SAUTER
FACTS

The magazine for SAUTER customers

11:45

Augmented Reality

Channel 1 Value - 0

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Facts No. 39

Editorial

Dear Customers and Business Partners, Dear Readers,

Let's first recap a little. In the last issue we launched a minor survey about SAUTER FACTS and I would like to thank everyone who took the time to complete this. Your suggestions will be acted upon where this is possible.

At the first editorial meeting for this issue, we were in the middle of reporting on the 2019 financial year. Like so many companies, we were able to present our shareholders and employees with pleasing figures and start 2020 full of momentum. 2020 – the start of a decade expected to be followed by new trends and major innovations… Until the coronavirus and the ensuing global crisis brought everything to an abrupt halt.

Day in, day out during lockdown, many people were cooped up inside for hours on end. Certain premises, such as hospitals and research facilities, suddenly became the spotlight of media attention. Building technology played its part in fulfilling hygiene guidelines and ensuring a moderate indoor climate despite crowding and rising temperatures (please read our report on the project at Hôpital de Montélimar). For the majority of our customers however – owners and managers of public buildings, hotel investors and companies with spacious offices – the situation promptly led to empty corridors. The future use of these areas as well as investment power in construction and equipment is an uncertain one.

Yet the current phase of restrictions and cutbacks is also a time for rethinking and new ideas. A time in which digitalisation, spurred on by health issues, has even gained ground. Innovative solutions for office buildings are in demand, as are smart solutions enabling greater workspace flexibility. Our solutions allow us to increase energy efficiency and ensure that we create sustainable environments. This is the hallmark of our brand and it requires the development of innovative solutions. Our "Smart Spaces", for example, show how smart, holistic, demand-oriented solutions can be created that transcend classic building automation. They also offer innumerable benefits to operators and users.

And so we come to our magazine, which is packed full of news once again. It features a glimpse into our cloud strategy and software and cloud solution plans, including SENG. We'll show you how augmented reality used in the modulo 6 app makes installation maintenance even easier. In this issue we'll tell you what the BACnet certificates for modulo 6 and SAUTER Vision Center contain. What's more, you will also be the first to get to know the new features of SAUTER Vision Center 7.

Join us on a tour of the SAUTER Smart Spaces in Freiburg that we mentioned earlier and learn about the whole range of functions available for intelligent buildings! We are also interested in – and committed to – new approaches to solutions outside our own four walls: Our article on the EU research project "MEMAP" demonstrates the savings that can be had by using energy networks to manage energy.

We'll showcase various highlights from around the world. These include the challenges that the Covid crisis posed for a hospital in sunny Southern France – for both people and building technology. You'll get to see what technical building equipment is needed for a promenade zone in the desert climate of Dubai and the specific measures that have helped "Ušce Tower Two" in Belgrade attain BREEAM Excellence Status. We'll also reveal where to enjoy the fruits of ultra-modern living and working space in the heart of London and what has led to our customer Decathlon Germany becoming so successful.

I wish you stimulating reading!

Yours, Werner Karlen, CEO

SAUTER
Creating Sustainable Environments.

SAUTER Digital Services

The focus of the corporate world has, for years, been on digitalisation like no other megatrend. At SAUTER, this is no exception. The subject dominates all areas of the company, opening up new fields of activity time and again.

As we become a digitalised company, we would like to give you regular updates about new projects and how our customers stand to gain from them. With our familiar topologies, SAUTER Cloud Services have floated over all our products and solutions for quite a while now – at least visually anyway. It's time we shed some light on this.

## Getting to the crux of the matter

Before "cloud computing" existed, companies had to purchase their own servers, storage and network hardware. In addition came installation of operating systems and software, even individual applications. This was not only expensive, it also required a fair deal of maintenance – not to mention the risks involved with regular updates (both performed and missed). This is just looking at the customer aspect however. Software vendors faced the issue of not all customers being up to date. This meant that vendors constantly wasted time trying to get outdated software to work with new operating systems. They could have devoted their entire resources to developing new functions and versions instead. Our own industry had its challenge of high investment costs. This prevented operators of small and mid-sized buildings from using powerful management levels with bespoke performance reporting. With information lacking, energy-efficient operation of buildings was not possible.

Enter "cloud computing". The emergence of clouds has sparked the reinvention of providing software and storage space – even computing power – as a service. Everything happens over the internet. The modern building operator logs in to the cloud portal via the internet, gaining immediate access to the whole building technology, visualisation of processes and an analysis of process performance. The financial world refers to a shift in capital expenditure from investment proceedings – affecting physical assets and therefore rather rigid and expensive – to more flexible investments and investment processes. In other words, the shift from "CapEx" to "OpEx".

Advantages of SaaS

- Subscription-based access to the latest software versions

- Updates are performed behind the scenes, with no customer input required

- The service is hosted on the provider's server (either proprietary or leased)

- Access is via the internet, i.e. the service is used similarly to standard email or streaming platforms

- Potential reduction in costs, if fixed costs can be spread amongst users

- No major investments necessary. Computing-intensive functions (e.g. analytics) are also available for small and medium-sized buildings

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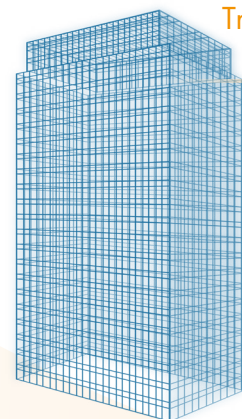
Traditional buildings

Preventive services
Based on calendars and malfunctions

In the macrocosm of cloud computing, an entire ecosystem of software companies now exists. They offer specific subscription-based applications obtainable on the web – "Software as a Service", or SaaS. The corona crisis has given an extra boost to this SaaS sector.
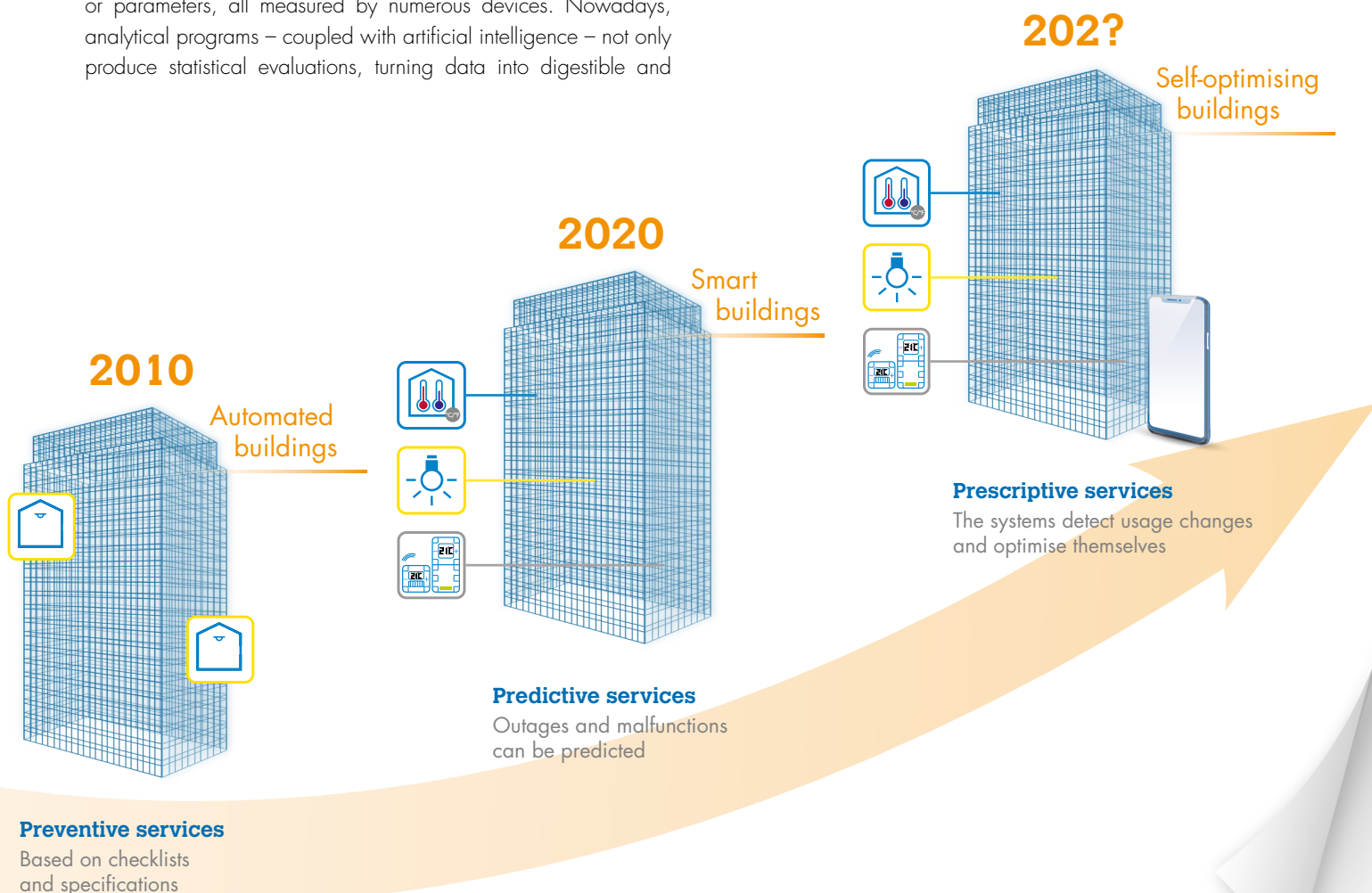
Self-optimisation: the next logical step

More and more companies are thus switching to the cloud and conducting their business online. This creates new commercial opportunities for building automation too. We see how building automation demands ever greater processing power, larger data volumes, and yet, easier operability. The facility is also meant to embed seamlessly in the Internet of Things (IoT), which already interconnects equipment systems and people. Our Smart Spaces demonstration area impressively shows how this can look within buildings (see page 8).

We therefore have unprecedented computing power from the cloud providers on the one hand. On the other, there is a flood of data or parameters, all measured by numerous devices. Nowadays, analytical programs – coupled with artificial intelligence – not only produce statistical evaluations, turning data into digestible and useful knowledge. They also have the ability to control a plant with foresight. We are moving beyond the development of intelligent buildings and entering the realm of self-optimising ones instead.

