has already lasted for about ten years.

“We always take a holistic approach to solution design. As regards our safety and security needs, this includes fire protection, building development planning, and security ⊖

The innovative management system means that access is only granted to those who can prove their identity and are registered in the system



technology," says Greb. Over the years, the company has worked with Bosch to refine these systems. Each reconstruction project meant that the fire alarm and intrusion alarm technology had to be adapted anew. After several cycles, the systems are now very well calibrated and fully functional. "That was a very dynamic process," continues Greb. For example, whenever we needed to renovate the external facade, a Bosch technician was on site to bridge the systems, shut them down, and put them back into operation when the work was completed.

END-TO-END CAREFREE SERVICE

Greb describes the Bosch solution as a comprehensive carefree package. This includes many networked individual components that converge in the respective management systems in technical facilities. These include a fire alarm system with more than 500 automatic detectors and an uplink to the fire department, 13 surveillance cameras, a sensor gate at the main entrance, software for visitor management, a locking system with 20 online and 55 offline units linked to a visitor intercom system, the time recording system, and access control for all entrances.

This provides associates staffing the reception desk, for example, with an overview of the entire building complex via monitors. In addition, visitor management is handled using software. Admission is only granted to those who can prove their identity and are then registered in the system. The issued visitor badge is used to generate access via a card reader in the sensor gate. "The sensor gate is a good example of how Bosch, as a system integrator, provides a platform that integrates technologies from different manufacturers," explains Drazen Galic, the sales representative in charge. "The visually appealing corridor is provided by another company, and the software and card reader are from us."

Alwin Greb from sfm (left) praises the cooperation with sales representative Drazen Galic

EVERYBODY KNOWS THE TASKS AT HAND

In the sfm's electrical department, there is a separate parallel control panel for the Bosch fire alarm system. Here, among other things, all fault messages are reported centrally – even those that have nothing to do with fire and are detected by the system of a Bosch partner.

The following example clearly illustrates the key benefit of this solution: A Bosch partner system measures the turbidity of the drinking water in real time. Pure drinking water is essential for many production processes, such as tube cleaning. If the water turbidity reaches a certain threshold value, a corresponding signal is detected by a coupler, which sends a message to the remote control panel. It then automatically informs the security team, which will know exactly what to do thanks to an action plan.

If such an incident occurs outside working hours, the fault message is relayed to the Bosch control center, which is manned around the clock. It has intervention and instruction plans at the ready, knows sfm's processes at a high level of detail, evaluates the situation, and will inform the responsible associates, the police, or the fire department in the event of an emergency. Bosch has fine-tuned this procedure to address any hazard situation, such as burglary or fire. However, the central system always collects the fault reports.

MODEL FOR FLEXIBLE SECURITY

sfm relies on a flexible rental and operator model from Bosch that allows the company to operate state-of-the-art solutions now and in the future. After all, technology becomes obsolete all too soon: "This operator model allows us to stay up to date at all times," explains Greb, adding, "and this means we can ensure that the solution suits our organization in the long term and helps us stay flexible."

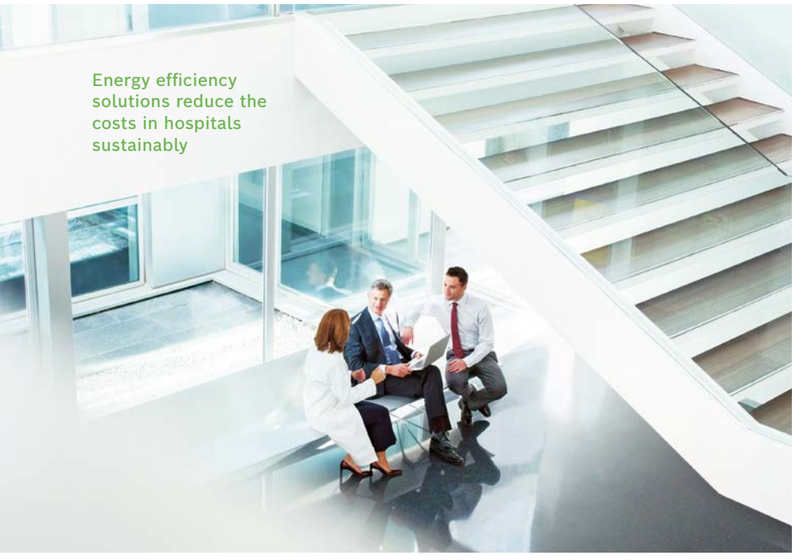
Due to the complexity of the security solution, it was important for Alwin Greb to have a single dedicated contact person at Bosch for technical planning and sales, rather than a separate one for each subsection. He was very pleased to be assigned Bosch specialist planner Stefan Petri and the sales representative Drazen Galic: "This is cooperation at its best."

Uplinking every camera to a centralized emergency services control center ensures security around the clock

The solution from Bosch is tailored to the customer's organization and processes

“Optimizing energy consumption for hospitals with connected energy management”

Bosch uses the multifunctional Energy Platform management tool to identify potential areas for energy savings and then develops solutions to increase efficiency in hospitals.

