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Datwyler IT Infra

panorama

Lidl Switzerland, Weinfelden:

SOUND BASIS FOR DIGITISATION

5G networks:

DECISIVE COMPETITIVE FACTOR

Campus networks:

SAVE ENERGY AND OPERATING COSTS WITH FIBRE OPTIC NETWORKS

DATWYLER

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EDITORIAL

THE (NEW?) ART OF MODESTY

Dear Readers

when we at Datwyler decided a few years ago to focus our efforts on agility, digitisation, profitable growth and sustainability, we had no idea how quickly these factors would become important to the survival of the entire world.

Now, after the Trump era, trade wars and a year and a half of pandemic, we have learned a lot more. Each day brings us new challenges which we can only overcome with an agile approach. The time working from home has taught us the importance of high-performance IT infrastructures, and how efficiently many meetings and workshops can be held without long-distance travel. It has been borne in upon us how fragile the delivery chains we believed so secure really are, and how problematic the limited amount of raw materials is becoming. Sustainability is an absolute obligation on everyone.

The rapid progress of globalisation in the last decade has recently undergone more than just a few "scratches on the paintwork". "Glocalisation" will probably become the new, rather more modest – and definitely also the more reasonable – approach. So, for example, when dealing with our data, where there is a clear trend towards hybrid solutions: local data processing when it makes sense and where operation must be maintained under all circumstances (Edge Computing); transfer to the Cloud ("Cloudification") for less time-critical and sensitive data and information.

We must all have been shocked to find what lasting chaos a tiny virus can create in our familiar world order. In addition it has become clear to us how vulnerable our highly digitised infrastructure is to cyber attack. Danger no longer only threatens from tanks, fighter jets and rockets, but also increasingly from invisible attacks on our energy supply, petrol and gas pipelines, airports, railways, etc.

These experiences have again made us a bit more respectful, modest and realistic. "Bigger, further, longer" is simply not always the be-all and end-all. All the same, dear business associates, I can hardly wait to sit down with you in person again without a mask, to visit your construction sites and discuss current and future projects with you. At the moment the social aspect, the physical proximity are simply absent. And that is painful.

Enjoy reading our current edition of "Panorama" – and I hope to see you soon, if possible face to face!

With kind regards

Johannes Müller
CEO Dätwyler IT Infra AG

Ctrip's head office in Shanghai

Saudi Entertainment Ventures, Riyadh:

QUICK-STEP TO THEIR OWN DATA CENTRE

When a new IT solution is needed in a rush it is important to find the right partner. This is demonstrated by the installation of the new data centre at the SEVEN headquarters in Riyadh.

On-site installation of the IT infrastructure at the Ctrip site in the Philippines

Saudi Entertainment Ventures (SEVEN) headquarters in Riyadh

Saudi Entertainment Ventures (SEVEN) was established in December 2017 as a subsidiary of the Public Investment Fund, the driving force behind the numerous development and infrastructure projects forming part of "Vision 2030", to which the promotion of Saudi Arabia's entertainment industry also belongs. SEVEN is the first group of companies to receive a licence to operate cinemas in the Kingdom. The SEVEN complex in Riyadh includes sport and entertainment offerings, live shows, cafés and restaurants. For the future the group is planning 20 further such complexes, two theme parks and 50 cinemas throughout the country.

Tight delivery schedule

In mid 2020 Datwyler was awarded the contract for a mini data centre at the SEVEN headquarters in Riyadh. Although the delivery deadline was only two weeks, Datwyler was able to provide all the materials on time. This was primarily thanks to Blinks International Trading, a Datwyler distributor in Saudi Arabia, which holds a comprehensive stock level able to meet all client requirements and ensure fast delivery.

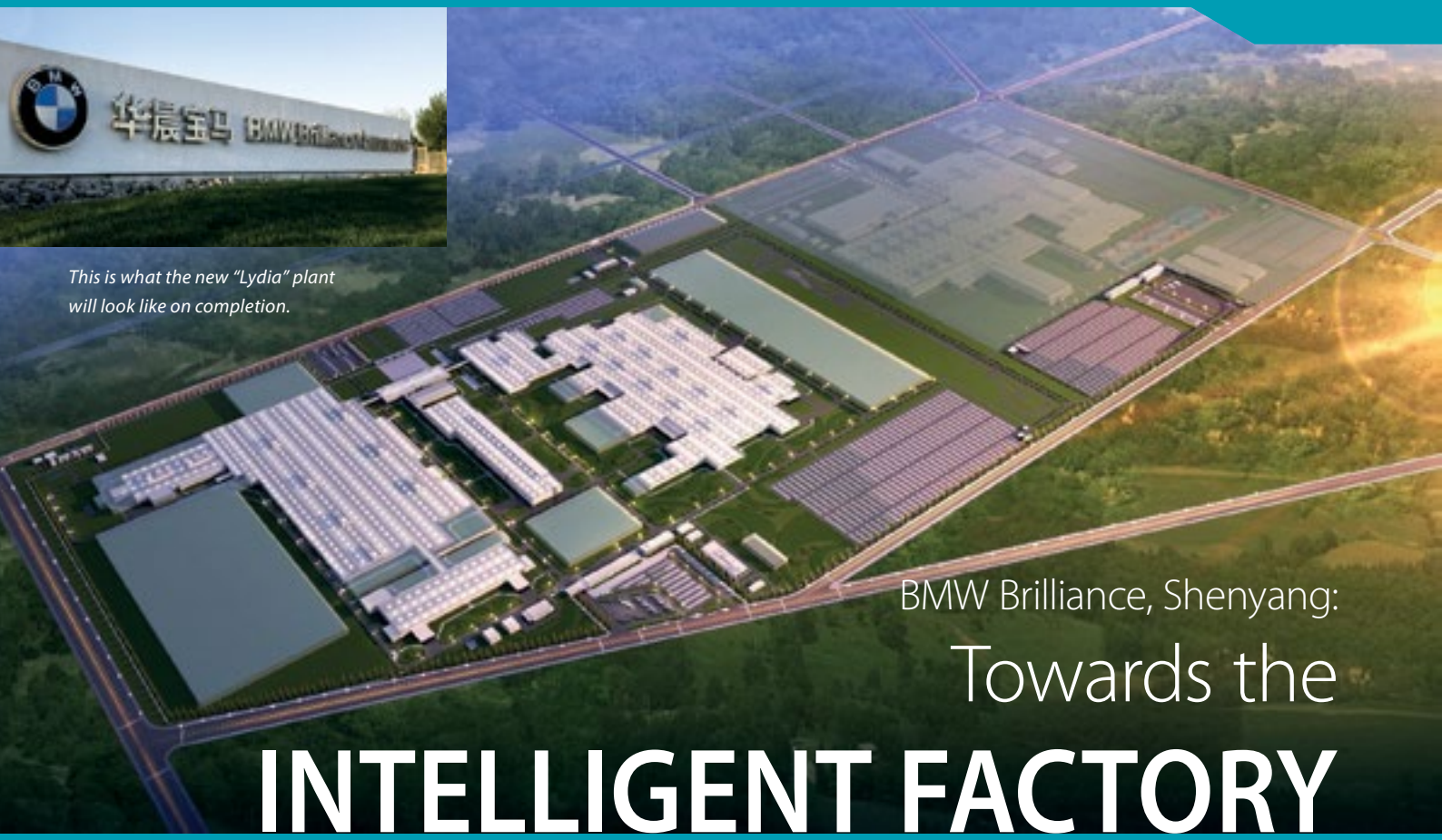
The Datwyler Mini Data Centre was installed in September 2020. It comprises a power rack, three IT racks, an in-row cooler and various subsystems which include a UPS, intelligent PDUs and others systems for fire alarm, fire suppression, access control and for monitoring environmental conditions in the racks.

