

Electrotechnical Solutions Tailor-made Business Unit Building Technologies



The Quality Connection

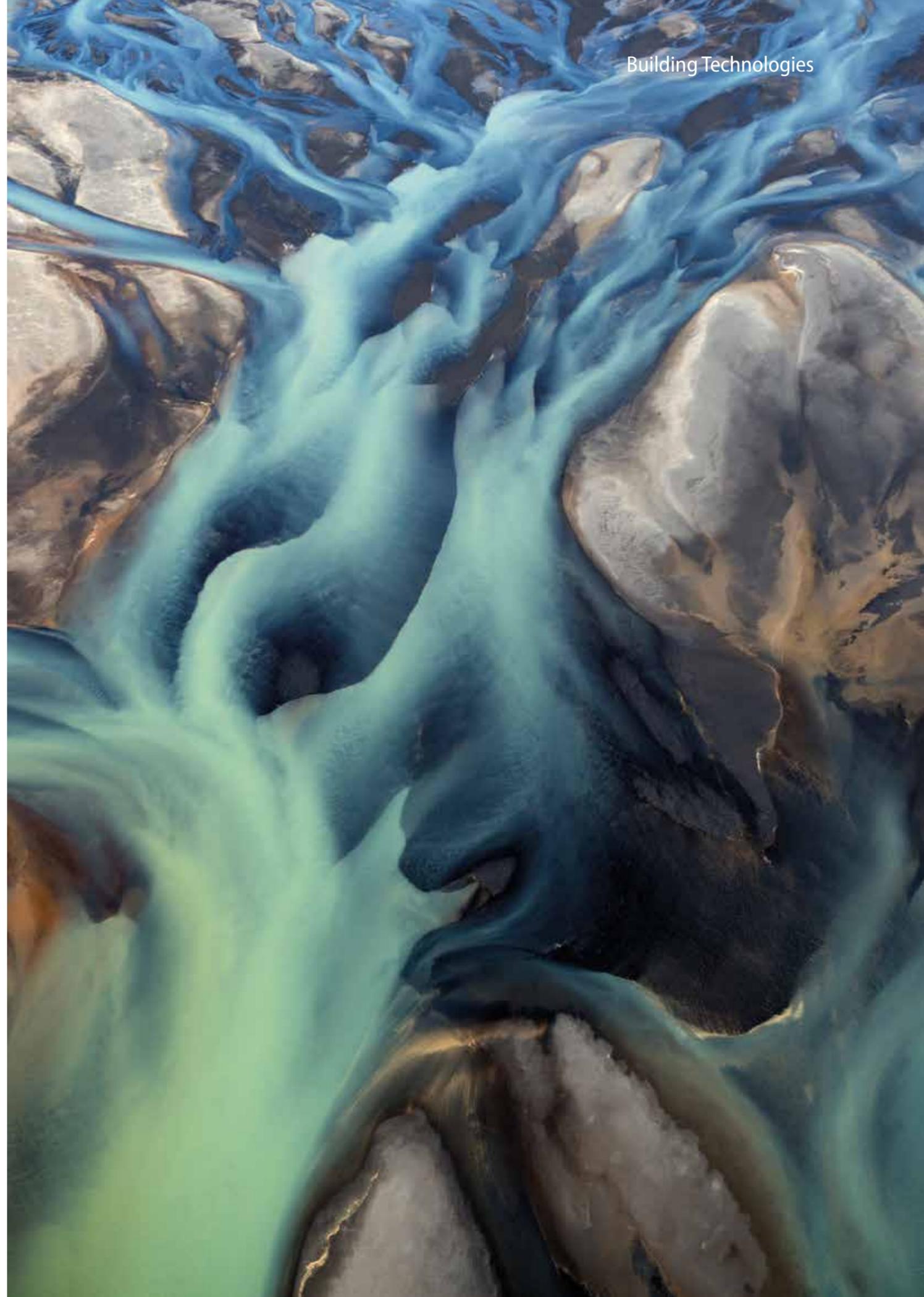
LEONI

Our passion

We make sure that energy and communication networks are provided in optimised form, are correctly dimensioned and are in perfect working order.

