

# PERIODICAL #25

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# Skyfall

Do you already see the ground?

Well, until now we have embraced the illusion that a combination of powerful verbal claims and strong sanctions will bring the free fall to a stop. It's time to face the truth: A sweet poison is not a cure. There are just not enough parachutes for us all to land without being hurt. We, as an economy and a society, are simply too dependent on energy. Or more precisely: on Russia (not mentioning the next big elephant in the room...China).

In the meantime, the leader-as-manager type will explore which analogies he can apply from dealing with known skyfalls. On top, he'll hope that the means of escape will lie in solutions that reach maturity in the future. But how to bridge today to the future? How long does this bridge have to last? And who determines what future energy needs we will face?

In his latest book, Henry Kissinger states that ordinary leaders seek to manage the immediate; great ones attempt to lead their society to their visions.

According to this, we definitely have too many (political) managers and too few leaders. Managers who accept an idea as a solution in itself. And for the rest, content themselves with bold words, stating what we already know. But in order to deal with skyfalls, we have to apply bold leadership, actions that can provide an answer to the crisis.

Leadership according to Kissinger is undogmatic and does not hesitate to deal with controversy. Leadership has a vision – but one that places today's situation very pragmatically into a broader context...precisely so that it can head for tomorrow. So, borrowing Kissinger's idea of illustrating and applying how great leaders dealt with crises, I'd raise the hypothetical question: What would Adenauer do? Or Thatcher?

Here are some uncomfortable ideas:

Cut regional and political blockades when it comes to securing energy transport and supply for the whole of Germany – or better still, the whole of Europe. To this end, shape a common energy strategy for Europe in a super-fast way. One that is not based on national egoisms, but shares the burden across many shoulders. But then...be prepared for new frontiers.

Unwrap all existing and functioning nuclear power plants. Every megawatt we can produce counts. Every megawatt of green power will help to make hydrogen more efficient. The challenge of nuclear waste or "Endlagerung" is already there. Importing nuclear power is nothing but political ignorance.

Start exploring fracking in Germany. From a self-responsibility, CO<sub>2</sub> and independence point of view, it is better to have the gas exploited from our own ground than having it fracked in the US and transported to Europe.

And finally: Let's be clear about the writing on the wall. This is a *Zeitenwende* – for states, political parties, companies, and individuals. Thinking in terms of values or interests alone is just not enough to be a visionary. It takes both – pursued with utmost dedication.

Welcome to our periodical #25 – Skyfall! Our authors are true leaders in their field. They know how to build parachutes and show us the dark clouds' silver linings. Be it energy, healthcare, or true leadership.

Enjoy the read.



Yours

A handwritten signature in black ink, appearing to read "Gerhard Nennung".

Gerhard Nennung

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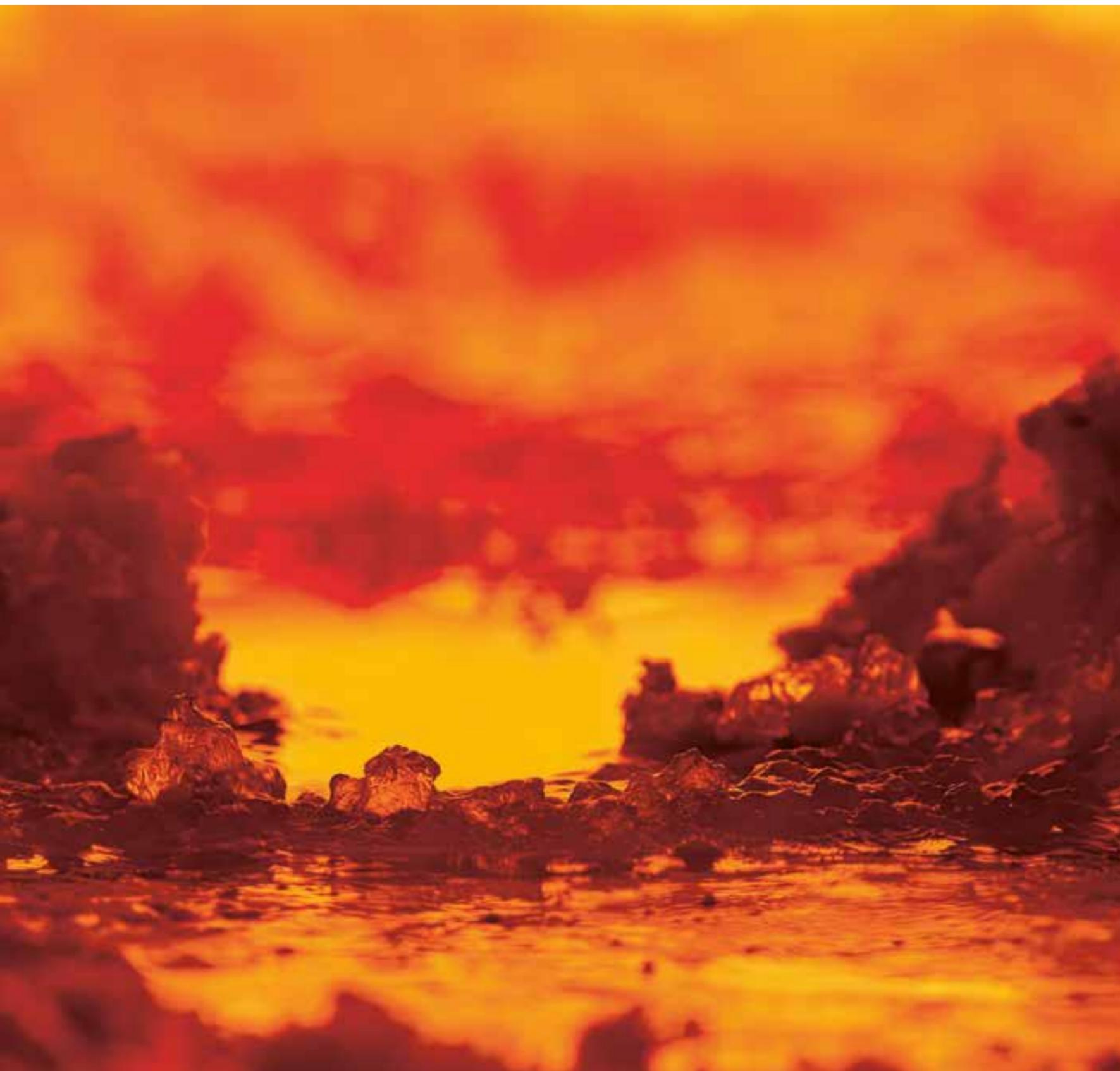
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# Taking on the Challenge of a Lifetime

Transforming the economy towards carbon neutrality is inevitable. Nevertheless, it will be a long, challenging road requiring entrepreneurial courage and stamina.

**Dr. Jens Schulte**  
CFO  
SCHOTT





**I** invite you to take a few seconds and imagine a world without specialty glass. Our modern world would look and feel much emptier, wouldn't it?

There would be no safely packaged medication, no smartphones, no microscopes for scientists, no telescopes to look deep into the universe. There would be no nanolithography to ensure process precision in semiconductor production. Without glass, we would not have such powerful computer chips.

Specialty glass enables fascinating solutions that other materials simply cannot provide. In fact, there is hardly a field of technology, whether it is electronics, the automotive industry, or biomedicine, that would be possible without it.

When people ask me about glass, I tell them that it is one of the oldest materials known to us, yet we have only scratched the surface of possibilities. Glass also plays a significant role in achieving climate policy goals. For example, solar glasses and glass fibers strengthen the rotors in wind turbines. Therefore, without glass, the energy transition would not even be possible.

**“Without glass, the energy transition would not even be possible.”**

## Producing glass takes a lot of energy

Even as glass has helped us achieve many milestones, it still entails a very energy intensive process. It is similar to the cement, lime, steel, and chemical industries processes as a primary material at the beginning of the value chain. Glass production requires temperatures of up to 1700 °C to melt raw materials in huge melting tanks of the size of large swimming pools.

The continuous melting process runs 24 hours a day, 365 days a year, for up to ten years. You cannot simply switch it off because the glass bath reacts to even minor temperature differences. Even if energy supply is reduced only for a short period, glass can solidify and destroy a tank.

Today, it is natural gas that is mainly used to heat melting tanks. This in turn produces high carbon emissions, 80 percent of which come from the combustion of natural gas.

This must change, though. Moving away from natural gas is not only crucial to the glass industry's transformation to climate neutrality. The current war in Ukraine and the looming energy crisis have made it clear that there is a strong need for a diverse energy portfolio that is more independent from fossil sources.

## A change must come

The shift of the global climate represents the greatest challenge of our time. We all have to take responsibility in tackling this challenge. Politicians, companies, and society. Achieving the overall goal of decarbonization requires massive changes across entire industries. Due to its energy intensity, the glass industry clearly has a special responsibility in working towards this goal. In the long term, it must move away from fossil fuels and thus reduce its emissions.

This is why SCHOTT has set a clear goal as a globally influential specialty glass manufacturer: We are the first player in the industry to become climate-neutral by 2030 (based on Greenhouse Gas Protocol scope 1+2). This is a very ambitious journey with many unanswered questions. I am firmly convinced, however, that this journey is the right one. Society needs more institutions that set ambitious and challenging goals to lead the way in their industries.

It is clear that if the glass manufacturing process is to become climate-neutral, we must replace natural gas with alternative energy sources. When considering all aspects of how we can achieve this climate neutral energy turnaround, technology change is probably the most significant challenge for the global industry.

**“In the long term, we want to abandon the use of fossil fuels wherever technologically possible.”**

**“Achieving the overall goal of decarbonization requires massive changes across entire industries.”**

At SCHOTT, the biggest challenge is to transform the entire production process. This requires a massive change in the way we produce glass. In the long term, we want to abandon the use of fossil fuels wherever technologically possible. Therefore, in developing new technologies, we focus on the most energy-intensive process step of glass melting. Here, we concentrate on two main transformation paths: electrification and hydrogen technology. Electricity from renewable energies plays a crucial role in both approaches.

The path to carbon neutrality is greatly accelerated by another megatrend of our time: digitalization. We already rely on artificial intelligence and Big Data solutions to make the melting process more efficient. Thanks to new sensors and technologies, mass data recorded at the melting tanks can be better structured, analyzed automatically and be used to achieve process improvements. As a result, process engineers and technicians can recognize the complex interactions more quickly and intervene in a more targeted manner. This will lead to an improvement in process stability and higher yield – in short, to a further increase in efficiency.





## We can only succeed together

I am convinced that this transformation can be successful. Initial R&D results at SCHOTT are already quite promising. Nevertheless, we can only achieve actual change through close cooperation between policymakers and industries. The challenge of transforming the entire industry is far too great to master alone.

What framework conditions are necessary for a successful transformation of industrial production in Germany? And how can climate protection and competitiveness be combined?

In my opinion, the following five points need to change:

**First, funding support throughout the journey.** We need strong research funding to develop new, climate-friendly technologies. The industry needs subsidy programs to bear the high investment costs that arise during technological change. In addition to funding for research and investments, we also need support for the additional costs incurred by using alternative energy sources, such as green electricity.

**Second, expedited permit and funding procedures:** Approval procedures will be a significant hurdle. This applies to the glass industry and to the development and expansion of the energy supply with renewable energies in general. Unfortunately, many approval and funding procedures take a very long time. This needs to change.

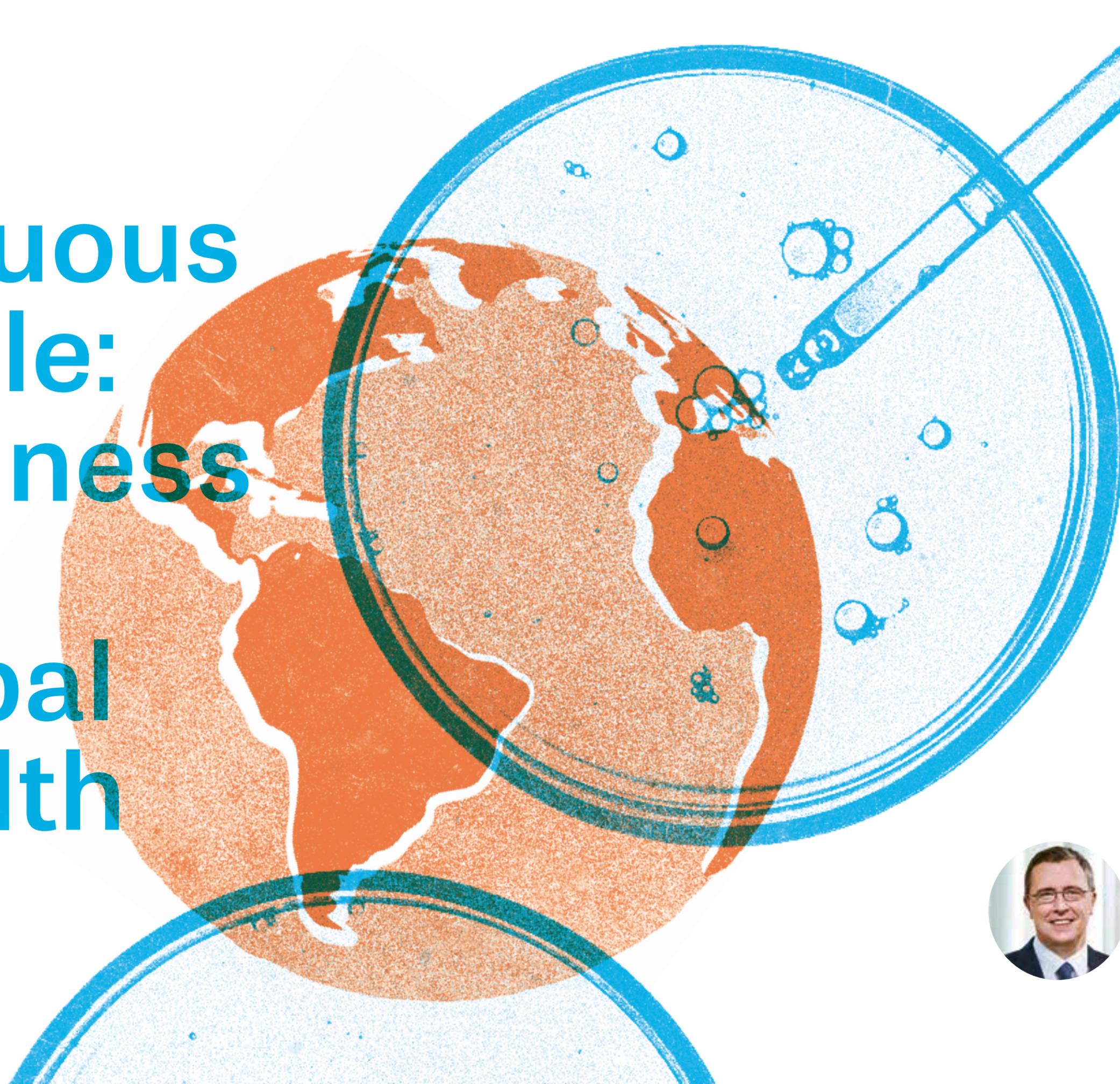
**Third, availability of green energy sources:** The availability of green energy sources must be expanded. Besides green electricity, green hydrogen and – as a bridging technology – bioenergy are particularly needed. The glass industry needs to have a reliable, continuous and uninterrupted supply of green energy. This also requires efficient transmission and distribution networks.