In product innovations such as modulo 6 and the Smart Actuator, SAUTER has already created hardware attuned to the potential of cloud computing. Even now, smart equipment integrated in IoT can make action recommendations. And our goal is an all-encompassing digital encounter for our customers.

2010
Automated buildings

2020
Smart buildings

202?
Self-optimising buildings

Prescriptive services
The systems detect usage changes and optimise themselves

Predictive services
Outages and malfunctions can be predicted

Preventive services
Based on checklists and specifications

# The new customer experience – software from the cloud

Customer Portal

The building manager logs in to the customer portal by means of a single ID. Here they can access both building installations and software solutions – from engineering to plant control. The manager can call up all plant documents, contracts and invoices. Exporting reports and defining maintenance cycles is also possible. To contact servicing staff, or SAUTER itself, he or she just needs to press the right buttons.

Clear symbols provide an overview of the installation statuses. The manager will find a higher consolidation level in the performance management area.

Performance Management

This is where current and historical data are combined. Scalable computing and storage options provided by cloud computing and advanced analytics can evaluate information currently stored on local servers. This is then used to optimise installations. Even the smallest unplanned component behaviour is considered; the vibration of ventilation dampers or valves, for example. In this case, their constant opening and closing would strain the mechanics, thus drastically shortening their life cycle. Preserving and maintaining hardware, and saving energy and resources, are the key objectives. This consolidated information permits anticipatory optimisation of plants – "prophylactic treatment", to use the medical jargon.

Energy management in the cloud also offers unprecedented options while providing tailor-made reports automatically for customers. Our clientèle will soon be able to see what Advanced Energy Management is capable of with SAUTER Vision Center 7; a forthcoming solution as part of our cloud services (page 16).
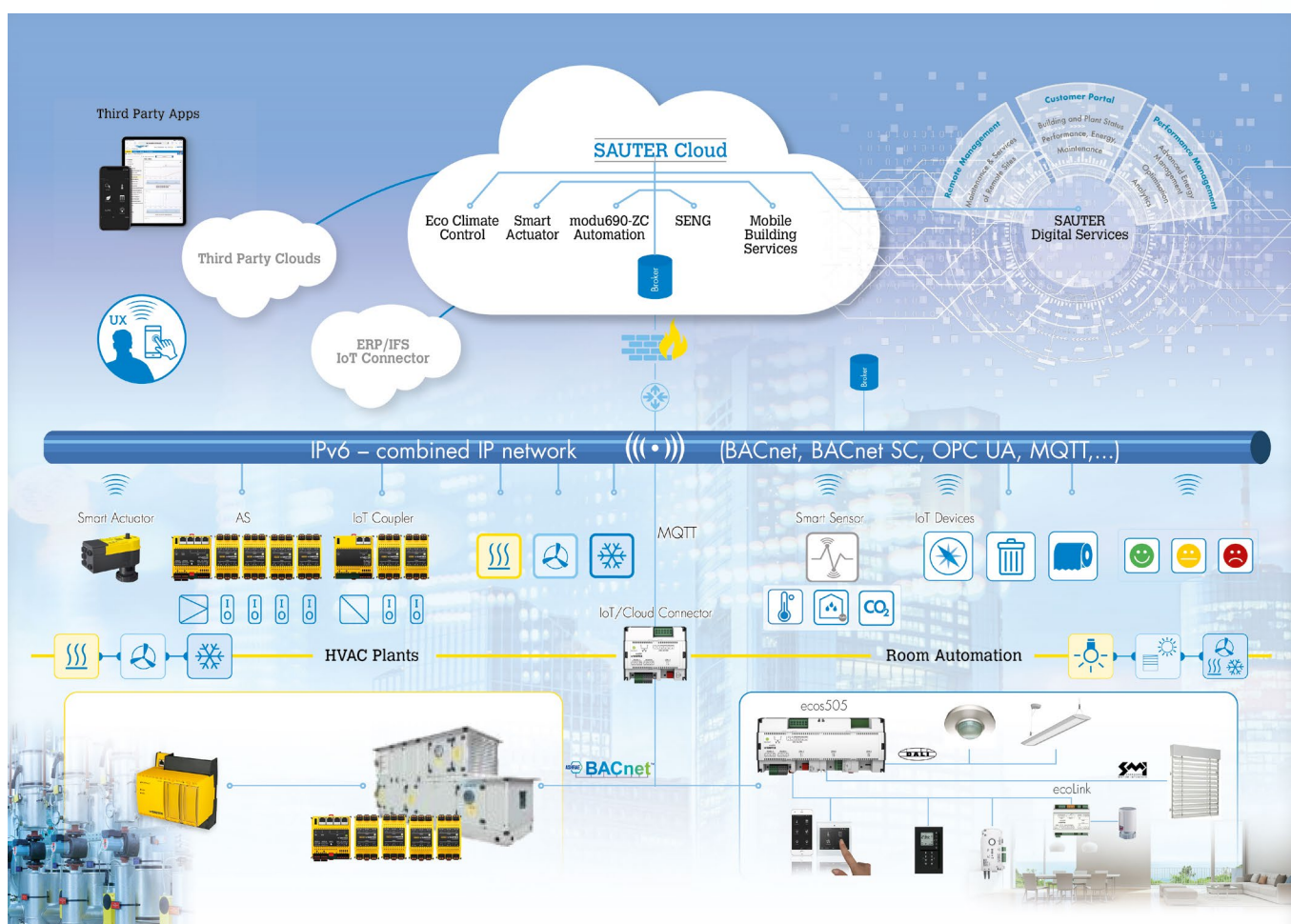
SAUTER Cloud Topology, 2020

Remote Management

The need for off-site installation control increases as building numbers rise and the distance between properties becomes greater. This is not a new necessity, although it has certainly come to the fore in recent months during lockdown. What we deliver with remote management is a completely transparent "site-to-site" connection between SAUTER – or the service technician – and the customer plant. Our remote management solution provides a cloud interface between the customer plant and service technician. The connection fulfils today's cyber security requirements and defines specific user rights and roles.

From a technical aspect, remote management is completely flexible and can access hardware, software and the network. We deploy our engineering tools via the remote management cloud as if on-site at the customer installation. The cloud acts as a relay station, receiving signals and forwarding them automatically. What is more, a standardised internet connection avoids lengthy, cost-intensive and customer-specific configurations.

SAUTER Smart Spaces – next stop: the future

When you step into the lift at SAUTER Germany's head-quarters in Freiburg and ascend to the fifth floor, you arrive in the future. Well actually, it's not really the future being presented in the "Smart Spaces" at all. On a floor completely rebuilt last year, SAUTER is demonstrating what's already possible in the field of building and room automation right now – from demand-led room maintenance to intelligent asset tracking and indoor navigation. And yet, with so many features combined in a single modular system, to most building technicians this really does sound like something from a future age. Within its own four walls, SAUTER is showcasing how this can all be turned into one immersive experience.

But let's start at the beginning. Why do we want increasingly smart buildings anyway? And what's wrong with our existing solutions?

The answer to the first question is easy: as technology progresses, so do user expectations. We want the features of our smart home at the workplace too. That's why today's "smart building solutions" must go beyond just offering classic building automation functions.

While ideas and ready-made solutions abound, they can normally only be used in isolation for very specific tasks, e.g. for heating and air-conditioning rooms, intelligent workplace lighting and sunshading or efficient energy management. The list goes on. Sadly however, for every new function, a new system is necessary – entailing new network components, new interfaces, and new controls. Each function might be practical on its own but keeping track of the entirety and using them in harmony correctly takes matters to a completely new level.

The biggest challenge currently in building automation is therefore to establish a system uniting all building functionalities under a single standard – both those already in existence and those shaping our increasingly smart future world. Besides easier operation, this has another distinct advantage: it enables all networked components to intercommunicate – even across different systems. This spawns completely new functions, making the possibilities almost endless.

A playground for holistic creativity extending beyond building automation

In theory, standardised solutions are often promised, but practical application is usually not forthcoming. With the Smart Spaces development and presentation area, SAUTER is breaking the mould. On the fifth floor of SAUTER Germany's head office, customers can actually experience and rigorously test everything they expect from modern building automation.

The floor can take the form of an open-plan office, a conference centre or indeed have many individual offices. There are corridors, toilets, a cafeteria, technical rooms and a staircase – in other words, a typical office floor simulating wide-ranging customer scenarios under realistic conditions.

Of course, not all functions are suitable for all buildings. And nobody likes paying for needless "extras". That's why the SAUTER solution is a module-based system. Customers pick and choose the features they really need. SAUTER can fashion them into one overarching concept, ready for timely implementation shortly after. SAUTER supplies all the hardware and software components required for networking. These may include the following: room controllers, pre-assembled system distributors, EnOcean and KNX multi-sensors, touch room operating units, mobile user apps and the latest visualisation interface for building automation. If facilities from external providers are also needed, they can be integrated on request.

SAUTER Germany headquarters. If you want to experience the future of building automation first-hand, just press number 5 in the lift. A wealth of information is presented on a clearly laid out floor plan. The colour coding shows immediately where action is required or whether everything is running smoothly.

Facility Management 4.0

One of the major beneficiaries of the new technologies is the facility manager. He or she forms the confluence of all key data and functions. On a digital building plan, for example, they can see various information – rooms or workplaces currently occupied, windows that are open or tilted, fill levels of the soap dispensers and even the supply of toilet paper.

When the predefined usage period expires, the integrated maintenance tool takes over. This automatically generates a cleaning order, emails it to those responsible and tracks it via the ticket system. The lighting is then dimmed automatically to 20 percent, indicating to cleaning staff which rooms need to be cleaned.

Other functions can also be integrated. These may include asset tracking, guard duty, the fire safety view or the SAUTER EMS energy management system.

More convenience for employees and visitors

These smart solutions benefit not only facility managers but all building users as well – from office staff to hotel guests and visitors. Their main concern is convenience, such as being able to control the air conditioning or heating individually via smartphone or finding the nearest printer.

SAUTER is likewise demonstrating the wide-ranging options at its Freiburg headquarters too. Visitors can use their smartphones to navigate the building. There are numerous "Points of Interest" (POI) to choose from, including the training and meeting rooms or canteen – in turn linked to "Location-Based Services", such as the printer mentioned above. Furthermore, visitors receive an individual digital key – also app-based – for opening doors or operating the lift.