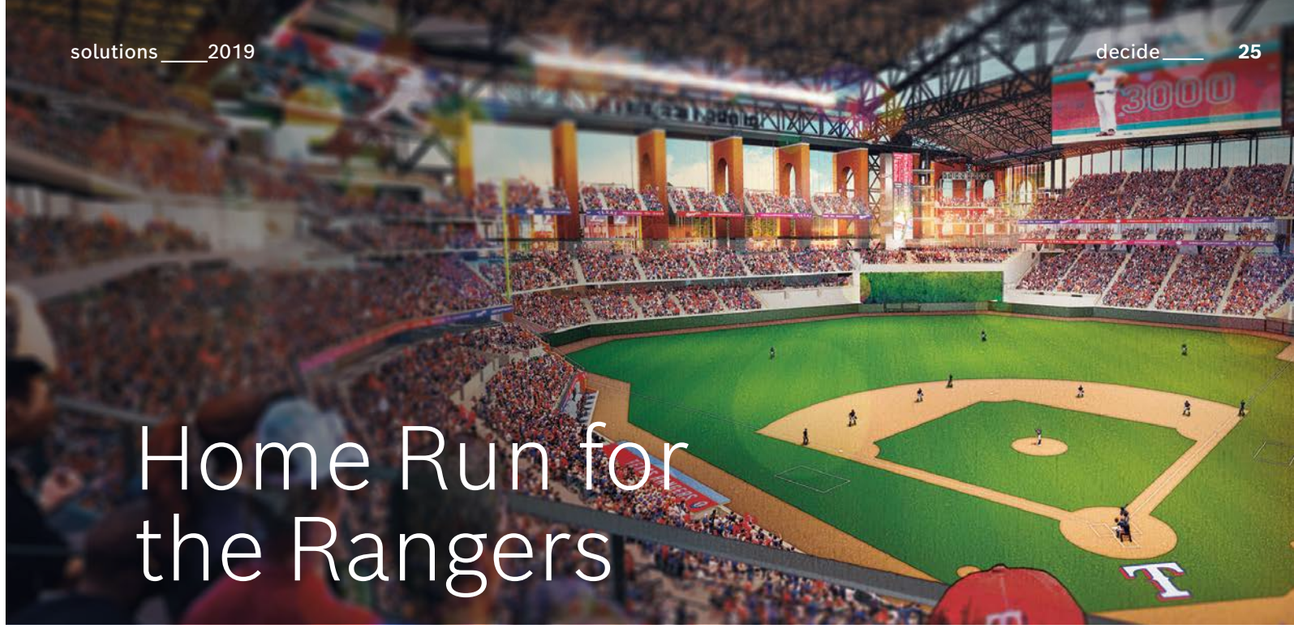


Energy efficiency solutions reduce the costs in hospitals sustainably

The operators of hospitals, clinics, and other healthcare facilities are under continual cost pressure. Many of them invest in state-of-the-art medical technology and the latest treatment methods while frequently neglecting to consider the provision of energy. Yet, there is a reason to take a closer look at this area. For example, on average 70 to 80 percent of the energy in hospitals is utilized for heating and 20 to 30 percent for electricity. However, the different costs of the energy sources mean that the greater share of the energy costs goes toward purchasing electricity. Therefore, tapping potential for increased efficiency usually translates into high economic benefits.

“With our energy efficiency system, we have developed a modular solution that covers everything from determining the current situation and energy strategy consulting to energy optimization, transparent display of energy flows, and infrastructural energy supply,” explains Sven Sautter, Head of the Energy Services business field at Bosch Energy and Building Solutions GmbH. Every area offers opportunities to reduce energy costs, regardless of whether they result from lighting, cooling, room heating, or steam. “Competitiveness in the healthcare sector can be noticeably increased with the Energy Platform [management tool] and the measures it yields, because any money savings can be redirected to core tasks,” Sautter emphasizes.

Connected energy management from Bosch enables a comprehensive analysis of energy efficiency. By using the core of the solution, the cloud-based Energy Platform, hospitals can precisely record and evaluate data on the energy consumption of individual media and processes. On the basis of this information, hospitals can identify and evaluate optimisation potentials in order to subsequently derive well-defined actions for improvement.



Home Run for the Rangers

The Texas Rangers baseball stadium is being converted into an entertainment center with 41,000 seats, a retractable roof, and a comprehensive building automation solution by Climatec.

The Globe Life Field stadium features an integrated building control system by Climatec

Construction is in full swing at the site, where baseball games will be played in front of 41,000 spectators next year. The new stadium of the Texas Rangers is being built in Arlington city center, between Dallas and Fort Worth, Texas. Globe Life Park, currently the home field of the Major League Baseball team, will be transformed into Globe Life Field with the addition of an entertainment complex containing restaurants, shops, and offices.

Parts of the stadium, which opened in 1994, will be retained in order to preserve the character of the building. Construction on the building began in 2017 and is scheduled for completion by the start of the 2020 season. The highlights of the new Global Life Field include a roof that opens and closes. An air conditioning system that will ensure comfortable temperatures on the playing field and in the seating areas during the hot summer months.