Flexibility the key to success

The data centre solution was installed by Hawsabah, a system integrator certified by Datwyler. Hawsabah and Datwyler work in close partnership. They both strive to provide their clients in Saudi Arabia with efficient, customised technical solutions and services. Another thing the two companies have in common is the great flexibility of their teams. This is particularly vital in time-critical projects. In the case of the mini data centre at the SEVEN head office, the strong commitment of Hawsabah's qualified system engineers was once again instrumental in the project's success.

As for awarding the contract to Datwyler, the response of Ahmed Sadek, IT Project Manager of Saudi Entertainment Ventures, was a positive one: "The unparalleled support, technical know-how and great flexibility of all those involved has confirmed our conviction that it was right to entrust this project to Datwyler. We shall also work with Datwyler on our future projects." *(soa)*

Datwyler Mini Data Centre installed at SEVEN HQ



This is what the new "Lydia" plant will look like on completion.

BMW Brilliance, Shenyang:

Towards the INTELLIGENT FACTORY

With high speed IT infrastructure solutions Datwyler is assisting BMW Brilliance in China in setting up their first "smart factory".

On 1st April 2020 the go-ahead was given for the "Lydia" factory in Shenyang, which will significantly expand the production capacity of BMW Brilliance in China. In the new plant the company's emphasis is on digitalisation and sustainable development – throughout the whole process from planning to mass production. In terms of new technologies and infrastructure solutions "Lydia" will be one of the most efficient digital automotive plants in the world.

Datwyler, as IT infrastructure provider, was involved in "Lydia" at an early stage: with technical presentations, practical solutions, high-performance cabling products and professional support. This IT infrastructure project is generally considered to be one of the most advanced in the world, for in China Datwyler is the first provider to use structured building cabling for Industry 4.0 technology.

Approach to the new "Lydia" plant

Simultaneous challenge and incentive

After the outbreak of the Covid 19 pandemic it became difficult to deliver goods produced in Europe to Northeast China. Last year Datwyler management put the project on the priority list to enable it to be implemented smoothly. Thanks to close coordination with those in charge on site and to careful preparation – from production planning to transportation – all the difficulties were overcome and the goods were delivered on schedule. At the same time Datwyler spared no effort to protect its own staff from infection during the whole process. For example, the products which had already been disinfected at Chinese customs were sterilised again in Datwyler's Taicang plant.

During planning and network design the focus was mainly on two aspects: firstly the requirements of the applications in the Lydia plant, and secondly the development trends of the BMW Brilliance intelligent systems and data centre, both essential for a "smart" factory. The aim was to ensure that the IT infrastructure solutions not only met the current system requirements, but were also ready for future expansions and upgrades.

Client-specific high-performance solutions

The plant's intelligent communications network comprises shielded Cat.7 data cables and shielded Category 6_A RJ45 modules which meet the requirements of 10 gigabit Industrial Ethernet. A future upgrade to higher-performance modules is envisaged.

A preassembled OM4 fibre optic system and a Category 6_A patch cable system are being used in the data centre. The preassembled fibre optic cables and components from Datwyler give BMW Brilliance several advantages: low insertion losses, fast installation and stable dependable performance. Thanks to its modular design

the plug-and-play solution can be manufactured, completed and tested in the Datwyler plant – in parallel and synchronously with the other work involved in establishing the data centre infrastructure. This allows fast usage when implementation is completed on site.

The Category 6_A patch cables are supplied customised by Datwyler. The specific lengths correspond to the distances between the racks. What is more, Datwyler supplies them in bundles corresponding to the relevant number of ports. Last but not least, the patch cables are colour-coded, with each colour standing for a specific application. This simplifies both cable management and maintenance, and improves the sophisticated system management overall.

Interior view of the plant in Tiexi, a district of Shenyang

Long-term partnership

The first phase of the project will be completed in 2022, the second in 2025. It is anticipated that "Lydia" will include more than 600 kilometres of fibre optic cable and 1000 kilometres of Category 7 copper data cable.

Datwyler has been working with BMW Brilliance for over ten years. During this time the IT infrastructure provider has grown together with the client, has addressed the changing requirements, and established a reputation with various Chinese plants and projects as a reliable service provider. The new BMW Brilliance plant represents a change in company strategy – a change which Datwyler is happy to face. *(mac)*

Offices of Misr Capital, a subsidiary of Banque Misr

Misr Capital, Giza:

HIGH-SPEED SOLUTION FOR INVESTMENT BANK

Datwyler is equipping the new Misr Capital head office with an end-to-end copper and fibre solution.

Misr Capital S.A.E. is an Egyptian investment bank headquartered in Giza. It was founded in 2010 as a subsidiary of the long-established Banque Misr, one of the largest financial institutions in Africa.

Because the IT infrastructure is extremely critical for Misr Capital's business operations, a high-performance ultra-fast cabling solution was needed for the new Smart Village head office. The solution proposed by Datwyler convinced those responsible, and they were confident that it would meet all the requirements.

The Datwyler Middle East team helped in designing the appropriate IT infrastructures and selecting the cabling solutions. The beginning of 2020 saw the installation of an end-to-end copper and fibre solution linking the connections in the offices and business premises to the main distribution room.

In parallel Datwyler delivered the data centre cabling, comprising preassembled products in copper and fibre optic technology.

Copper rack in the main distribution room

The head of IT at Misr Capital, George F. Zekri, expressed his satisfaction with the Datwyler team's professionalism, and asserted that "the exceptionally good support and dependable solutions were very important to us, and I would definitely be happy to work with Datwyler again on our future projects."

The success of this project was due in no small measure to the partners involved. The distributor Connect Information Technology and iLead Integrated Solutions, a Datwyler-certified system integrator, both played an important role in ensuring that completion went absolutely smoothly. *(amh)*

Lidl Switzerland, Weinfelden:

SOUND BASIS FOR DIGITISATION

Self-service checkouts and electronic price tags: the discounters have also long since taken up digitisation. A prerequisite is the "proper" IT infrastructure. Lidl Switzerland relies on a solution from Datwyler.

Self-checkout system

Lidl is a global trading company which operates 11, 200 stores in 29 countries. In terms of store numbers Lidl is the world's biggest discounter.

Lidl opened its first markets in Switzerland in 2009. Today, 12 years later, Lidl Switzerland operates over 150 throughout the country – and around ten new markets are added to this every year. Deliveries come from two large distribution centres: one at Swiss headquarters in Weinfelden in the canton of Thurgau, the other in Sévaz in the canton of Freiburg.

> **The quality of the products has proved its worth.**
>
> *Jeremia Mack, Project Manager*
> *IT Infrastructure & Operations, Lidl Switzerland*

Up to 170 links in one store

Opting for quality

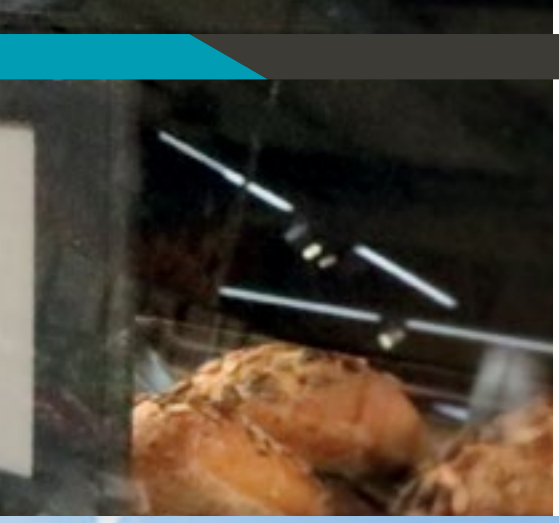
Some years ago Lidl Switzerland decided to go for Datwyler's high-quality communications networks. Since then every new store has been equipped with a cabling solution from the Altdorf IT infrastructure provider. "Opting for Datwyler was quite clearly a decision in favour of superior quality," said Jeremia Mack, Project Manager IT Infrastructure & Operations at Lidl Switzerland. "A reliable system like Datwyler's is very important to us as well as to our customers."

In addition, according to Mack, at Lidl Switzerland digitisation is also advancing steadily and the demand for network connections is increasing accordingly. In the stores, for example, there are self-checkout systems. Digital price tags are also controlled via the Internet. This enables Lidl Switzerland to ensure that prices are always up-to-the-minute.

