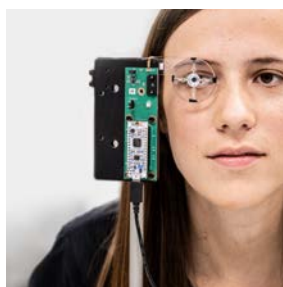


# Helbling Technik: Your partner for innovation

We transform groundbreaking ideas  
into innovative breakthroughs



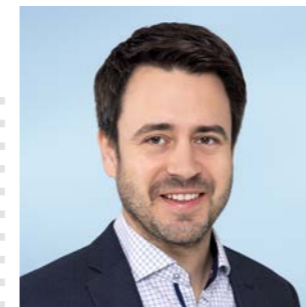


## “Innovation is our driving force.”

The world is constantly changing – and that means people’s needs are too. New lifestyles, new desires, new insights and new goals demand the right products and services. Innovative companies seize on these trends by developing effective solutions tailored to market requirements.

This never-ending quest for quality is a process that raises a number of questions – and innovation provides the strategic answers to them. Innovation brings with it major challenges, as well as significant opportunities. As an energetic and reliable partner, we help you to reap the maximum benefit from this changing landscape.

Long before innovation became a buzzword, we recognized its importance – and specialized in helping our clients to secure a competitive advantage. Innovation has been at the heart of everything we do for more than 60 years. That means we can offer an unparalleled level of know-how and experience that benefits your innovation processes.



“Implementing ingenious, innovative ideas quickly and in line with market requirements – that’s the way to get our clients excited!”

André Wangler



## Perfectly equipped to help you reach your targets

We provide the ideal human, technical and intellectual resources that pave the way for groundbreaking innovations, ensuring the total success of your leading-edge projects.

Our high-caliber teams consist of professionals who inject enthusiasm and energy into the partnership – regardless of whether you require long-term collaboration or short-term support. You also benefit from our trusted and growing network of contacts to researchers and manufacturers providing further sources of inspiration and expertise.

### Comprehensive and diverse

Our high-performance technical infrastructure and state-of-the-art laboratories perfectly complement the technical and consulting expertise that is deeply rooted in all of the Helbling Group's activities. As a result, we provide a unique blend of technical capabilities, know-how from a range of industries and coupled with professional management expertise – a combination reflected in our holistic, interdisciplinary solutions. All of this allows you to optimize your use of valuable resources and to quickly launch new products that stand out for their innovative power and exceptional customer benefits.

As an independent partner, we provide the most effective technology-neutral solutions, tailored to your needs. Your company reaps the full rewards of the project, with all patents and copyrights transferred to your business.