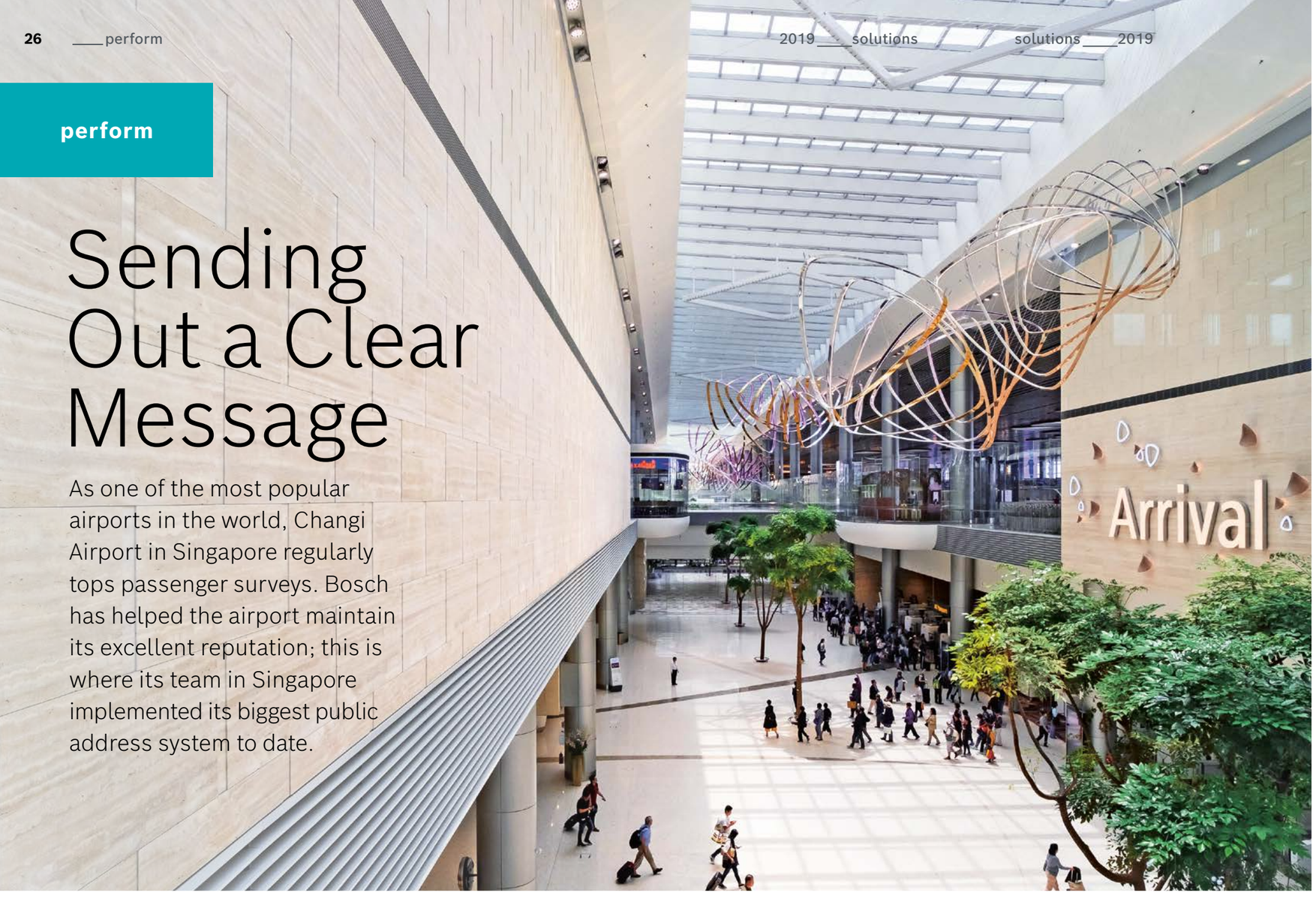
Climatec, a subsidiary of Bosch, implemented a comprehensive, energy-efficient building automation solution for the new stadium that interconnects many individual components and the unique heating, ventilation, and air conditioning (HVAC) system. The building management systems run together on a single platform for central monitoring and control of the stadium. They include lighting systems, people counters, energy dashboards, catering systems, and air quality control. The fully integrated system enables highly efficient building management and operation.

Working closely together with the owner and the project’s design and construction team, Climatec is developing a customized solution for the new Globe Life Field. The Climatec team is working on site, hand in hand with the customer, to meet the tight deadline before the grand opening in March 2020.

perform

Sending Out a Clear Message

As one of the most popular airports in the world, Changi Airport in Singapore regularly tops passenger surveys. Bosch has helped the airport maintain its excellent reputation; this is where its team in Singapore implemented its biggest public address system to date.



Changi Airport is one of the most important transportation hubs for air passengers in Asia. About 7,200 flights depart from and land there every week, while roughly 62 million people pass through its gates every year. Coordinating all this is no mean feat, particularly when you consider that Changi Airport Group puts great emphasis on creating an atmosphere in which passengers feel comfortable and safe. But if passenger surveys are anything to go by, it has clearly outdone itself: Changi Airport was voted the world's best airport for the sixth time in a row in 2018.

Changi Airport Group has been investing in its infrastructure to maintain its excellent reputation. When several modernization projects were on the horizon, the team at Robert Bosch Southeast Asia participated in updating the safety technology in the three airport terminals.