High-performance solution

The installations in the stores are implemented with type CU 7702 Cat.7_A data cables. In the network cabinet the cables are equipped with MS-$C6_A$ modules and connected to the patch panels.

Lidl Switzerland also obtains the Cat.6_A patch cables from Datwyler. Different cable colours – inside and outside the cabinet – allow the clear differentiation of services, among them two Internet providers, WLAN, checkouts, video technology and digital price tags. With up to 170 links per store the colour coding makes it possible to find the right links quickly during servicing.

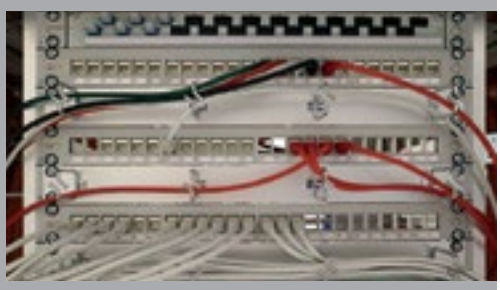


Logistics centre of Lidl Switzerland in Weinfelden

Lidl Switzerland headquarters in Weinfelden

Tried and tested partnership
Datwyler has proved a dependable partner for IT infrastructures. "With Datwyler products we have an efficient working system," says a pleased Jeremia Mack. "The product quality has proved its worth. We are very satisfied with the collaboration."

One of the most recent projects implemented with a Datwyler solution is the store in Reinach in the canton of Aargau, which opened in January 2021. At the moment the new logistics centre building in Weinfelden is being equipped with system solutions from Altdorf. The site, which will have a banana ripening facility, should start operating in late 2021. *(maw/dir)*



Cabling in the rack

Department of National Archives, Colombo:

HIGH-PERFORMANCE DATA NETWORK

Sri Lanka's state archive – the Department of National Archives – is based in the capital Colombo. It is used for the long-term storage of documents and records of the island state's government.

State archive construction site in March 2021

In 2019 the department decided to modernise the existing data network and replace it with a modern end-to-end solution, in particular a higher-performance one.

The choice fell on Datwyler, a well-known supplier of structured building cabling systems with a history encompassing over 100 years of quality and performance.

The project was implemented in 2020, and includes around 400 data connection points on seven floors. Category 6 cables and components were used in the floor cabling so as to achieve a transmission speed of 1 gigabit per second. These were supplied by Connex IT, Datwyler's distributor in Colombo.

The new data network has been in operation since last year. Those responsible are very satisfied with Datwyler's end-to-end solution, as it meets all their requirements. *(ivy)*

The Exhibition and Conference Centre in the "Riyadh Front" complex is the largest in Saudi Arabia.

Grand Hyatt, Macao:

SUPERIOR TRAVELLING COMFORT

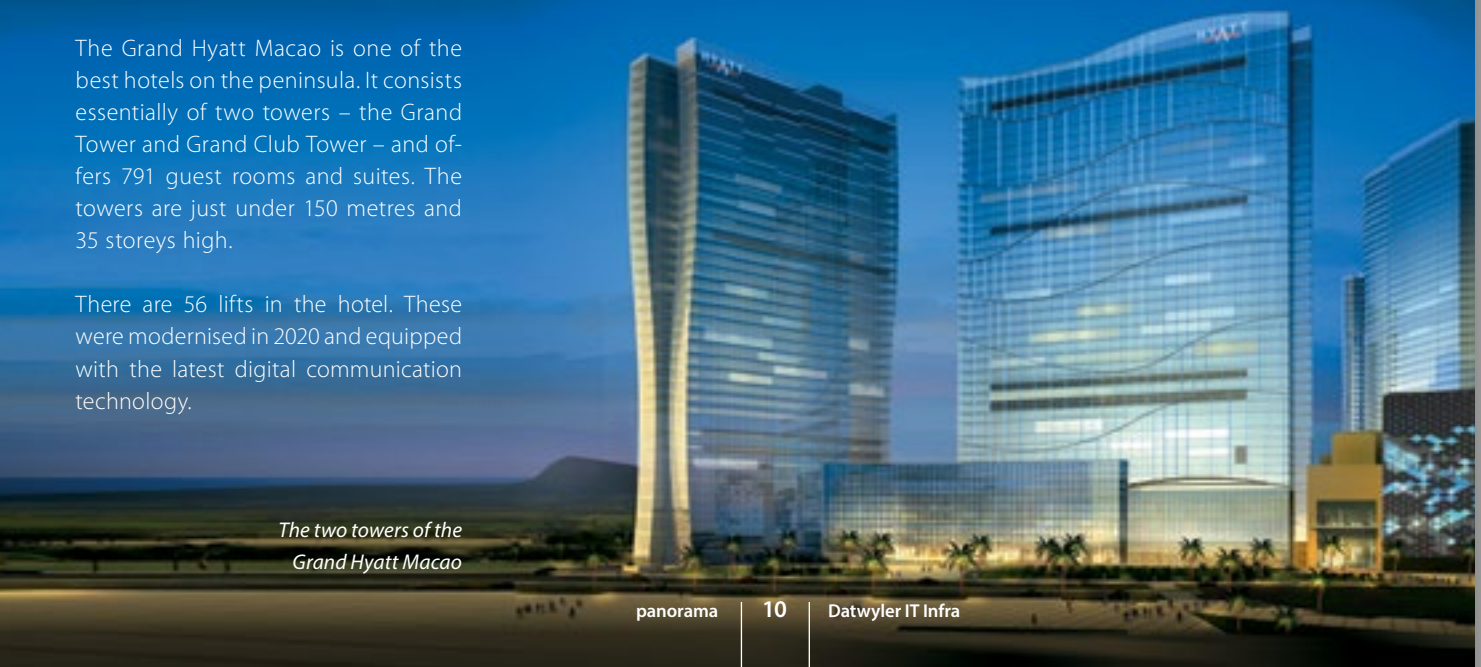
The Grand Hyatt Macao is located in the "City of Dreams" complex on the man-made Cotai strip. The hotel belongs to Melco Resorts & Entertainment Limited based in Hong Kong, which builds and operates casino resorts in Asia and Europe and has been NASDAQ listed since 2006.

The Grand Hyatt Macao is one of the best hotels on the peninsula. It consists essentially of two towers – the Grand Tower and Grand Club Tower – and offers 791 guest rooms and suites. The towers are just under 150 metres and 35 storeys high.

There are 56 lifts in the hotel. These were modernised in 2020 and equipped with the latest digital communication technology.

In the run-up to the modernisation project Jardine Schindler Macao approached Datwyler's elevator team to discuss the development of new travelling cables. Together they succeeded in finding a practicable solution which met the project-specific requirements.

Two types of travelling cable with integrated single-mode and multimode fibres were used during lift modernisation. Altogether Datwyler supplied around 11,000 metres of these – thus contributing to modern travelling comfort in the lifts of the Grand Hyatt hotel. *(ivt)*



The two towers of the Grand Hyatt Macao

Riyadh Front Exhibition and Conference Centre:

FOCUS ON SECURITY

The Datwyler Mini Data Centre is connected with the Security Operations Centre.

The Datwyler IT infrastructure solution installed in the Exhibition and Conference Centre in the "Riyadh Front" complex meets all the operator's requirements.

The ultra-modern Exhibition and Conference Centre in the "Riyadh Front" complex, located in the north of the Saudi Arabian capital, can accommodate 33,000 visitors on over 243,000 square metres, making it the largest in the Kingdom.

Last year Hawsabah, a certified system integrator in Riyadh, approached Datwyler to enquire about a data centre solution for the Centre. The Hawsabah team was convinced that Datwyler could provide an innovative solution which would meet all the requirements of the Exhibition and Conference Centre – not only in terms of cutting-edge technology and project-specific services, but also, and in particular, with regard to the very tight schedule.