**Fourth, competitive prices:** Alternative energy sources must be available in sufficient quantities and at competitive prices.

**Fifth, a national energy strategy:** as we have painfully experienced this year, all of this needs to be embedded in a more strategic policy view on energy supply in Germany and Europe. In addition to defining the right energy mix this also needs to address where energy supply is coming from and what our strategic dependencies are today and will be in the future.

For thousands of years glass has made so many different products and advanced technologies possible. Now it is up to our industry to funnel the wealth of knowledge into transforming our own production processes. By making them far more energy-efficient and climate friendly, our industry is preparing itself for a much greater level of innovation and exciting new products we cannot even imagine today. At SCHOTT, we understand that achieving climate neutrality will not be easy. It will require clear goals, determination, our own investments and a lot of hard work. However, we believe that we are all responsible for the safeguarding of the planet for the future, and that we must do everything in our power to stop climate change for the benefit of future generations. ▀

# The Virtuous Circle: Business and Global Health



Being a good corporate citizen is no longer just a “nice-to-have” for any business. Long gone are the days when companies could simply “do good, and talk about it,” in terms of philanthropy and public relations campaigns. Without disclosures, metrics, or information on compliance.



**Roland Sackers**  
CFO  
QIAGEN

Today, a wide range of stakeholders – above all current and prospective investors as well as employees – routinely scrutinize how companies are living up to their Environmental, Social, Corporate Governance (ESG) ambitions. That means providing extensive proof points, and ones that are increasingly required to be vetted by third-party groups, as to how their business strategies and operations reflect and impact real-world issues.

**“Even before the COVID-19 pandemic, corporate investment had largely moved away from funding R&D for intractable killers like malaria, antimicrobial resistance and tuberculosis.”**

Even before the COVID-19 pandemic, corporate investment had largely moved away from funding R&D for intractable (the so-called “forgotten” or “neglected”) killers like malaria, antimicrobial resistance and tuberculosis (TB). High regulatory burdens, weak healthcare infrastructure in low-resource settings and low ROI had made these endeavors increasingly unsustainable. As Sally Davies, then the UK’s Chief Medical Officer, explained back in 2019: “We desperately need new antibiotics, diagnostics and alternative treatments. There is a ‘market failure’ so companies are disinvesting as the current model of payment does not marry up with the complex nature of resistance.”



**“QIAGEN is among the companies actively exploring new models to make sustainable investments in global health such as ‘cost-plus,’ where companies transparently price products for use in low-resource settings at a concessional level just above cost.”**

## Out of sight, out of mind?

TB has long been the world’s most lethal infectious disease, killing more than one million people every year. That horrible impact continues today, but has been overshadowed by the COVID-19 pandemic. The World Health Organization (WHO) reports that reduced access to TB diagnosis and treatment in the face of the pandemic actually caused TB deaths to increase for the first time in more than a decade (WHO Global Tuberculosis Report 2021.)

While global funding for TB research hit \$915 million in 2020, that’s less than half the annual goal set by UN member states in 2018, according to the Treatment Action Group (TAG) and Stop TB Partnership. “Investments from governments, philanthropies and pharmaceutical companies have remained flat since 2018, which contrasts dramatically with their historic mobilization of resources against COVID-19,” TAG noted in presenting the report Tuberculosis Research Funding Trends, 2005-2020.

QIAGEN is among the companies actively exploring new models to make sustainable investments in global health such as “cost-plus,” where companies transparently price products for use in low-resource settings at a concessional level just above cost. This model widens access and increases affordability while unlocking potential new markets, at a margin that still ensures companies have the ability to reinvest into future innovative R&D to expand assays, reach more people, tackle more diseases – and above all, save more lives. Showing that this virtuous circle model works, helps us lead by example and stimulate more private-sector investment in resource-limited settings.



## Keeping everybody in the cycle

Companies have long engaged with governments, health authorities and civil society organizations on ways to improve access to health care. The challenge today, especially in light of the COVID-19 pandemic, is that these companies must become key stakeholders in the virtuous circle themselves, leading in the development of the new tools and technologies that are part of our DNA and daily work, and actively working to introduce and scale up their use. And so, many companies are already engaged in important and synergistic relationships – with highly leverageable networks that encompass research institutions, pharma, biotech, labs, surveillance centers, public health authorities, and on-the-ground healthcare providers and practitioners.

The ESG goals at QIAGEN are fully integrated into annual business and financial objectives. They are essential to ensuring that QIAGEN’s “license to operate” is approved by stakeholders. These investments to resolve social and environmental problems are investments in the future of the company and in ways to improve the world.

As a leader in both Life Sciences and Molecular Diagnostics, we are deeply committed to widening access to affordable healthcare, ensuring that innovations being developed in academic and pharma labs around the world are translated into products that benefit patients in both industrialized countries and low-resource regions. No country should be left behind.

## Preventing new diseases

QIAGEN's Global Public Health Task Force develops far-reaching initiatives in deep collaboration with R&D teams. This includes developing diagnostic solutions that are solely created to target prevalent and emerging diseases. We collaborate with UN and WHO agencies, and with public health authorities and NGOs, to meet the enormous demand.

An example involves QIAGEN's longstanding commitment and contribution to the global fight against TB. To date, more than 100 million QIAGEN QuantiFERON-TB tests have been made available in more than 130 countries and have been incorporated into many national TB strategies. QuantiFERON testing requires only one patient visit and is highly specific and sensitive, and a positive result is strongly predictive of infection.

In 2021, QIAGEN also launched a fully portable, battery-operated version called QIAreach QFT – a product specifically developed to support global health in low-resource, decentralized settings. Utilizing the QIAreach QFT system, QIAGEN is now collaborating in a Wellcome Trust-funded project with The London School of Hygiene & Tropical Medicine and the Malawi-Liverpool-Wellcome Clinical Research-Programme on a pediatric TB screening and surveillance research project in Malawi, to support targeted interventions for this vulnerable population. This innovative program was designed with collaborative implementation and cost-sharing from square one, and we have every confidence that it will serve as a model that can be replicated elsewhere.

The COVID-19 pandemic has also been an area of collaboration with countries around the world to ensure global availability of critical testing diagnostics. QIAGEN teams developed a series of new tests to cover all stages of the COVID-19 infection cycle, and dramatically scaled production to 24/7 to meet intense and unprecedented demand. Meanwhile, QIAGEN tests have helped screen more than 100 million women around the world for human papillomavirus (HPV), the primary cause of cervical cancer.



**“Epidemiologists say the early warnings of the next pandemic will likely come from resource-constrained locations.”**

## Early detection of pandemics

Epidemiologists say the early warnings of the next pandemic will likely come from resource-constrained locations. Strengthening laboratory infrastructure in regions like Africa, Southeast Asia and Latin America will underpin a robust surveillance network that should be part of any pandemic preparedness strategy, helping us all see, and respond quickly and efficiently to, whatever threat might emerge next. This is why QIAGEN is working with regional and national reference laboratories in sub-Saharan Africa and Southeast Asia to develop diagnostic centers of excellence.

Of course, doing business in resource-constrained regions has many challenges, and building a robust diagnostic capability that supports smart clinical decision-making can't happen overnight. These critical developments require taking a long-term view, strong cross-sector partnerships, and patient and proactive coordination among ALL stakeholders.

But ultimately, such sustainable investment will yield returns that can be measured across many bottom lines – most crucially a better quality of life for millions of people around the world, and in line with our vision at QIAGEN of making improvements in life possible. ▀



**Dr. Günther Thallinger**  
Member of the  
Board of Management  
Allianz

# It is Time to ‘Mean Business’ on Climate Change

“Make the world a better place and in the process also make money!” An imperative many company leaders want to strictly follow. Most of the rest at least agree with “do no harm.”

**T**he emerging climate crisis threatens the maximum possible harm we can do to our world. Fortunately, business leaders are increasingly willing to tackle this potential cataclysm. More than 1000 cities and 5,200 businesses have joined the Race to Zero, a global campaign to rally leadership to reduce greenhouse gas (GHG) emissions to net-zero as soon as possible and by 2050 at the latest. They are committed to work on a zero-carbon recovery and have started changing their business activities now.

More than 1400 companies have made further progress and had their targets and detailed plans checked against science, by joining the Science Based Target initiative (SBTi), which provides a clearly-defined science-based path to reducing emissions in line with the Paris Agreement of 2015.

**“Many businesses, cities and investors are coming together to take the opportunities a net-zero economy offers. Where are you?”**

These companies say that their plans strengthen customer relationships and brand reputation, drive innovation and offer the chance to boost profitability and improve investor confidence. They also state the plans reduce regulatory uncertainty, by getting them prepared for the inevitable policy response on climate.

Several investors are following through on getting sustainability, and in particular, climate integrated in their decision-making. Investors are transparent about it. They, too, formed initiatives and made net-zero pledges.

More than 70 long-term investors came together in the UN-convened Net-Zero Asset Owner Alliance and have not only pledged net-zero but set 2025 carbon emission targets against which they have started to report. These investors are pushing the hardest. To date, this is the only business initiative with such short-term, intermediate targets and a stringent reporting process.

These investors do not want to divest, but rather want to collaborate with investee companies to implement the respective transformation. These investors do this, because implementation offers opportunities for more profitable business and hence the potential for very much improved asset values – the ultimate objective of investors.

Many businesses, cities and investors are coming together to take the opportunities a net-zero economy offers. Where are you?





## Coming to grips with the details

Admittedly, there is work to be done and many challenges ahead. One is information and data, that feed into decision-making and thus reporting and auditing. Thus sustainability (emission) information must be appreciated as equally important as financial information and must be used in one set of decision-making.

Second, effective business initiatives can only emerge if we agree on climate models and then derive sectoral and individual company pathways from them. Members of the Alliance are using a new data model to inform the decarbonization targets of their portfolios and assessments of investee companies' alignment with a 1.5°C limit.

The Limit Global Warming to 1.5°C report outlines the findings of the One Earth Climate Model (OECM), developed by the Institute for Sustainable Futures at the University of Technology Sydney. The model maps the remaining carbon budgets for 12 carbon-intensive industries up to 2050, including agriculture, chemicals, power and steel.

As the IPCC notes, readily-available technological solutions already exist for more than 70% of today's emissions. The OECM describes the granular sector-specific net-zero pathways and targets that can reduce and then eliminate emissions.

**“For companies, joining initiatives and reaching out to investors may help to significantly increase the impact of work on reducing climate impact.”**

## Multi-stakeholder approach is critical

For companies, joining initiatives and reaching out to investors may help to significantly increase the impact of work on reducing climate impact. Many changes and enhancements are basic and not a source of competitive advantage, hence working together across companies is clearly the best approach. Perhaps also the only approach given that every company has scarce resources.

Immediately we have massive geopolitical challenges. These are threats to economies. The forced changes in many industry sectors, but especially energy, are very much the same changes needed to steer towards an economy with a greatly reduced climate impact. This should help us to think again, to be very open, beginning with the alignment of a target state. This should also help us come together and seek aggressively opportunities to jointly drive infrastructure projects. I imagine us forming – much more often than in the recent past – groups of companies across sectors working on long-term projects, even if the required investments are huge.

Many initiatives are up and running – companies should join, but only if they are willing to bring in the capacity of their experts to collaborate and contribute. Working in such initiatives requires lots of listening, sharing and readiness to provide room for others. In short, this is not the field for big egos, or great narcissists. But rather a huge space for fast learning and true leading.

If this is too much, please let me challenge you. I am not going to impose Kant's ultimate commandment of reason. Stealing from Armin Falk, University Bonn, I use a simple form of Kant's. In many (German) public washrooms one can read “Bitte verlassen Sie diesen Raum, so wie Sie ihn vorfinden möchten.” (“Please leave this room as you would like to find it.”) Now please substitute “Raum” (“Room”) with World. What are you business leaders going to do? ■

# The Long Road from Financial Investor to Energy Company

Things could be so simple.  
In fact, things used to be so simple.