3,500

loudspeakers were installed for the public address and voice alarm system in Terminal 4

Eventually the Changi Airport Group decided a few years ago to construct a fourth terminal. After a tender process, the contract was awarded to Takenaka, a construction, engineering and architecture firm, which proposed Bosch's safety expertise to join the project. A major contract was assigned to the team of Bosch Energy and Building Solutions in Singapore. The team planned and installed a solution consisting of over 3,500 loudspeakers, working on the project from the beginning of construction work in 2014 to the opening of Terminal 4 in October 2017. "It was the biggest project that we had carried out with the Praesideo public address and voice alarm system up to that point," says Jerome Lim, the sales manager responsible.

"It was the biggest project that we had carried out with the public address and voice alarm system up to that point."

JEROME LIM, SALES MANAGER

SOUND SYSTEMS INSTALLED IN 150 ZONES

As had been the case two years previously, a customized solution that would meet the client's high requirements was needed. Even before construction had begun, it was determined that 16 million passengers would pass through Terminal 4. A huge crowd of people is therefore spread out daily over a large area. Accordingly, there are also a large number of public address zones: "There are 150 in total, which is about 20 times more than for the projects we usually carry out," says systems engineer Jimmy Tan. He was involved in developing the system and optimizing it on-site.

21 departure gates and eight bus gates, arrival and departure halls, duty-free shops, and many more indoor spaces are numbered among these 150 zones.

The first experts from Bosch arrived in summer 2014, a few months

About 16 million passengers annually pass through Terminal 4 at Changi Airport

after construction work for Terminal 4 had begun, and took part in weekly meetings with architects and consultancies involved in the project. Their main work finally began in 2016, when the team developed a unique public address concept and worked in close collaboration with the commissioned construction companies during installation.

WELL-PROTECTED

"Because the voice alarm system is an element of the airport's infrastructure that is crucial to passenger safety, we designed it as redundant from the very beginning," says Jimmy. The Praesideo system was housed in four different rooms; three of these are located in the terminal, while the other was in the airport tower. Praesideo ring systems, which consist of network controllers, amplifiers, switches, and different interface devices, among other pieces of equipment, are now installed in each room. Furthermore, the team from Bosch also planned and provided support for the installation of fireproof loudspeaker cables, which was carried out by the CISS (Commercial Industrial Supplies & Services) Pte. Ltd., in order to comply with strict fire safety regulations.

A management system monitors the technical processes in the background to ensure that they run faultlessly. The experts from Bosch opted for a solution from ICAS (Industrial Computerisation and Automation System) Technology (S) Pte. Ltd., a company from Singapore. "This software-based solution offers additional safety," explains Jitendra Kumar, the project manager. "It continuously monitors the Praesideo system's status and displays it on the monitors located at the fault management center and equipment room. Thus it becomes easier for the maintenance staff to see the system's health status at one glance."

CREATING SOLUTIONS FOR TWO MARKETS

The team in Singapore forms part of the Business Unit Asia Pacific. This was first established in the spring of 2018, and comprises of both Bosch Energy and Building Solutions operating units for the Singaporean and Indian markets. Together, these teams offer solutions from a single source. While the unit in India is specialized in the area of energy efficiency, the unit in Singapore attends to all matters concerning security and life safety.

IT'S ALL IN THE MIX

Acoustics proved to be the biggest challenge in installing the loudspeakers. The team from Bosch had to ensure consistent acoustics, despite the combination of bare marble walls and sound-absorbing carpet floors in the airport's expansive halls. They managed to solve this problem by opting for a mixture of the loudspeakers: They installed different versions of a particular type of loudspeaker on the columns that directs sound towards the ears of visitors to the airport. "We also installed high-frequency add-ons at various points, where the sound needs to be projected the furthest. They doubled the range of the column loudspeakers to 50 meters," says Eugene Eng, a systems engineer who was involved in the installation. The team worked in close collaboration with the architects and ensured that the loudspeakers fit in with their environment from both a technical and an aesthetic standpoint. Therefore it installed different ceiling loudspeakers in the corridors and adjacent shops, which, in line with the client's wishes, either offered outstanding sound quality or served as reasonably priced all-rounders, depending on their position in the terminal.

"Announcements are clear and easy to understand, no matter where you are in the terminal."

JITENDRA KUMAR, PROJECT MANAGER

STAYING ON THE SAFE SIDE

The experts from Bosch had to factor in converters and network switches from third-party suppliers that had already been installed when planning the new Praesideo system. A test center of sorts was set up to ensure that the Bosch solution would work with the systems on-site from the offset. The team purchased a few examples of the third-party devices in place, set them up in its offices, and tested them to see whether they would work with the Praesideo system. "By doing so, we were able to rule out unpleasant surprises and disruptions in advance," explains Jimmy. Their preparation work paid off in the end – system integration during the installation at Terminal 4 went off without a hitch.

The system has been in use for over a year now, and guarantees excellent acoustics in Terminal 4. "Announcements are clear and easy to understand, no matter where you are in the terminal. This is handy for passengers, such as when gate changes need to be communicated," says Jitendra. Meanwhile, the personnel at information counters have benefitted from the fact that the system is easy to use. This ensures that all workflows behind the scenes and in the airport run seamlessly.