Greater rewards for the building operator

If everybody's happy, the building operator's happy, right? A resounding "Yes". But not just because they can bask in the happiness of others: they also enjoy very tangible benefits from their building's additional smart functions. Here operating costs top the list. With "Smart Energy Controlling", for instance, all data pertaining to energy consumption is collected and analysed. This allows any potential savings to be identified immediately and exploited. Technical equipment can also be monitored with sensors – more or less down to the last screw! This significantly reduces maintenance costs and avoids expensive repairs. Efficient building management ultimately means that personnel costs can be cut too.

And there is yet another aspect that should not be underestimated. Today, a building with high energy efficiency and a small CO_2 footprint is a powerful image object. This is also increasingly important to companies that rent office space.

SAUTER is proving that dreams of the future can indeed come true. At any rate, the necessary instruments are already available right in the here and now.

Functions

Indoor climate: While one employee is happy that the office is cool, another is wrapping her scarf around her neck. Someone has a headache from the bright lighting, whereas someone else requires more light. And while one worker likes looking outside to find inspiration, his colleague needs peace and quiet and glare-free light to concentrate. A pleasant indoor climate for everyone is made up of many factors.
With its flexible options, SAUTER room automation creates ideal conditions for any room. SAUTER tailors the room automation individually to the room usage of each customer and building project – whether in an office building, hotel, hospital, shopping centre, school or museum. The room automation can fit seamlessly into the system automation and building management.

Soft services: What do facility management and building automation have in common?
Both tasks need a whole host of components and services for efficient networking. This saves resources, simplifies decisions and streamlines processes – producing a more effective outcome than in a less standardised landscape. Cleaning is customised to office and work space use. After all, employees expect their workplaces to be clean.
Cleaning services are altered to match visitor frequency. This ensures employee satisfaction while keeping cleaning staff and equipment costs down. The cleaning schedule is displayed online at management and operating level on SAUTER Vision Center. It also allows quick documentation and invoicing of the services used.

Fire safety: The fire safety view shows the current occupancy of all rooms. Ceiling temperatures and air quality values are recorded and monitored constantly. They are also displayed in the floor plan. If there is an alarm, fire protection and smoke extraction dampers move to their predefined positions.

In the event of a fire, window blinds are raised automatically to keep escape and rescue routes clear. Escape routes are signalled and illuminated in colour with lighting in red, green and blue.

Security guarding: This records sounds, open windows and people moving in rooms. A clearly arranged display shows statuses of the locking system. Thus, rooms are efficiently monitored when not being used. The night watchman is also alerted to any problems, allowing them to change their round as needed.

Asset tracking: Asset tracking prevents theft, loss and damage. Tracking assets with real-time data aids operational processes and contributes to healthy end results. IoT sensors enable companies to actively track specific information on their assets without human input.

Geofencing alerts managers if assets leave their predefined zones – be they medical equipment in hospitals, flip charts in meeting rooms or cleaning machines in hotels.

Colleague finder: In modern workplaces, everything is connected and networked continuously online. Employees can work just as efficiently from outside the company as from within. Data and applications are easily accessible.

Smartphone apps allow the set-up of smart virtual teams. Through integration in the building automation system and connection with indoor navigation, all employees can see the location and availability of their colleagues. Team leaders can plan their resources efficiently.

Consumables: The building automation system has IoT sensors to manage consumables such as soap dispensers and paper towels. Bathroom use is monitored with vibration sensors via BLE or EnOcean. Anonymous tracking enables targeted control of cleaning while respecting guest and employee privacy.

Digital workplace management: The workplace of the future integrates new digital technologies.

- Room booking systems incorporated in the building automation: rooms are conditioned specifically for their planned usage. Unused rooms are switched to energy-saving stand-by mode.

- Flexible room division with SAUTER 1+1=1

Areas can be adapted to new usage with partitioning. The building automation system responds to the changed configuration with no programming required. This ensures an individual room climate for all zones.

- Users are shown free workplaces in the floor overview on their smartphones. They then reserve the workplace that they want. The facility manager can see clearly on a "heat map" which spaces are currently occupied.

Indoor navigation: Indoor navigation guides employees and visitors precisely to meeting rooms. It is easy to see the whereabouts of guests.

When this is combined with Digital Workspace Management, both employees and visitors can enjoy a new user experience – exact guidance to the reserved rooms, an individual room climate and resource-saving operation.

# How augmented reality increases service productivity

It was certainly a curious phenomenon when an online game, of all things, sent countless thousands of gamers worldwide outdoors on the prowl. After the hype surrounding "Pokémon GO", most people will now be familiar with the concept of augmented reality.

The hype has matured

Technological developments have always influenced how we experience the real world. Augmented reality (AR) blurs the line between human sensory perception and the virtual world. Enhanced information in the form of text, graphics or even sound is added to the visual impressions. In contrast to virtual reality – an experience based on simulation – the "real world" element, and our interaction with it, remains very much in place.

The technology behind this, however, is not just a trend in gaming circles. Augmented reality was already prevalent on the tech scene a number of years ago. Research company Gartner has ceased to refer to it as an emerging technology but as a mature one instead. In fact, on their latest chart of annual hype topics in terms of new technologies, augmented reality no longer even gets a look in!

"While continuing to be an important technology, augmented reality is rapidly approaching a much more mature state, which moves it off the emerging technology class of innovation profiles." (Gartner)
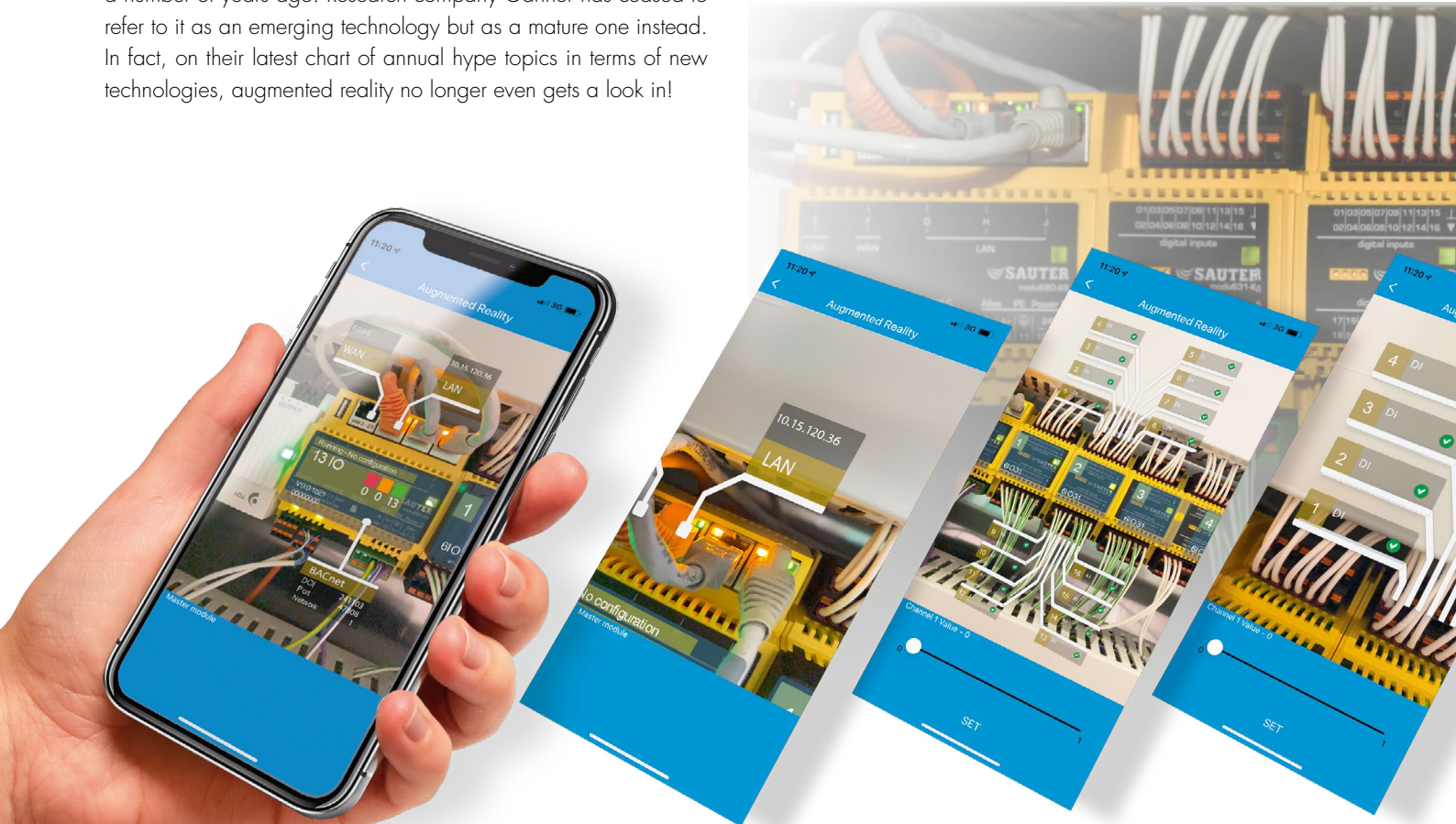
The maturity of the technology is reflected in its many applications – from product development to manufacturing processes or logistics planning, through to marketing of products and services. In retail in particular, using augmented reality not only promises novel shopping experiences, it also offers potential savings through virtual sales areas. Interest from consumers is certainly there.

Furthermore, many companies are still frantically working to see how they can take their brand experience to new levels.

Augmented reality is also being deployed for maintenance and support. Indeed, it has proven itself to be a powerful tool in facility management. As early as last year, SAUTER reported on how it implemented augmented reality in its major QUARTET project (SAUTER Facts No. 37). This example illustrates the benefits for equipment maintenance and repair, and how time can be saved and operating costs can be lowered.

modulo 6 app with AR function

The modulo 6 system family features the latest-generation building automation systems from SAUTER. Automation stations are embedded in the "Internet of Things" for intelligent buildings, with operation fine-tuned by dovetailing the various systems for heating, ventilation, air conditioning, lighting, window blinds and energy.

When developing products, SAUTER's top priority is ensuring that devices are consistent and as user-friendly as possible – hence the obvious decision to combine augmented reality in modulo 6 with its existing intuitive operation.

And this is how it works

It essentially functions in the same way as the current modulo 6 app for iOS and Android. When the app is activated, it detects any available devices, i.e. automation stations. The user accesses the augmented reality function via the main navigation. They then have the option to point their mobile phone camera at the selected automation station in the cabinet. This will allow all the connections, real-time values and signal labels to be displayed on the mobile phone screen exactly where the automation station has captured the data. This does away with the need to perform any time-consuming labelling.