Integrated end-to-end solution

In October 2020 Datwyler provided the end user with an end-to-end IT infrastructure solution for the security system of the building complex. It comprised a mini data centre – operated at two locations – and the associated cabling. Each unit of the Datwyler Mini Data Centre consists of a "power rack", two IT racks and an in-row cooler. It includes all the necessary subsystems such as fire alarm and fire extinguishing system, "smart" access control, UPS, intelligent PDUs and an environmental monitoring system.

The team responsible for operating the Exhibition and Conference Centre was very satisfied with the collaboration. Datwyler and Hawsabah were confirmed as being dependable suppliers who completed the project on schedule.

"The data centre solution installed in the Centre is very efficient and cost-effective, and it meets our requirements and those of the standards," emphasised those in charge of the project. *(soa)*

Disaster Recovery unit of the mini data centre

The First People's Hospital in Lianyungang

First People's Hospital, Lianyungang:

TRAILBLAZER IN COMPUTERISATION

Datwyler and its partners have equipped the First People's Hospital in Lianyungang with structured building cabling and a mini data centre.

Hospital computerisation has become increasingly important over the past 20 years. This means that prefabricated intelligent communication infrastructures have been installed in many new buildings and modernisation projects to support hospital computer and IT systems.

The First People's Hospital in Lianyungang is a trailblazer in computerisation. Here the modernisation of the data centre was taken as an opportunity "to move with the times and make the informational future a reality". After several selection rounds and careful scrutiny the hospital staff in charge of the

project decided on a structured building cabling system and a mini data centre solution from Datwyler.

Together with its partners Datwyler devised an end-to-end solution for the modernisation project. The installation of the communication cabling began in November 2020. In addition a Datwyler Mini Data Centre was installed in the First People's Hospital, an all-in-one system with integrated energy distribution, uninterruptible power supply (UPS), precision in-row cooling and intelligent environmental monitoring and management systems.

Along with many other products the mini data centre was manufactured and tested in Datwyler's Taicang plant, allowing fast on-site installation and commissioning.

Since April 2021 the Datwyler solutions in the First People's Hospital have ensured stable dependable transmission and the secure storage of data and information, thereby contributing to the smooth running of the hospital. *(tot/bos)*

The Datwyler Mini Data Centre solution with six racks and two in-row coolers

The Tuas border control point

Immigration & Checkpoints Authority, Singapore:

New cameras for BORDER SECURITY

The Singaporean Immigration & Checkpoints Authority has modernised the video monitoring at the Woodlands and Tuas border crossings. The cameras are linked via a Datwyler data network.

The Immigration & Checkpoints Authority (ICA), an authority subordinate to Singapore's Ministry of Home Affairs, is responsible for securing the country's borders against unwanted individuals, freight and transport by land, air and sea.

In 2019 the ICA issued a tender for a project in which the authority's old data network was to be replaced by a higher-performance solution. The new cabling system was to support modern monitoring cameras (CCTV) and provide a higher bandwidth. When upgrading the network the ICA therefore opted for a solution comprising, among other things, single-mode fibre optic cables and Category 6_A and 6 copper data cables.

4000 cameras at two locations

The project was awarded in two parts: Thales was given the contract for the backbone cabling including the Cat.6_A cables at

Approach to the new Prudential head office in the TRX financial district

the two border control points, Woodlands in the north of Singapore and in the Tuas planning area in the west. Singapore Technologies Electronics took on the installation of the monitoring cameras at both checkpoints, which were to be linked to the 10 gigabit-compatible backbone network with Cat.6 cables.

The entire IT infrastructure was supplied by Datwyler. For the backbone cabling First-Com Engineering Pte Ltd installed 200 kilometres of armoured and flame-retardant "FO Outdoor" fibre optic cable and 68 kilometres of shielded Cat.6_A cable on behalf of Thales.

The specialist firms commissioned by Singapore Technologies Electronics installed around 4000 cameras at the two checkpoints. For this they needed altogether 250 kilometres of Cat.6 cable.

Once tests had been carried out successfully the complete installation was handed over to the ICA in December 2020.

Dependable solution

The ICA is very satisfied with Datwyler's new IT infrastructure solution. It especially appreciates the dependability of the solution and the support provided by Datwyler – both central aspects of a challenging installation such as this. *(jic)*

Prudential Assurance Malaysia Bhd, Kuala Lumpur:

A TOWER FULL OF "SMART" TECHNOLOGY

In order to benefit from the latest digital technology, Prudential Assurance entrusted Datwyler with a high-performance IT infrastructure solution for its Malaysian head office.

Prudential Assurance Malaysia Bhd, based in Kuala Lumpur, is one of the leading finance and insurance companies in the Southeast Asian country. Prudential employs over 3000 staff in the capital Kuala Lumpur.

In 2019 the company moved from the municipality of Jalan Sultan Ismail to a new office tower in the Tun Razak Exchange (TRX) financial district.

The TRX Prudential Tower, 27 storeys in height and constructed by IJM Land Bhd, is only half as high as its famous namesake in Boston, but is equipped with innovative "smart" technology. Lighting and temperature are controlled using artificial intelligence, ensuring optimised energy consumption. Since the initial drafts were drawn up work was carried out using Building Information Modelling (BIM) and intelligent 3D models, which simplified planning, construction and building management. The Prudential head office also has energy-efficient high-speed lifts with intelligent destination control. And LED displays positioned around the top make the tower visible from every point of the compass. >>

The TRX Prudential Tower with 360-degree LED displays at the top

The customer service desk in the TRX Prudential Tower

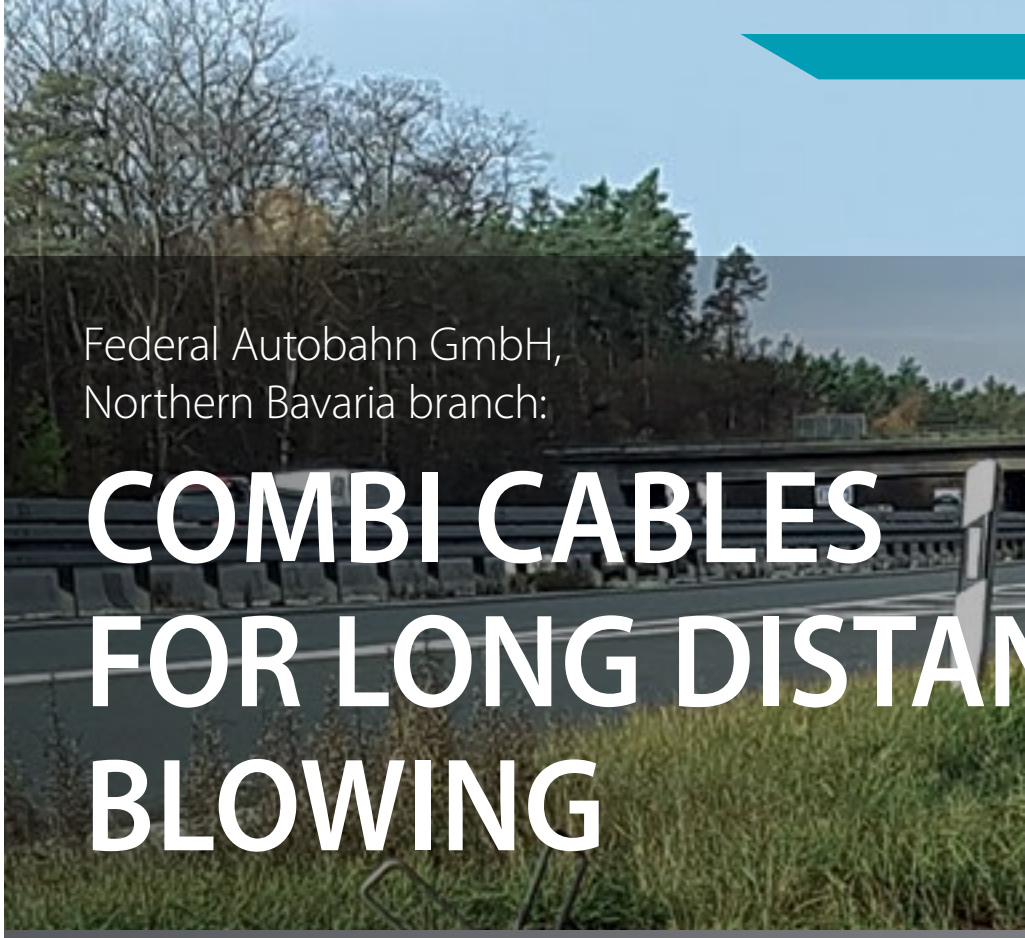
Intelligent IT infrastructure solution

The cabling system which forms the basis of the whole data technology system was supplied by Datwyler. The main factors which persuaded Prudential to choose the Datwyler team were its proven and convincing concept and its impressive track record.