Enhancing the Energy Infrastructure

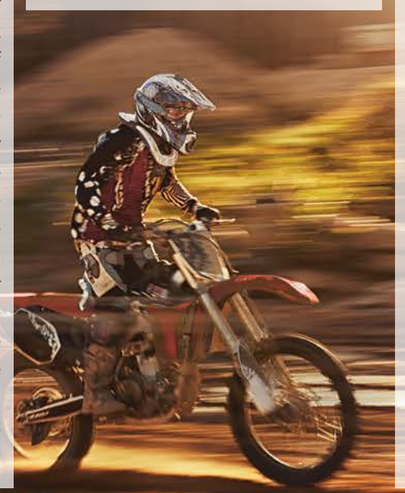
In India, Bosch experts have made four plants of the two-wheeler manufacturer Honda more energy-efficient – with photovoltaic systems and a heating solution for a cleaning process.

Kannan D, Senior Design Engineer at Bosch Energy and Building Solutions India

The Indian two-wheeler industry has been growing for several years. It sold around 17.7 million vehicles in 2016, making it the world's largest two-wheeler manufacturer. Two-wheeler manufacturers in the country require a lot of energy and want to become less dependent on the public power grid due to the frequent power outages and higher costs. Honda Motorcycle and Scooter India (HMSI), the second-biggest two-wheeler manufacturer in the country, shares this goal.

With this in mind, the company planned a 600 kW solar system four years ago. The idea was to install it on the roof of the plant in the city of Manesar in northern India. For the project execution, the company ultimately commissioned Bosch Energy and Building Solutions India, whose experts implemented the project within five months. After that, the scope of the partnership broadened when the plant management in Manesar decided last year to expand the solar system. Based on the expertise that was demonstrated earlier, the Bosch team was also commissioned to construct additional photovoltaic systems in the HMSI plants in Tapukara in the northwest, Vithalapur in the west, and Narsapura in the south. To date, solar systems with an total capacity of 12 MW have been realized. Other systems with a 9 MW capacity are currently being built.

"Each plant has different requirements. This is why we carefully surveyed the conditions and designed the systems in a specific way that would allow them to deliver the best results on site," says Kannan D, Senior Design Engineer at Bosch Energy and Building Solutions India. The customizations for each facility ranged from reverse power protection systems to routing power cables through specified areas to ensure safe and reliable operations. Because the plants operate around the clock, the solar systems had to be installed while operations were running.



Another customer need arose during the implementation in Vithalapur. At that plant, vehicle parts are cleaned during the manufacturing process by being submerged in a chemical bath at a temperature of 65 degrees Celsius. The Bosch team implemented a built-in heating and cooling solution in order to save energy during this process. "It consists of energy-efficient air source heat pumps with customized heat exchanger coils, and it halved the energy consumption of the cleaning process," says Ashwini Kumar Mahato, Senior Solution Designer at Bosch Energy and Building Solutions India. The Bosch solar installations at HMSI plants are among the largest rooftop solar plants in India. The total area covered measures around 280,500 square meters which is equivalent to 26 football pitches. The switch to solar energy paid off for HMSI. The solar systems are estimated to allow HMSI plants to save the equivalent of five to 17 percent of the energy costs, depending on the plant. Sustainability also improved within the company. By implementing the solar systems, HMSI reduced its carbon footprint by around 24,300 metric tons of CO_2 per year.

Good Technology Is Not a Gamble

Cool air for hot nights at the poker table: Climatec's solution controls a unique air distribution system, among other key building systems

Three casinos in three different cities in the U.S. are controlled via a centralized building automation system. The solution from Climatec bundles and simplifies the management of critical components.

The Tohono O'odham Nation is a group descended from a Native American tribe. Like their ancestors, they live in the Sonoran Desert in Arizona, USA. They own the company Desert Diamond Casinos and Entertainment, which operates two casinos in the cities of Tucson and Sahuarita.

Construction began on a third casino in Glendale, near the state capital of Phoenix, at the end of 2017. The Desert Diamond West Valley Casino will open its doors at the end of 2019, providing around 7,000 square meters of casino space and room for five restaurants. The building will later be expanded to include a hotel complex.

Climatec, a subsidiary of Bosch, is a key part of the project's construction team. In collaboration with the team's HVAC contractor, Bel-Aire Mechanical, Climatec has implemented various building control systems for the new casino.

For example, the experts from Climatec implemented an automation solution that will be capable of centrally monitoring and controlling critical building systems for the casino in Glendale as well as the two casinos in Tucson and Sahuarita. The experts also helped with the concept development of a unique under-floor air distribution system for the casino. A model of this system was specially developed and tested in the Climatec offices.

"We helped bring this construction phase successfully to completion by applying our expertise and focusing on delivering the highest quality of service," concludes Tim Williams, Construction Sales Manager for Climatec. The developer also benefited from the effective cooperation between Climatec and Bel-Aire Mechanical. The two companies have been partners in the sector for nearly 20 years.

think ahead

“We don’t want to miss out on the advantages anymore”

Michael Carl is a futurologist and strategy expert. He is a sought-after keynote speaker whose presentations highlight the trends and developments in the world of work and life. We met with him in the Axica Congress and Convention Center in Berlin and spoke about the buildings of the future and how we can support them with the help of data.