**Dierk Paskert**  
CEO  
Encavis

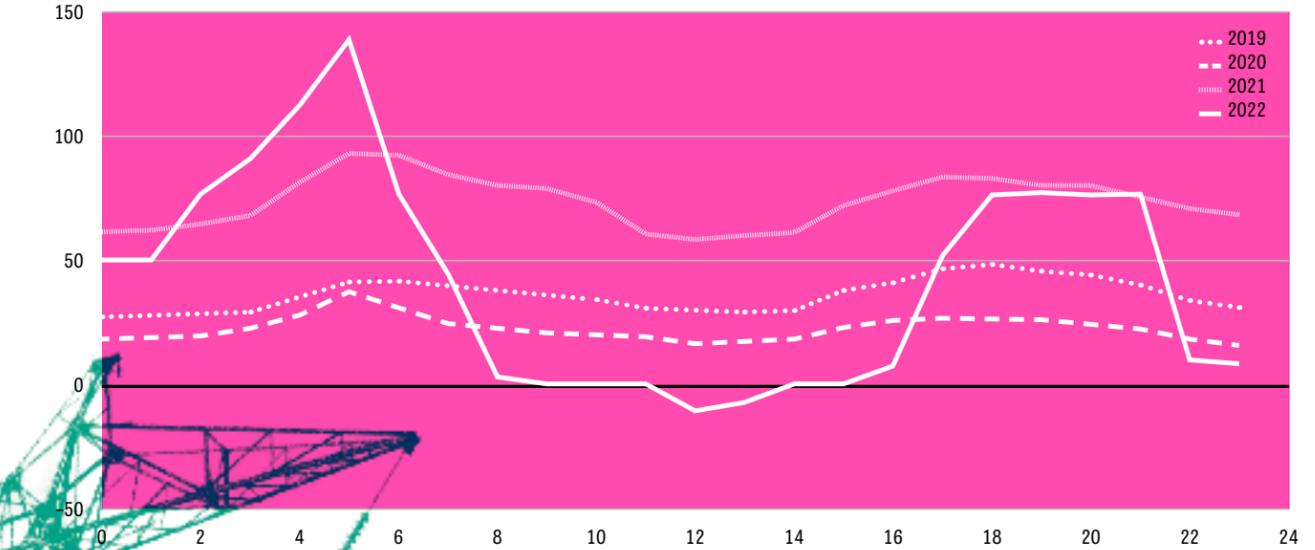


## The good old days

For many years, investing in and operating units that generate electricity from renewable energy (RE) sources, especially onshore wind and photovoltaics (PV), was a straightforward business model. While not completely risk-free, it involved known risks that could be managed by simple means: prices were secure (usually thanks to government feed-in tariffs), volumes could be reliably estimated using statistical models, costs could be planned, and (debt) financing was cheap, easy to obtain and locked-in for many years. Although RE facilities generated electricity, just as coal- or gas-fired power plants did, the RE market was in some ways a parallel universe, populated by small to medium-sized project developers and a broad range of investors, from private individuals to institutional investors to independent power producers (IPPs), resulting in an ownership landscape that was as fragmented as the RE facilities themselves. The functioning of the RE market seemed disconnected from the laws of economics: in a market characterized by clearly delineated and manageable risks, economies of scale were simply not a relevant success factor.

“Although RE facilities generated electricity, just as coal- or gas-fired power plants did, the RE market was in some ways a parallel universe.”

€/MWh DUCK CURVE – PRICE PER HOUR ON THE LAST FRIDAY IN MAY



€/MWh DAILY STANDARD DEVIATION OF HOURLY PRICES

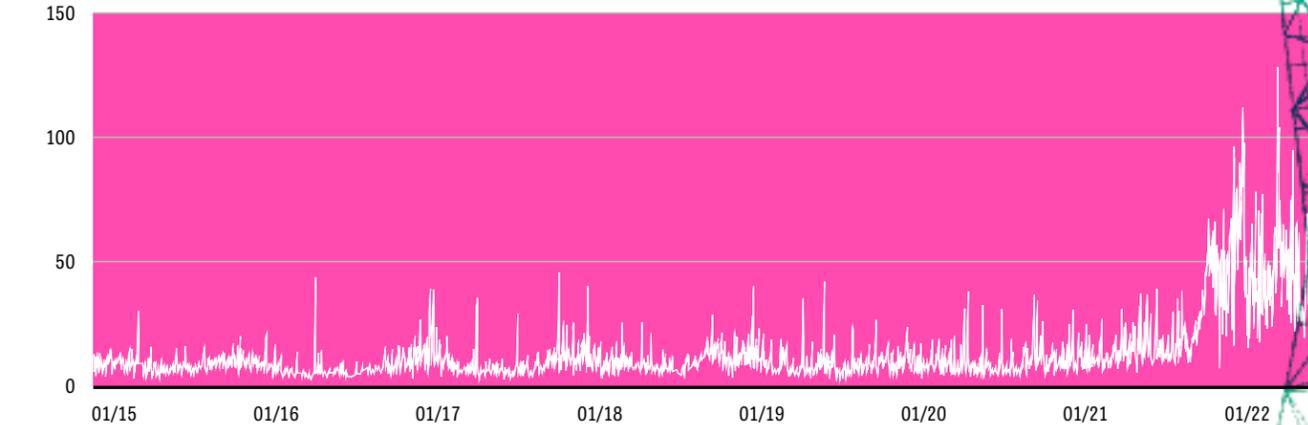


Figure 1: Volatility and distortions on the electricity market are increasing, as shown by day-ahead prices in Germany

Source: ENTSO-E; Day-ahead prices on EPEX SPOT for the DE/LU market region

## The inevitable coming of age

However, the success of renewable energy – i.e., the ability to generate green electricity at competitive prices – has ultimately led to the demise of this parallel universe, with renewables now constituting an integral part of the energy market. Subsidies in the form of traditional feed-in tariffs are no longer necessary, or only to a limited extent: the levelized cost of energy (LCOE) for onshore wind and PV is now significantly lower than for rival sources of generation using fossil fuels and nuclear power. But just like the transition to adulthood, this success brings with it new challenges for which there are no easy answers:

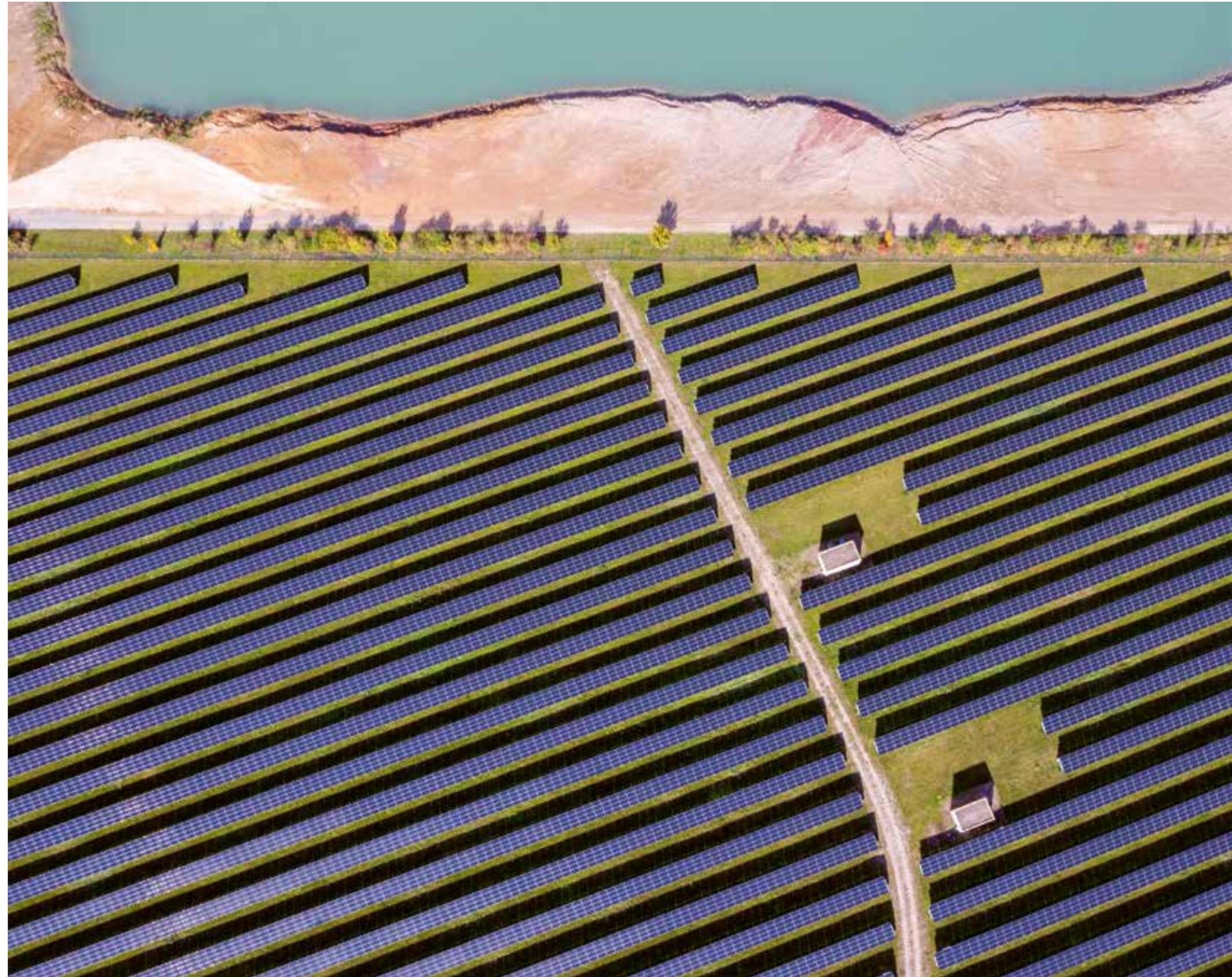
- ▶ The high penetration of renewables means dependence on an intermittent form of generation. This is leading to increased volatility in electricity markets while also placing immense strain on grid infrastructure. Investments in grid expansion need to increase rapidly – we are still only at the beginning in this respect. Meanwhile, the costs of dealing with short-term distortions in the electricity market are rising sharply.
- ▶ If we are to get anywhere near meeting the ambitious international and European climate targets, the current expansion of renewables will need to accelerate significantly. Already today, (often understandable) concerns by local residents (“Nimbyism”) and environmental NGOs are slowing down RE projects, pushing up costs, and/or delaying development and commissioning. In recent years, many European countries have passed legislation to shorten development cycles. However, these concerns cannot be dispelled by dictates “from above.” The industry must find ways to better engage citizens in the development and operation of RE facilities and increase their environmental compatibility.

**“While there is nothing wrong with these measures, all of which are necessary, they are far from enough to overcome the challenges that lie ahead.”**

**“There is a solution to every problem – neat, plausible, and (often) wrong”**

In light of all these changes (loss of subsidies, cost and margin pressure, competition for the best plots of land and licenses), there has also been a radical shift in the environment for RE operators. The sector has been showing signs of industrialization for some years now. As they professionalize, project developers and operators of RE facilities are using classic management tools to help them survive in their new environment: cutting operating expenses by bundling contracts, reducing maintenance costs by standardizing deployed technologies used, centralizing the system landscape, and optimizing existing contracts such as financing agreements. If this isn't enough (and it isn't), they are considering expanding the value chain – for example, by covering not only commercial but also technical management and Operation & Maintenance (O&M) in-house. In project development and engineering, too, operators are trying to create more of their value internally.

While there is nothing wrong with these measures, all of which are necessary, they are far from enough to overcome the challenges that lie ahead.



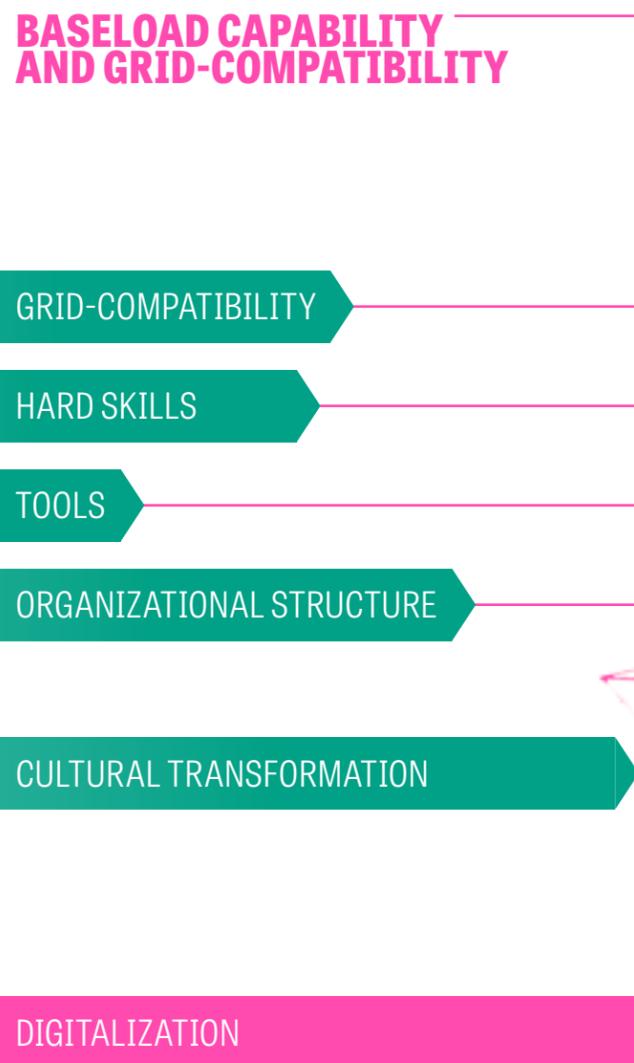
**“I cannot say whether things will get better if we change; what I can say is that they must change if they are to get better.”**

If an IPP is to hold its own in a radically altered RE market, where the generation and sale of electricity from RE facilities is subject to the same rules as conventional power while also facing the unique challenges associated with renewables, it needs to completely transform its business model, corporate culture, organizational structure, and technology foundation. IPPs must realize that their responsibility for their “product” (kilowatt-hour!) does not stop at the electricity meter, but that the energy produced must be compatible with the power grid as a whole. RE facility operators must work toward two goals: **baseload capability** electricity meter and **grid-compatibility** for physical stability.

As part of this transformation, IPPs will need to learn new **hard skills**, in areas such as energy management, electricity trading, and portfolio optimization. These skills have to be combined with new **tools**: simulation applications, increased use of external data (e.g., on electricity prices, power purchase agreements, and weather), and tools for risk measurement and assessment. To develop and get the most out of these tools and skills, an **organizational structure** is required in which existing silos are torn down and departments such as operations, finance, energy trading, risk management, and IT are more closely integrated. IPPs must move away from the optimization of individual power plants and recognize the interdependencies between all – existing and future – generation facilities. However, first a **cultural transformation** needs to get under way so that employees can learn to work in new structures and with new tools. At the same time, everyone in the organization has to accept that decisions must be taken amid greater uncertainty than in the past. This doesn’t mean that risks should be taken blindly – on the contrary: we need a better understanding of risks, precisely because the risks are bigger, more abstract, and more complex than in the “old world.”

All of this can only be achieved on a solid foundation of **digitalization**, which enables all the necessary data to be collected, processed, and kept ready for analysis. In the new world, in which optimization and investment decisions are no longer based on individual assets, the interdependencies and influences within the portfolio must be made transparent.