The intelligent IT infrastructure comprises an OM3 fibre optic backbone, Category 6 cables and components for 1500 data connection points on the floors, as well as a further 500 Cat.6_A links for connecting the WLAN access points.

The network was installed by certified Datwyler Solution Partner Lantro (Malaysia), a firm with over 30 years' experience in data technology. Thanks to the high-performance system solution, Datwyler's technical expertise, and Lantro's committed and service-oriented team, the entire installation was successfully completed and handed over on time. *(tzp)*

"Smart" installation with Datwyler's CU 662 and CU 6502 cables in the rack



Federal Autobahn GmbH, Northern Bavaria branch:

COMBI CABLES FOR LONG DISTAN BLOWING

The development of innovative cables was and is one of Datwyler's core competences. The IT infrastructure provider demonstrated this once again by producing mini fibre optic cables for the Northern Bavaria branch of the German Federal Autobahn GmbH.

In the spring of 2020 Datwyler received an enquiry as to whether it was possible to supply a mini fibre optic cable with 48 single-mode fibres and two integrated stranded wires. What was wanted was a bend-optimised fibre in accordance with G.652.D with at least the macrobending properties of the G.657.A1 fibre – a requirement which was met by the BLO fibre which Datwyler has been using for years in various types of cable.

The cable was to be blown along a section of the federal A3 motorway, over a distance of just under 19 kilometres between the Fürth-Erlangen and Nürnberg interchanges. The conduit run, in which a fibre optic cable was already routed, was upgraded beforehand with additional microducts by NGN Fibernetwork GmbH. The telecommunications provider inserted three 14 x 1.3 millimetre microducts into the existing HDPE DA50 conduit. The microducts have an internal diameter of 11.4 millimetres and, like most of them, are fluted on the inside to minimise friction between duct and cable sheath.

The cable supplied is blown from the injection point into the so-called cable house.

In the "cable house" the cable is spliced and connected to the active components.

Challenging development task

In cable blowing the important thing is to bridge distances as great as possible without the need for "interim blowing". Because cables eight millimetres thick had proved inadequate in the Northern Bavarian branch's previous construction projects, a diameter of between six and seven millimetres was wanted.

The additional stranded wires are used to locate the installed cables at any subsequent time and to monitor the tightness of the splice closures. In addition the Northern Bavarian branch wanted two sheath colours: orange for the local connection of the traffic control system and black for use as a long-distance cable in the "backbone area".

In developing the mini fibre optic cable the Datwyler team was able to draw on an existing design, the "wbKT Micro Combi". Thus within a very short time they managed to manufacture a new type of cable which was only 6.8 millimetres in diameter and which met all the requirements. The material specialists found a colour concentrate which dyed the outer sheath orange and was still UV-resistant. Datwyler was then awarded the contract to supply around 33 kilometres of the orange and 15.5 kilometres of the black sheathed cable.

So as not to have to cut the mini fibre optic cables on site the contractor, Axians GA Netztechnik GmbH, ordered them in the lengths needed for the project. Datwyler cut the cables to length – up to 6494 metres – in the factory and delivered them on drums.

Successful product

In November 2020 a cable 2.5 kilometres long was blown into a microduct in one piece using a Vetter MiniJet, without any technical problems. In another section even a length of 2885 metres was blown – with a significant time saving as against the mini cables used previously.

Blowing work in mid-November 2020, near Fürth-Erlangen motorway interchange

In future the retrofit installation of mini cables in existing ducting along the federal motorways will no doubt gain in importance. Support during broadband expansion, in setting up the 5G network or autonomous driving are surely exciting topics at Federal Autobahn GmbH.

Both the Northern Bavarian branch and Axians are very impressed by the quality of the cable and Datwyler's delivery performance.

Through the framework agreement with Axians GA Netztechnik GmbH Datwyler was asked to submit an additional offer. For this Datwyler developed and supplied a further "Micro Combi" design with 72 fibres. This cable is 7.6 millimetres in diameter and can also be easily blown into the existing microducts. *(weh/thg)*

University of Indonesia, Depok and Salemba:

BUILDING A BRIDGE

from campus to campus

University of Indonesia, campus in Depok

The University of Indonesia managed to double the transmission power between its sites using a fibre optic solution from Datwyler.

"Universitas Indonesia" – UI for short – is a state university in Depok on Java and in Salemba, in the centre of Jakarta.

The university is not only the oldest, but also the largest and most renowned in Indonesia. In 2019 the World University Rankings of the British educational network QS ranked it number 1 in Indonesia, 57 in Asia and 292 worldwide. It has over 40,000 students.

Two years ago the UI launched a project to significantly improve the quality of the data links between the two sites. The old cabling was barely able to cope with the substantial increase in data traffic.

24 kilometres of optic fibre

At the end of 2019 the Internet service provider PT Telemedia Dinamika Sarana took over the project. By December 2020 – interrupted by the corona pandemic – in two construction phases they created a new fibre optic link which connects the building complexes of the UI 24 kilometres apart.

On the recommendation of the distributor PT Gunung Sawo, PT Telemedia Dinamika Sarana used a 24-fibre single-mode cable of the "FO Outdoor" type from Datwyler, which has a corrugated steel tape and is suitable for direct burial. The panels for termination of the cable and the further fibre optic accessories came from Datwyler as well. PT Gunung Sawo's technical team also supported the technical project consultants.

A win for all involved

"PT Gunung Sawo was a great help to us throughout the project, provided a really good service and created genuine added value for us," confirmed the Project Manager of PT Telemedia Dinamika.

Of course the university itself gained the most benefit. The new fibre optic link means that transmission was doubled and the data volume increased by 100 percent. *(frs)*

University of Indonesia, campus in Salemba

China:
NEW MANAGING DIRECTOR

In March 2021 William Zhu (47) was appointed Managing Director of Datwyler (Suzhou) IT Infra Co., Ltd., headquartered in Taicang. He came to Datwyler from KuAI Technologies, where he was Managing Director for SaaS Solutions in China.

William Zhu previously worked for Maxwell Technologies as Vice President Asia, and at EnerSys, where as General Manager China he was responsible for the profit and loss of all regional operations and for the Stored Energy Solutions business.

At the start of his career William Zhu worked for Huawei, first as Product Manager, then as Sales Manager in South America. He was then employed as Business Development Director at Philips and as General Manager Northern Asia at Eaton Electrical.

He graduated as Master of Business Administration from the University of Nottingham, Great Britain, and also has a Bachelor of Engineering degree from the Nanjing Tech University. *(dir)*

Europe:
COLLABORATION WITH VENTUS CLOUD

Gaia-X, also called the European Cloud, is intended to give cloud customers a trustworthy alternative to the dominant cloud providers from the USA and China and to curb their market power with a networked open data infrastructure based on European values.

This infrastructure guarantees complete control of stored and processed data and creates a "digital ecosystem" which encourages innovative products and business models. On this basis European businesses should be able to scale competitively in future.

Businesses are already launching cooperation initiatives in line with this idea. Thus Ventus Cloud AG, a Swiss cloud provider, is giving its customers in the public cloud environment access to a European solution based on open-source technology. A collaboration with Datwyler IT Infra has been established as part of the private cloud offering: Ventus customers can operate their private cloud securely, cost-effectively and to scale with modular mini data centres – completely preassembled plug-and-play IT infrastructure solutions from Datwyler. *(dir)*

See the News section on Datwyler's website for more information.