What impact will digitalization have on buildings?
A huge one! Buildings today process much more data than they did a just few years ago, and a major source of this data is the intelligent technology used in these buildings. And then you need to factor in the growing number of sensors and data sources that everyone in the building carries around with them. Buildings can use artificial intelligence to learn from this data so they can better meet our needs.

What is the specific added value that you have in mind?
More safety for everyone, for example. Imagine that a building cannot only detect where a fire has just broken out, but also knows that you are inside the building and can tell you in which direction you should walk in order to find the emergency exit quickly and safely.

These functions will become the absolute norm in the years to come, aiding us in our everyday lives. The user’s expectations of a building will also change for the better along with this development.

It sounds like a business model of the future.
The more tangible added value a building can offer individuals in the future, the more attractive it will become. In this manner, buildings will be able to figure out what we need right now. For example, people need a different kind of support for creative processes than for tasks requiring concentration. The building of the future will need to learn how to change the temperature, light, music, or interactions in a way that is conducive to the building’s occupants and their different tasks.

So it’s an issue of personal preferences?
Imagine a building in which there are businesses serving customers. For example, you might walk into a clothing store and immediately look for assistance if you want to buy a suit. On the other hand, I might prefer to look around first without having someone approach me offering assistance. But if you don’t know me, it’s very hard to say. In the building of the future, I could communicate this desire in advance. It’s also a question of connectivity. Is the building capable of connecting quickly and easily to what is going on inside it and around it?

You speak about the ‘Internet of Everything’ rather than the Internet of Things. Why is that?
We predict that, during the 2020s, virtually everything surrounding us will be connected, in our professional and private lives alike. This blanket connectivity will support us in all areas of work and life. There will be new functions that will simplify many things. That’s why I like to broaden our understanding of the term ‘Internet of Things’ a little, with a view to the future.

Will the way we handle data also change then?
Our view of data will change, simply because the benefits of using it are so great. Both for the building operator as well as for the people using this building. At the heart of it all is the question: How can I create added value for an individual user in this situation because there’s a massive amount of data here? We don’t want to miss out on the advantages anymore.

We are standing here in the Axica Congress and Convention Center, designed by star architect Frank O. Gehry. Do these ‘dumb buildings,’ as you call them, still have a reason for being in this new world?
Yes, from an aesthetic point of view.

MICHAEL CARL

Michael Carl is Managing Director for Research and Consulting at trend research institute 2b AHEAD Think Tank. He investigates the changes occurring in the worlds of life and work, and focuses on technological innovations to unearth key discoveries for the business models of the future. After graduating with a degree in theology, he initially worked as a journalist and editor for ARD. He now gives lectures and hold seminars and coaching sessions to help companies plan for the future.

Exclusive presentations, discussions, and networking in an inspiring environment

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REVIEW: CONNECTED BUILDINGS EVENTS

Ready for the future: The ‘Connected Buildings’ series of events organized by Bosch Energy and Building Solutions in the fall of 2018 demonstrated how tomorrow’s safe, comfortable, and efficient buildings are created based on networked solutions. Under the motto ‘Turning ideas into reality,’ the high-profile event was held in five cities across Europe. The series started in Milan and continued in Zurich, Amsterdam, Vienna, and Berlin. Technical and commercial decision-makers from a wide range of industries followed the invitation to learn more about solutions that deliver greater safety, comfort, and efficiency in commercial buildings and to exchange ideas with experts. Internationally renowned futurologists shed light on how quickly digitalization is bringing about change and why it is so important to act now.

The evening event in Berlin on October 25 marked the end of this series of events. Bosch experts and decision-makers from a wide range of industries exchanged views on smart building solutions in the exclusive ambience of the Axica Congress and Convention Center. The lead-in presentation by Jens Mack, Bosch Senior Vice President Sales and Business Development Building Technologies, illustrated how urbanization and demographic change are reshaping the demands placed on buildings. One such example is the Internet of Things (IoT): Today, six billion devices are connected to the Internet, and “by 2020 it will be an estimated 20 billion,” said Mack. This creates new opportunities and possibilities for networked solutions and services. Futurologist and strategy expert Michael Carl from Denkfabrik 2bAhead further discussed this megatrend. According to Carl, IoT will not only network technical devices with one another, but it will affect all spheres of life. He therefore advocates using the term ‘Internet of Everything.’ Bosch Cross Selling Coordinator Michael Mendola then showed how life in ‘smart cities’ can be improved by means of networked solutions. Based on the showcase of the NOVE office complex in Munich, Tim Wiesener, CEO of Salvis Consulting AG, and Bosch systems consultant Tim Kosok concluded with an example of how to perfectly wed security with comfort – an example that is certain to set a precedent.

28 Megawatt Remote Solar Power

86,720 solar modules produce an average of 115,000 kWh of power every day

Bagmane Tech Park in Bangalore, India, has enormous energy needs. These needs are covered in part by a solar photovoltaic solution from Bosch, installed 600 km away from the Indian IT capital.

Bangalore is booming. The capital of the Indian state of Karnataka is known as the ‘Silicon Valley of India’. The urban landscape of this economic hub features thousands of IT companies and technology parks, including Bagmane Tech Park in the northeastern part of the city.