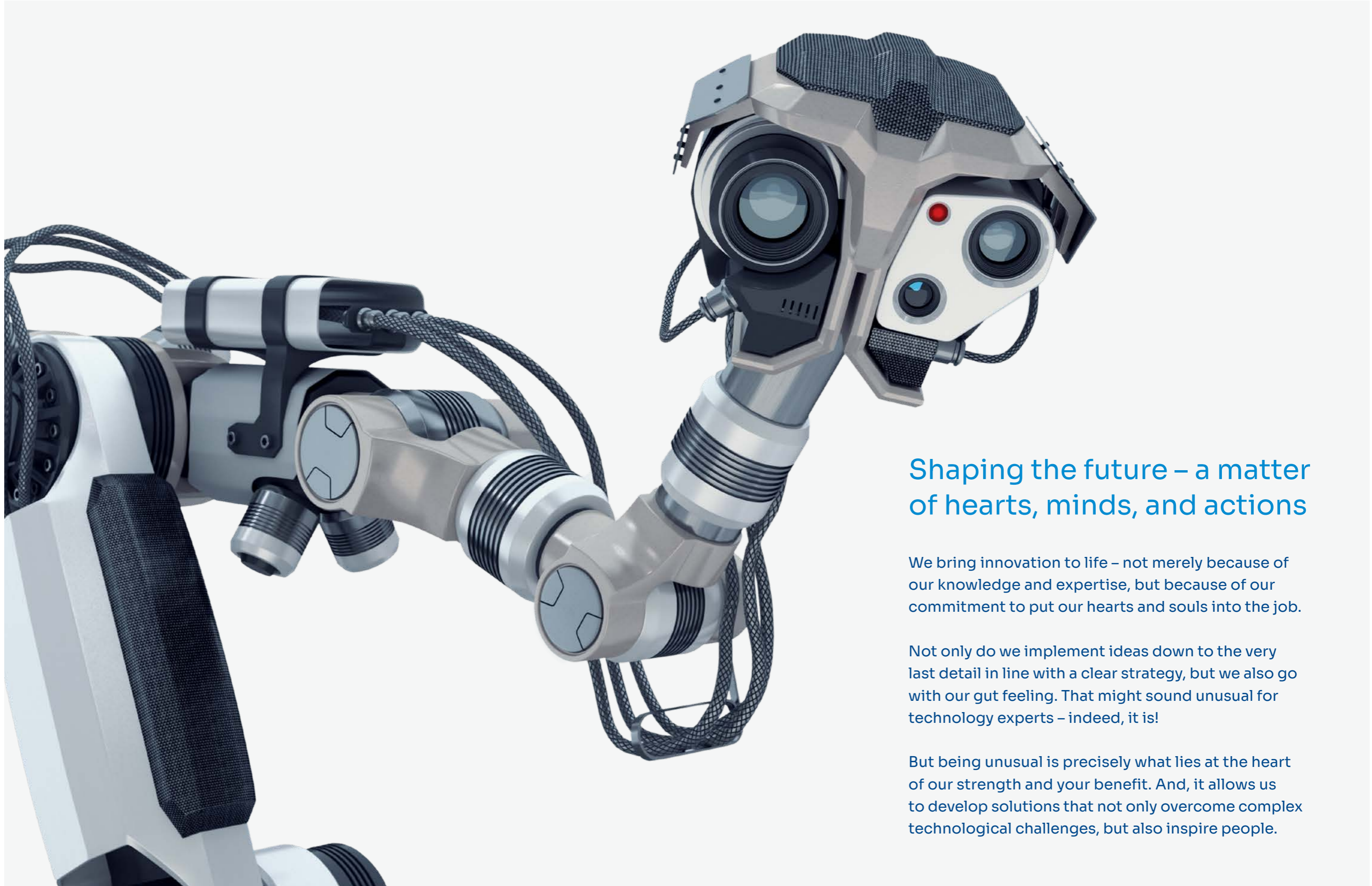


“We accompany our clients on a systematic search for new ideas, identifying innovative solutions with a combination of specialist know-how, methods-based expertise, and comprehensive project management.”

Thomas Hodel







## Shaping the future – a matter of hearts, minds, and actions

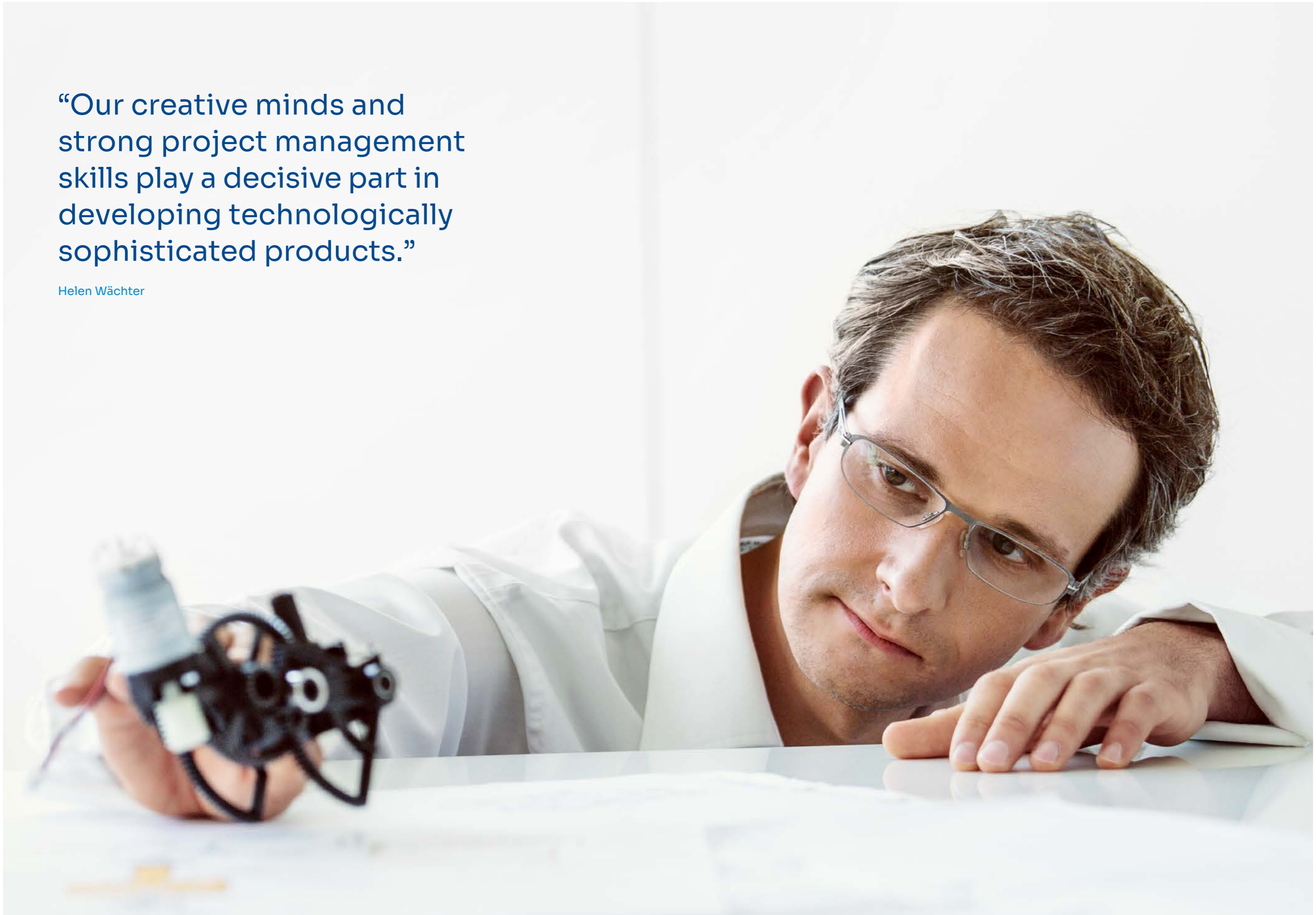
We bring innovation to life – not merely because of our knowledge and expertise, but because of our commitment to put our hearts and souls into the job.

Not only do we implement ideas down to the very last detail in line with a clear strategy, but we also go with our gut feeling. That might sound unusual for technology experts – indeed, it is!

But being unusual is precisely what lies at the heart of our strength and your benefit. And, it allows us to develop solutions that not only overcome complex technological challenges, but also inspire people.

