

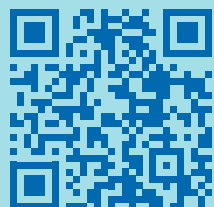


**Add value.
Inspire trust.**



CHALLENGE

WE'RE READY FOR IT



www.annualreport.tuvsud.com

CONTENTS



04

CLIMATE-FRIENDLY CONSTRUCTION, ELECTRIC CAR BATTERY TESTING

Leading by example: TÜV SÜD is facing up to the challenges posed by sustainability – with small actions that have a big impact.



08

ENDLESS GROWTH?

The ecologist and professor for sustainable development Tim Jackson reveals his ideas for an economic model without growth in an interview.



12

DIGITAL TWINS, SUSTAINABILITY REPORTS AND THE CIRCULAR ECONOMY

Ideas for tomorrow's world: With our services, we are working step by step to make the world a better place.



ONE CHALLENGE

Sustainability is a key element in our mission. Even in times where other issues briefly blot out the central issue of climate change, sustainable action remains the principal shaper of our future. For the services we provide, but also for our company as a whole, and for us as individuals. We aim to be carbon-neutral by 2025. The challenge is here. We're ready for it.



TÜV SÜD HELPS PROTECT THE CLIMATE

NEW LIFE FOR GRAY ENERGY



Find out more about sustainability as part of TÜV SÜD's building management policy: watch the video on our Annual Report website.

TÜV SÜD itself also has an ambitious goal: to be the most sustainable TIC company in its field. To achieve this, the company is aiming to reach net zero by 2025. A plan in which the real estate at its 1,000-plus global locations has an important role to play.

Munich: Besides renovating buildings, TÜV SÜD is also constructing new ones where the need arises; all projects have a strong focus on sustainability.



M

ichaela Joas stands on the second floor of Building B at the TÜV SÜD offices in Munich, Germany, and surveys the scene with a satisfied air. Everything looks so sleek and new – and yet the property is almost 60 years old. Built in 1964, Building B is part of the building complex that makes up the company's headquarters in the Bavarian capital. As Head of Service Line Real Estate, Joas is responsible for overseeing TÜV SÜD's portfolio of properties. Over the past few years, she and her team have successfully organized the thorough refurbishment of the building – including their own new offices, now ready for use. The renovations are part of the current implementation of a new concept for future-proofing TÜV SÜD's Munich location, which spans refurbishments, upgrading and retrofitting works, and new builds for the site's several thousand employees.

In the case of Building B, TÜV SÜD decided to retain and refurbish the building, adding new technology including LED lighting, heating/cooling concept, groundwater well, motion sensors, and energy-saving monitoring, and connecting it to the city's district heating grid. Joas explains, "The building fabric was still in great shape structurally, and it's always more sustainable to refurbish an existing building than to rebuild from scratch. The construction process consumes large amounts of energy, which is known as 'gray energy.' By choosing refurbishment, we have largely been able to conserve it."

O5

The building fabric was still in great shape structurally, and it's always more sustainable to refurbish an existing building than to rebuild from scratch.



TÜV SÜD also uses LED lighting and motion sensors in its buildings to optimize energy efficiency.

NEW MOBILITY

06

FITNESS CHECK FOR E-VEHICLE BATTERIES



Batteries are both the beating heart and the Achilles heel of e-mobility. They consume costly resources, are expensive, and their condition – at least at present – cannot be measured with precision, but only estimated. Now TÜV SÜD is working on a solution.

Markus Gregor is Product Manager New Energy Vehicle at TÜV SÜD in Munich. He and

his team have taken a topic that is very much within TÜV SÜD's core remit – periodic technical inspections for electric vehicles – and turned it into the exciting R&D task of developing a fitness check for e-vehicle batteries.

Today, mobility is on the cusp of radical change. As an important component of an electric vehicle, the battery is of special importance. What is the remaining range? How safe is the battery after an accident? To date, estimating battery life has been anything but an exact science. And yet the battery accounts for around half of the purchase costs of an electric vehicle.