Foreword

The world of LEONI's Building Technologies business unit is the world of optimally planned, built and utilised connections and networks. Such flow-managing and flow-distributing connections and networks are often found in nature too, only they are not the result of planning. Instead they develop spontaneously. With running water in particular, they therefore often appear more chaotic than those created by humans. But the beauty of nature remains unsurpassed – as can be seen from these images of a river delta in southwest Iceland which, when viewed from the air, in turn reflects how we approach challenges for the benefit of our customers: with an eye for the big picture, with attention to detail and with multifaceted solutions.



Our core competencies

Cable management has always been our strength. With the expertise of our industrial and electrical engineers, technical planners, safety consultants, construction managers and communication specialists, we work as a one-stop shop to implement and operate complex integral systems.

Project management

Major infrastructure construction projects are marked by complex requirements, large numbers of stakeholders from various professions, long durations and high investment risk. Our project managers know that. They react flexibly to unforeseen events without losing sight of the objective: top-quality project implementation, on budget and on schedule.

Consulting

Our combined project and manufacturing proficiency allows us to give our customers expert advice to solve their challenges in electrotechnical projects and subprojects. A holistic view of the task is important to us here. We have specific product knowledge as part of the LEONI Group, and specialist network planning experience thanks to our subsidiary Adaptricity. Both make valuable additions to our core competencies.

Technical planning

Our name is synonymous with the planning and development of electrical and electrotechnical systems, both in simple structures and complex infrastructure. Our unique 3D cable management and engineering software allows us to create true-to-scale planning models at any time. With our careful technical planning, we help to shorten construction times and increase operational safety.

Network planning

New challenges such as decentralised electricity generation are making network planning increasingly complex. When we acquired a majority share of Adaptricity AG in early 2017, we integrated up-to-date expertise and the best tools in distribution network planning, optimisation and renewal. This gives us a holistic perspective from power plant to plug socket.

Construction management

The best plans and ideas also deserve the best implementation. We ensure that delivered materials are inspected, that contracted companies complete the right tasks on time and to a high quality, and that incoming invoices are checked before they are received by the customer.

Logistics

Transport logistics and materials management are critical to the rapid implementation of major infrastructure projects. Both have the potential to drive up costs, which is why we pay great attention to these two aspects. That way, transport logistics and materials management are as beneficial as possible instead of a major issue in the project.

Metrology

Reliable diagnostic testing of cables and rapid location of faults in low and medium-voltage systems are among our core capabilities. We develop solutions based on our broad experience in metrology, and constantly further our knowledge with new materials and methods of analysis to stay at the cutting edge.

Our key markets

Reference project The Vermigelhütte

Connecting a mountain hut at more than 2000 m above sea level is a particular challenge. The Swiss Alpine Club's Vermigelhütte is situated in a remote location ten kilometres southeast of Andermatt. With the hut's electrification, the SAC wanted to meet the needs of its guests and promote tourism in the region.

The Building Technologies business unit devised a variety of approaches for connecting the mountain hut to the electricity supply. Load flow calculations were used to work out and compare several low and medium-voltage network options. The Building Technologies business unit took over planning of the eight kilometre long, 16 kV medium-voltage line and the substation in the Vermigelhütte. The various necessary approval processes were coordinated at the same time.

Design and logistics are unique in every project. With the Vermigelhütte, the cable was laid through a seven kilometre long drainage tunnel running below the Alpine divide and into Ticino.

The Building Technologies business unit developed specifically adapted pulling and laying methods for the special pull plan as well as coordinating supply and logistics for the medium-voltage cables.

A detailed health and safety plan was also drawn up to ensure safety while the cable was being laid in the drainage tunnel.



Our services

Tunnels, distribution networks, power plants, buildings – these are our market segments.

Reliability and safety in tunnels

We advise and support our customers in planning and implementing technical installations in railway and road tunnels. We guarantee safety and reliability for both the client and the people and goods that are transported through the tunnel.

Working distribution networks

We make sure that energy and communication networks are in working order – complex systems and individual technical or structural parts alike. We guide and support our customers along the journey towards an intelligent distribution network.

Guaranteed energy flow in power plants

We plan, fit and test electrotechnical installations in power stations, solar plants, wind farms and hydroelectric plants – from individual cable systems to complete electrical systems with emergency backup power.

Economically connected buildings

Thanks to integrated 3D planning, preassembly and simplified installation of electrotechnical systems, we create economic added value in buildings.

Our services range from consulting on individual cable systems to comprehensive planning, implementation and maintenance of integral electrotechnical systems.