“Our creative minds and strong project management skills play a decisive part in developing technologically sophisticated products.”

Helen Wächter







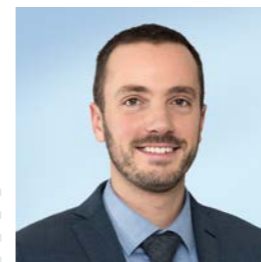
## Efficient and tried-and-true processes

We enable you to move ahead of the competition with strategic innovations. This involves reflecting on your business model and highlighting potential innovations – sometimes breaking out in radical new directions in order to achieve exceptional results.

Comprehensive project and quality management allow our employees to get the most out of their technical abilities and specialist education. Furthermore, we also emphasize a sense of personal responsibility and structured processes. The quality of these processes is reflected in numerous ISO certifications. That means you benefit from reliable methods and solutions tailored to the needs of your organization.

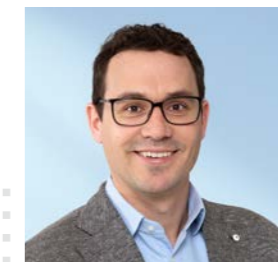
### Fully qualified

Thanks to their top-quality technical abilities and outstanding education, our employees are ideally placed to quickly feel comfortable in any industry. Our project teams take advantage of 60 years of experience to provide the best possible project support and focus closely on critical ideas and challenges. Their broad perspective helps to identify potential new solutions. With this approach, we have supported countless businesses – and the number is growing constantly.



“Being able to listen to clients and understand their expectations is vital for the success of a project.”

Lorenz Klauser



“Our specialized know-how and unique method-based skills go hand in hand.”

Manuel Wittwer



## A broad spectrum of specialist knowledge

Our service portfolio covers a wide range of standardized project phases which we implement either individually or in mile-stone-driven packages. In the run-up to the development process, we assess the market opportunities, analyze your ideas from a commercial and a technical standpoint and carry out feasibility studies.

If all of the prerequisites are met, we move to the planning stage where activities are based on our findings. We draw up concepts that provide us with reliable data for the design phase and by performing tests and fine-tuning generate optimum results. We then move on to development, followed by prototyping and finally production ramp-up support.

### Dedicated to success

In addition to helping you develop profitable strategies, business ideas and market segments, you can also capitalize on our expertise in creating products suited to future requirements in various sectors as well as for industrial applications and end consumers.

Our holistic and long-term thinking allows us to develop new product platforms and entire product generations. Suitable process structures also help you to achieve sustainable reductions in manufacturing costs.



“Unconventional way of thinking is one of our guiding principles, because the first solution isn’t necessarily the best one. We think one step ahead to maximize customer benefit.”

Martin Eisenmann





# High-quality services for various industries

## Specializations

- Ideation
- Product innovation
- Mechanics & construction
- Electronics & firmware
- Software engineering & IT
- Data analytics & IoT
- Measurement technology & sensors
- Calculation & simulation
- Automation
- Mechatronics & robotics
- Microtechnology & microsystems technology/ MEMS
- Optics
- Thermodynamics, fluidics & acoustics
- Plastics
- Signal & image processing, algorithmics
- EcoDesign
- Materials science
- Factory planning

## Industry expertise

Our expertise in developing successful solutions is on display day-in, day-out in a wide range of industries – some of them extremely specialized.

### Home, office & catering appliances

Our innovations in home and office devices are used not only in private households, but also in offices, in public sector and also industrial organizations. They include a host of outstanding features, such as low electricity consumption, a high degree of functionality, attractive and in some cases, award-winning design and technical sophistication.

### Transportation & mobility

Our clients include manufacturers of special vehicles, cable cars, trams, locomotives and trains, and other forms of transport in use around the world. The services we offer include everything from design and development of complex solutions for components to complete, lightweight and reliable vehicle structures. We perform stress analysis, provide evidence for public certification authorities, carry out dynamic simulations and develop, program and integrate control system components for rail vehicles.

### Medical devices

We develop technological and product innovations – ranging from implants to medical and diagnostic devices – that meet applicable regulatory requirements for both technical and medical departments. But the focus is foremost on generating medical benefits for end users, as well as on user friendliness and cost effectiveness.

### Production machinery & automation systems

Based on your needs, we design and develop entire machines, or mechatronic modules in the technology-intensive machine engineering segment. Our main objectives are enhancing performance (in terms of throughput, precision, availability, and quality), while simultaneously helping to cut production costs. Simple solutions are often the key to hitting these targets.

## Service industry & public sector

The industrialization of service industry and administrative processes is well under way. We enable our clients to meet the related challenges by supporting the automation of their business processes and helping them to offer new services thanks to creative IT solutions.

## Diagnostics & lab systems

Our services in this segment cover the development of diagnostic devices for home care uses, and high-efficiency, automated lab systems. We also create solutions for complex measurement technology and image processing applications.

## Energy & intelligent infrastructure

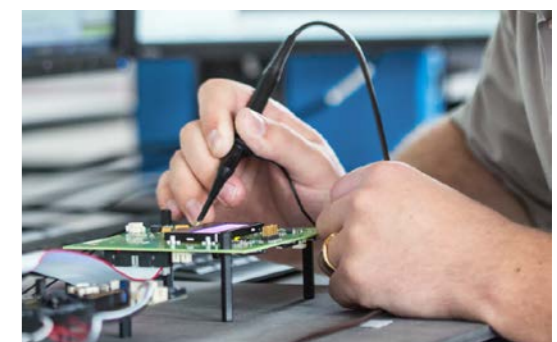
We work with you to devise solutions for efficient power generation, offering support on power plant construction and implementing smart infrastructure and systems based on information and communication technologies.