Datwyler's digital GITEX exhibition stand

Middle East:

GITEX ONLINE

Datwyler took part in the Middle East's biggest technology trade fair in virtual space for the first time due to the corona pandemic.

Unprecedented times also call for unprecedented measures from exhibition organisers. So for the Dubai World Trade Centre last year was the first time that GITEX Technology Week was a digital as well as a physical affair. And although stringent travel and movement restrictions had already been relaxed in December 2020, many exhibitors and visitors from all over the world took the opportunity of paying an online visit to the industry gathering.

Datwyler Middle East also participated in GITEX with a digital stand. As part of the exhibition the IT infrastructure provider additionally held two well attended online seminars. Ihab Gazawi, Head of Datwyler Data Centre Experts, gave a talk on data centres. He discussed components, standards, Tier classes, procedures and the concept of micro and mini data centres. In another webinar Ahmed Abdelaleem, Technical Manager of Datwyler Middle East, spoke about passive optical LAN (POLAN). Here again he dealt with standards and the most important components, as well as the advantages of POLANs compared with traditional Local Area Networks.

Datwyler places great value on participation in this trade fair, the largest one in the Middle East. Even if it took place online this time, it again brought together numerous visitors and exhibitors who all had the same aims: to see the latest technical innovations and to network with important clients, associates and other businesses. *(ass)*

Europe:

SMART FACTORY SHOWCASE

in Hattersheim

Datwyler and Fujitsu are jointly evaluating the possibilities of using AI, IoT and 5G in production.

LIDAR sensors

In conjunction with experts from the Connected Services Manufacturing & Automotive Division of Fujitsu, Datwyler IT Infra is developing a showcase to evaluate the possibilities of using artificial intelligence (AI), the Internet of Things (IoT) and 5G in the factories of tomorrow.

To date the challenges in the industrial environment have always been marked by increases in efficiency and improvements in quality. By way of DIN EN ISO 50001 companies are additionally motivated to implement resource-efficient energy management – leading to CO_2 neutral production.

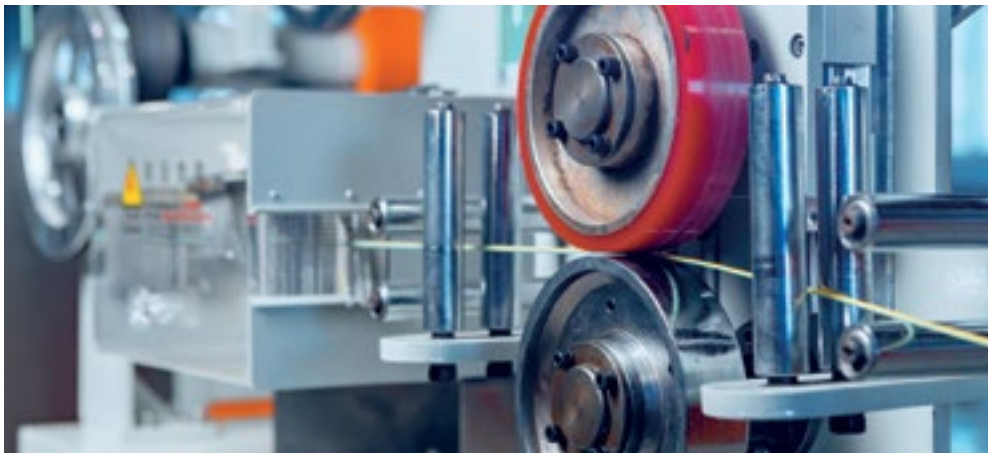
Previous optimisation was characterised mainly by the automation of production, and this needed many interfaces, some of a proprietary nature. The intelligent IP-based networking of production facilities with IoT and the use of artificial intelligence open up possible new ways of achieving business and climate objectives.

The foundation for this is a reliable and scaleable IT infrastructure which can cope with very large volumes of data, thereby as far as possible enabling latency-free communication with different IoT devices and systems.

Boosting quality and efficiency

The European logistics hub of Datwyler IT Infra is on the Hattersheim site in Germany. From here the company's infrastructure solutions are delivered to many major projects in Europe and beyond.

For example, from Datwyler in Hattersheim customers order fibre optic cable in various lengths and versions for broadband expansion with fast Internet to be installed in various projects. The fibre optic cables are rewound and cut on Datwyler's facilities so as to meet customer requirements promptly.



Fibre optic cables are rewound and cut on Datwyler's facilities.

For this process Datwyler and Fujitsu are developing a use case which, based on IoT sensors and using artificial intelligence, optimises both quality and efficiency through to energy usage.

With the aid of ammeters and LIDAR (Light Detection and Ranging) sensors the plant information is recorded in the ongoing production process. The large volumes of data thus generated are transferred to Fujitsu's high-performance servers. These servers provide valuable findings on plant optimisation based on machine learning, a sub-discipline of artificial intelligence. Calculation involves complex algorithms which give the machine operators feedback on the production process by way of a shop floor visualisation in simplified form.

Private 5G network planned

Other development phases are still at the planning stage. In view of the anticipated high volume of data and the requisite low latency times, the use of a private 5G network among other things will be evaluated in this project. What is more, the findings obtained from the machine data will provide future information on the degree of utilisation and probability of failure, which in turn permits predictive maintenance, which can have a direct impact on the TCO of the plants. *(raf)*

China:

EXCELLENT PERFORMANCE

During the past year Datwyler in China again won numerous prizes for IT infrastructure and lift cable solutions.

Trophies and certificates from the Qianjia Brand Lab

Outstanding among the awards received in China in 2020 was the Qianjia Brand Lab's "China Intelligent Building Brand". In the "Structured Cabling Systems" category Datwyler took fourth place. For the first time Datwyler was also granted a "Brand Recommendation Award for Data Centre Industry".

Once again Datwyler was commended as "China's Preferred Brand for Integrated Cabling in Airport Construction", by Airport Construction Magazine and the China Airport Construction network. In addition to this there were awards of "Top 10 Brand Outstanding Cabling Products" from the Intelligent Building Magazine and the journal Electrical Engineering in Intelligent Buildings, as well as "Top 10 Brand" in cabling services – presented by the portal www.rdyww.com.

For its IT infrastructure solutions Datwyler was again selected as a Top 10 Brand (on the left) and Preferred Brand in Airport Construction (on the right).

Four Datwyler staff members from the Technical and Service team took part in the first "Cabling Skills Competition", organised by GITT, the Green Information Integration Technology Committee. Thanks to their specialist skills they won the silver prize.

As a long-standing partner of Schindler Datwyler had already received several awards: for continuing improvement, for best support, and lastly as "Best Supplier of the Year".

The Best Service Award from Schindler China

As part of last year's SCK Supplier Summit Datwyler once again received a commendation from the well-known company and won the "Best Service Award". *(kag)*

5G networks:

DECISIVE COMPETITIVE FACTOR

In dialogue with Uwe Peter,
Managing Director of Cisco Germany

Mister Peter, 5G expansion is well under way throughout the world, and – apart from antennae – you supply all the technologies which mobile phone companies need to develop 5G networks. What are the benefits of 5G?

5G is real-time mobile telephony which will initially be of special benefit to industry. It will raise a great many applications to a new level, or even make them possible for the first time, and thus become a decisive competitive factor.

Self-driving cars are one example. Obviously they not only exchange data with a control centre, but also with the cars nearby and all possible traffic control systems or traffic lights. That must happen superfast and extremely safely. 5G is ideal for the purpose. Fast expansion is important, as the mobile phone networks in Germany are mostly still geared to the requirements of 2005.

Do we need to worry about radiation exposure?

No. 5G can even reduce radiation energy. Some 5G devices manage on one tenth or even less energy than LTE devices. On the other hand, with 5G the connected devices can be quite specifically targeted with special antennae.

What are the greatest changes due to 5G?