The 21-hectare technology park belonging to the the Bagmane Group contains ten buildings, and international technology companies such as Alstom, Dell, and HP have taken up residence in the five million square meters of office space. Power prices are highest in large commercial estates like the Bagmane Tech Park and access to both affordable and reliable power becomes a challenge – especially as commercial space should not be comprimized. This requires customized solutions to lower energy costs and increase efficiency. Solar photovoltaic plants serve as one of these solutions.

The managers of Bagmane Tech Park are also counting on solar power and placed their trust in the competencies of the Bosch experts in India. Their project was to design and implement a 28-megawatt ground-mounted solar park 600 kilometers from Bangalore in the city of Belgaum in southwestern India. The solar park produces an average of 115,000 kilowatt-hours of power across an area spanning 36.4 hectares, which covers around 30 percent of the total energy needs of the tech park.

The big challenge in implementing the solar system is the strong wind pressure: Due to the high altitude at the location, the system must be able to resist wind speeds of up to 150 km/h. The Indian team designed the system with structures that can withstand high wind speeds and ensure reliable operation. The remote location of the project site further complicated the supply and transportation of equipment. These complexities and challenges did not throw the project off its tight schedule. In fact, with systematic planning from the engineering and procurement teams, the Bosch experts implemented the project in four months flat, making it one of the fastest executed solar projects in India.

More than 28,600 metric tons of CO_2 are estimated to be saved every year with this solar system. In addition, greater independence from the power grid means a more reliable supply. Moreover, by consuming its own energy produced from renewable sources, Bagmane Tech Park has managed to lower its costs and those of the companies established there. The sustainable power supply solution from Bosch is therefore a major asset from more than just an environmental perspective. This ties in perfectly with the big picture as India wants to reduce the country’s CO_2 emissions by 30 percent by 2030.

Smart Cities: New Safety Solutions for the Cities of Tomorrow

Everything is getting smarter – not just our phones, but our buildings and cities as well. It's all possible thanks to the Internet of Things (IoT) and modern network solutions. Many cities have already implemented 'smart city' concepts. But what does that mean exactly? What are the advantages of networked buildings? How will these ideas change the discussion about safety?

One thing is clear – our cities need intelligent solutions. The fact is, urbanization is on the rise and more people are moving to major cities every year. According to an analysis by the United Nations, 70 percent of the global population will be living in cities by 2050. Today, these cities already account for 75 percent of the world's power consumption. Air quality, energy efficiency, public security, and mobility are the four biggest challenges presented by this trend. With the help of smart networking, we can develop solutions to successfully shape the urban spaces of the future.

HOW NETWORKING CAN MAKE BUILDINGS SAFER AND MORE EFFICIENT

The commercial buildings of the future have to be safe, comfortable, energy-efficient, and smart. Forward-thinking solutions and proactive measures will help to meet these demands. Intelligent solutions and innovative, networked technologies that interact with and learn from one another transform conventional structures into smart buildings.

Today's building technology are generally composed of a number of different individual systems, including statutory fire protection measures, data networks, and telecommunications equipment, as well as access control, video surveillance and lighting systems. These systems are typically controlled by separate management systems which require extensive labor and result in astronomical operating costs. Innovative management systems, on the other hand, are capable of networking these disparate building management systems and integrating existing structures with third-party systems.

Unifying a range of different subsystems in a complete, overarching system makes it possible to automate processes, combine individual functions, and control these functions using a single, centralized platform. These types of comprehensive solutions increase security, boost energy efficiency via unified monitoring processes, and reduce operating costs.

SMART BUILDINGS MAKE GOOD NEIGHBORS

The smart building concept is founded on immense quantities of data captured by intelligent sensors. This data is then processed and consolidated into valuable information. The sensor systems can gather information about energy and water consumption, temperature, and lighting conditions, register data on weather and humidity, or issue notifications in the event of fire or unauthorized intrusion. This data is generally not personal in nature and therefore has little relevance in terms of data protection.

Generally speaking, access control and video surveillance systems are very different in this regard. The fact that it is possible to create security solutions without the need for personal data highlights the versatility of these sensors. For example, fire alarms with additional functions are able to draw conclusions about how many people are in a building simply by monitoring temperature and relative humidity.

Through the use of intelligent networking, big data analysis, and data interpretation by artificial intelligence (AI), each individual building is able to benefit from information supplied by neighboring buildings. If all of the buildings in a city are 'smart' and networked with one another, the benefits far exceed pure technological progress. In the event of a fire, for example, all neighboring buildings can be informed in real time. This allows reactive or even proactive protective measures to safeguard people, property, and the environment to be deployed.