Each charging cycle gradually reduces the life expectancy of the battery.

The condition of the battery is also a decisive factor in the range of electric cars.

Markus Gregor and his team are working on a way of establishing batteries' "state of health." Their goal is to provide customers with detailed information on their vehicle's battery performance and safety. Because batteries contain valuable resources such as lithium, nickel, and cobalt, a clear picture of their condition throughout their lifespan is particularly important. If the performance data of a battery are known, the battery can even move on to a second life as a stationary power storage unit. But the data can also show that the battery has reached the end of its useful life and needs to be recycled. In order to contribute toward sustainability, every phase of a battery's life cycle must be utilized to the full.



To find out more about TÜV SÜD's contribution to sustainable e-mobility, watch the video on our Annual Report website.

EXPERT
INTERVIEW WITH
TIM JACKSON

“We will soon
be facing a post-
growth economy”

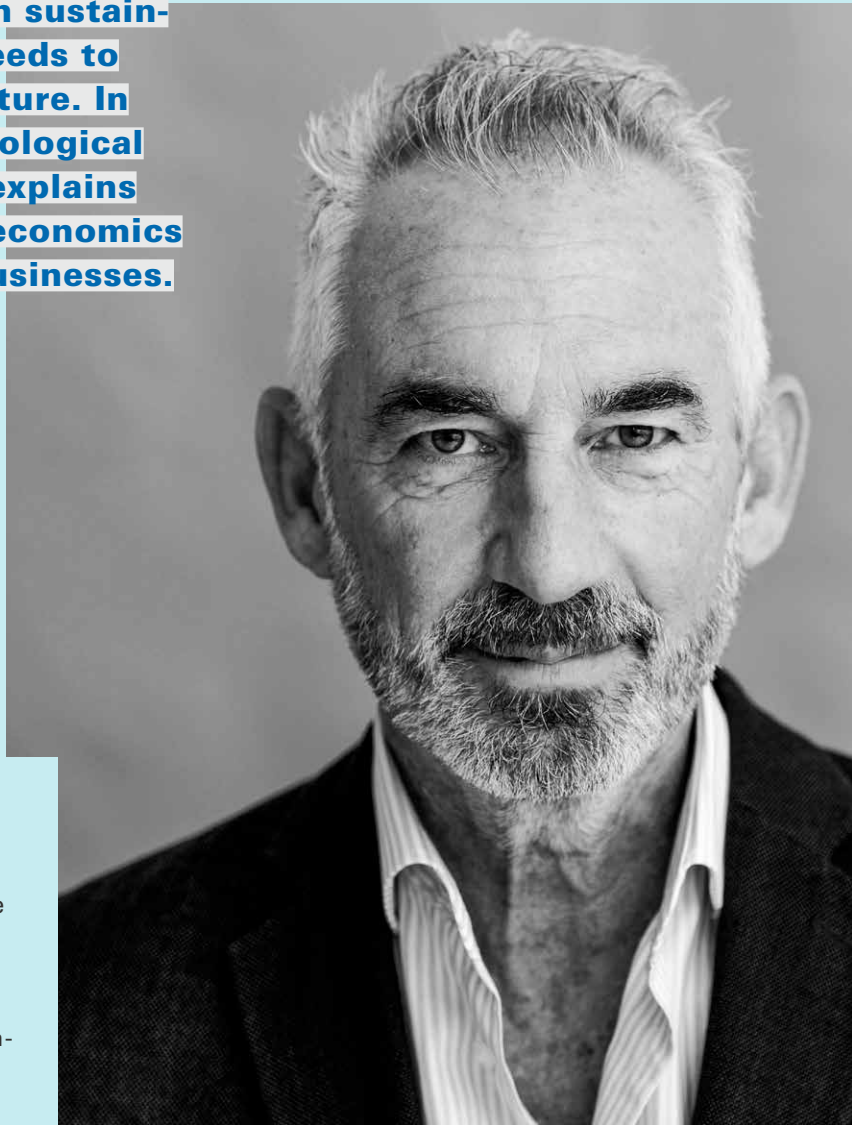
The relationship between sustainability and economics needs to be re-evaluated in the future. In this interview, British ecological economist Tim Jackson explains his idea of post-growth economics and what it means for businesses.