## Clean tech

Our clean tech services comprise developing production equipment for the solar power industry, optimizing the consumption of energy and resources by devices and machinery, as well as devising new products based on ecodesign principles. Looking at the cost situation as a whole, environmentally friendly solutions are often cost-efficient and quickly start to generate profits.

## Industrial instruments & tools

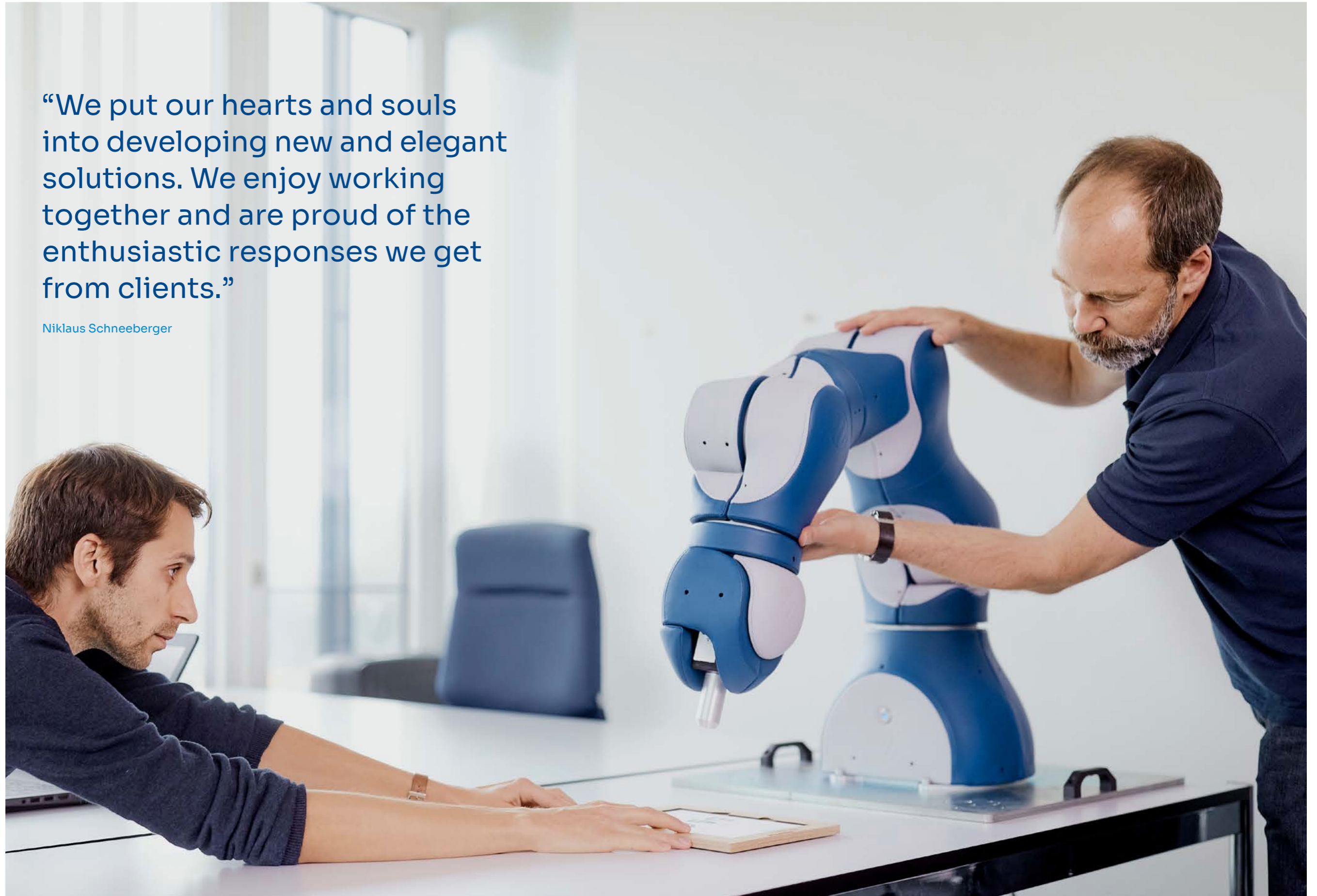
We develop mass-produced instruments and tools for various applications. Our expertise comes into its own when you require groundbreaking solutions for devices such as mobile phones, electronic and motorized equipment, and high-power-density tools.





“We put our hearts and souls into developing new and elegant solutions. We enjoy working together and are proud of the enthusiastic responses we get from clients.”

Niklaus Schneeberger



## A strong team: creativity and expertise

The key to our success are our teams – creative, experienced people who are dedicated to developing innovations and implementing them efficiently using project management tools. Inert curiosity and openness for new ideas are their driving force.

Our motivation, creativity, and technical expertise are the main ingredients when it comes to finding the best possible solutions to the challenges facing our clients. This enables us to create products, methods and processes that generate real added value.

### Bright minds and leading experts

Our team of over 500 engineering, IT and physics specialists generate new ideas and help you integrate state-of-the-art technologies.

Because we are dedicated to continuously improving, we offer our staff comprehensive training in social skills as well as specialist courses. This allows our staff to enhance their existing skills set, acquire new expertise and constantly broaden their horizons.



“Ingenious solutions aren’t always the low-hanging fruits, and that motivates us to think laterally.”