One-stop end-to-end solutions

As part of the international LEONI Group, we are a cable manufacturer, engineering company, system integrator and service provider all at the same time. Being a full-service provider with end-to-end solutions, we ensure that everyone involved in a major project speaks the same language – from the pre-project phase to execution planning, project management, construction management, commissioning, testing and sign-off. This comprehensive project and system knowledge means that we are also perfectly equipped to manage services during operation.

Consulting for the most demanding requirements

We are experts in planning, developing and implementing individual cable systems and complex integral electrotechnical systems. We are happy to share our expertise with our customers.

Comprehensive engineering

We have specialists in system integration as well as energy and communication technology. These work hand in hand as a team to provide integrated engineering services for electrotechnical systems, regardless of the manufacturer.

Experienced construction managers on the ground

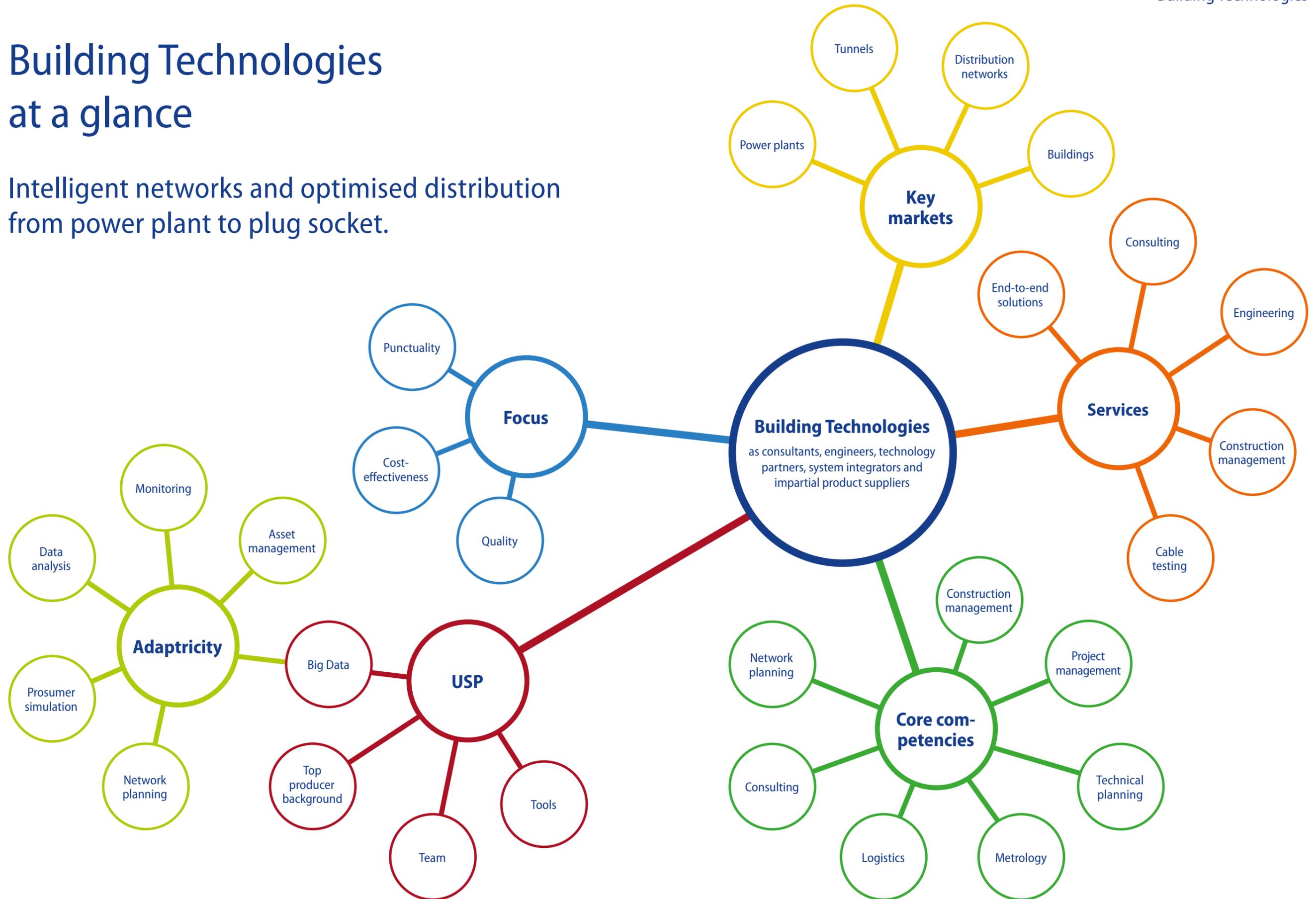
Adherence to schedules and budgets in a construction project hinges to a large extent on the experience, leadership and discipline of the construction manager. We take the pressure off our clients by taking over construction management work on site.