The number-one challenge facing an IPP is to shape and steer this change in order to turn it to its own advantage in the context of the energy transition. This requires a completely new set of skills from senior management too.



**Figure 2:** Dimensions of transformation

**“In the future, renewables will no longer be just an integral part of the energy market – they will be the energy market.”**

## The journey continues

This fundamental transformation is necessary for RE operators to survive in a changed energy market and continue working toward the Paris climate goals. In the future, renewables will no longer be just an integral part of the energy market – they will be the energy market. Renewable energy will be front and center, with other technologies there to support the overall system. Environmental disasters, extreme climate events, and – last but not least – Russia’s war of aggression against Ukraine and the resulting political situation will, almost by necessity, further accelerate the expansion of low-carbon energy production.

The intermittency of solar and wind power must not be allowed to form an obstacle to an uninterrupted power supply. From a purely physical perspective, the system can function physically by applying new technologies as flexibility instruments, including green hydrogen, power-to-X, battery storage, and smart control systems. This will allow operators to exploit market volatility for successful business models, without jeopardizing security of supply. ▀

# Leadership 2040: Can we Ever Bridge the Generational Divide?

Generational Disconnection – A crisis in the making or crucial diversity of thinking to solve key global issues.

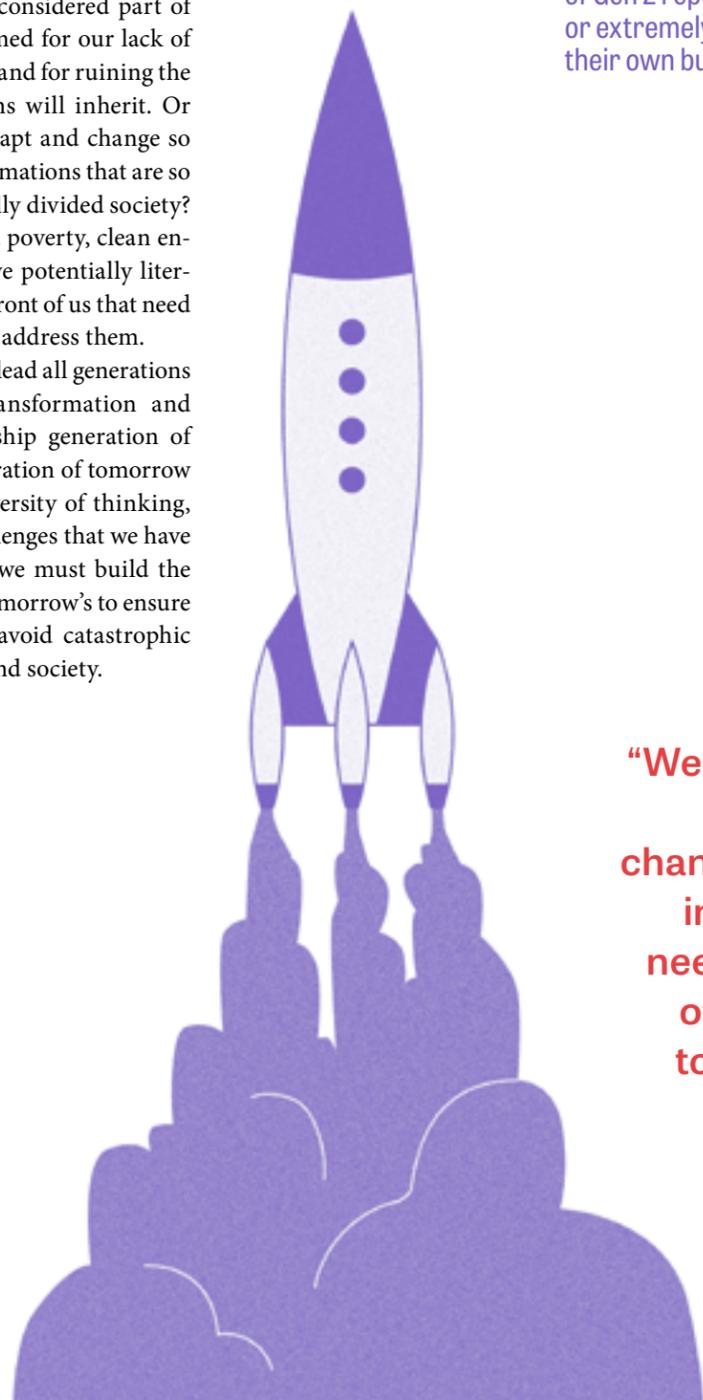
**Rachel Empey**  
Member of the  
Supervisory Board  
BMW



If I were to believe what I read, we are in the midst of a generational war. From climate change to Brexit, from gender identity to the work environment – it seems that the generations have very different perspectives on our world, and we are part of a more divided society than ever. At the heart of almost every controversially discussed current affair, opinions are often split along generational lines.

The leaders of today could be considered part of the generation that should be blamed for our lack of foresight, our greed, consumerism and for ruining the world that the coming generations will inherit. Or will we be able to listen, learn, adapt and change so that we are able to lead the transformations that are so necessary, by uniting this potentially divided society? Whether it is climate change, food poverty, clean energy or mobility solutions, we have potentially literally world changing challenges in front of us that need the full power of all generations to address them.

We should aspire to inspire and lead all generations in the interests of progress, transformation and change. In particular the leadership generation of today must connect with the generation of tomorrow to ensure that we leverage the diversity of thinking, and skills to address the huge challenges that we have in front of us. At the same time we must build the bridge from today's paradigm to tomorrow's to ensure the basic continuity required to avoid catastrophic shocks in business, the economy and society.



**45%**

of Gen Z report being very or extremely likely to start their own business.<sup>2</sup>

**“We have potentially literally world changing challenges in front of us that need the full power of all generations to address them.”**

## Are the Gen Z's misrepresented?

Are we surrounded by inspired visionaries who are prepared to stand up for what they believe in: Greta and her vision from Friday's for Futures – do you see naïve idealism, or visionary leadership for change? Are we feeling threatened by a generation who are challenging their older compatriots, questioning not just the actions that continue to impact the climate, but also personal lifestyle and career choices?

As a leadership generation we have to overcome our prejudices, preconceptions and ingrained views. This is not the time to justify our actions, but to embrace the new understanding of the world, the diversity of thought and perspectives that the coming generations bring, in the interests of our businesses and our society.

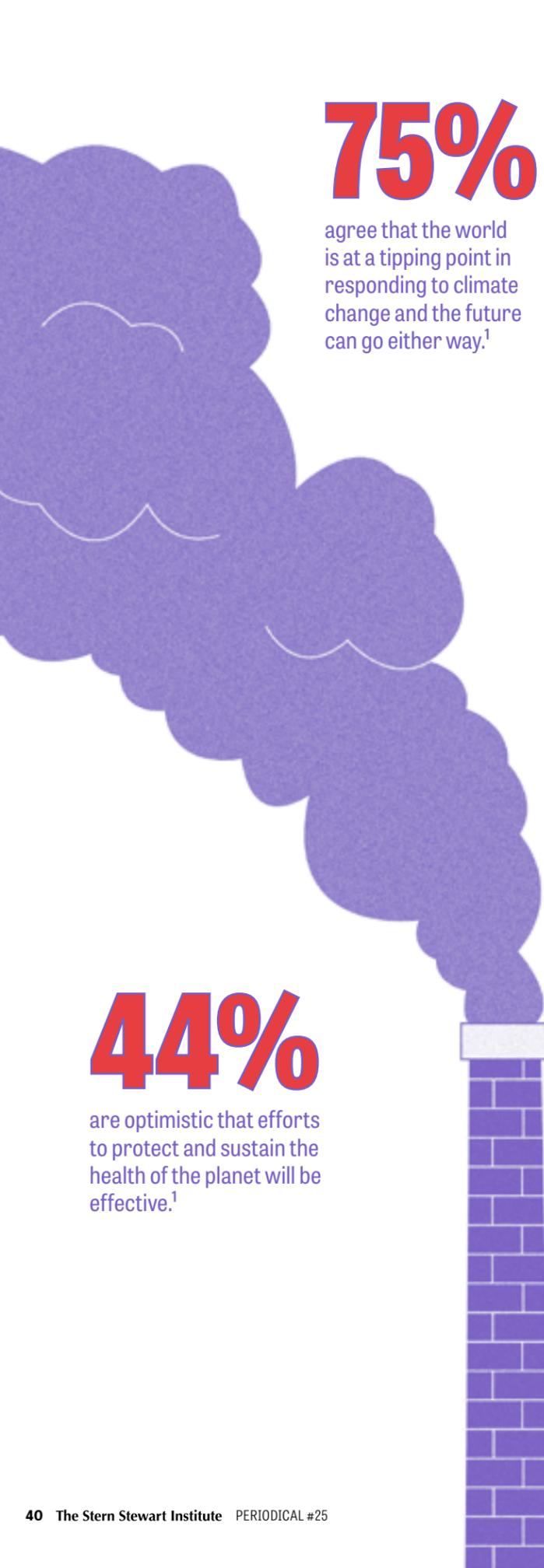
However, are the next generation of workers and leaders prepared to work for corporates as we know them, to become mainstream political leaders, or to engage in what we consider the professional and operation norms of today? It seems there is an increasing trend of opting out of mainstream jobs, shying away from the traditional professions. That could mean a disaffected generation, with high unemployment, and huge wasted potential that is desperately needed to address the challenges of the day.

**75%** would prefer a hybrid or remote working pattern.<sup>1</sup>

**40%** would like to leave their jobs within two years.<sup>1</sup>

**35%** would leave even without another job lined up.<sup>1</sup>

**“Many of those key world changing challenges that we face cannot be solved with the solutions of the past, they require new technology, new ways of thinking and bold innovation.”**



**75%**

agree that the world is at a tipping point in responding to climate change and the future can go either way.<sup>1</sup>

## So do I need a Climate Change Strategy, and Environmental Purpose?

The climate change agenda is never far from our awareness – shocking images, of physical, financial, and social destruction, with the promise of much worse to come. This topic is an example of great future orientated target setting, that needs to be bedded into the reality of implementation: one that can only be solved with the active engagement of all generations and perspectives: the elusive coordination of society, politics, investment, incentives, resources and the corporate world. Those who lead today in politics, in business and in society control the capital, allocate the resources.

**15%** strongly agree that large companies are taking substantive actions to combat climate change.<sup>1</sup>

There is a challenging win win opportunity, but at the same time a conundrum. We will only truly be able to address the climate change agenda with the engagement of the future generations now – and those future generations, it appears, will only engage with the existing institutions if we show we are serious about truly changing the world. The Gen Z's seem to have the vision about what is important to them, they are engaged. However, can we help give them the tools, and the opportunities to engage broadly with the reality of finding the right combination and balance of solutions in a truly sustainable fashion. What are the potential consequences for society, the economy, the climate, the world, in the form of shock crises, or dislocation events, when Gen Z disengages from the current institutions and instruments of change? Will we all realise when it is too late?

**44%**

are optimistic that efforts to protect and sustain the health of the planet will be effective.<sup>1</sup>



# 11%

agree that their country's government is highly committed to tackling climate change.<sup>1</sup>



## Isn't it a bit much? I have targets to deliver?

We all have short term concerns – reliability of energy supply, managing supply chain shortages and disruption, the availability of staff, potential knock on implications of Pandemic and war, or record inflation.

However, if we only solve for the short term, we will have missed a huge opportunity and risk the engagement of the next generations to address the world changing challenges of our time.

Thus as a leader, these are key strategic questions from a cultural and leadership perspective that we all urgently need to address:

- › Do I have the empathy and open mindedness for a different world, a different perspective?
- › Am I willing and able to put my personal prejudices aside, and to reconsider some core beliefs in the interests of harmonious collaboration across the generations?
- › How radical am I prepared to be to drive change and transformation?
- › How am I keeping up to date on the technology opportunities to shape society and business models of the future?

Ultimately summed up with:

- › What can I do to motivate the next generation to engage with the institutions of today in the interest of solving the problems of our time

## So what will you do differently? How will you stay relevant?

As leaders of today, it is our urgent responsibility to look long term at the future of our businesses, the political, corporate, technology and educational landscape to shape the world of 2040. To do that we need to truly engage the next generations of leaders, the next generation of society. Those of us who don't do that now, risk a relatively quick demise of our sphere of influence as a potentially disaffected generation opt out of what is seen as the old world of past generations. True leaders who will bridge generational divides, are those with the vision and insight to also address the paradigm challenges of today to shape a better tomorrow. ▀

<sup>1</sup> Source: Striving for balance, advocating for change. The Deloitte Global 2022 Gen Z and Millennial Survey, Deloitte Global, 2022.

<sup>2</sup> Source: Is Gen Z the spark we need to see the light? 2021 Gen Z Segmentation Study Insights Report, EYGM Limited, 2021.



**Peer M. Schatz**  
Managing Director  
PS-Capital Management

Healthcare and industries related to it are key growth factors for Germany, Europe and the World. However, the full potential of the European industries still needs to be realized.

# Restocking the World's Medicine Chest and Contributing to a Healthy Economy for Europe

**M**edical technology, services, biotech, pharma and life sciences companies need and deserve significantly more funding and support. Not only because there is a unique growth opportunity and benefits for our own health, but also as there is an issue of supply security. Investing in healthcare means investing in productivity and outcome improvement in one of the biggest segments of GDP with a great economic transmission into many other industries – but it also means investing in independence. Investing in healthcare and the life sciences also means investing in our future as we are in the early days of a massive transformation of many industries through biology.

**“Investing in healthcare and the life sciences also means investing in our future as we are in the early days of a massive transformation of many industries through biology.”**

## Pipelines and pandemics

Russia’s war against Ukraine was a wake-up call for numerous industries, certainly for those that depend on oil and gas. The sanctions imposed on Moscow for good reasons now threaten to cripple entire sectors.

It was not the first time in this decade that the world has been reminded of the downsides of excessive economic dependencies. Even before the massive blow to our supply chains due to the invasion, Covid had given the West much more than a warning sign to review supply chain fragility and the need to ensure key capabilities also domestically.

This is not a call for protectionism. Interdependence is a crucial factor for peace and prosperity in the modern free-market world. But when it comes to modern health care technology and the life sciences in particular, Europe must not fall behind.