Thorsten Parketny



“We use all of our creativity and expertise to produce innovative solutions that inspire our clients.”

Daniel Hauri







## Dynamic and trusted networks – a key ingredient to success

We assemble the most effective innovation team possible for you and ensure that we maintain the required level of confidentiality. On request and where necessary, we also involve external designers, university departments, prototyping specialists, and other experts in the development process.

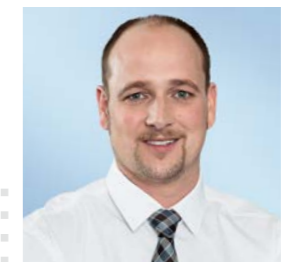
### Room for innovation

We make use of targeted, open networks, which are far more dynamic than closed and centralized structures. Our ability to cooperate with partners around the world is just as important as expert knowledge management in this respect. This means we effectively combine experience, know-how and creativity from a range of different sources. This creates innovative power – laying the foundation for successful projects.



“Taking different roads to innovative products results in satisfied clients and highly enthusiastic engineers.”

Rainer Maisch



“The keys to success lie in strong partnerships.”

Michael Weibel

# Tried-and-true processes – from the idea to the finished product

## A wealth of experience

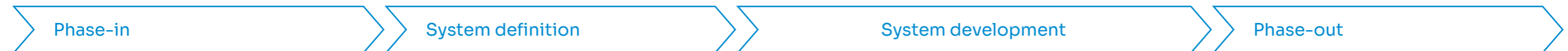
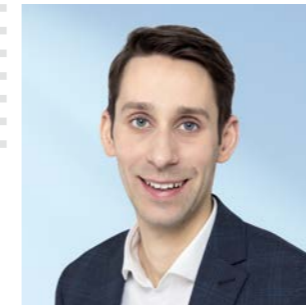
We employ structured and well-tested processes that we adapt in light of new findings from the field of innovation research. As a result, we can provide support in the early phases of your innovation process. When it comes to development, our structured and methodical approach and our expertise in systems and production are a guarantee of reliability. Our services cover a wide range of disciplines from mechanics and electronics to software.

## Clear and focused

Preliminary studies allow us to help you identify user requirements and lay the basis for system definition and design. We use static and dynamic simulations during the design and implementation phases in order to bring ideas to life, while the final solution and product comes in the shape of working models and prototypes.

“Professional project implementation and dedication help us to satisfy our clients’ needs, and deliver the benefits and success they are looking for.”

Jonas Eichenberger



### Solid foundations

In-depth technological and industry know-how and professional innovation consulting services allow us to provide sustainable solutions from the beginning of the project.

### A clear concept

Our structured, methodical approach delivers the dependability you need to press on with successful innovations. We also offer outstanding systems expertise resulting from interdisciplinary collaboration among our various specialist teams.

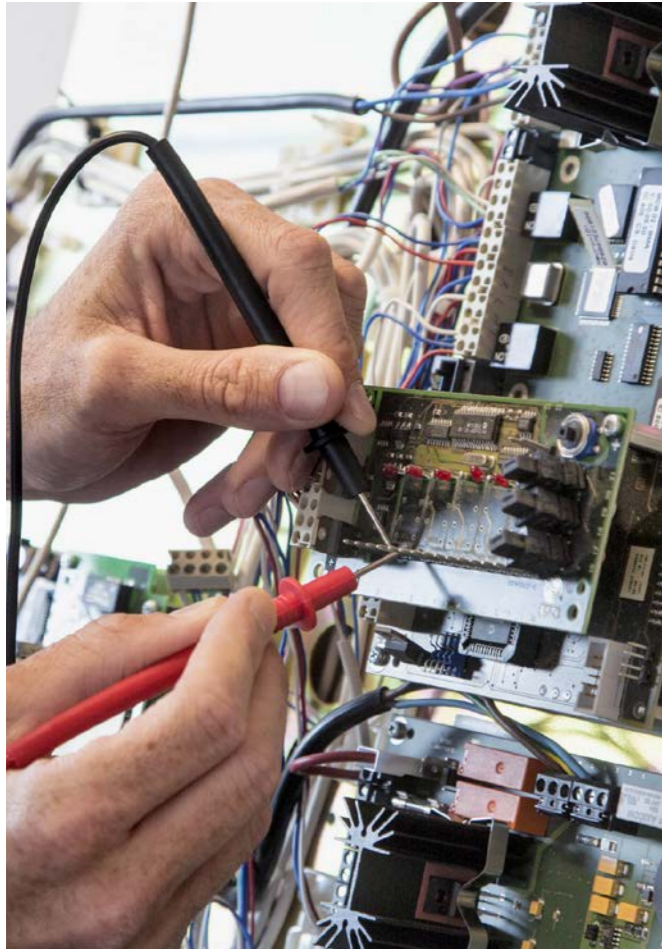
### Efficient implementation

We use state-of-the-art, high-quality tools to ensure reliable implementation. Our high-performing technical infrastructure and modern laboratories allow us to create simulations that simplify your decision-making process, helping you to minimize time to market.

### A successful outcome

Our manufacturing expertise extends to system solutions for mechanics, electronics, and software. For production, we rely on a network of trusted sourcing partners.





## Goal oriented, and progress focused

Our competence centers and laboratories in Bern, Zurich, Wil, Aarau, Munich, Wrocław, Boston and San Diego are equipped with the very latest, state-of-the-art technology. We rely on high-performance engineering equipment, professional methods and pioneering infrastructure. The specialists in our assembly and testing facilities conduct experiments and continuous tests, demonstrate proof of concepts and work on optimization projects. Experimentation with working models and prototypes are also part of our repertoire.