IN PROFILE

Professor Tim Jackson is an ecological economist and Director of the Centre for the Understanding of Sustainable Prosperity (CUSP) at the University of Surrey in England.

CUSP is a multidisciplinary research center that aims to understand the economic, social and political dimensions of sustainable prosperity.

In 2009, he published his controversial and groundbreaking book *Prosperity without Growth*, which has been translated into 17 languages.





Q Professor Jackson, you have been researching the context between sustainability and the economy for decades. What do you mean by post-growth economics?

A Post-growth economics is a way of thinking about what might happen when GDP growth is no longer our primary indicator of success. One of the main reasons for doing that, apart from the environmental and social reasons, is that the growth rates that economists and politicians have come to expect have been slowing down, not just since the financial crisis, but actually over the last roughly half a century. The rates in advanced economies have slowed down from around 4% or 5% per year in the 1960s and 1970s to around 1% across the OECD nations at the moment. Even before the pandemic, that was the trend. The implication is that we will soon be – if we are not already – living in a post-growth economy, like it or not. To me that means we need an economics that takes seriously the idea that prosperity is not just about growth. It's also about health, about relationships, about one's community and about having some sense of purpose in life.



Prosperity is not just about growth. It's also about health, about relationships, about one's community, having some sense of purpose in life.

Q You wrote the growth-critical bestsellers "Prosperity without Growth" and "Post Growth". What do you say to people who claim that global emergencies such as the banking crisis in 2008 or the corona pandemic since 2020 cannot be overcome without growth?

A I would say that our difficulties in dealing with those crises were, at least to some extent, because of the primacy that we give to economic growth. I believe the financial crisis itself can be seen as a consequence of our obsession with economic growth. It was because of this obsession that we deregulated finance. And in doing so, we undermined stability. In a sense, the collapse of the financial sector was as much a consequence of our pursuit of growth as it was of our failure to deliver that growth. If I'm right then it means we need to be much more nuanced in our solution space when we're faced with global crises. We need to understand where those crises came from and what sorts of recovery are necessary. Our response to the financial crisis invoked a damaging austerity which undermined social welfare.

When the pandemic hit, our health systems were already weakened from ten years of underinvestment. The pandemic was clearly a 'special case'. From one day to the next, we basically turned off most of our economic activity. We did it to protect the health of citizens. We put health above wealth – and that was the correct decision at that point. Do we want to recover some of that economic activity? Yes, of course we do, because people's livelihoods depend on it. Equally, in the poorest countries in the world, there is still a need to increase economic activity in order to improve people's lives. That's not ruled out by what I'm calling a post-growth approach. What is ruled out is the idea that the solution to those kinds of problems can come purely through pushing growth as fast as possible, as we did in the past.

The simple mantra of economic growth at all costs cannot provide the solution to some of those problems. Our fixation on productivity is an integral part of our obsession with growth. But we have to think in a more nuanced way about what really matters. We can start by building a broader concept of prosperity, where the most important economic activities have nothing to do with the pursuit of abstract growth. Instead, they depend on care, craft and creativity: the very things that make our lives valuable and worth living.

Q Why is sustainable management a meaningful option for companies, despite the fact that they are actually under constant pressure to make a profit and act in an economically expedient way?

A There tends to be a conflict in the way companies are organized: between the pursuit of profits and the goals of sustainability. This happens because a company's revenues need to satisfy three competing demands: the wages and salaries to be paid to people working in the company; the dividends to be paid to shareholders; and the investment that needs to be made in order to achieve future economic success or to achieve ecological sustainability. Those variables are in conflict with each other in the forms of corporate structure that we are most familiar with. It seems to me that recognizing that conflict is really important. We have to move beyond Milton Friedman's dictate that 'the business of business is business' and that profit is the only legitimate output indicator for a company. We've seen how that approach is a recipe for disaster.