## Doc went digital

Luckily, there is one key difference between the longed-for independence from Russian oil and gas and the strengthening of the European health-care sector. Unlike with fossil fuels, we actually have some of the most important resources right on our doorstep. Europe boasts a very fertile industrial infrastructure for healthcare, decades of experience, and arguably one of the best talent pools of the world. The Times World University rankings reports that out of the global top-100 universities in the life sciences, 43 are in Europe – compared to only 34 in the United States. In order to win in healthcare, we do not need to drill for the resources to succeed in Siberia and China hasn’t won the race – yet.

While much of today’s knowledge around pharma and healthcare has its roots in 20th century Germany and Europe, and while there was a period in which the industry stalled, progress has not stood still. Today, there are countless global players and promising start-ups looking to become leaders in their fields. New companies have emerged across all sectors of healthcare and the life sciences, forming new ecosystems with research facilities, services and production. Experts have been observing this with enthusiasm for some time. And it has become visible to everyone with the success of Biontech in the fight against Covid as their vaccine has become one of the most sought-after German export goods worldwide and lifted German GDP by a whopping 0,5 percent.

**“In order to win in health-care, we do not need to drill for the resources to succeed in Siberia and China hasn’t won the race – yet.”**

## Not a placebo sugar pill but the effect is sweet indeed

The German healthcare sector is growing significantly faster today than the overall economy. It accounts for just under 13 percent of value added and almost ten percent of exports. The sector employs 7.5 million people which is 16.5 percent of all employees. The sector also invests more in research and development as a percentage of sales than any other sector in Germany: For healthcare, the figure is at more than 13 percent, compared to 10.5 percent in IT and just under 9 percent in the automotive industry. In terms of intellectual property creation, German companies are creating more healthcare-related patents than any country other than the much larger United States.

Clearly, the sector offers real opportunities. However, it is still significantly underfunded. More than half (~55 percent) of Europe’s larger healthcare companies are not publicly listed and thus lack the critical funding opportunities from the public capital markets. Secondly, and maybe even more importantly, investment in US startup and growth companies massively outnumbers investment in their European equivalents. For instance, 2021 venture capital investment in the healthcare sector amounted to more than USD 72bn in the US, while it stood just under USD 14bn in Europe, according to SVB. This lack of capital access seriously limits the founding, growth and expansion opportunities for European companies.



## The prescription is in clear handwriting

We can't expect everything to change, and we must ensure that we make the most of the opportunities we have. What we do however need is a very well tolerable mix of new initiatives:

- 1. Basic funding.** Germany is one of the countries with the highest spending on basic research worldwide and the quality of research and of its scientists is world class. Basic research is so critical as it creates the source for innovations that can be applied by entrepreneurs and corporations. Academia and public research institutions with their independence and ability to focus are in many cases the much better homes for basic research than corporations. The public needs to continue to fund this basic research. On the one hand, it has one of the best economic transmission effects into the general economy, but at least as importantly: If there is basic research, there will be something entrepreneurs can apply.
- 2. Promoting the transmission of innovation from universities to entrepreneurial implementation.** Universities are the nuclei of innovation, but the innovation needs to be transferred into entrepreneurial or corporate projects. Partnerships between public and private institutions or agencies for the transmission of innovation need to be expanded and taken much more seriously. The U.S. shows how successful this can be: At Harvard University alone, more than 90 startups have been founded in the past five years, raising \$4.5 billion in equity financing in that short time – and Harvard generates licensing revenue of more than \$100 million per year from these companies. There are many comparable examples in the United States, but there is no European university which comes even close to this.
- 3. If more local and international students can be attracted to the life sciences** this will strengthen the pool of talents for these industries. Even if only a fraction of the graduates ultimately work directly with the life sciences they were taught, the benefits of having this knowledge foundation for interdisciplinary work and advancement are significant, in particular as biology and the life sciences will impact and change almost every industry. This includes devoting sufficient space for education of the life sciences from primary school to post graduate studies as well as horizontally across disciplines.
- 4. Promoting venture capital and startups,** also with tax incentives, in order to strengthen the inflow of funds and the willingness to take risks in young, innovative companies. Lack of attractive funding is one of the most limiting factors. The VC industry is less constrained by the lack of ideas, but more by scaling and exit opportunities, also to the capital markets. Startups prefer to look to the US, where valuations are often substantially higher. This is also due to the factor that the transition across the life cycle stages of startups is much more seamless, also due to the more efficient private and public capital markets.
- 5. Clustering strategies,** such as those that have been successful in Bavaria. And yes, it makes sense to have a clear industrial policy: Where are there nuclei for global champions in Germany and how can their scaling be supported?

- 6. More courage to go public.** A saying in Germany, which is so passionate about soccer, is that “money scores goals” as more money can finance better players and trainers. However, the German pharmaceutical and healthcare industry in particular is characterized by medium-sized companies that often compete against large corporations with substantially more funding as they have access to the capital markets and thereby fast and lower cost funding. Yes, one can still score with less funding, but capital access and in particular capital market access simply makes a difference.

**“It would be a tragedy if healthcare, of all things, could not realize its opportunity of building muscle and economic health in Europe.”**

An ounce of prevention against the risk of not realizing our potential is better than a pound of cure. But a pound of prevention might be best when the prospects are so promising. It would be a tragedy if healthcare, of all things, could not realize its opportunity of building muscle and economic health in Europe. We have a golden opportunity to restock and upgrade the medicine chest of the world and create an economic sector that can make a real difference. ■



# More Education is Key:

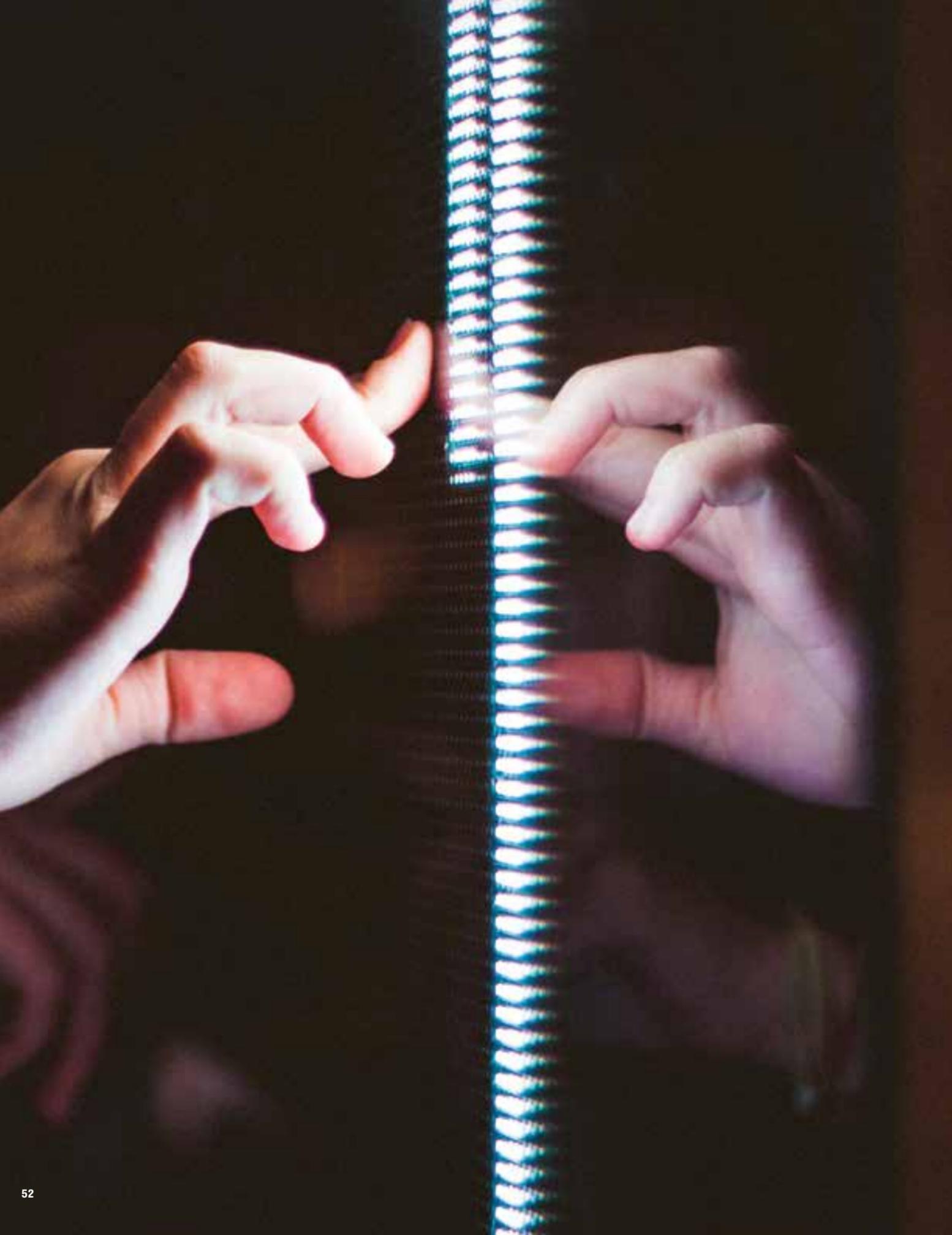


**Daniel Hager**  
CEO  
Hager Group



# Innovation, Courage, and Freedom as Drivers of our Business Success

“What our country needs is a new educational ideal and, to that end, an educational revolution!”



Only those who know the past have a future: Wilhelm von Humboldt is said to have spoken these words in light of the events of the French Revolution. In 1789, Humboldt was in his early twenties and a young student in Paris, where the storming of the Bastille unfolded before his very eyes. Together with his younger brother Alexander, he lived through a decisive moment in history, one that ignited the first spark of a lifetime's work that helped shape an era marked by a huge knowledge explosion. Revolutionary Paris was the initial driving force behind the brothers' future work. Wilhelm would go on to become an educational reformer, while Alexander became the leading natural scientist of his time.

For Alexander, Paris marked the starting point of his global journey into the world of research. The city was also where Wilhelm began to contemplate the political and economic crises facing the continent and to wonder: What is the state? How far can the state intervene in the life of an individual? What role do freedom and education play in shaping a political system? These were his core questions, and as an educational reformer he initiated the restructuring of Germany's education system, forging an educational ideal that is still associated with his name today.

**“The availability of education, in science in particular, is at least as crucial to the development of our continent today as it was during the Humboldts’ lifetime.”**

## Time for an educational revolution

I have always been impressed by the work of the two Humboldt brothers, all the more so because their ideals and principles are once again highly topical. The availability of education, in science in particular, is at least as crucial to the development of our continent today as it was during the Humboldts' lifetime. What our country needs is a new educational ideal and, to that end, an educational revolution!

Why do I think so? We are living through a time of immense change. As in the 18th century, these changes have been triggered by an explosion of knowledge, now combined with a technological development so rapid and so radical that it can justifiably be called a revolution. This is amplified by demographic and migration issues, climate change, and political upheavals like the resurgence of China, as well as global political tensions and the war on our doorstep.

All this poses enormous challenges that put our way of life to the test, forcing us to deal with the changes brought about by digitalization, increasing populism and nationalism, and the return of aggressive autocrats and invaders. The current crises are causing divisions in society, the loss of the culture of debate, and unprecedented restrictions.

And yet, everywhere I look, I see mainly opportunities. I believe that there are solutions to many, if not all, of the challenges we face. Not least because brand-new technologies are now emerging, opening up unimagined opportunities. The company I have the privilege of leading as CEO is a top provider of solutions and services for electrical installations in residential, industrial, and commercial properties. Our core business ranges from power distribution and cable routing to smart building control.