### Tomorrow is today's yesterday

A company can only retain its competitive edge if it is constantly developing – and we will help you achieve precisely that with targeted research. Our laboratories' competences include mechatronics, electronics, microfluidics, acoustics, optical engineering and metrology. On top of this, we operate the InnoLab – an open, innovation center where ideas are given free rein so that they can flourish. The creative workshops that we host for you represent the perfect start to a truly collaborative partnership.



“Working closely with our clients to develop advanced medical technology products, which bring together aspects of sensor technology and electronics, is highly motivating.”

Stefan Bauer



“It is tremendously satisfying when working on a project hand-in-hand with the client culminates in successful market launch.”

Simon Müller







© Nestlé Nespresso S.A.

**Client**  
Nestlé Nespresso S.A.

**Industry**  
Home, office and catering appliances

- Our contribution**
- Development of the modular concept
  - Development of different housings
  - Development of the coffee module
  - Development of electronics, hardware, communication and software systems
  - Development of telemetry and integration of touchscreen

**Powerful innovation for tasteful enjoyment**  
We have developed a new kind of professional coffee machine for Nespresso. The modular design makes three different models possible, simplifies maintenance and reduces the need for replacement parts. Connectivity allows software and recipes updates from the cloud.

The project comprised development of the entire system including mechanical development, electronics, hardware, software and hydraulics. Additionally, the machines needed to stand out for their high-quality design and simple, state-of-the-art operation, with a multi-language touchscreen.

The modular approach extends from the mechanics and electronics through to the software. For this purpose, we developed five different processor-controlled circuit boards which were combined with three additional modules from suppliers. Telemetry and the solution for integrating a touch-sensitive screen was also provided.



**Client**  
Securiton AG

**Industry**  
Smart infrastructure

- Our contribution**
- Complex communication technology
  - Scalable, modular software architecture
  - Optimised, ergonomic user interface
  - Cloud technologies for mobile applications

**No compromises when it comes to fire protection**  
SecuriFire is a fully redundant, modular fire alarm system distributed by Securiton. To avoid large-scale fire and smoke damage, timely and accurate detection is essential. SecuriFire prevents fire from spreading by detecting it at its inception.

Using SecuriFire Studio application, developed by Helbling, the SecuriFire system can be configured and maintained more efficiently and to higher standards than previously possible. The engineer installing the system is guided through the process step by step, minimizing training and installation costs.

Premium software that conforms to all applicable safety standards significantly increases efficiency during the planning and construction phases. Thanks to many years of experience, and using leading edge development techniques, we created an innovative software platform. Our expert interdisciplinary team fulfilled the client's requirements to the letter. The product was implemented and delivered on schedule, in close collaboration with the client.



**Client**  
QIAGEN Instruments AG

**Industry**  
Research and medical technology

**Our contribution**

- Development from idea to volume production
- System verification
- Comprehensive lab tests
- Delivery of design data for rapid prototyping
- Prototype testing
- Support for the pilot production run
- Further development support and adaptation to new applications

**A cube with all sorts of good sides**

Qiagen specialises in sample preparation and testing technology for molecular diagnostics. We supported the firm in developing the QIAcube, a novel system for automated purification of biomolecules such as nucleic acids and proteins. The development project with Qiagen extended from the initial idea to readiness for volume production.

Thanks to the QIAcube, protein and nucleic acid samples can be purified using the established spin column process automatically instead of manually, as was the case previously. This allows laboratories to improve productivity and increase the repeatability as well as the reliability of test results. And the device is so compact and simple to operate that even small labs can use it efficiently: the QIAcube requires only a square metre of floor space.

In Helbling, Qiagen had the support of a development partner with the necessary expertise in all of the required areas: from mechanical development and electronics to software and liquid handling. Following the product's successful market launch, we continued to provide the customer with development support (see the GeneRead QIAcube). The QIAcube has won a number of awards both for its design and its functionality.



**Client**  
VividQ

**Industry**  
Mixed Reality

**Our contribution**

- Development of a holographic headset
- Compact, robust device design
- Ergonomic user interface
- Technical development of mixed reality

**Innovation you can see**

We helped the start-up VividQ to develop the world's first holographic headsets, and to market revolutionary new software for generating realistic 3D holograms in real time.

Until now, complex computing demands and the high volumes of data required have posed a significant challenge for mixed-reality applications using holograms. The British start-up VividQ developed proprietary software that can compute holograms in milliseconds, and generate realistic holographic images in real time, using standard computer hardware. VividQ mandated us to develop a headset that could demonstrate the software and its unique potential. Working closely with the client, we developed a compact, robust design for mobile use including laser sources, projection lens and optical combiner, and an ergonomic user interface. The first functional device was produced just a few months after the start of the collaboration.





#### Client

QualySense

#### Industry

Production equipment and automation systems

#### Our contribution

- Ideation
- Test set-up
- Rapid prototyping
- Prototype development
- Engineering and design development
- Supplier management
- Production and assembly supervision

#### The seeds of innovation

The Swiss start-up QualySense specializes in sorting equipment for cereals, seed and the like. We were engaged to develop an isolating, transporting and sorting system enabling to process 3,500 grains a second. Over more than 8,000 work hours, we created and tested a working model from which we derived prototypes, and then supported their production and assembly.