Values can be altered easily on the touchscreen – without switching to the app's service system. What's more, all adjustments made by the technician are registered in real time.

Until now, signal labels were often updated inadequately – if at all – after repairs or conversions were carried out. On the mobile phone screen, such labels are recognisable at a glance. modulo 6 and augmented reality enable operators and maintenance services to view the correct and most up-to-date information – whenever and wherever needed.

This technical opportunity centres on people: the augmented reality application also helps end users achieve their personal work targets without requiring expert knowledge about how tracking works. They can then focus all their attention on the key values and hence work towards optimising them.

Benefits of augmented reality for maintaining modulo 6

- No special previous knowledge is required
- Personal devices are used
- Information is obtained faster, more easily and more intuitively
- Maintenance times are shorter
- Idle and troubleshooting times are reduced

Service team productivity is increased and the quality of customer service is improved

Further information about modulo 6:
www.sauter-controls.com

Highlights of the latest BACnet certifications

It may be invisible but the BACnet standard is indispensable in building automation. It is by far the most widely used communication protocol in the industry today. Put simply, the protocol defines the rules for when data is exchanged between each component in heating, ventilation and air conditioning (HVAC).

All devices use BACnet as a common, homogeneous data protocol – from sensors and actuators, controllers and automation stations to the management and operating level. BACnet thus forms the backbone of the data exchange in a building automation system. From the very beginning, the universal "device language" was manufacturer-neutral and open (licence-free), enabling compatibility between different makes of equipment and software. This means that even highly diverse plants and premises remain manufacturer-independent, allowing flexible planning and actions in future too.

How do you spot BACnet conformity?

The BACnet standard takes the shape of ISO 16484-5. Due to the rapid advances in building management and information technology, this international standard is constantly being refined. Whenever the protocol is revised the range of available functions is extended.

Device manufacturers are essentially under no obligation to perform a BACnet test or certification. Certificates, however, are a precondition for project tendering because they ensure interoperability and hence planning security and investment protection. Furthermore, certificates allow project planners and building owners to make comparisons which is ideal for projects involving multiple manufacturers.

The certification programme of the BACnet Testing Laboratories (BTL) bestows companies with a certificate of conformity (inclusion in the BTL list). The certificate confirms that the range of functions documented is compliant with the standard and the BTL logo indicates this.

"BACnet is the dominant protocol in building automation and is thus enormously important for our business. By participating in the committees we can play a key role in the further development of this successful standard."

Christoph Zeller, Senior Engineer, Applied Science, SAUTER Group and Spokesman of the BACnet Advisory Board

Our commitment

SAUTER products, solutions and services in building management have received numerous certifications and awards. Vendor ID 80 makes us one of the first European manufacturers to have deployed BACnet standard-based products. All BTL-certified products from SAUTER are officially registered at: bacnetinternational.net/btl

Being a member of the BACnet Interest Group Europe (BIG-EU), SAUTER is actively involved in how it develops further. Our company has expert representatives in various international BIG-EU working groups. The aim of this community is to promote the standard. It also seeks to enable the public exchange of data and ensure compatibility between building automation components. What is more, constructive feedback from users and implementers is incorporated as the standard is developed further.

The invisible becoming visible – two new BACnet certificates for SAUTER

In May, SAUTER qualified for two new certificates. Here is an overview of the benefits for our customers.

modu680-AS certificate as per revision 16

The modu680-AS building automation station is used to regulate, control, monitor and optimise HVAC operating installations. It is part of the new SAUTER modulo 6 system family and features an integrated web server. It therefore assumes the role of BACnet server in system operation, i.e. making data or services available to other devices (BACnet clients). In terms of storage space, processing speed and number of objects, it surpasses all of our company's previous automation stations.

Certification according to BACnet standard revision 16 not only confirms compatibility with third-party equipment. It also means that the detection of faulty measuring signals is improved. Limit monitoring of the readings in the data point objects allows measurement errors to be automatically detected, marked and reported – with no additional programming whatsoever. With modu680-AS, users can also effortlessly switch alarms on and off for specific receivers via their BACnet client.

BACnet certification as per revision 16 is a quality feature which stands out from the current product range. The certification relates to "Profile B-BC" in line with revision 16.

SAUTER Vision Center certificate as per revision 18

The HTML5-standard, web-based management and operating level allows plants to be operated and visualised using standard web browsers, regardless of location or system. Since its introduction in 2014, SAUTER's building management solution has already been installed more than 2,100 times globally – in individual buildings, real estate complexes and widely dispersed building premises.

Besides extensive building management functions, SAUTER Vision Center also includes energy and maintenance management for optimally steering and continuously analysing efficiency measures. The BACnet certificate guarantees that any BACnet devices from different manufacturers can be connected together which is predominantly the case for projects and properties with mixed infrastructures that are subject to constant upgrades.

The BACnet client with the B-XAWS profile combines heating, ventilation and air-conditioning functions with the functions for lighting, access control and security. It enables a single system to operate and monitor all installation types.
The system also provides security by assigning alarm messages to different classes. Vital or business-critical plants can therefore be granted top priority, for example, with messages sent instantly by the system as appropriate. Moreover, it is possible to regulate access to the building or premises by issuing authorisations.

In specific terms, this corresponds to the following four profiles:
• BACnet Cross-Domain Advanced Operator Workstation (B-XAWS)
• BACnet Advanced Operator Workstation (B-AWS)
• BACnet Advanced Life Safety Workstation (B-ALSWS)
• BACnet Advanced Access Control Workstation (B-AACWS)

SAUTER Vision Center 6.3 is the world's first BACnet client to meet the requirements of a revision 18-compliant Cross-Domain Advanced Operator Workstation.

Update announcement: SAUTER Vision Center, version 7

Superior room comfort will benefit building users first and foremost. Building operators also profit from the underlying technology and know-how. This is because experienced engineering and secure investments in technology and software solutions can preserve a building's value. Furthermore, resource-optimised operation is ensured. SAUTER Vision Center 7 integrates both Advanced Energy Management and innovative, user-oriented operation.

Whether building a new hospital, converting individual rooms in an office building or even repurposing entire spaces – if plants are not matched to effective demand, operating costs can spiral out of hand. Operators, energy managers and investors know that, once an installation has been tested and accepted, its efficiency can very rarely be maintained. Only knowledge of the processes and ongoing adjustments can optimise consumption and preserve the cost-based value of a building.

SAUTER Vision Center, SAUTER's building management system, has already been installed more than 2,100 times around the world. The trusted management and operating level enables plants to be operated and visualised – regardless of location or system. The universal building management system features many strengths, including: integration of different functions, web-based access and high-level flexibility and scalability. Its continued refinement is also part of its success (you can learn more about the BACnet certifications on page 14). We have previously reported on the use of SAUTER Vision Center in numerous reference stories, so let's now take a look at the latest functions and extensions being launched with SAUTER Vision Center version 7.

Fully integrated – Advanced Energy Management for data evaluation

The program's own energy management system has been added to the building, maintenance and room management – this is the pinnacle of the forthcoming SAUTER Vision Center update in a nutshell. SAUTER Vision Center is thus a fully integrated "one-stop shop", i.e. a single platform providing all the services required for plant optimisation.

Allow us to illustrate the added value by looking at energy managers' day-to-day work. Their duties include viewing a multitude
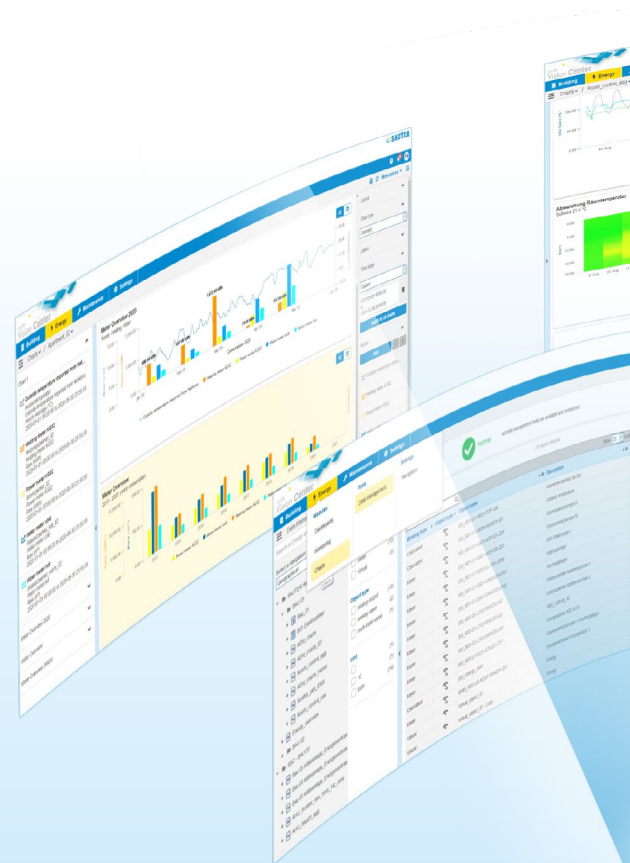
of different KPIs, charts and tables to gain a picture of a building's actual consumption. This in turn forms the basis for purchase plans and improvements in energy-related services. On the one hand, this represents a systematic approach. It is, however, also necessary for energy management certification in accordance with ISO 50.001 and energy audits as per ISO 50.002. Manual inspection of a flood of energy data is replaced with processes automated by SAUTER Vision Center 7. The system uses algorithms to recognise operating patterns, highlighting peculiarities to which an energy manager can then attend. Operating pattern recognition runs in real time. New data evaluation functions, known as analytics, use it to compare the measurements available – setpoints or long-term recordings, for example.

Make it simple!

Previous versions of SAUTER Vision Center already featured customisable dashboards and user-specific task areas. Newcomers to the advantages of the system will be delighted by the updated entry page – building management has never been so easy for

managers and operators, regardless of the size of installation, building or property:

- Overview of the building/building complex using photos, maps and navigation
- Messages adapted to the system's functions
- Traffic light system for the status of plant operation
- Current energy requirement based on defined KPIs

Find it, fix it, share it!

This reduced overview provides more sophisticated energy management charts. Here, critical values or dashboard messages can be analysed in depth. Last but not least, there are analytical representations to assist when deciding what, or whether at all, to optimise. SAUTER Vision Center 7 offers scatter diagrams, carpet plots, histograms (frequency distributions) and SANKEY energy flow diagrams. Dedicated energy management navigation, and individual dashboards and chart views, clearly organise these visual analysis aids. The system therefore always presents to the user the information currently requiring attention.