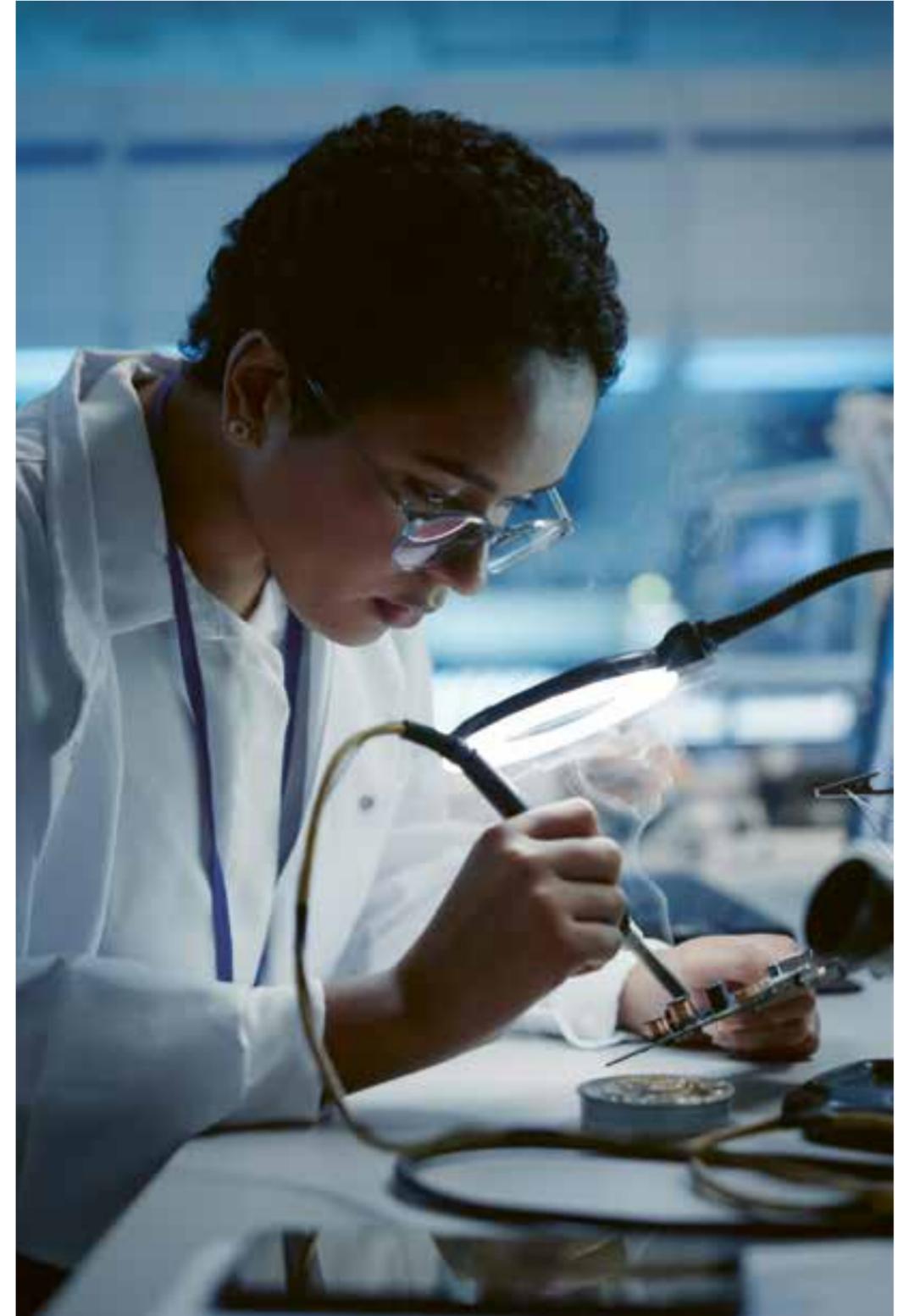
## Talent must be nurtured

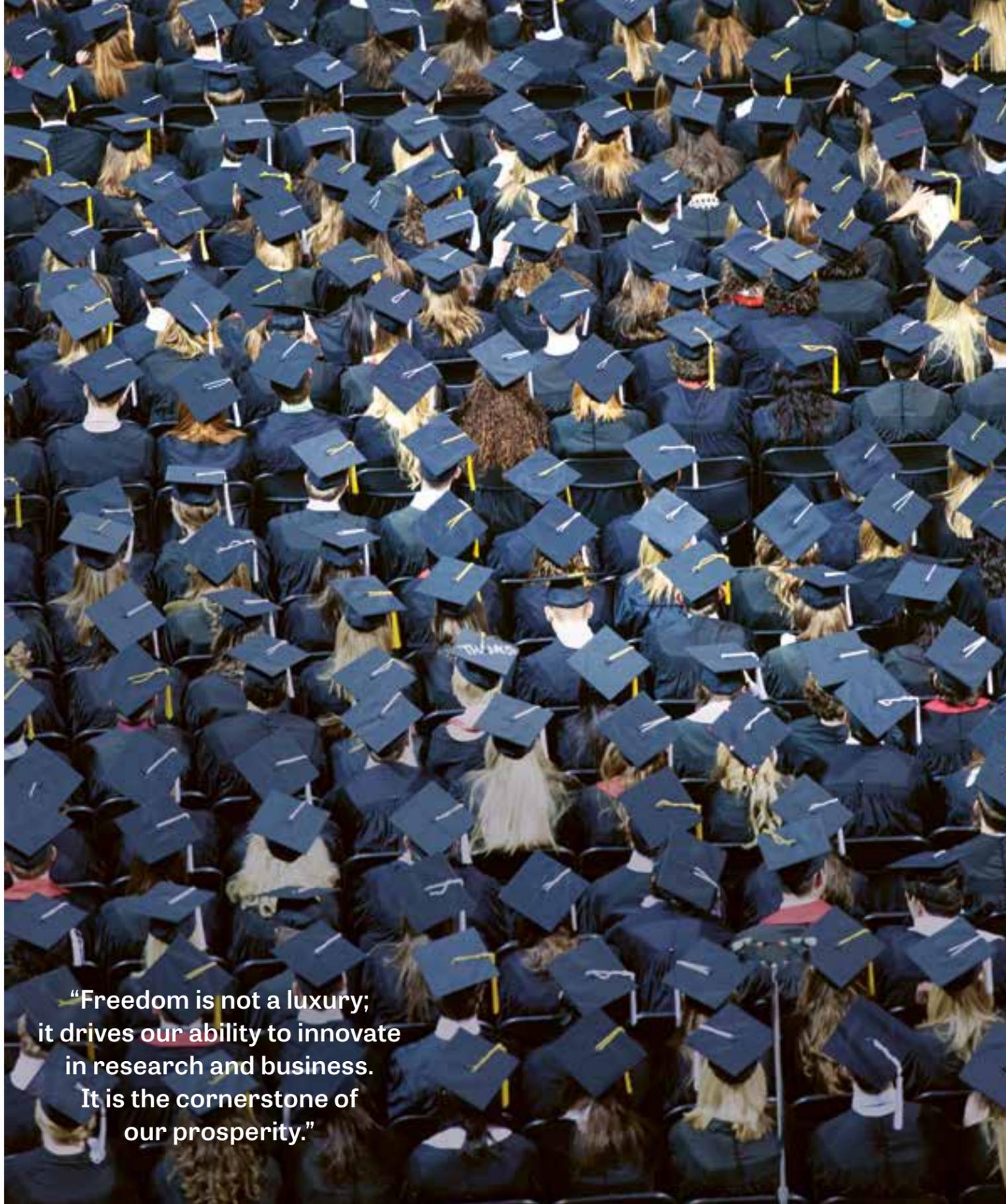
However, innovation can only flourish when three things come together: creativity, intellectual freedom, and entrepreneurial courage. The best brains, talent, innovative ability, intellectual freedom, courage – these things don't just fall from the sky. They require years of continuous commitment from society, politics, science, and business. This is especially true in view of the ambitious goals that Germany's federal and state governments have set regarding the energy transition. Yet one question often remains unanswered: who is going to do the work needed to this end? Outstanding engineering talent is crucial to our success. After all, engineers create the future. And engineering jobs are climate protection jobs! Our talent allows us to rise to the historic challenges of our age.

At the same time, there have never been so many vacancies for engineers and computer scientists. Just a few weeks ago, the Association of German Engineers warned that this would hamper the energy transition. This is more than just hysteria: it could potentially blow apart our prosperity and future viability. Because we need talent! We need the best experts. Only they will allow us to shape electrification and decarbonization, the energy transition, and digitalization. These are the issues that will determine our competitiveness and prosperity.

**“Innovation can only flourish when three things come together: creativity, intellectual freedom, and entrepreneurial courage.”**

It is not enough to simply halt the ongoing decline in the number of students in STEM subjects, which I personally find more than troubling. We need to reverse the trend. That will require a huge joint effort on the part of businesses, universities, and politicians, calling for some bold and also unconventional decisions. Above all, education policy needs change and new ideals in the spirit of the Humboldts. After all, many young people are involved in the Fridays for Future movement. They want to stop climate change. That is good to hear. But many see rules and regulations, degrowth, and deindustrialization as the main way to solve the climate issue. They then study political science or law instead of mechanical or electrical engineering.





**“Freedom is not a luxury;  
it drives our ability to innovate  
in research and business.  
It is the cornerstone of  
our prosperity.”**

## Innovations desperately needed

Far too few see the solutions offered by technological innovation. Far too few young people recognize the opportunities awaiting them in technology and science. Yet history teaches us that humanity’s challenges have only ever been overcome through innovation. Future education policy must focus on fostering much greater interest in training and studying STEM subjects and providing people with more incentives to do so. And we also need more women in STEM degree programs. Quotas alone will not help us here, and we as companies must also do much more. That is part of the new education revolution I am talking about.

For me, affording greater life chances is the real foundation of state education policy. That means constantly transforming, in the best possible way, the changes in the worlds of work, technology, and global trade into options for individuals – a concept formulated by the great German liberal and British lord, Ralf Dahrendorf. The state helps people to harness their talents and opportunities. That is the promise of a free and open society – giving as many people as possible the best possible life chances. Such a society strengthens the powers of the individual and leads to the greatest possible individual freedom. This is the cornerstone of freedom for us all. Only in individual freedom can people also assume responsibility for the community. There is no such thing as collective freedom.

The state which seriously endeavors to give as many people as possible the best life chances raises justified hopes of an (even) better future. For me, this idea is more important now than ever before. The best possible education is key to being able to seize the opportunities and master the risks of our new reality. It is important to remember that although “education as a civil right”, Dahrendorf’s much-quoted political slogan, gives people a fair start, it does not create equal outcomes, precisely because people are different. A highly diversified education system is not only legitimate, but necessary: from special schools to elite universities, from state to independent institutions. This is the core of liberalism, as it underlies our free democratic basic order. Promises of salvation for the future or a state guarantee of happiness are not compatible with this.

## Freedom is the key

If we are to do the necessary work, we also need a clear understanding of freedom as the foundation of our society. Freedom determines the way we do politics, how we organize our economy, and how we live alongside one another. I hardly need elaborate on the fact that such freedom must always be won anew, that our understanding of liberality is under more pressure than it has been for decades. In addition to the enemies of democracy, the extremists, the populists, the authoritarian states, we also have to deal with the monopolists and those who expect the state to guarantee their happiness. I think it is high time to give our concept of freedom a new lease on life, to argue for it and yes, to fight for it, too.

Freedom is not a luxury; it drives our ability to innovate in research and business. It is the cornerstone of our prosperity. Only those who have the freedom to think and create can achieve truly extraordinary things. It takes courage to live freely. But it also takes courage to defend freedom – against conformity and interference, against quick and easy solutions, and in favor of open and critical discourse.

Dahrendorf’s notion of life chances – one that is well worth building on – would certainly have appealed to Wilhelm von Humboldt. When asked how he actually defined education, Humboldt responded that for him, it was the stimulation of all a person’s faculties so that they may, through an appropriation of the world, develop a self-determining individuality and personality. While two centuries separate this pair of brilliant thinkers, I am sure that they would have quickly agreed on the central role of education, on the importance of freedom in creating the best possible life chances. ■

# Caring Together for the Things that Nourish us



Climate change, structural transformation, and shifting values are altering our dietary habits and require new business models in the dairy industry as in other sectors. Emmi sees forging a sustainable value chain as an opportunity to create long-term value while acting responsibly toward future generations.



**Urs Riedener**  
CEO  
Emmi Group

Climate change and structural and social shifts pose a challenge to businesses as well as to society and individuals. For corporations, this is inevitably linked to long-term risks, costs, and value creation, and requires a more efficient use of resources. Putting off addressing the climate issue is simply living at the expense of the future and ultimately of all stakeholders – from employees to shareholders. This is an ineffective approach for any business.

Scientists predict an ongoing increase in droughts, heavy rainfall, and floods in different parts of the world, with adverse and in some cases disastrous impacts. Consequently, also in the food and dairy industry there is a growing coalition of protagonists who are gearing their operations and business models toward sustainability, carefully weighing the medium- and long-term benefits of decisions and investments against the immediate costs.

There is far less consensus on the speed and scale of change required. Complex cause-and-effect relationships are often viewed narrowly in the context of particular interests, or individual aspects are ideologically exaggerated. Environmental protection is played off against security of supply, and often the ecological footprint of a protein-rich natural product such as milk is compared with plant-based alternatives without considering its nutritional content. Similarly, calls for regulatory intervention are frequently made with little regard for the resulting intensification of structural change in rural areas and the associated social challenges.



**“Some initial tangible results have already been achieved, including a 20% reduction in greenhouse gas emissions in absolute terms compared with 2014.”**

## Sustainability built into the business model

Emmi has a long tradition of developing its business responsibly. This is driven by an awareness that its success is linked to long-term profitable growth, a healthy natural environment, and collective action. In other words, sustainability is an integral part of its business model and corporate strategy as well as being firmly embedded in the company’s purpose: “Together, we create the best dairy moments – today and for generations to come.”

We invest time, effort, and resources in the sustainable design of our products, processes, and value chain because we see a clear business benefit in this. It minimizes long-term risks, avoids unnecessary costs through waste, and at the same time strengthens trust in the company, its brands and products.

The Emmi sustainability model encapsulates an approach aimed at running the business in a way that is as resource-efficient and environmentally and socially responsible as possible. Supporting the United Nations Sustainable Development Goals, the model is aligned with Emmi’s netZERO 2050 Roadmap, which is underpinned by scientific criteria. It includes detailed plans and measurable interim targets on key issues – from employee development and the establishment of a sustainable dairy industry to the reduction of emissions, waste, and water consumption.

## Culture of responsibility

Some initial tangible results have already been achieved, including a 20% reduction in greenhouse gas emissions in absolute terms compared with 2014. And while in Switzerland 94% of the milk that Emmi processes is already produced sustainably in accordance with the “swissmilk green” standard, the roll-out of a catalog of criteria for sustainable milk, drawn up with the involvement of experts such as WWF, is proving much more challenging in other production countries such as Chile, Tunisia, Brazil, and the United States. Dairy farming is often a traditional mainstay of local culture, and primarily provides a livelihood for rural farming families, especially in emerging markets.

Another key area focuses on preventing food waste. This is vital because, while the global food supply is stretched to its limits, a third of all the food produced continues to end up as waste, at enormous cost to society. In Switzerland, this is equivalent to approximately 330 kilograms of waste per person per year. With wasted food accounting for around a quarter of food-related environmental impact, food waste remains the biggest lever in the fight against climate change in the food system. That’s why Emmi aims to halve its food waste by 2027, a target it is on track to achieve with a 13% reduction so far compared with 2017.

However, responsibility and leadership are about more than just setting and achieving sustainability goals. We foster a corporate culture that combines appreciation with meaningful activities and the company’s long-term transformation agenda. More than ever, employees want to be part of something bigger than themselves and our teams aspire to be part of the solution – as makers of a sustainable future.



Urs Riedener Caring Together for the Things that Nourish us



**“Recent years have seen a rise in global milk consumption, and this trend, driven by consumers in emerging economies, is likely to continue.”**

## **Emissions and changing needs**

As a major player in the dairy industry with own operations in 15 countries, we recognize that systemic change is needed to jointly improve the environmental footprint of agriculture.

We are also mindful of the next generation and the values they hold dear. Young people are already making more rigorous demands on companies and their products, specifically in terms of changing dietary habits. Any delay in responding to these changes risks alienating these consumers.

One of our responses has been to continuously expand our range of plant-based drinks and foods under the Beleaf brand. By using Swiss-produced oats as the main ingredient, we are helping to create value locally and further reduce our ecological footprint by keeping transportation distances short. In Spain, we produce and market plant-based products made with local almonds under the Kaiku Begetal brand.

Recent years have seen a rise in global milk consumption, and this trend, driven by consumers in emerging economies, is likely to continue. The hype over vegan products, which has already leveled off somewhat and is largely confined to higher-income groups, will not detract from this. According to UN estimates, the dairy industry is responsible for around 3% of total global CO<sub>2</sub> emissions. So while it is not one of the main contributors of greenhouse gas emissions, solutions are nonetheless needed, especially with regard to climate-damaging methane emissions from ruminants.