The search for ideas on how to achieve the required throughput was conducted systematically from the ground up. We demonstrated that our solution worked in the laboratory, using a test set-up and rapid prototyping. This marked the beginning of a prototype development period for the QSorter Horizon, lasting over 12 months. An interdisciplinary team designed and developed the system in close collaboration with QualySense. Both the technology and industrial design were given high priority in this process. Besides the engineering tasks we were responsible for supplier management as well as for production and for assembly supervision.



#### Client

Bill & Melinda Gates Foundation

#### Industry

Home and office appliances

#### Our contribution

- Development of a functional demonstration model
- Design development
- Development of a modular concept

#### Sustainable cleanliness

The Reinvented Toilet is a new, unique toilet concept for households without a mains water connection.

We developed a functional demonstration model for the Reinvent the Toilet Challenge set by the Bill & Melinda Gates Foundation. The system is based on chemical wet oxidation technology, which is integrated into a compact assembly, reducing the space requirement to a minimum. Its functional design, comprising robust and easy to clean components, ensures that the product can be used anywhere in the world. It has a modular construction that makes it easy to install. The challenge of creating a functional toilet without a water supply was solved by using a closed-loop water cycle.

The model developed by Helbling was presented at the Reinvented Toilet Expo (in Beijing) which was organized by the Bill & Melinda Gates Foundation. The Helbling Toilet has attracted international attention and set a new standard for this type of systems.

# Sound methods – the key to outstanding solutions

We have access to an extensive portfolio of tried-and-tested methods based on innovation research that have proven their worth in real-life processes.

We examine the options from every angle and find solutions that generate the improvements that give you a decisive competitive advantage. With the help of a sophisticated yet pragmatic development process, we turn pioneering ideas into innovative breakthroughs. Our independence is vital to the success of the process, and ensures that we can channel all of our energy into delivering the best possible financial outcome for your business.

## Consciously crossing boundaries

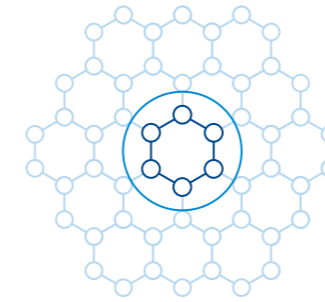
You will feel the benefits of our multi-industry expertise and creativity, as well as our proven ability to see things from a different angle. As an external partner, we make the most of the latitude available to us to question unwritten rules and put forward unconventional solutions. Our specialists are well-versed in modern methods, such as open innovation, expertly applying these approaches to reach their innovation goals. Over the course of hundreds of projects, we have built up a repository of know-how that we draw on in every subsequent brief.



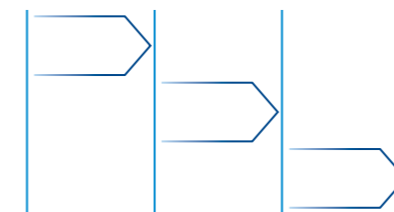
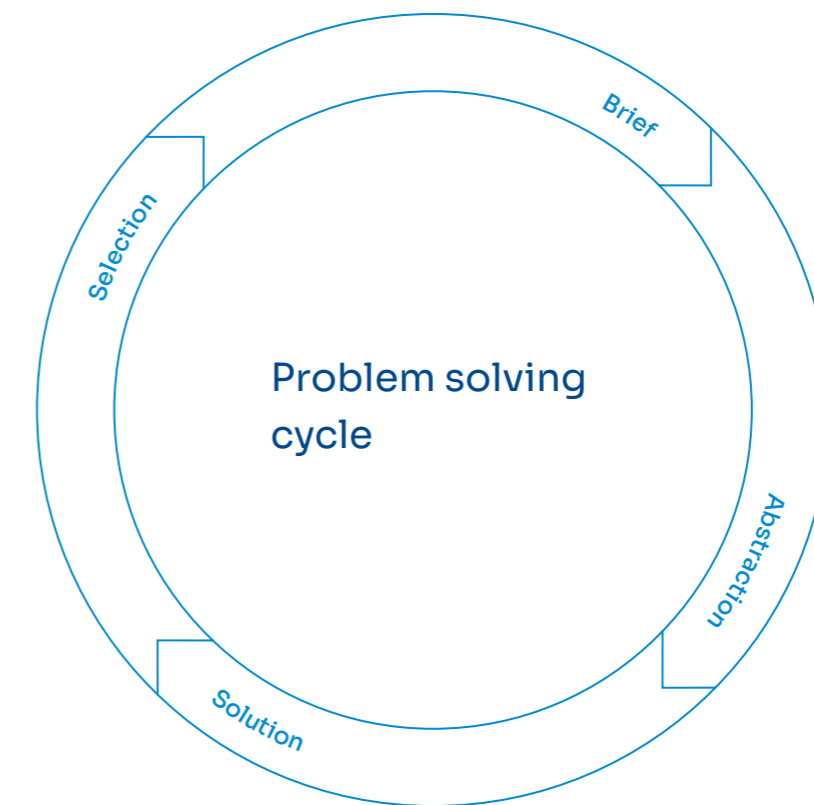
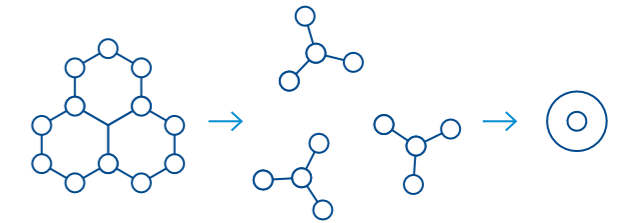
“The appreciation from our clients after a successful product development is unbeatable – that’s our motivation and drives us at fast pace towards new innovations!”