Society is beginning to say that a company must always have a very keen eye on its own sustainability. So, in relation to climate change, for example, companies are now beginning to internalize the idea, and rightly so, that they must think about the transition to a net-zero-carbon company. Sustainability and the transition to net-zero no longer means just a kind of social and environmental branding for the company. Nowadays it's critical to the material existence of that company in the long run.

Value added should be focused on quality and on meeting the need for human services.



The way ahead for companies is to internalize the vision of a sustainable company.



Q What will be required of companies in the future in terms of sustainability and how should they act?

A I think that the primary lesson for companies today is that by embracing a vision of the future in which sustainability is front and centre of your purpose, you have an advantage, both in relation to other companies, but also in relation to your own viability as a company. Being a laggard in relation to sustainability is likely to risk damaging your so-called social license. In other words, failing to take sustainability seriously represents a material risk to your company. So the way ahead for companies is both to internalize the vision of a sustainable company and to be proactive about sustainable management practices.



Q What is the role of business in your world where balance, not growth, is the essence of prosperity?

A A world where business is oriented toward having more and more is a recipe for disaster. Particularly in a world where human health is about balance rather than growth. Because you've got business incentives pushing in the direction of relentless expansion while human health, and the human body itself, needs to be able to remain in balance. The concept of balance should therefore be a boundary condition for our idea of progress. Now, what does that mean for businesses? First of all, perhaps, it means establishing where the limits are. Even though we know where some of those limits are, say, with climate change, we're not integrating them into policies in the way we need to. The establishment of limits is a vital step in being able to look ahead to the way the economy is going to develop outside of this pathological dynamic.

The second kind of solution space is about fixing the economics. It is about beginning to design economics itself and economic institutions that reinforce long-term interests. This has some very clear implications for business – for example, how you strategize investments, how you measure the performance of investments or how you shift the balance of investment toward long-term goals in your production sector.

The third solution space is about changing social logic. People as consumers are locked into specific patterns of behavior. If you need growth, you need people to go on buying more. What we're living in is a system designed to kick start and stimulate consumption. Recognizing that, we have to systematically shift back to achieving a balance. For businesses, this means going beyond the mass production and consumption of material products and focusing value added on quality and on meeting the need for human services. •



For more information on our circular economy services, watch the video on our Annual Report website.



The TÜV SÜD laboratory in India has developed its own method for the validation of recycled polyester.



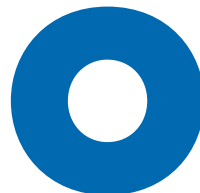
UNIVERSAL CIRCULAR ECONOMY

KEEPING THE
ENTIRE PRODUCT
LIFE CYCLE IN
VIEW

Our planet is at stake. If we want to preserve it, we need to embrace more sustainable ways of living. Our society, our policy-makers, and even our markets are increasingly calling for products that fulfill the standards of a circular economy. TÜV SÜD has understood. We support companies with a portfolio of around 20 testing and certification methods that cover the entire life cycle of a product.

13

Given this background, it is all the more important that we apply the principle of dual control also known as ‘four-eye principle’ to confirm to our customers that the suppliers’ information is correct.