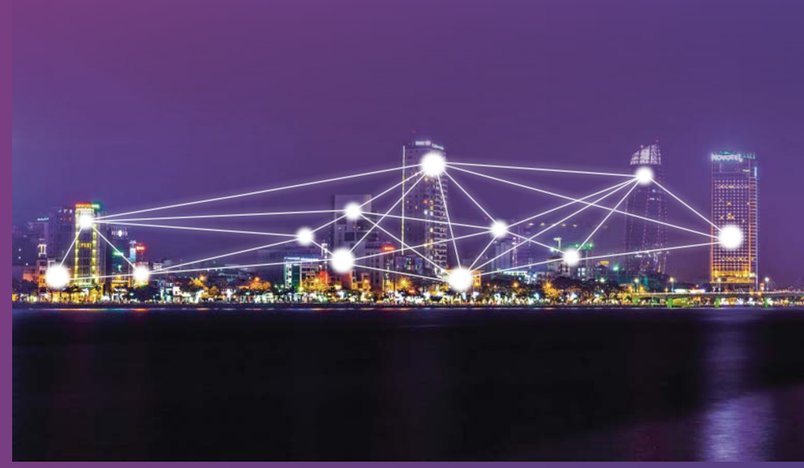
REMOTE MAINTENANCE AND EARLY WARNING

Intelligent service concepts augment data analysis across buildings and systems. The cloud-based EffiLink platform provides Bosch with a smart solution for exchanging and analyzing data. It supports all IP-based security systems, regardless of manufacturer and available functions.

This makes Bosch a pioneering building security systems provider, as it not only offers traditional remote services such as remote maintenance, but also builds upon these value added services: Based on historical data, any risk of faults or hazards can also be detected well in advance and critical situations safely avoided. This predictive maintenance enables maintenance times to be optimized without disrupting normal building operations or requiring advance planning of the necessary investments. For security system operators and users, this means that components and processes can be evaluated at any time and adjusted promptly as needed. At the same time, predictive maintenance increases building energy efficiency.

The success of any smart solution depends on dialog. In other words, buildings and individual facilities cannot be planned and monitored in isolation. Instead, innovative technologies must be factored into the equation as early as the planning phase when developing infrastructure and building concepts.

Smart networking increases residents' security and optimizes the use of resources



NETWORKED VIDEO SOLUTION

A View Beyond the Border

THE DUTCH logistics park Hazeldonk-Meer extends across the border and into Belgium. The industrial estate is is conveniently located between the ports of Rotterdam and Antwerp, but the area is a magnet for criminals, too. For that reason, park operator Hazeldonk-Meer Logistics Association (LCHM) has resolved to increase security at the facility. But the laws of both countries have to be observed in the process, of course. For example, images captured in the Netherlands are not permitted to leave the country or be forwarded to a centralized control center. Bosch experts overcame this challenge by implementing a specialized infrastructure for the video system. Cameras trained on the area scan passing vehicles and remain separated by country. The main system in the Netherlands is augmented by a supplementary system in Belgium. The systems operate independently of one another and each is connected to its own server. All vehicle movement is logged in a Bosch management system, which also contains information on stolen vehicles and criminal activity. Just two days after the system began operation, it registered the license plate of a car involved in a robbery and forwarded the images to the police. LCHM's long-term goal is to see the Hazeldonk-Meer facility recognized as one of the top five most secure locations in the Netherlands. According to board member Johan Creemers, this is exactly why the company chose Bosch. "We wanted a partner that would offer the best solution for this challenge."

BOSCH
Invented for life

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BEYOND THE NORM

"I see things that no tourist will ever see"

Being a security expert at Bosch can involve some some extraordinary tasks. We asked Michel Huger about his; he's in charge of supervising the security technology at one of Germany's most popular tourist attractions, Neuschwanstein Castle.

Hello, Mr. Huger. Have you strolled through the throne room in Neuschwanstein today?
No, I'm not in the castle every day, more like twice a year. But our service technicians are there regularly because of our maintenance contract. We're responsible for the complex fire alarm system, and we installed a public address and evacuation system as well as a video system. There is always something that needs to be done there.

Is your client a real lord of the castle?
Our contact partner is the state building authority. We have an excellent cooperation. It wouldn't work otherwise. After all, Neuschwanstein isn't just any old building.

What unique challenges does it present?
The key is to interfere as little as possible with the existing structure and not to disrupt the visitor traffic. There are also very specific aspects to consider, such as when we developed the public address system. For instance, how clearly can the announcements, which are made in several languages, be heard in these irregularly shaped buildings? You need to have experience with historic buildings to tackle these issues.

Do you have to know anything about the history of the castle to do your work?
My interest in it is rather personal. I'm a native of Füssen. I have never visited the castle as a tourist, but I feel very proud to work there. And whenever I tell my friends or my family about it, they all want to know what it looks like.

What do you tell them?
It's fascinating because I see things that no tourist ever gets to see. For example, the attic is three stories high and has an amazing construction. And there's a balcony with a wonderful view over the entire Füssen valley. It's really impressive.

Do you learn new things when working with such famous old castles?
Above all, I learned three very important things. First: You should record everything and take photos right away at every meeting. Since everything is so complex, the service technician will have trouble finding the right place or the right device without these records. Second: Never make an appointment after nine in the morning; otherwise, you'll have to walk up to the castle with hordes of tourists – and that can take a while. Third: Never forget anything in your car. It's a long way from the castle back to the parking lot...

Performance
Built on Partnership

As your reliable partner, we provide connected and integrated solutions that make your buildings more secure, more efficient, and more comfortable. Our experts support you as consultants, installers, and service providers.

Take advantage of our extensive expertise and integrated solutions based on the latest technologies – all from a single source located near you. Feel free to contact us at any of our many sites.

We look forward to providing tailored advice!

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