Christian Seiler

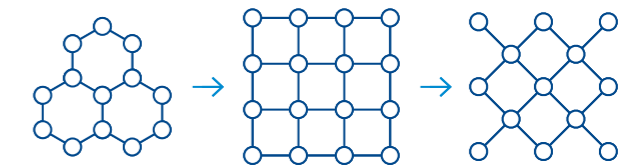
Defining system boundaries



From rough outline to details



Phasing and project structure



Divergent thinking





## Pioneering, fascinating, successful

The Helbling Group is independent and run by its 36 managing partners who work in four competence centers: Helbling Technik, Helbling Business Advisors, Helbling PLM Solutions and Helbling Beratung + Bauplanung. Together the partners represent an interdisciplinary alliance, with a focus on technological innovation and business consulting services.

- Product Development: ideation, product innovation, microtechnology, mechanics, electronics and software development, computations and simulations, optics/sensor technology/image processing, and clean technology
- Business Advisors: mergers and acquisitions, restructuring, financial advisory and risk management, operational excellence, innovation management and strategy development
- Beratung + Bauplanung: general contractor services in construction and civil engineering, and services for complex real estate, industry and infrastructure projects
- PLM Solutions: consulting, implementation and integration services for product lifecycle management solutions

### Expanding horizons, smoothing paths

The combination of expert skills in technological innovation and business consulting services makes us uniquely positioned to deal with challenges by taking a specialist, project-oriented approach and holistic perspective of your company as a whole. Our well-organized, interdisciplinary teams work together with you to develop solutions fast and support you in their successful implementation. We always pursue the same goal: to boost your innovation ability and competitiveness.

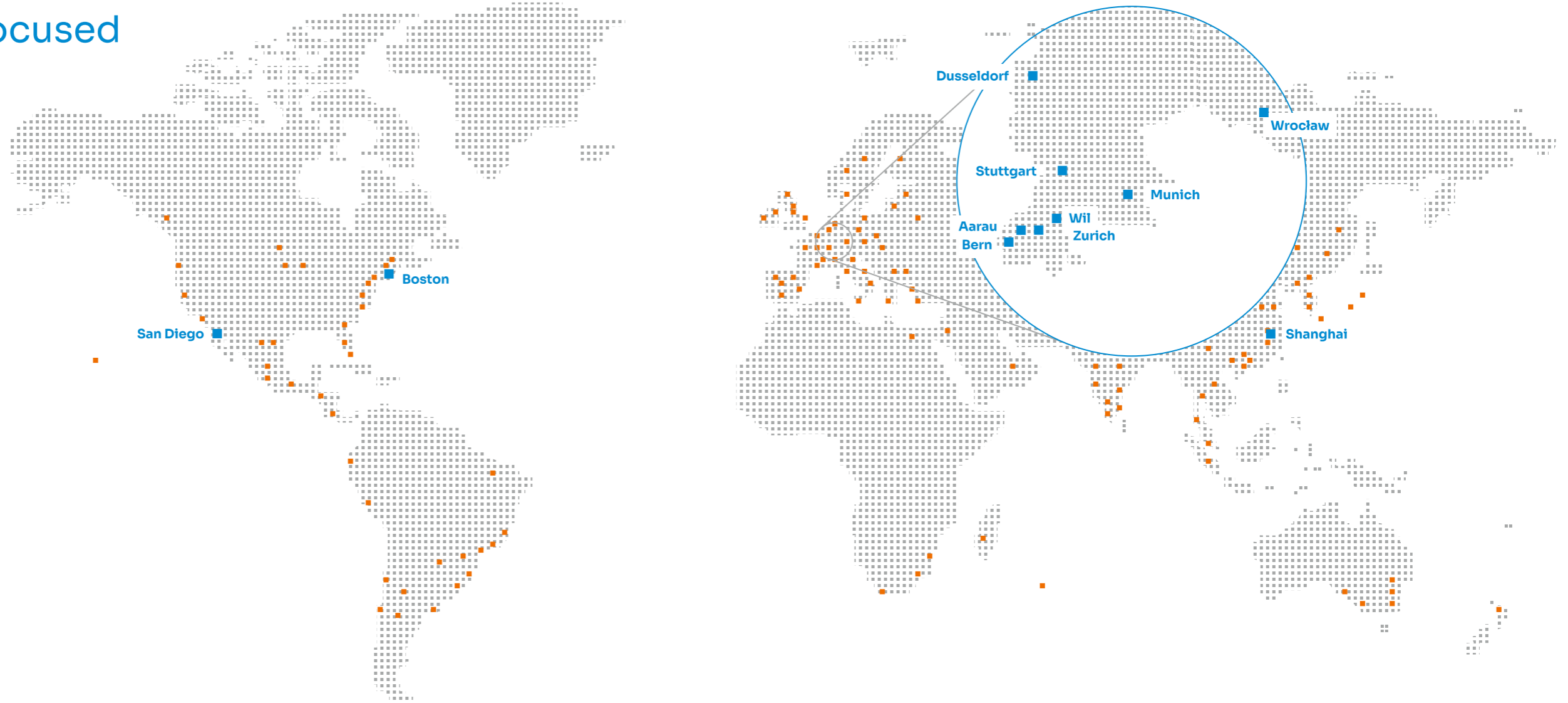
“Enthusiastic clients and motivated colleagues – that’s my personal priority.”

Stefan Huggenberger



# The Helbling Group: global reach, innovation focused

- Helbling locations
- Project experience Helbling



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