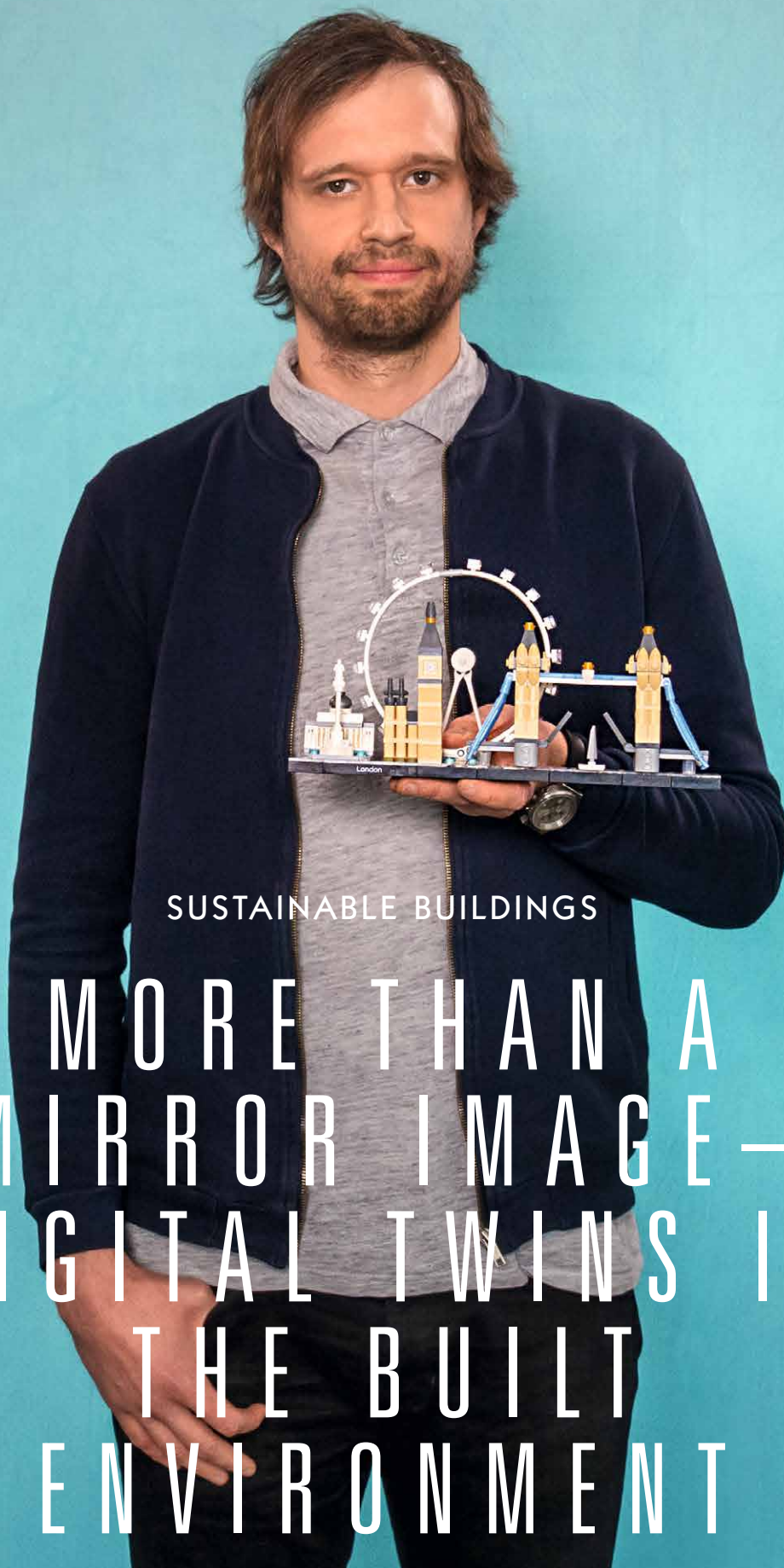
On top of her desk bears a small label stating “100% Biodegradable” – just like thousands of other labels that Dr. Natalia Duque Ciceri has encountered in the course of her career. But will the product keep its promise? Verifying this is the task of Duque Ciceri, Head of

Global Sustainability Services at TÜV SÜD’s Product Service Division, and her team.

These experts from TÜV SÜD have developed a program spanning the entire life cycle of products, starting with analysis of the raw materials and production processes involved and extending to the product’s use and, finally, its end-of-life to substantiate product sustainability claims. An area where close scrutiny is rewarded is the textile industry, which has achieved recycling rates of no more than one percent or so to date.

“Given this background, it is important that we apply a ‘four-eye principle’ to confirm to our customers that the suppliers’ information is correct and ultimately their claims really contribute to a more sustainable product,” explains Duque Ciceri.

Recycled polyester is currently in high demand in textile manufacturing. TÜV SÜD has developed its own inhouse method for verifying the credentials of the material, implemented by specialists in the company’s laboratories in India.