Cable testing

We test cables and cable systems, evaluate the results and draw the right conclusions. Systematically searching for flaws, be it before commissioning or in existing systems, allows us to correct faults before a system fails.

Building Technologies at a glance

Intelligent networks and optimised distribution
from power plant to plug socket.



This is why customers
trust our solutions

Reference project The Gotthard Base Tunnel

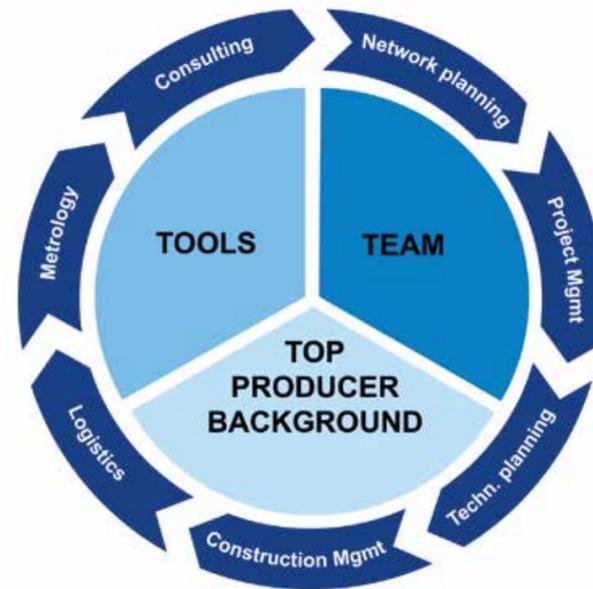
When the Gotthard Base Tunnel opened in 2016, it became the longest railway tunnel in the world – running 57 kilometres straight through the Alps. The Building Technologies business unit carried out various planning and consulting activities for this “project of the century”, including drawing up logistics and cable pulling plans, developing and procuring special multifunctional vehicles, and conducting multiple fire tests and medium-voltage measurements.

As well as planning and consulting work, the scope of the contract also included the actual tunnel implementation. In total, LEONI supplied 1400 kilometres of medium-voltage and 1650 kilometres of low-voltage cables. This added up to some 4000 tonnes of material, which was transported in more than 200 railway wagons.

LEONI set new standards, particularly in planning, logistics and installation. Clever solutions such as standardised cross-passages, bulk assembly, new approaches in the specially created pulling plan and the specification of unique multifunctional vehicles for cable pulling are evidence of the company's capacity for innovation. It was ultimately the end-to-end solution offered by the Building Technologies business unit that tipped the balance in LEONI being given the opportunity to support this project. Thanks to interdisciplinary cooperation within LEONI, numerous external touchpoints were eliminated, significantly reducing the possibility of errors. The associated increase in efficiency was also highly appreciated in the project.



What makes us strong competition



We do what we say. And we say what we think.

We are technology partners, consultants, engineers, system integrators and impartial product suppliers. This is possible because we are able to use the entire LEONI Group portfolio – without necessarily being obliged to do so if the customer prefers other partners for some aspects.

Our focus is on quality, cost-effectiveness and punctuality.

With this in mind, we strive to create tailored solutions without losing sight of the big picture. We work carefully, taking into account both our customers' current needs and their future challenges. That is quality. And we plan rigorously, which saves time and money due to shorter construction times and higher operational safety.

Team

Our teams consist of people with a variety of skills – such as construction specialists, technical planners and economists – working together on a project. Different perspectives help give us a holistic view.

Our employees take on responsibilities. This not only increases motivation, but also the quality of the work. Anyone who wants to be sure of and maintain the quality of their own work will automatically think beyond their own field.

With simple processes, modern working equipment and reliable monitoring instruments, we give our employees the necessary tools to take responsibility according to their own skills and experiences.