## **Caring together**

Against this backdrop, Emmi is working closely with farmers, milk producers, universities, and government agencies, in the firm believe that only a joint approach will be able to curb the negative effects of climate change, which also impact the dairy industry.

In the Alps specifically, dairy cows are a traditional part of grassland-based agriculture that is tailored to local conditions and increasingly geared toward sustainable practices. As part of a biological cycle, these animals efficiently convert grass, which cannot be used directly for human consumption, into nutrient-rich milk.

There are also more and more innovative farmers in these regions who are willing to take entrepreneurial risks and who actively and voluntarily promote sustainable and climate-friendly agriculture. We support this transformation and are committed to playing our part in a fair transition. In Switzerland, for example, we recently co-launched the cross-sectoral KlimaStaR Milk initiative. In association with Nestlé, milk producers, and scientific partners, this initiative aims to better understand the interrelationships involved in a location-appropriate, resource-efficient, and competitive dairy industry, to gain fact-based evidence, and to introduce measurable improvements on a partnership basis.

A specific goal of the initiative is to cut greenhouse gas emissions from milk production by 20%. This will help to further reduce the climate footprint of dairy products and, in turn, meet a growing need felt by consumers. At a later stage, we plan to disseminate and apply these insights internationally.

By acting decisively, developing robust, evidence-based approaches, and stepping up cooperation with partners, we are already well on the way to creating long-term value. As such, we want to prove that an industry often perceived from the outside as traditional is capable of renewing itself from the inside, and doing so in pursuit of a truly worthwhile objective – caring together for the things that nourish us. ▀

# Digital Medicine in Germany – it's About Time

The “land of poets and thinkers” is digitizing its health care. In contrast to its European neighbours, this lengthy process in Germany is increasingly gaining momentum. We have left pen and ink of Goethe’s and Schiller’s time behind us. Now the fax has to say goodbye. Because digital medicine offers breath-taking potential.

**Dr. Markus Leyck Dieken**  
CEO  
gematik





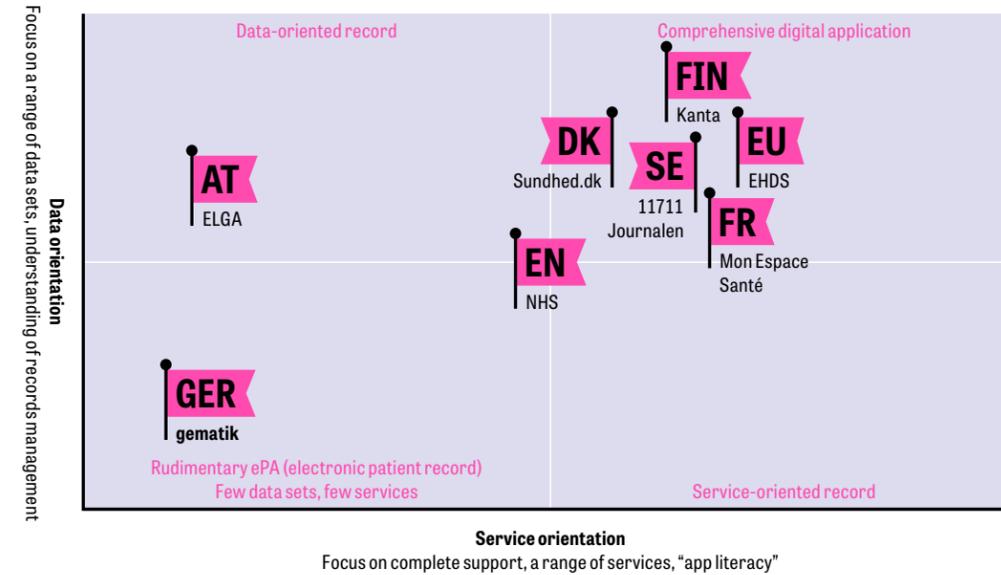
After some 20 years of paralysis, Germany is finally embarking: 2022 will see the introduction of e-prescription, which allows its remote receiving and dispatching as common in already 17 EU-countries. It will have shifting effects on the pharmacies and the supply chain readiness of medicinal products. By 2023, payers will distribute e-identities for health care to allow convenient entry to a multitude of digital offerings. This puts an end on decades of hardware Gesundheitskarten as a distinctive identity in this country. In addition, by 2024 we will join the EU-health-data-network.

Now the new government is determined to introduce a modern personal health-data-platform for all citizens from birth onwards. The three political colours seem surprisingly united in getting the job done. It will be the biggest leap for a nation running behind.

The aim is to allow patients, healthcare professionals, science and research to enjoy the benefits of digital healthcare solutions. These clearly lie in stronger networking, useful synergies, more convenient applications and – most importantly – better data-driven diagnostics and therapy.

**“The aim is to allow patients, healthcare professionals, science and research to enjoy the benefits of digital healthcare solutions.”**

## SUCCESSFUL DUE TO HIGH LEVEL OF DATA COMPLETENESS AND SERVICE ORIENTATION



## GEMATIK PLAYING CATCH-UP IN INTERNATIONAL CONTEXT OF DIGITAL HEALTH AGENCIES (DIHAS)

	GER gematik 2022	DK Currently	UK Currently	ISR Currently	EU EHDS
Electronic patient record	●	●	●	●	●
E-medication plan for patients	●	●	●		●
Electronic vaccination record	●	●	●	●	
E-prescriptions	●	●	●	●	●
E-referrals	●	●	●	●	●
Health information & self-service portal		●	●	●	●
Centralized booking of doctor's appointments			●		
Telemedicine platform/Virtual consultations		●	●	●	●
Therapy decision support system					
Digital emergency solutions	●		●		
Digital organ donation register	●			●	
Authentication portal for healthcare professionals				●	

The Scandinavian electronic patient record models are characterized by two key principles:  
**A high level of data orientation combined with a relatively high level of service orientation**  
 This platform approach delivers a comprehensive digital application with added value in care for patients and care providers.

**“Liquid biopsy, microbiome-intervention, mRNA-targeted antibodies – all these scientific exponentials will never reach humans on adequate efficiency, if we do not start to see Physicians being accompanied by data analytics.”**

## **30 billion cells compose our body – it requires 30 billion bits to grasp it**

Our body consists of roughly 30 billion cells. Moreover, unknown to most of us, scientists are about to decipher the inner cellular signal chains as fundamental basis of our biology in accelerating speed. Derived technology like the DNA-scissor Crisper-CAS offer correction of genetically based diseases or could even eradicate malaria by modulating the mosquito's genetical profile. Science is getting closer to God's creative toolbox. In addition, the lack of spreading the news of scientific progress has deleterious effects.

Example: Rare diseases still cause parents on clueless pilgrimage of an average 7 years until the correct diagnosis puts an end to progressive organ-destructions and useless suffering.

Liquid biopsy, microbiome-intervention, mRNA-targeted antibodies – all these scientific exponentials will never reach humans on adequate efficiency, if we do not start to see Physicians being accompanied by data analytics (to avoid the buzzer AI).

What the microscope was for Rudolf Virchow's cell theory in the 19th century is now artificial intelligence (AI) and the processing of huge amounts of data. They deliver an invaluable contribution to deriving the precise diagnosis and individual therapy for the patient.

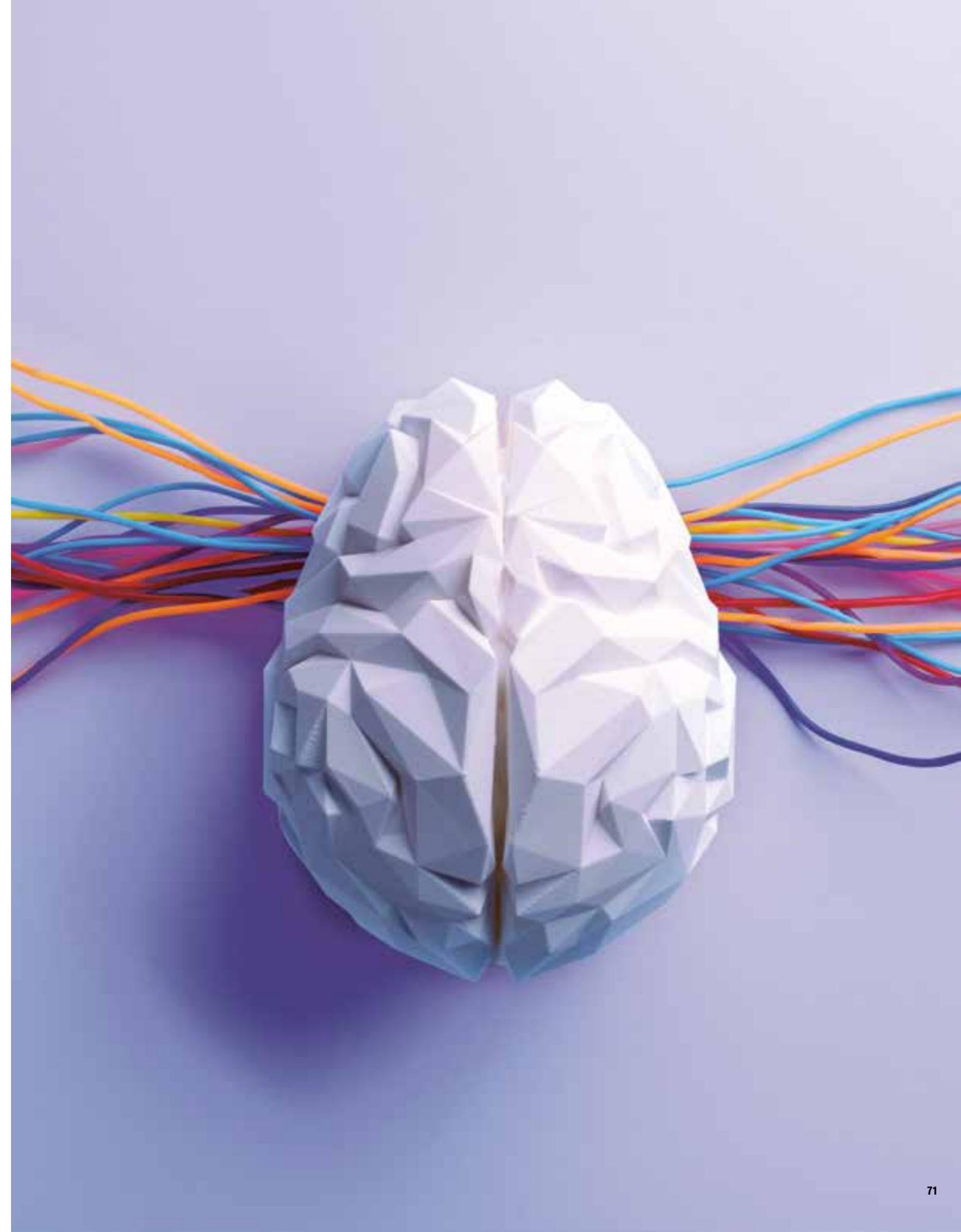
## **Data Protection potentially a major cause for fatalities**

We will only conquer the wisdom of today's insights, if we gather structured data on broad populations – to then contribute to individual needs once we become seriously ill and to our communities once we need to manage better health for all like evident during Covid-days.

All of gematik's efforts as the National Agency for Digital Health in Germany are therefore geared towards not thinking in terms of technology, but starting from the medical care processes and the needs of the users. This ensures that solutions close real gaps and get well adopted in the long term.

Treatment of many people will only be more targeted and less stressful in accordance with scientific knowledge. Comparable to the benefit that computer tomography and nuclear spin have for all of us – and we can hardly remember the time when these illuminating tools did not exist.

The EU-data protection defined in the GDPR and translated into German has subsequently been under scrutiny for being interpreted in a rather uncommon stringency. More and more high-caliber medical voices are concerned about specific data protectionism of federal 16 states and one country ultimately leading to lack of better diagnosis and treatment. Their pledge gets louder: The benefit of data protection versus the benefit of data-driven health care ought to get into justifiable balance.





## 600 million drug-prescriptions per year move away from paper

gematik operates a secure data network for the exchange of health data in Germany on a statutory basis: the telematics infrastructure (TI). This network, forms the basis for trustworthy access to highly sensitive information, such as health data. The acquisition and provision of structured data for medical research is carried out securely via the TI. This makes it a central infrastructure for the digital healthcare system of tomorrow.

Today we have transmitted more than 160 million Covid-vaccination certificates to users of CovPass-App, which demonstrates that Germans accept digital health-services if easy & safe in use. Next in line come the 600 million paper-based drug-prescriptions, which we will be able to receive on smart-phones at home or on-the-go and either dispatch in a pharmacy or send to online-pharmacies. A convenience already in daily use by EU-citizens in 17 countries.

Some other applications have already been launched in backstage, such as the electronic patient file (ePA), the secure e-mail service KIM (communication in medicine). The TI Messenger, a secure chat service in the healthcare sector, is also about to be launched. With DEMIS, the German Electronic Reporting and Information System for Infection Protection (“Deutsches Elektronischen Melde- und Informationssystem für den Infektionsschutz”), development by gematik, digitized reporting chains for infectious diseases between medical practices, all laboratories and the central responsible authorities were also created.

## A high-tech country catching up in the digital arena

A significant leap in development will be the introduction of a central electronic identity (eID), which gematik is working on implementing. The goal: the insured should be able to use all health care services with just one identity and only have to register once (“single sign-on”). The prerequisite for this are technical solutions that securely protect the highly sensitive data, give the insured persons sovereignty over their data and at the same time make the exchange between the actors involved as easy as possible.

A look at our neighbouring countries is enough to realize how many Europeans have long had their health digitally monitored as a matter of course and are amazed at our unused opportunities. Since digitization finally gives us the opportunity to create more targeted treatments and, contrary to fears, to strengthen the doctor-patient relationship, for me as a doctor, the question therefore arises: why wait any longer?►



“We Think Beyond  
the City, we Think  
Beyond just the  
Geographic  
Concentration...”