With 5G devices can exchange data superfast. This is important for the Internet of Things, because there hosts of devices communicate directly with one another. With 5G a network can be covered with 99.9999% availability. In other words, it can be "bumpy" for half a minute a year at most. And that is fundamental, particularly, for example, when a whole machine park is connected and coordinated via 5G.

Predictive maintenance is also an exciting 5G case. Using sensors a machine continuously transmits data which are evaluated in real time. Thanks to machine learning the manufacturer or operator can then find out whether the machine is liable to break down in the near future, and can carry out repair or maintenance well in advance. In addition, 5G technology allows data transmissions which require so little energy that some of the sensors can run autonomously for several years without needing to be charged. *(dir)*

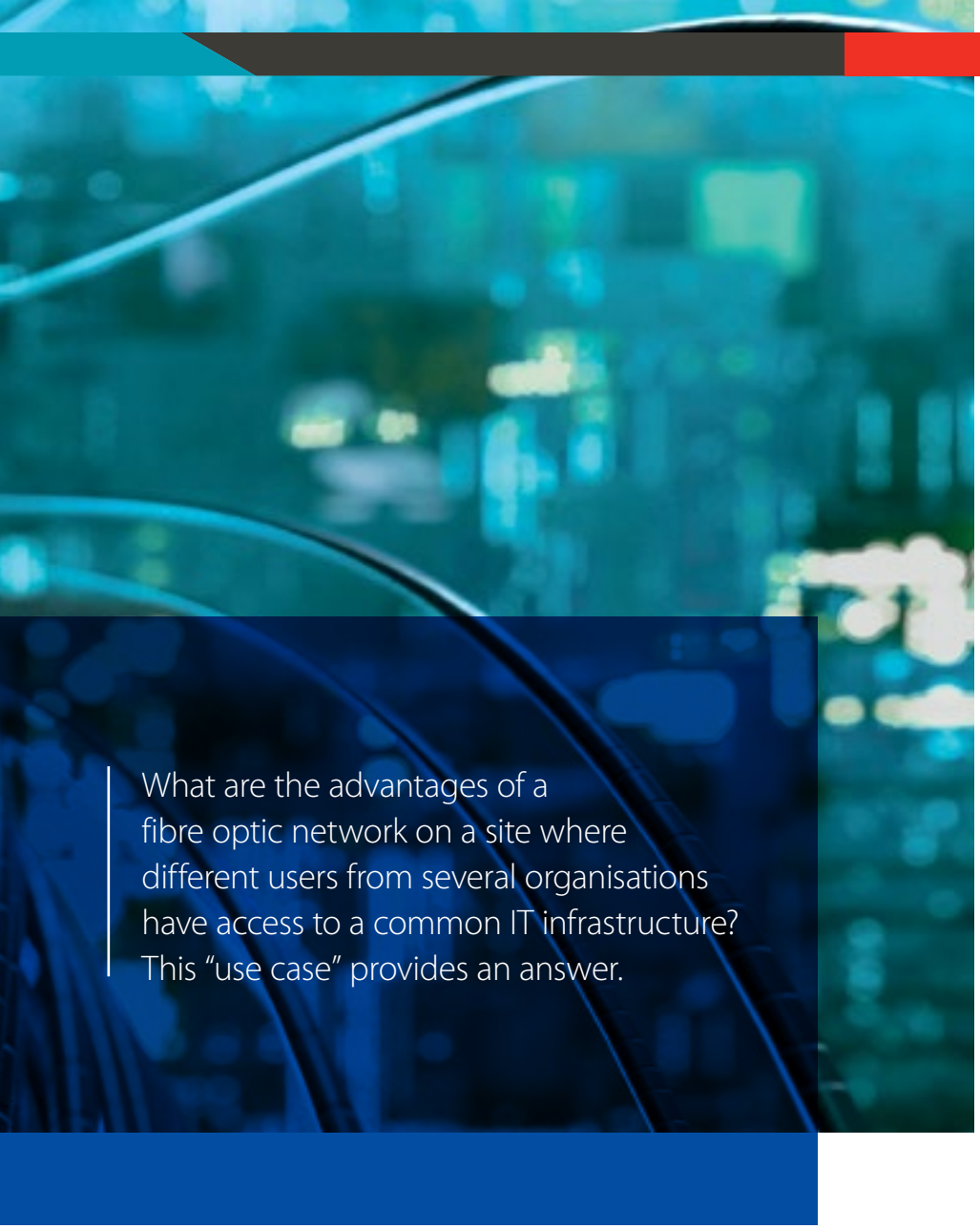
Campus networks:

SAVE ENERGY AND OPERATING COSTS WITH FIBRE OPTIC NETWORKS

Are you responsible for setting up a high-performance data network on the "campus" of a private or public organisation? Expanding or sustainably upgrading the existing one? In either case you are facing an exciting challenge. For these tasks require a good understanding of the local conditions and the legal framework, as well as of the technical possibilities and solutions available on the market.

At Datwyler we talk of a "campus network" when different users from several organisations on a self-contained site have access to a common IT infrastructure. These could be shopping centres, universities and hospitals, trade fairs, airports or large companies. The users of a campus network – in the case of airports, for example, the management, airlines, shops, restaurants, hotels and car park operators – have one thing in com- mon: their business activities depend on the reliable operation of the data network installed on the site.

This includes secure separate data connections, sufficient bandwidth and fast response times. As the installer or operator of a campus network you are thus cre-



What are the advantages of a fibre optic network on a site where different users from several organisations have access to a common IT infrastructure? This "use case" provides an answer.

ating a bridge between the many data outlets on the site and the central transfer point (hub) to a provider's wide area network (WAN).

High bandwidth and response time requirements

Today's state of the art provides a fibre optic network for such an application. This is the best way to meet the requirements of bandwidth and response times – at a reasonable investment cost. Not only have the components needed for a fibre optic network been fully developed and tried and tested for decades, but they also come in different country-specific versions. They easily bridge distances of several kilometres and also provide remote buildings and technical installations with extremely high bandwidth. A GPON (Gigabit Passive Optical Network), for example, currently permits downloads of up to 2.5 and uploads of 1.2 gigabits per second.

The connections from the hub – in one of the buildings on the campus or in an outdoor enclosure on site – to the various buildings or parts of buildings are made with rugged high-fibre outdoor cables, typically using nodes with splitters. These are generally installed underground, but in many countries are also mounted on masts above ground.

At the end of the cabling – in the buildings as a rule – the cables are divided into separate fibres which are available to the individual users. In an airport, for example, these are the shops on the floor of the departure lounges. In this way the operator of the campus network can offer each of them separate secure access to the WAN provider's broadband network.

Cost benefits

First of all, such a point-to-multipoint fibre optic network occupies substantially less space than a copper data network of equal performance – and is more difficult to "tap into".

In addition, between the optical line terminal (OLT) at the starting point and the optical network terminals (ONT) at the user's end the passive fibre optic network (PON) has no need for active components (switches and gateways).

This means that not only is the purchase price much more reasonable, but that it also saves on energy and maintenance costs, as demonstrated by a current Datwyler project with more than 1300 access points and three services – Internet, IP telephony and IPTV (see page 28).

CAPEX	TRADITIONAL NETWORK		GPON NETWORK		
Items	**Components**	**Cost**	**Components**	**Cost**	**Saving**
Active equipment	Internet & IP phone gateway	$195,000	1x 16-port OLT, 455x ONT, 2x mid range SFP	$125,000	
	35 switches & distribution switches	$100,000			
Passive equipment	Patch panels, modules, faceplates, patch cords, Cat.6 cable, around 110,000 m, riser cable	$125,000	Riser cable, FTTH cable, patch cords, splitter box, pigtails, FTTH faceplates	$70,000	
Total		**$420,000**		**$195,000**	**$225,000**

OPEX (kWh per year)*	TRADITIONAL NETWORK		GPON NETWORK		
Items	**Components**	**Cost**	**Components**	**Cost**	**Saving**
Active equipment energy consumption	20,720 watts per hour; 56 switches & distribution switches	$45,730	OLT: 76 watts, ONT: 15 watts each, 1x 16-port OLT, 455x ONT	$15,125	
Total		**$45,730**		**$15,125**	**$30,605**

CAPEX and OPEX comparison calculation – traditional copper and modern fibre optic network

* $ 0.25 per kwh

APOLAN (The Association for Passive Optical LAN) calculates that, depending on the configuration, users of a fibre optic campus network can save between 30 and 50 percent of their operating costs by comparison with copper based networks. Here the lower costs are reflected particularly in error management and in the service level agreements for the active components.