The tailored navigation structure, available in every window, allows rapid intervention in operations if necessary. Pre-defined reports – suiting the recipient – are compiled automatically within in the system. Greater transparency is created for energy managers, building operators and owners. What is more, this results in the building management becoming more efficient.
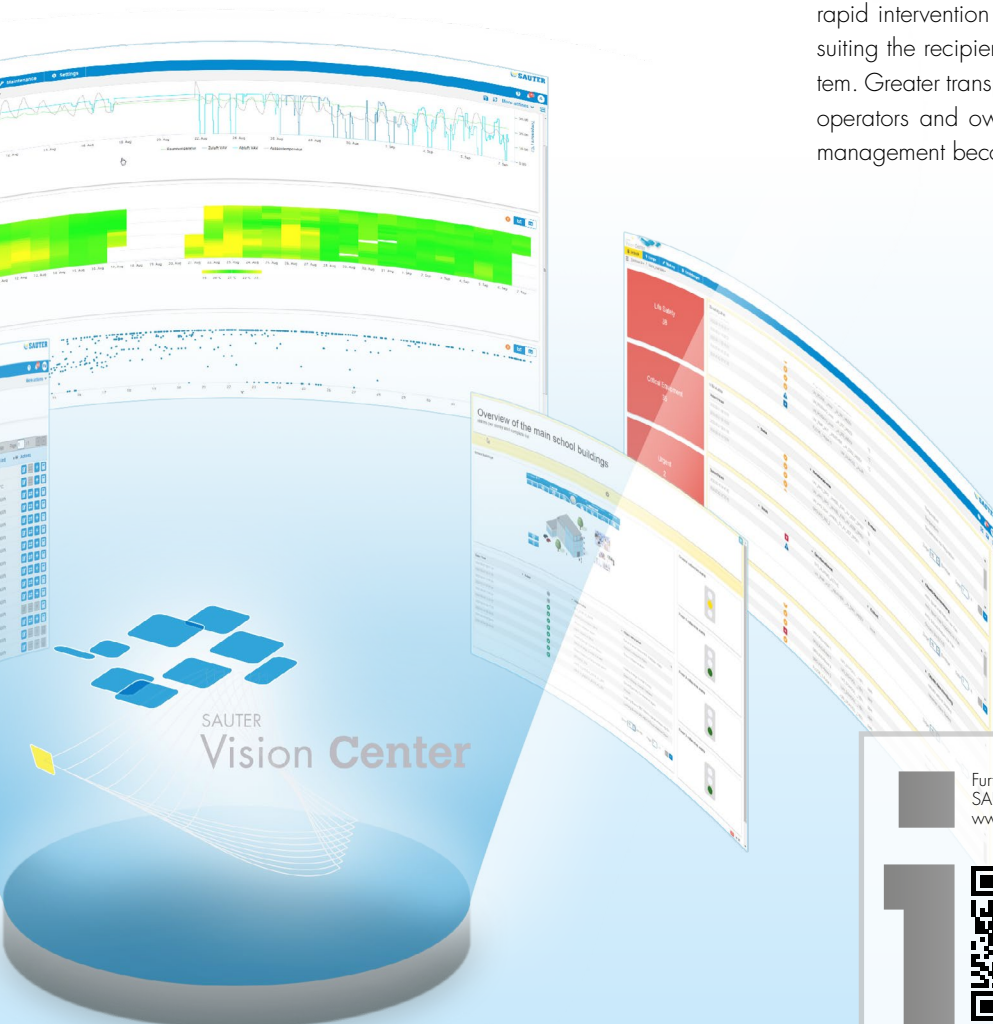
Further information about
SAUTER Vision Center:
www.sauter-controls.com

Sneak peek:
A look at development at SAUTER

Building automation is continuously adapting and using pioneering technologies. Innovative solution providers are deploying the cloud, blockchain or augmented reality. Responsibility for building management should involve being able to unleash the full potential of state-of-the-art developments in equipment and software. Developpers at SAUTER are working on a web engineering software from the cloud.

The challenge: To streamline engineering

A whole range of solutions are on offer. There are many options available to building technicians when installing and commissioning building management systems. The benefits are enormous too. The reason for this is, alongside functions and features supporting projects, these solutions provide libraries with example applications. This allows you to put together your own plant.

However, this does not come cheaply – today's software solutions require know-how and programming for system integration and extending your existing installations. Shouldn't smart building management of the future make this easier and faster?

Programming replaced by configuration

Software developers at SAUTER are pursuing exactly this vision in the "SENG" (SAUTER engineering) project. Here, web engineering software for the modulo 6 automation station can be accessed through the cloud.

SAUTER has already accumulated valuable experience in this regard. SAUTER CASE Suite is a tried-and-tested software package for programming all manner of building automation products. Building requirements are compiled from the extensive application library, a resource successfully proven through direct interaction with international clientèle. To manage this task, specialists are on hand to provide assistance.

SENG has given SAUTER the goal of placing planning, construction, commissioning and refurbishment in the cloud. The project data and application library are now available round the clock. Individual programming of automation stations is significantly reduced through simple menus and automatic visualisation. This greatly simplifies project set-up and increases project attractiveness. The entire procedure is thus less time-consuming and frees up technical specialists.

SAUTER ⌄

▼ Channels

\# SENG

SENG

Development 11:24

Our vision:
The engineering process in four simple steps

1

2   3

4

1. LIBRARY
A solution is selected from the library.

2. CONFIGURATOR
The plant is set up using templates in the "Quick Configurator". Simple uploading of individual templates via drag & drop.
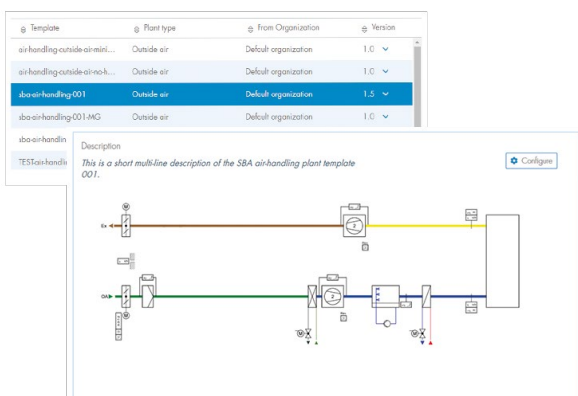
3. DOWNLOAD (ONLINE)
The project data is loaded onto the automation station.

4. CLOUD
Project data is available via the cloud for incidents, servicing or the extension of an installation.

Networked buildings –
more efficiency with MEMAP

An eco-friendly energy supply with reduced energy costs: the "Multi-Energy Management and Aggregation Platform" (MEMAP) research project is investigating how these two positives can be combined. The project allows companies and research institutions to develop an open software platform, intelligently networking buildings and their energy generators. As a leading solution provider of building automation technology, SAUTER is also fully on board.

Buildings within the European Union (EU) account for around 40% of energy consumption and 36% of CO_2 emissions. The EU's declared goal is to decarbonise the building sector by 2050. This energy turnaround can only succeed if buildings exploit efficiency potentials and integrate renewable energies. The plan is to achieve this with a "Smart City" where a district's buildings are internetworked and generate energy themselves.

This represents a special challenge. In conventional energy networks, a central generator supplies consumers and the hierarchy is clearly defined. In a decentralised energy network however, buildings may be both producers and consumers so their individual tasks constantly change.

Continuous swapping of these roles is a major hurdle which the MEMAP project aims to overcome, using intelligent algorithms that coordinate energy flows.
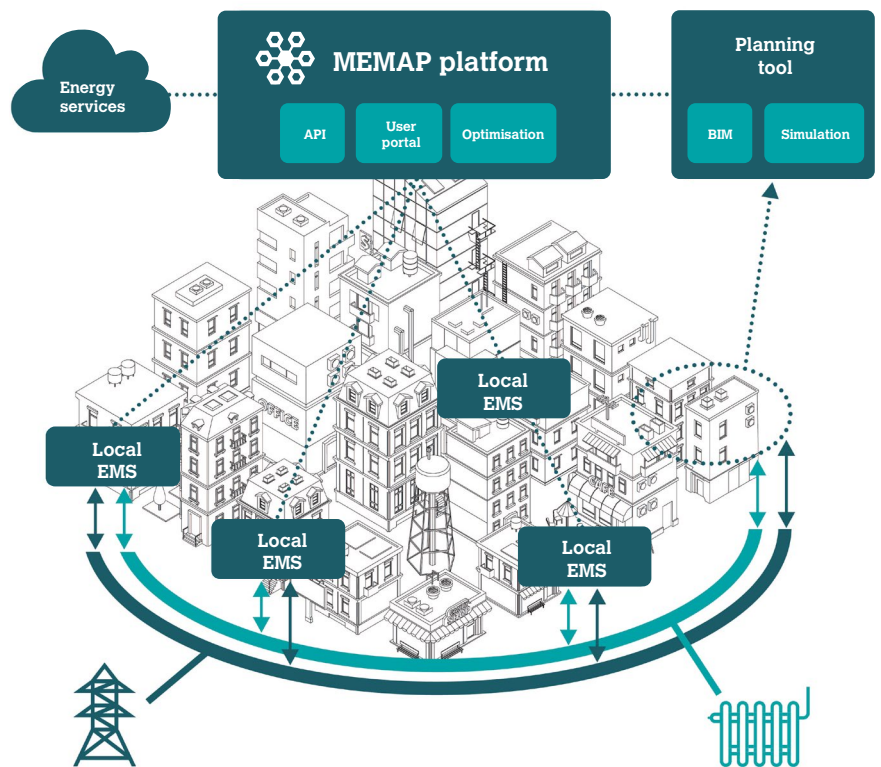
MEMAP in a nutshell

The MEMAP (Multi-Energy Management and Aggregation Platform) project focuses on the development and testing of an open aggregation platform with software interfaces that networks different buildings in a neighbourhood. The aim: to make synergy effects visible and economically usable in energy-optimised aggregation, to improve the efficiency of energy supply, and to save CO_2.