Top producer background

As part of the LEONI Group, we have the expertise of a leading international cable manufacturer in-house, giving us access to all of the group's services and competencies. This broad backing puts us in a unique position in the market and creates added value for our customers in terms of performance and trust.

Tools

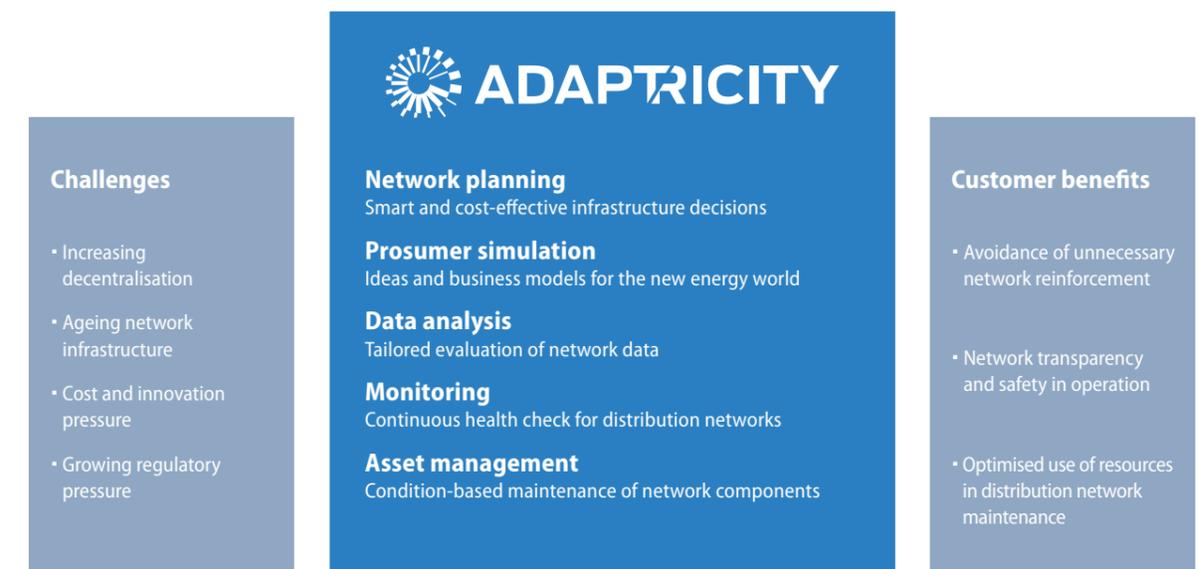
Because we are involved in implementation as well as planning, we learned early on how much intelligent 3D planning processes can help to save time and money. With our 3D cable management and engineering software (DEEM), we can quickly model true-to-scale electrotechnical infrastructure in full. This is particularly important when projects and their requirements change during execution.

Our holistic view of energy and communication networks requires the same quality in target network planning. For this reason, LEONI Studer AG acquired a majority share in ETH spinoff Adaptricity AG in 2017. Since then, we have had our own modern and cloud-based network planning and simulation environment with Adaptricity.Sim. We have also made this sequential simulation software for active distribution networks available on the market under license.

Adaptricity

We offer small and large distribution network operators support and advice regarding the challenges of the energy revolution.

Decentralised energy generation using photovoltaic systems is on the rise, as is the number of new items that consume electricity, such as heat pumps and electric vehicles with increasingly large chargers. This creates new operational and planning requirements for distribution networks. Our subsidiary Adaptricity, a spinoff of ETH Zurich, provides both small and large distribution network operators with support and advice regarding energy revolution challenges of this kind. Products and services in the field of network simulation, network monitoring and data analysis provide decision-making support and help distribution network operators to make network planning and operation more cost-effective.



Competencies and services

- Network simulation and analysis software (available under licence)
- Consulting services for network operators
- Decision-making support for cost optimisation in network planning and operation
- Evaluation of conventional and smart grid network expansion options (as required by ElCom)
- Integration of more renewable energy systems, heat pumps and electric car charging stations into the existing electricity network
- Distribution network transparency and identification of network bottlenecks, including the necessary measurement services
- Implementation of network expansion projects (through LEONI Studer AG)

References

We are proud to say that these customers also rely on our services.



Find out more:

Business Unit Building Technologies

www.leoni-building-technologies.com

Adaptricity AG

www.adaptricity.com

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