But that is not all: the value of a data network is measured by how well it matches the needs of its users. For example, what happens when one of the tenants wants to operate a small data centre on the site?

Whereas copper-based networks rapidly reach their limits in respect of bandwidth and maximum upload and download times, fibre optic networks permit the simple integration of local data centres, even those with the highest performance requirements.

Moreover they can easily be expanded using copper networks, should lighting controls, CCTV or other local Power-over-Ethernet applications so require.

From advice to operation

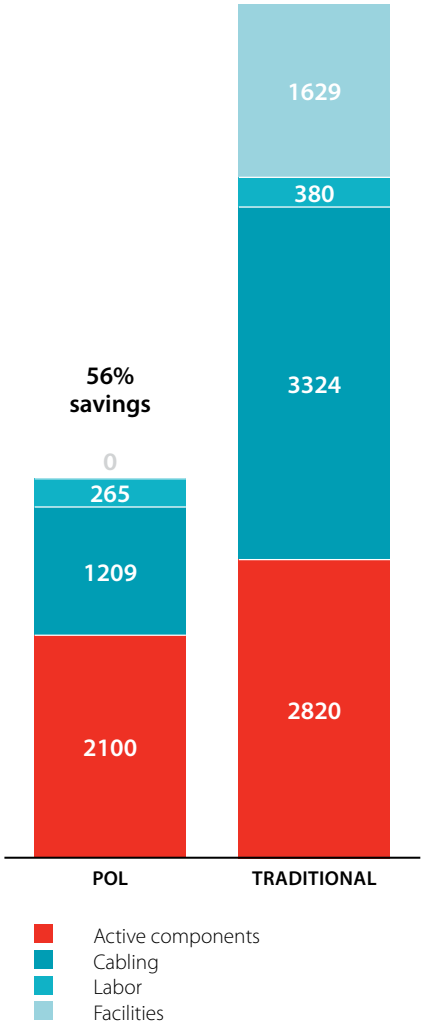
This clearly shows that a modern campus network involves far more than the cabling itself. What applications do you want to implement? How can you enhance user convenience? How can energy consumption be reduced? Can synergies be used? To clarify these and other questions it is worth consulting an experienced IT infrastructure specialist like Datwyler at an early stage.

Even prior to installation Datwyler provides assistance with network design and layout planning. Existing structures are audited for their future usability and evaluated in respect of their performance and possible vulnerabilities as against current norms and standards.

As a turnkey provider Datwyler is also able to define all the components needed for a passive optical network from transfer point to individual data outlet, and to supply, install, test and accept them – including the civil works, for which qualified civil engineering companies are called in.

Last but not least, Datwyler IT Infra is a tried and tested partner for the design and installation of a functional data centre or for the supply and integration of smart lighting components, CCTV cameras and other PoE-powered systems. *(kal)*

CAMPUS INSTALLATION
4 buildings, 6 stories each,
180 users per floor (in kUSD)



Operating costs comparison calculation – passive fibre optic LAN (POL) at campus level and traditional copper network (source: APOLAN)

In the near future 5G mobile phone technology will represent an exciting alternative to fibre optic networks on the campus. In some countries it is already possible for an organisation to acquire a 5G frequency band to cover its campus site. It can then set up its own network of 5G antennae and connect with fibre optics to the provider's WAN.

5G data transfer is characterised by high bandwidths with extraordinarily low latencies (< 3 ms) and no need for expensive installation work. The disadvantages are high investment costs for the antennae and the licensing fee for the frequency band. In addition, some development work still needs to be invested in the 5G hardware at the device end in order to do justice to the wide range of possible applications.

But even today it can be said that 5G technology will open up entirely new possibilities for applications in which high volumes of data are to be gathered on site and immediately processed – for example in the automatic process control and management of a chemical plant with thousands of sensors and a network of local nodes.

Datwyler and its technology partners can also provide interested parties with comprehensive advice on this subject.

Data centres:

SCALEABLE COOLING SOLUTION FOR MICRO DATA CENTRES

Micro data centres with in-row cooling are a future-proof solution which considerably simplifies the operation of edge data centres.

IoT, automation, 5G, robotics and artificial intelligence: digitalisation is making great strides forward. Processing the growing volumes of data in the so-called "edge", in the immediate vicinity of data sources and users, is becoming all the more important.

Micro and mini data centres play a central role in the current wave of digitalisation. Datwyler provides businesses and organisations with a whole series of appropriate solutions for use at the edge.

Integrated cooling solution

Datwyler Micro Data Centres (MDCs) are also available with a slim in-row cooling unit as an option. In Singapore, for example, these coolers supplement the IND MDC i-Series – with either 6 or 10 kVA. Together with the equipment rack (or "power rack") they form a fully enclosed edge data centre solution with modular inserts, including UPS, batteries and energy distribution (PDU) as well as safety, fire protection and monitoring systems.

Datwyler Micro Data Centre with in-row cooling unit (picture left). This solution can be expanded with the growth of the user.

Data centres:

NEW MICRO DATA CENTRE IN CHINA

With a new series of micro data centres Datwyler in China recognises the fact that the requirements of data processing at the "edge" are increasing steadily.

Technologies like Industry 4.0, artificial intelligence, 5G and edge computing are making radical changes to our lives and work. At the same time, in the so-called "edge" it is important to meet the steadily growing requirements of the network nodes for speed, latency, availability and security in these technologies.

Datwyler's answer has been to develop a new series of Micro Data Centre (MDC) which is available to the company's Chinese customers with immediate effect. It provides the requisite network equipment and the complete physical infrastructure in a single enclosed rack, ensuring a reliable power supply and cooling in the user's edge data centre.

Complete lifecycle management

Because each MDC is completely prefabricated and tested prior to delivery, it can start operating on site in only two or three hours. In addition to this a Datwyler MDC combines a cutting-edge cooling solution and power supply with an intelligent management system. This means that after commissioning users have complete lifecycle management and digital remote management at their disposal.

Each Datwyler Micro Data Centre can be used as an independent small data centre. Integrated in the rack are a 2N power distribution unit (PDU), a 6 kVA UPS, a 3.5 kW precision air conditioning unit, a battery pack, the cabling, and an environmental monitoring system – and there is still enough space for the user's IT hardware.

Application-specific configuration

The new Chinese MDC series is designed for a maximum load of 3.5 kW and is suitable for various application scenarios. Depending on the application Datwyler can, for example, configure the MDC with a split air conditioning unit, integrated cooling, or for so-called "free cooling". *(jol)*

The integrated in-row cooling provides the Datwyler Micro Data Centre with a reliable even flow of cooling air from front to rear. The complete cooling solution is pre-installed and its functional efficiency tested prior to delivery. On the user's site it needs neither a pipe or hose connection to an external condenser nor its own power connection, as it is connected to the PDU in the rack.

The cooling airflow in the rack (top view)

Key to success

Datwyler Micro Data Centres are intelligent and flexibly adaptable to different requirements – and hence a key to the success of edge computing. They create a redundant and sustainable IT infrastructure which guarantees the safe operation of the user's systems. Their modular design allows easy fast installation and error searching to ensure the readiness of all systems. In addition Datwyler's MDCs are equipped with a scaleable, centrally operated monitoring and management platform.

If required, a Datwyler Micro Data Centre with in-row cooling can be upgraded to a Mini Data Centre at no great expense. Depending on the configuration the output of a cooling unit is generally sufficient to provide (at least) two racks with cooling air. *(jal)*

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