Schedules for optimum system operation

MEMAP connects the control and regulation units of the buildings' installed generators. By providing system status data and forecasting energy demand, it calculates a schedule whereby plants are optimally run. Intelligent optimisation ensures the system reacts to fluctuating energy demand and generation. Local control systems and plants are then instructed by the schedule to duly switch on or off. This all takes place relatively frequently, demonstrating how energy industries could function in real time.

The researchers have designed a fictitious energy network to determine potential savings through MEMAP. This network contains five typical residential and commercial buildings. They generate energy with different technologies and use both batteries and buffer tanks. Two scenarios have been created. In the first, the buildings provide their own heating and power supply while, in the second, the generators are networked via MEMAP (see Figure 2).

The results show that the planning tool gives preference to efficient plants for providing energy, with these plants also supplying neighbouring buildings. Greater use is also made of the energy storage systems in the network. Excess electricity is not only stored in the battery. A heat pump in one of the buildings also converts it to heat which is then stored in each of the buffer tanks.

At the same time, the combined heat and power plants (CHPs) feed surplus electricity into the battery that is otherwise unused. This takes place during the morning and evening hours when there is increased demand for heat and the sector coupling is fully exploited.

Fig. 1
The MEMAP platform networks a district's buildings using their installed local energy management systems (EMS).
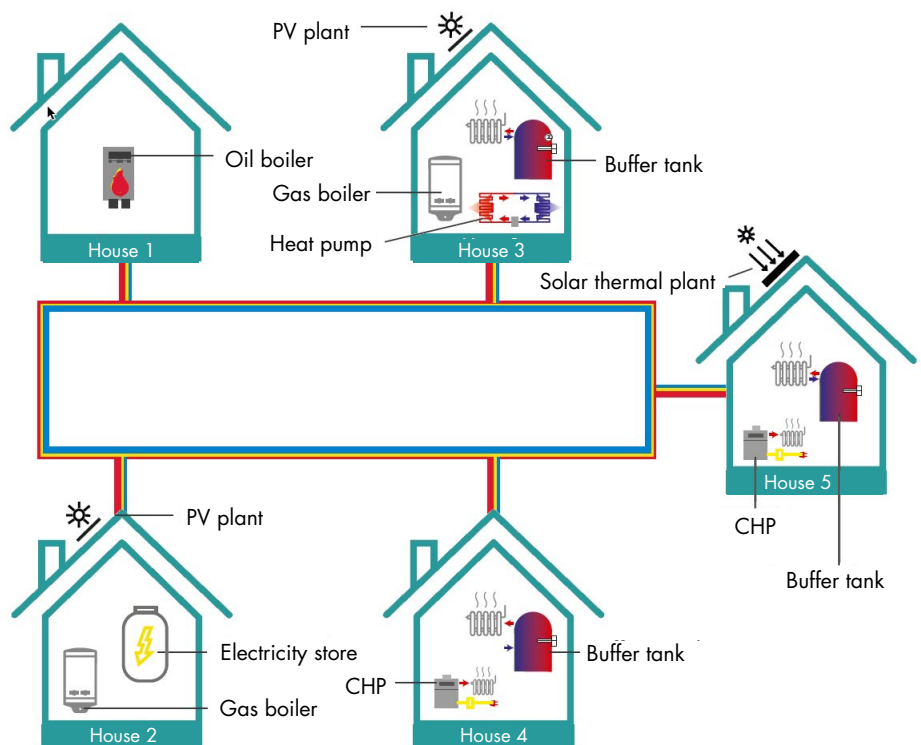
Fig. 2
Example energy network comprising five residential buildings with different energy generators and consumers.
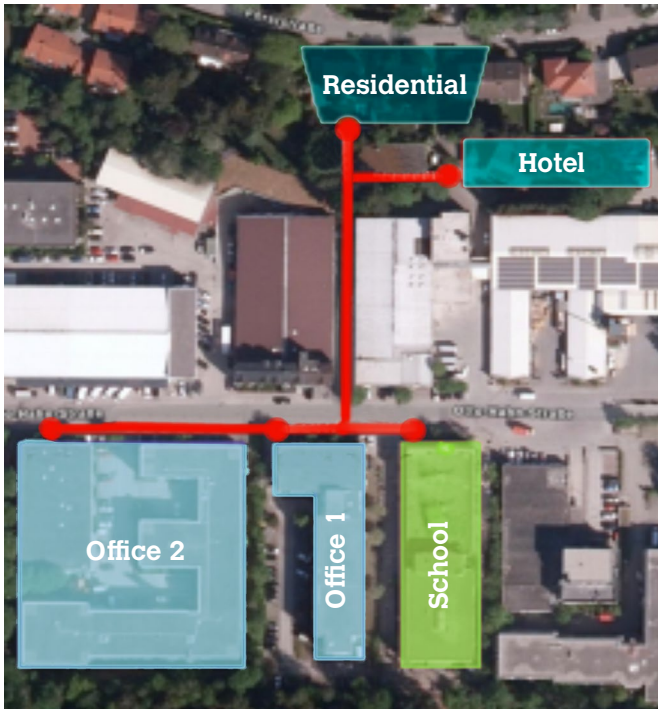Source: fortiss GmbH

							MEMAP optimisation	
						Total	Costs	CO₂
Costs	48 €	17 €	223 €	224 €	200 €	712 €	528 € (-25.8%)	670 € (-5.9%)
CO₂	126 kg	90 kg	898 kg	722 kg	680 kg	2,515 kg	2,558 kg (+1.7%)	1,977 kg (-21.4%)

Model predictive control

The results (table) show the optimisation values possible, depending on the goals and mode of operation. At the heart of MEMAP energy management is a control procedure to calculate the future behaviour of a process – factoring in several dependencies. This is known as "model predictive control" (MPC). Control variables of complex systems are optimised over a forecast period. The goal is to minimise a target function (e.g. energy costs or CO_2 emissions). The enormous potential of MPC stems from being able to consider system constraints such as temperature or generation limits. If costs are at the forefront, for example, further restrictions on CO_2 emissions can be set. Time dependencies – as caused by storage systems, etc. – can also be modelled accordingly. Furthermore, it is possible to process forecasts for prices varying over time.

MEMAP also allows energy calculations to be made for districts either being planned or extended. The technical installation data can be entered with a planning tool or imported directly from a Building Information Model (BIM).

Practical test at the Technical University (TU) in Munich

The MEMAP platform is also applied in the CoSES (Combined Smart Energy Systems) research laboratory at TU Munich and thus in real plant operation. The lab has various building-typical generation and storage systems. They are interconnected by both a real low-voltage network and a heating network.

The field level controls are integrated into MEMAP using an "OPC Unified Architecture" interface. The tests aim to show the functionality of the platform itself and of the communication structure via OPC UA – all while interacting with real plants. The tests also seek to verify the possible savings that are calculated.

Furthermore, the CoSES laboratory can highlight special features of the model predictive control algorithm. These include intelligent use of variable price signals and the resulting adjustment of plant schedules. Safety-relevant operating scenarios – such as generator failures or faults in the infrastructure – are also placed under the spotlight.

As a leading supplier of building automation systems, SAUTER is putting the research findings to good effect. The project offers, in particular, insights into fast and secure communication and how complex IT-controlled processes are performed. These will also make their way into SAUTER's own product and software solutions.

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CoSES research laboratory at TU Munich

Further inormation about MEMAP:
www.fortiss.org

"Connected Retail" – Decathlon's recipe for success

Decathlon is expanding worldwide. The sports chain retailer anticipates shopping needs of today's consumers and has implemented online trends right from the start. "Connected Retail" creates a seamless shopping experience between digital and stationary retail. With technical building management for shops as well as logistics and service centres, SAUTER FM is supporting the market leader right across Germany.

The sporting goods business is booming. Remarkable growth figures are forecast worldwide for this market segment. The health sector megatrend which is increasing consumer health awareness has been ascribed as the reason. Such social trends are always driven by various factors. In this case it is the burgeoning purchasing power of the global population and widespread government support for health and fitness activities. Although the number of sports and leisure products being sold over the counter has never been greater, another megatrend is presenting a major challenge for retailers – online retailing.

Over 100 different sports to be experienced interactively

To ensure their survival in this changing industry, sporting goods stores are also having to adapt their sales concept. This was already apparent before the Covid crisis with consumers increasingly avoiding specialist retailers, for example, and as a result many large sports chains in Germany were facing difficult market conditions.

Decathlon has bucked the trend. The French sports goods manufacturer and retailer has been expanding its network globally. Even now, the process seems far from complete and it is already leaving the competition miles behind. In Germany alone, 16 outlets were opened last year, bringing the total nationwide to 80 stores. And the concept? Quality goods at "winning prices" in large, no-frills sales areas. Customers are also invited to try things out there and then. Items for 100-plus sports are presented within easy reach with specially designated areas for testing right in store. Young and old are encouraged to try their hand at new sports with no obligation. A number of the market leader's outlets even have something for both professionals and beginners alike – a basketball court on the roof or a virtual golf course (in the UK).

Mastering the retail challenges through innovation

Establishing logistics and service centres in local markets is part of the expansion strategy. This includes Germany. Customers benefit not only from accurate stock information, but also online ordering with free delivery within 24 hours and to any branch ("click & collect").

Decathlon Germany's "Connected Retail" programme saw the company cater for retail via different channels right from the off. Their

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Relying on SAUTER Facility Management throughout Germany

The room climate can have a pivotal effect on the shopping experience. Who wants to don additional sportswear to try out a new sport in warm and stuffy surroundings? Employees, customers and all other conceivable visitors to a building simply expect the technology and safety equipment to work efficiently. Depending on requirements and size, low-level to highly complex building automation solutions may be needed. Once installed, there is hardly any downtime. Regardless of property size or system complexity, a plant usually has to be checked, optimised and maintained whilst running. Ever-changing rules and regulations must also be considered. This is the remit of the technical building management.

It thus stands to reason that building operators want trusted partners that they can rely on. Above all, building operators are looking for first-hand service, a reliable contact person for all divisions and geographical proximity with short communication channels, etc.

Cooperation between Decathlon Germany and SAUTER began with facility management of a branch in Wallau, Hesse State. Here SAUTER was first able to impress with its wide-ranging services and technically experienced staff. Following Decathlon's rapid expansion plans, the scope of services has also massively increased nationwide in the last two years. Decathlon's maintenance management faced the challenge of building a network of partners familiar with different types of buildings and facilities.