The Emirate of Dubai is known for several superlatives: the Burj Khalifa, the world's tallest tower, Dubai International Airport, the number one airport for international arrivals, its flagship carrier Emirates Airline, and the Palm Jumeirah. But behind the glitz and glamour is an emirate driven by trade and commerce. A key pillar supporting what is commonly known as Dubai Inc. is Dubai Chambers. Founded in 1965, it now has over 300,000 members with a dozen offices in 11 countries from Far East Asia to Latin America. **John Deferios** sat down with its long-serving President and CEO **Hamad Buamim** at the Chambers' headquarters.



**John Defterios** (left)  
**Hamad Buamim** (right)

**John Defterios:** There are many chambers of commerce around the world. Why was the Dubai Chamber so important to the development of the emirate?



**Hamad Buamim:** Dubai Chambers of Commerce started in 1965, so way even before the United Arab Emirates (UAE) came together as a federation. And it was really about representation of businesses. One thing Dubai as a city valued a lot was the role of businesses. And it's a reality. If you look at the seventies and the eighties, the Dubai Chambers were playing the role of Dubai's ministry of economy and also the ministry of foreign affairs. All the international delegations and all the international promotions – back then there wasn't much tourism – but all about promoting

the city and telling everybody in the world about the region and about Dubai, all that was their own interest driven by the private sector. Dubai is known for a lot of things: for real estate, for tourism, but go back in history, look at the presence and, believe it or not, this will continue to be the future.

**J.D.:** Is that the merchant mentality of Dubai? Is it in the DNA?

**H.B.:** I would say it's in the DNA of the city itself. It's about people who have been living here. This has always been an advantage for us because if you go back a hundred years, these merchants came from India. They came from Belgium. They came, of course, from different parts of the Arab world. The merchants and their diversification have always been an advantage to us and the fact that Dubai welcomed them ahead of others. If you go back to history, they didn't migrate initially to Dubai. They migrated to other places, but they settled down in Dubai because it had this openness to accept them. This is where 400 businessmen came together and agreed to establish a chamber in 1965. It started fully funded by the private sector. And they got all the support from the government. The biggest role they played back then was around the business environment. They were really drafting all the laws and proposing them to the governments, anything to do with commercial regulations. And this has always given Dubai an advantage: historically, regulations were drafted by the businessmen. Maybe this is the case in the U.S. with lobbying, but here it was happening because these were the skills they had, right? It's about regulating yourself to do the best for the city and to ensure that it continues evolving. Right now, any law that's passed in the country to do with regulation has to pass through the Chambers.

This is why policy advocacy is very important for us. And we always play a role in supporting the business environment in Dubai and the UAE, because the largest number of businesses in the whole country are already located in Dubai and are with Dubai Chambers of Commerce. We have, as of June 2022, exceeded 300,000 companies and this makes us the largest membership organization in the whole region, and one of the largest in the world. And to have all the 300,000

represented by one entity is an advantage. Dubai, of course, is about the government and the ruler. It's about government-related entities, which are really driving a lot of the vision of Dubai, like Emirates Airline and DP World, which many of them started 20, 30 years back. But it's also about the private sector. And when it comes to the private sector, the largest representation is within the Dubai Chamber.

**J.D.:** I've always been fascinated, since I've been covering the region, since the 1990s, but more aggressively from 2007 onwards, by how you go in as Dubai Inc., you know, with the ports business, with Emirates, but most importantly, with the trading groups. How many offices do you now have around the world?

**H.B.:** We now have 13. We debated, is this a good number or a bad number...but so far we have a full representation of the Chambers in these offices. When we started the offices, we were one of the few chambers globally to have a representation outside the country. This came after the 2008 financial crisis. The reason for that is that before 2008, everybody came to Dubai because of the projects in Dubai, because of all the boom that we started seeing in 2003, 2004. And everybody wanted a piece of these huge infrastructure developments. And it's a reality, a lot of Dubai growth happened during that time. But in 2008, 2009, after the crisis hit, Dubai was affected. We realized: as a private sector, we have a lot of skills. We have a lot of capacity and the city will not grow as fast as before. So what if we expand this market beyond Dubai and beyond the UAE? And we realized that our capabilities – beyond trade, of course – in construction, in retail and supply chain and logistics can really advance the number of markets. This is why nowadays you see expansion not only in Dubai, which they used to be limited to before 2008, in 14 markets. You see a number of players, they never limited themselves to Dubai. They always look south all the way to – I won't say South Africa, but at least Kenya, Eurasia, Moscow. We go all the way to India and even Egypt. So most of their representation started to expand further, and it's a reality historically. And again, it's a shame that we say history, but it's a recent history. Dubai positioned itself as the gateway to



the Gulf region. And this is something that happened not a long time ago. I still remember in 2007, I was in Hong Kong, promoting Dubai to the CEO of the Hong Kong Chamber of Commerce. And he told me, "We know Dubai is a gateway to the Gulf. We know Dubai is the gateway to the Middle East. But from China and Hong Kong, we want Dubai to be the gateway to Africa. If you can do this, it will make much more sense for us to deal with Dubai." Believe it or not. That was the vision to go to Africa. Again, the crisis that happened in 2008, 2009, pushed us to go. And honestly speaking, His Highness Sheikh Mohammed bin Rashid Al Maktoum also had a vision that we need to expand our boundaries. I still remember when we started trying to attract the biggest events in Africa, we were in Egypt, in Sharm El-Sheikh. We were criticized. Why do you want to host the biggest event in Africa? Why do you want to become the gateway to Africa? You are not even in Africa. I think we thought outside of the box back then: we said "Why not?" And since then, 2011/2012, there are events that connect businesses in Africa, which are still being organized in Dubai. Like Global Business Forum Africa, which I know you played a big part in, John. This is part of how we also evolved. The business model of Dubai businesses is very simple historically, and we believe this will continue to evolve, but it's about being here with the strong connection we have in relationships with the whole world. Of course, we used to import goods and now we re-export them. And by the way, if you look at the numbers for Dubai nowadays, trade totals 1.9 trillion dirham – more than 500 billion U.S. dollars. Seventy percent of whatever we import, we export. So we bring things and then we export, and this is where we see our members export. It's actually re-exports. And they are sitting here in Dubai. They're buying

**"Dubai is not the strongest when it comes to manufacturing because of the cost of energy, but when it comes to the supply chain and logistics, we are extremely strong."**

things and the merchants are from different parts of the world. China and India are the biggest, but the U.S. has evolved to be number three in the past number of years. And then they're re-exported. Dubai was and will continue to be the biggest warehouse located in this region. Of course, things continue evolving. Now we see Amazon more or less following the same business model. They use Dubai as the place where they place a lot of things, and then redistribute them. Over time they also start manufacturing or assembling a lot of things in Dubai – whenever it makes sense. Dubai is not the strongest when it comes to manufacturing because of the cost of energy, but when it comes to the supply chain and logistics, we are extremely strong. This has also been evolving in the past 15 years into services. So again, in Dubai, you can provide a service that somebody provided in the U.S. and you just do it in India or in East Africa, or even in places like Azerbaijan, Baku. And this is, again, going back to your question...I will give the example of Azerbaijan. When we decided to go there, of course, this was one out of so many markets, but believe it or not, we were the first player to be in Baku. We started the dialogue in 2006, but it wasn't urgent for us. In 2011, when we started the serious discussion, we were the first chamber of commerce to establish in Azerbaijan. Back then, I still remember when we were discussing this with the government, they were saying: around 10,000 people come to Dubai [from Azerbaijan] every year, what will we bring back to Azerbaijan? They said there were 800 people altogether [coming to Azerbaijan from Dubai], most of them diplomats. And we said: if we establish, we'll promote the city, we will bring you a lot of businesses and a lot of tourists. A couple of years later, I was awarded something by their ambassador because this number went from 800 per year to 10,000 per month. And this is how big we established this relationship. Same thing also with Addis Ababa. When we started going to Addis Ababa,

**“Whenever we move,  
we move along with the  
business community.”**

nobody even knew about it. We look into markets that people sometimes say don't make any sense, but we pick them based on certain competitive advantages we have in Dubai, and competitive advantages they have there. And we say: what if we connect the dots together, not to be, you know, sender and receiver, but what if we can combine these two and go somewhere else, where we can provide something extra? And this is one advantage that Dubai has, that people don't really realize the strengths of the business community in their relationships with the different parts of the world and how they can put things together. Emirates Airline is a great infrastructure in terms of connectivity. DP World is one of the biggest businesses that we have in the city. But the relationship with private businesses is something we had historically, and we continue evolving as we speak. And we believe that this is a major advantage for Dubai going forward.

**J.D.:** Let's explore the Silk Road strategy. If you look back, it was pretty profound, because it used to be an export market, as you said, for oil. China, India, South Korea, Japan, even Indonesia, but it's a similar approach, it's two-way trade now. You don't just want to export oil as the UAE, it's logical. It's faster growth, right? They're big economies. And it's a gateway?

**H.B.:** Again, if we look at the Far East, it has always been a partner to Dubai and somebody we have a close and good relationship with. But this also includes South Asia, India, Pakistan, because they are very important partners for us. China over the past 20 years has evolved to become the manufacturer of the world. And of course they are our largest trading partner, but the relationship is really one where we import from China and export to the rest of the region. This is the way things are happening. But what many people don't really realize is the fact that China used Dubai as the largest hub in the region to go to Africa. And China is the largest investor in Africa. And of course they export to them almost everything, and they import all the commodities that they require for different things. And when Dubai started this relationship of establishing the Dragon Market and bringing Chinese...if you go back 10 or 15 years, the Chinese community in Dubai was almost non-existent. They were not one of the communities. Today, the number is big. We have in excess of 10,000 Chinese companies and they are using Dubai and everybody comes to Dubai to meet China in Dubai because it is the easiest way to do so.



**“We benefited a lot from playing  
with the global rules and all the  
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point to connect it with the world.”**

Of course, China started the One Belt One Road strategy to connect directly with important markets like Europe and Africa. There was a point in time when Dubai, or the UAE, we looked at it and realized: this could be a threat if we don't play an active role in it. We could be bypassed through all the different investments that China is putting in Pakistan, Oman or in East Africa, because they will not require Dubai anymore. Of course, these were coordinated efforts by different entities in Dubai, including the boards, including the Chambers, including the airline, where we decided that, looking at the silk routes, why don't we establish part of Dubai within that? So Dubai has a quite strong presence in Kazakhstan. We have very strong relationships in East Africa, though that's not Dubai, but Dubai Inc. is there. And Dubai businesses are established there. The same thing is happening, of course, with Eurasia. We are looking at whatever China can connect and of course the end of the Silk Road is London. And we are already there through London Gateway port. And this is something, of course, that's very important for us. We would like the goods and services to end up at a consumer, but we always try to find how we can be part of that. We think beyond the city, we think beyond just the geographic concentration: I will try to move and be part of that. And whenever we move, we move along with the business community. We move with government-related entities, and we try to play a role to make things easier and provide a solution for that.

**J.D.:** Is it fair to say now, in the 21st century, that this is a global emerging market? Because there was some hesitancy, even in government, to say: this is the Middle East and North Africa, we're happy being the regional trade hub and the financial center and obviously the transport gateway.

Seeing what's happened after the pandemic, Hong Kong suffered, Singapore's profile is there, but it's not as prevalent as it was before and London has actually had Brexit. It seems like a perfect opportunity, not to take on the rivals, but to say: we deserve the next level up. Would you say that?

**H.B.:** Globalization played a big part. And if you remember the eighties, we were told that it's only through globalization that we can grow, and we can benefit from it. And I must say, Dubai is one of the results of this globalization. We benefited a lot from playing with the global rules and all the changes that happened and the fact that this whole region was growing and needed a connecting point to connect it with the world. This was our major advantage. The pandemic changed a lot of things. Before that, a lot of protectionism started. A number of countries in the West started questioning globalization and, frankly speaking, the normal logic that we had before. It started to become illogical. And of course COVID-19 made it worse. Nowadays, everybody's suffering because of the zero COVID policy that China is doing – for China itself. However, because they are the exporter and the manufacturer of the world, they're impacting everybody else. This is where globalization comes into question. We believe that in the future, globalization will play a part, but not as important as it did in the past. We believe the regional developments will be important. And this is something we've been seeing happening starting with the U.S.-China conflict, where we realize that, if you want to be neutral, maybe you cannot be here or there. We are starting to see it, of course, more recently, again. As I said, COVID was a big driver because of the risk. Regional players will play a bigger role. But one thing

**“Even with globalization, we never said, be in New York and you don't need to be anywhere else, because we have to think about time difference.”**



**“2021, despite still being faced with the pandemic, was the best year for Dubai.”**

also we need to keep in mind: even with globalization, we never said, be in New York and you don't need to be anywhere else, because we have to think about time difference. We have to think about language. We have to think about proximity. So even in the globalization model, we're always thinking about these global cities, whereas they're the ones everybody knows.

**J.D.:** But do you belong in that top tier is my question...

**H.B.:** I believe Dubai and the UAE have evolved over the years, especially in the past 15 years, to get there, because there's a huge gap in the middle and we are filling that gap. So I would say yes. Since the pandemic until now, I think we've even done much better than others. And again, I'm talking about facts. Today, actually, the largest two jewelry shows happening in the world used to happen one in Las Vegas and one in Hong Kong. The one in Hong Kong has not been operational for the past two years. They shifted to Dubai. Believe it or not, they're not going to go back. We used to go and get a lot of companies to Dubai and we used to compare, compete with others. They will continue to be important players, but what Dubai did during the pandemic, which people need to understand, is: first of all, Dubai treated everybody in Dubai equal. Which wasn't the case if you were in Hong Kong, if you were in China.

The last 18 months have been great for us. Believe it or not, 2021, despite still being faced with the pandemic, was the best year for Dubai, maybe in the past 15 years. Even compared with the 2007–2008 boom, 2021 was much better because of what we did during the pandemic. This brought a lot of businesses to Dubai. Last year, we registered 30,000 businesses in the Dubai Chambers. In my 17 years, my average was between 10,000 to 15,000. Last year, we doubled that and more. And this is continuing as we speak right now. What benefited us were the government reforms: many things we've been talking about for five to 10 years, about long-term residency, about the ownership of foreigners, which Dubai was always open for, but the rest of the country was not. And these things made many people rethink about the country, about the UAE. And I believe this is putting us up there in the top tier of global cities.

**J.D.:** Great. Thank you very much for this very insightful interview. ■

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