With many years of experience to turn to, SAUTER FM could offer the depth of in-house expertise and flexibility called upon. In more than 60 branches, two logistics centres and one service centre belonging to Decathlon Germany, SAUTER FM is charged with ensuring that the building technology functions like clockwork. The whole spectrum of services is provided – initial consultation and commissioning, system and data recording and inspections, through to duty technicians and troubleshooting. Maintenance is also performed by expert staff on site, thereby creating seamless transitions. SAUTER's facility management not only guarantees a pleasant climate inside dozens of branches. It also provides optimum ambient conditions in the Decathlon warehouse and service centres as they assist in the company's expansion on the German market.

online sales share in 2019 was upwards of 20 percent – and the trend is rising. Visitors to the website take inspiration, for instance, from reports and tips on personal experience and while the Decathlon branches remained closed this spring, consulting was still available online through chat or WhatsApp. With a live shopping trip out of the question, Decathlon's German subsidiary also offered a convenient and secure "click & collect" solution for picking up items ordered online. And the omni-channel brand experience is rounded off nicely – Decathlon apps to analyse training sessions for different sports and even music playlists on a streaming service.

Some new openings planned for 2020 have had to be put back and some expansion plans have been adjusted. There is, however, so much more that differentiates Decathlon from the competition. And if 2020 has highlighted anything, it is that the health trend will likely become even stronger.

Southbank Place: Redevelopment in one of London's oldest cultural hubs

© Canary Wharf Group plc

Sauter Automation Ldt. has completed the design, installation and commissioning of the controls package for Southbank Place, a unique mixed-use development at a premium location in the city of London.

London is a capital of superlatives. The city's construction and urban development undertakings are no exception: Decades of growth have left almost no area, or "borough", unchanged which is most evidently demonstrated by the ever-changing skyline. Even without comparison, the impressive number of cranes swivelling across the cityscape makes every visitor a witness of this place's transformation. In fact, no other part of the UK has seen more tower cranes in the past few years – adding to the list of superlatives.

Southbank Place: Redevelopment of the Shell Centre

In the very heart of London, situated on the south bank of the River Thames, only a stone's throw away from the iconic London Eye, and one of the city's most popular visitor attractions, an outstanding construction project is nearing full completion: Southbank Place. On a challengingly tight plot with 20,000 square metres Braeburn Estates, a joint venture between Qatari Diar Real Estate Investment Company and Canary Wharf Group plc, realised a major development project. The new site incorporates two blocks of high grade offices, five residential buildings, various restaurant and retail units, as well as a refurbished and modernised western entrance and ticket hall of Waterloo Underground station.

The project's objective was to revitalise the area with high quality architecture and much improved public spaces. Originally the UK location of oil company Shell, the 9-storey horseshoe-shaped block had to make place for the new mix of buildings while the signature Shell Centre Tower remained the centrepiece of the site. The new site integrates attractive public areas such as an open space square and new pedestrian routes connecting the surrounding, which benefits not only residents but the whole neighbourhood.

A complex project in an unparalleled location

The development plan of Southbank Place included a highly efficient energy centre in order to reduce the carbon footprint of the site. Sauter Automation Ldt., SAUTER Group's subsidiary in the UK, was appointed to develop the design, and undertake the installation and commissioning of a building automation system in all of the buildings at Southbank Place. The quality of living and working offered by the state-of-the-art facilities completes the phenomenal design by leading architects.

Naturally, construction projects in city centres are presented with numerous challenges to overcome. In this case, Southbank Place's constrained plot, incorporated Waterloo Underground station as well as four tube tunnels underneath the construction site which presented some logistical challenges. This could only be achieved with a time-critical project programme and a relentless pace that required all suppliers to work as part of a collaborative team to deliver the project. At its busiest, the site contained around 1,500 operatives.

However, what might have made construction complex was ultimately helping to draw in property purchasers: unparalleled location. The development provides direct access to transport links, proximity to the Thames, and one of the best views of the city for the thriving community of South Bank. With a long-standing reputation as London's epicentre of culture and creativity the area wasn't always considered an ideal destination to live or work, but due to its ongoing transformation it has become popular for a mix of people ready to be part of this megacity's next superlatives.

SAUTER's contribution

From the early stages, Sauter Automation Ltd. has worked very closely with Canary Wharf Group which gave them a very clear understanding of what the customer was trying to achieve on this project. The approach taken and their continued attention to every element of the programme were key to the timely completion of the two buildings, One and Two Southbank Place.

The product employed on this project is the SAUTER modulo 5 system which meets all the challenges posed by an open, modular and cross platform building management solution. The technology is entirely based on the open BACnet/IP communication protocol via Ethernet and any other existing IT networks. It allows for the complete exchange of data for complex building management functions, including air conditioning, with pinpoint accuracy as well as convenient room automation, all integrated within a single, scalable, system.

SAUTER Vision Center allows FM managers to access comprehensive live data and performance figures for both buildings and which encompasses the management of building, energy and maintenance functions.

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Montélimar Hospital: Emergency on France's sunshine route

Since 2009, the building automation at Montélimar Hospital has been extended gradually and adapted to changing needs. SAUTER components and systems ensure excellent reliability in day-to-day hospital operations and emergency situations such as the coronavirus crisis.

Every year it starts in spring and continues till autumn – during the summer months, the Montélimar rest area is as busy as a Parisian department store in the run-up to Christmas. Vehicles in their tens of thousands stop on their way along the "Route du Soleil", connecting the centre of France to the Med. This year, everything was different. Far from its almost hundred thousand visitors, Europe's busiest rest stop was virtually dead during this year's Easter holidays. In stark contrast, crowds thronged just a few kilometres to the north. A state of emergency had broken out – at the Groupement Hospitalier Portes de Provence, or Montélimar Hospital for short. The first wave of the coronavirus was making itself felt around the world. Here in south-eastern France, however, the number of serious Covid-19 cases had already exploded by March. The region's health facilities were rapidly pushed to their limits.

Hospitals worldwide in the spotlight

Hospitals did all that they could to master the situation. To increase admission capacity in ICUs, walls were moved and emergency wards equipped with extra beds.

At Montélimar Hospital, a crisis cell was convened, consisting of management, support, logistics and technical services, to adapt hospital organisation day by day. Staff numbers were ramped up to a maximum. This was especially true of the hygiene service, responsible for cleaning the premises and maintaining stocks of protective equipment. It had to ensure constant compliance with government recommendations changing over the weeks – sometimes even from one day to the next.

Building automation assisting in the crisis

Parameters such as temperature, humidity and air circulation – controlled and monitored centrally – affect the spread of pathogens in the air. This means that building automation can also help protect against infection. The measures taken to contain the corona pandemic reflect the importance of responding flexibly to changing requirements. To monitor Covid-19 patients, some hospitals set up rooms with negative pressure. Contaminated air can thus be kept in the room before a controlled discharge is performed.

Outlook – the new "normal"

As the summer holidays commenced, towns in Provence and on the Côte d'Azur gradually filled with tourists again. Major events however, like Montélimar's annual lavender festival, have had to be postponed this year. The local hospital is following closely how the crisis further evolves. It is expected that the facility will remain on alert until September 2021.

© Groupement Hospitalier des Portes de Provence

Aerial view of the Montélimar hospital

Many years working successfully together

Building automation in hospitals has a challenging task. Different areas, such as operating theatres and patient wards and rooms, have varying heating, ventilation and interior climate requirements. To ensure reliable medical care around the clock, however, installations must remain fully functional. Building technology problems in building complexes such as in Montélimar thus need to be located and rectified quickly.

In 2019, the Portes de Provence clinic group modernised and expanded its emergency facilities. During the project, SAUTER Vision Center (SVC) was selected as the building and energy management system for the entire hospital. Centralising all the data in SVC marks the peak of eleven years' successful collaboration. The building automation has been gradually enhanced – from installation of the novaPro32 building management system in 2009, integration of the moduWeb Vision visualisation software and finally culminating in SVC. Various modulo-series automation stations have been used in the clinic group's plants. Backwards compatibility has therefore played a pivotal role. BACnet – the standard independent of system and manufacturer – has been deployed and moduWeb Vision connected directly via web services. This has enabled integration of all devices in the current software generation.

Evaluating 15,000 variables in SAUTER Vision Center guarantees the reliability necessary in Montélimar. If an error occurs – when monitoring and visualising sensitive rooms, for example – the system delivers a precise, real-time report with error type and location. Building managers can call on technicians to swiftly resolve any problems. System scalability was also a key factor in opting for SVC. On-site extensions are easily performed and more projects are in fact already planned. What is more, a maintenance contract with SAUTER gives managers peace of mind as to the systems' constant, trouble-free operation.

Ušće Tower Two: BREEAM "Excellent" certification

"Ušće Tower Two" in the north of Belgrade is visible from far away. It's not just a symbol of Serbia's prosperous economy. Awarded the BREEAM certificate, it has also set new standards in energy efficiency. SAUTER's know-how was a major factor in this. A special feature is the ventilation system integrated in the façade: this building "breathes".

Serbia is booming. Although the International Monetary Fund expects a decline in GDP for the country in 2020 due to the coronavirus, the economy is expected to pick up strongly again the following year.

"Ušće Tower Two" is proof of this promising outlook, in the truest sense of the word. With 22 glazed floors, it offers an unobstructed view over the surrounding region – a charming river landscape in the north of Belgrade characterised by the confluence of the Sava and the Danube.

Excellent sustainability

Not only the location but also the building itself is "excellent". Having been BREEAM-certified in this category, the high-rise building is officially entitled to use this rating. BREEAM stands for Building Research Establishment Environmental Assessment Method. It is both the oldest and most widespread evaluation for sustainable building.

SAUTER's know-how – called upon by investor MPC over the past 15 years now – played a key role in the award being given.

BREEAM – a certification system for sustainable building

BREEAM (Building Research Establishment Environmental Assessment Method) is the longest standing and most widely used method for assessing, evaluating and certifying the sustainability of buildings, infrastructure and master plans. It was launched in the UK in 1990 by the British Building Research Establishment (BRE). BRE is a group of experts from all sub-disciplines of construction and is dedicated to improving building standards. It has issued in excess of 592,000 BREEAM certificates and has over 2,3000,000 registered buildings.

Project developers can contact BRE themselves to obtain certification. BREEAM assesses sustainability in ten categories: energy, health and well-being, innovation, area use, materials, management, pollution, transport, waste and water.

The scores in the differently weighted categories produce an overall assessment divided into six gradations: outstanding, excellent, very good, good, average or acceptable. BREEAM schemes are available for the various different lifestyle stages of a project, from new construction, in-use and refurbishment and fit-out. Schemes are also able to be locally adapted to various parts of the world.

Further information at:
www.breeam.com

SAUTER's know-how

In the case of "Ušće Tower Two", MPC enlisted SAUTER as both supplier and contractor for the complete building management system (BMS). SAUTER was also tasked with the automation and engineering work for wiring and producing the BMS and the cabinet for the electrically-driven components. In the final stage, SAUTER was responsible for turnkey commissioning of the system.

One special highlight is the decentralised ventilation system incorporated in the façade. The system exploits the climatic conditions in Serbia which are ideal for applying such energy-efficient ventilation. Heat accumulating in the rooms by day is dissipated at night and replaced by cool air from outdoors. For fresh air during the day, room users need only touch a button. Special ventilation blinds are then re-positioned, thus changing the supply of fresh air. And, providing no fire signals are active, smoke extraction windows on the façade can be opened for ventilation too.

Room automation through SAUTER ecos

The supply of fresh air forms part of the room automation delivered by SAUTER ecos 5. The standard BACnet protocol allows components to mesh seamlessly in a complete system with open interfaces. The cooling system, VRV (Variable Refrigerant Volume) air-conditioning systems and controllers in the 3x1250-kVA substation are thus integrated via BACnet-IP.

DALI interfaces automate the lighting. The interior lights are finely adjusted to the brightness outside, ensuring as much natural daylight as possible is used inside. The unique architecture offers another advantage over conventional office buildings – because the interior spaces are three metres high, this enables a great deal more daylight to enter. Here, energy savings and optimum lighting conditions very much go hand in hand.

Numerous other features contribute to the ecological compatibility of "Ušće Tower Two". For example, the energy management system measures various consumption data – electricity, sanitary water, and hot and cold water for the air conditioning. To maximise efficiency of hot water usage, only the amount actually needed is provided.

Also fundamental to the building's sustainability is its ability to adapt to new uses. SAUTER's flexible room automation system allows this with no difficulty at all. If room floor plans change, for example, due to new tenants, there is no need to install new cables. Simple configuration means that all system functions can easily mirror the new conditions.
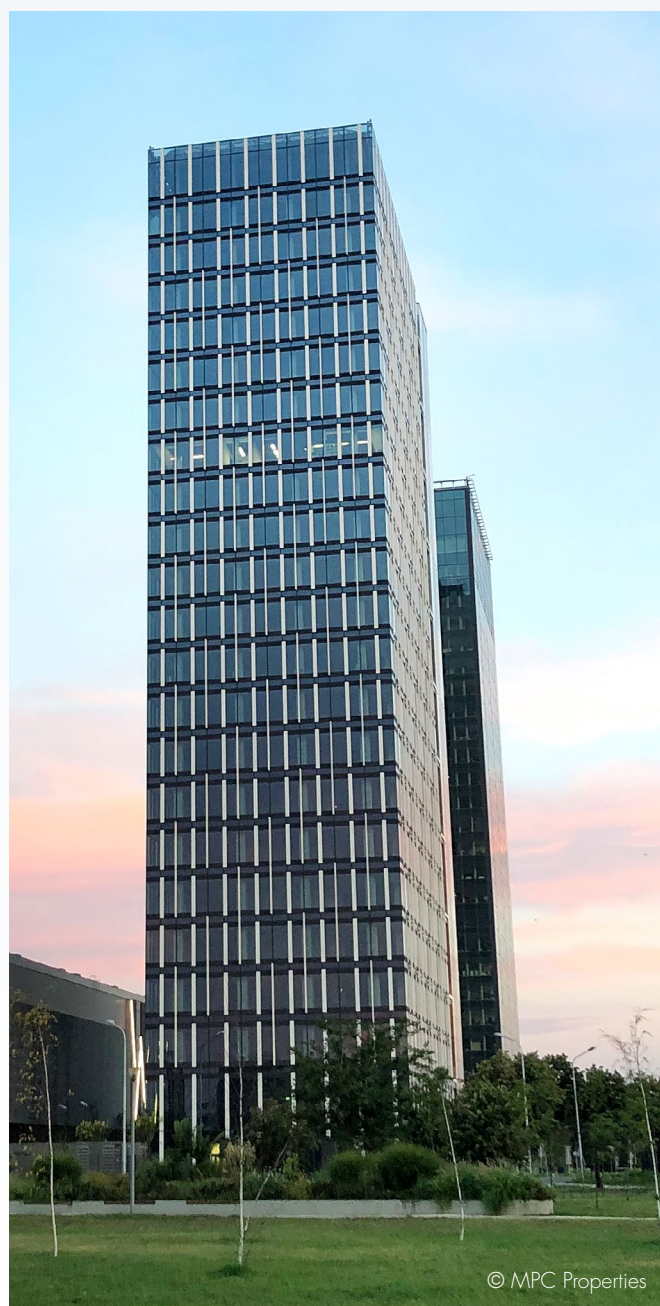
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Gate Avenue: Building management between finance, art and consumption

Dubai International Financial Centre, DIFC, is a leading global financial centre in the Middle East, Africa, and South Asia (MEASA) region. It even has its own district in the Arab metropolis, with office and residential complexes and hotels. It has also recently gained its own retail and lifestyle destination: the Gate Avenue. SAUTER is the team behind the building and energy management for this high-class promenade.

More than 25,000 people from over 2,500 companies work for the region's largest and comprehensive financial centre ecosystem. Gate Avenue is almost a kilometre long. It stretches from the large business area in the north – where the eponymous Gate Building is situated – to the residential and business districts in the south. It combines working with living, a connection point linking the entire district.

The Avenue comprises four zones interconnected by a vast open-air promenade. This giant expanse is home to numerous exclusive shops, gourmet restaurants, and renowned art galleries. Over 300 leading retail, lifestyle concepts, art, fashion and food & beverage brands spread over several buildings, reside in the centre to date. This, however, marks just the beginning – by 2024 the Gate Avenue will cover an area in excess of 60,000 square metres.

Yet the most impressive figure is comparatively small: the success story of the Dubai International Financial Centre was born a mere 16 years ago, with construction work on the promenade starting in late 2016. This exemplifies the enormous dynamism and ambition of the project, setting a new milestone with Gate Avenue. It has turned a business district into a bustling meeting place and hip lifestyle location – attracting people not only from all over Dubai but far beyond as well.

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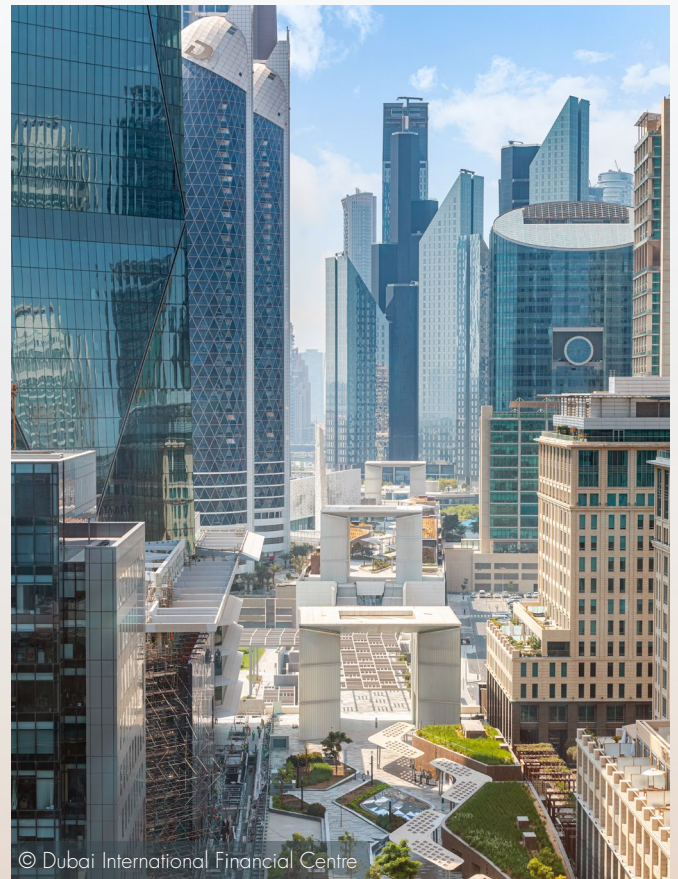
Many buildings – one partner

With four zones, different building types, and outdoor facilities, Gate Avenue's complex terrain is a major challenge for building management. SAUTER, however, was happy to pick up the gauntlet and draw on its experience in similar large-scale projects. In Dubai alone, it had already been involved in Al Habtoor City, Souk Warsan, Marina Gate Towers, Signature Towers, Multiple Towers from EMAAR at Dubai Creek Harbour and Downtown- Burj Khalifa area.

All these projects, including Gate Avenue, had one thing in common: the central software solution had to cater for several buildings with different tenants and areas with wide-ranging uses. SAUTER Vision Center is the control centre – a modern management software package with graphical user interface providing the operator with all the building functions and data.

At operational level, automation stations control and monitor the entire technical building equipment. These include ventilation and air-conditioning systems, cold water, domestic hot water and sump pumps, main distribution units and automatic transmission switches, etc. There are also smoke extraction fans and pressure ventilation systems for fire protection. The stations communicate with numerous field devices – temperature and humidity sensors, differential pressure sensors, differential pressure switches, carbon dioxide sensors, valves, control units and so on. Communication between field devices, automation stations and the management and operating level takes place courtesy of BACnet/IP.

SAUTER is a single-source supplier. It has, however, integrated third-party systems in the building management solution – fire alarm and lighting control systems, escalators, lifts, generators and central battery systems – with BACnet/IP, Modbus/IP and RS-485 deployed as applicable.

Energy monitoring with SAP integration

Alongside building management, SAUTER has also developed the energy monitoring system (EMS) for Gate Avenue. The entire energy consumption of each building and tenant is combined and managed centrally. Heating, water, gas and electricity meter readings are performed using Modbus and M-Bus protocols.

The API automatically sends a monthly consumption report to the financial centre's SAP system. This is then forwarded to tenants. If there are additional meters and tenants, new licences are issued to scale the energy management system as needed. Further meter hardware can be added to the existing network and connected without difficulty to the EMS system.

And even when the system is completed, SAUTER's joint partnership will not end there. The reason for this is that a comprehensive 5-year maintenance contract has already been agreed.

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