SUSTAINABLE BUILDINGS

MORE THAN A MIRROR IMAGE— DIGITAL TWINS IN THE BUILT ENVIRONMENT

Around 40 percent of global carbon emissions are accounted for by buildings. Yannick Renaud and his Sustainability & Simulation team at TÜV SÜD in Hamburg have taken up the challenge of making building operation a more climate-friendly affair. To do so they use digital twins – virtual building replicas enabling real-life characteristics of the buildings to be simulated and optimized.



To find out more about TÜV SÜD's contribution to sustainability in real estate, watch the video on our Annual Report website.

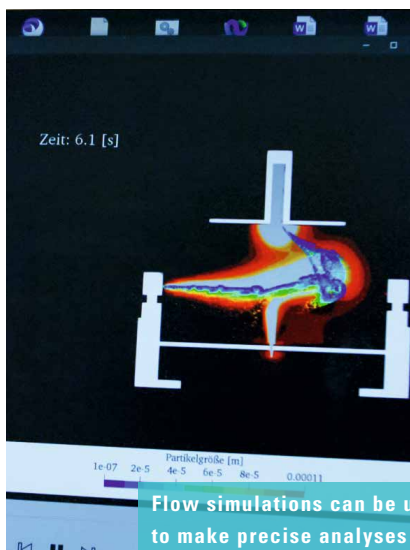
Mr. Renaud, can you explain what a digital twin is?

RENAUD In very general terms, a digital twin is a virtual model that replicates real estate properties or processes in varying levels of detail. They are very frequently used to create virtual buildings, digital replicas of existing or planned buildings which generate information and findings that can then be applied in the real-life buildings. Digital twins are a completely transparent method of identifying potential areas for optimizing sustainability on behalf of our clients.

It all sounds rather theoretical. How can your clients benefit from a digital twin in concrete terms?

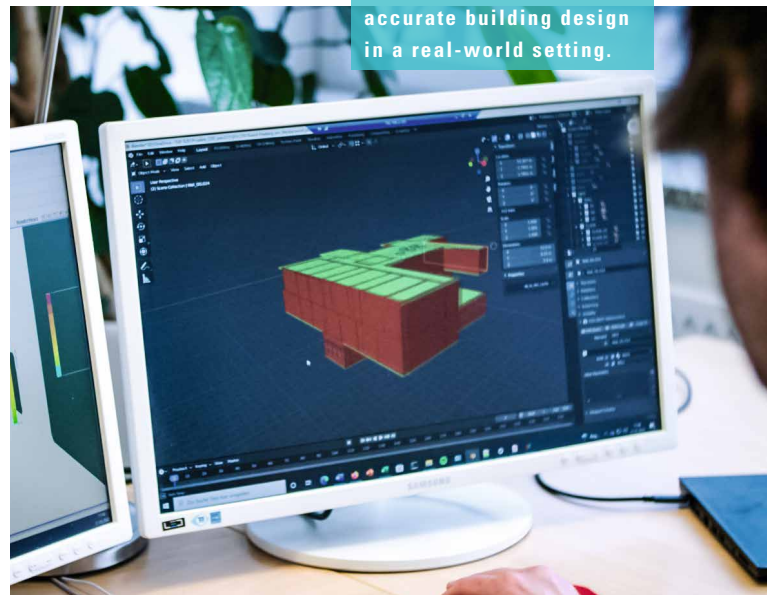
RENAUD Two very concrete areas where digital twins are used are energy and building physics consulting. Our team specializes in thermal flow and air flow simulation. The digital twin software allows us to modify parameters at will and simulate situations to determine, say, the necessary technical requirements for a heating system or improvements to building ventilation. Our work thus contributes to enhancing the efficiency of buildings, and thus pays into climate protection and sustainability, but also helps to create spaces where people enjoy living and working.

15



Flow simulations can be used to make precise analyses of air distribution.

The digital twin is the optimum template for accurate building design in a real-world setting.



VERIFIED SUSTAINABILITY

HOW GREEN IS
A GREEN
CONSCIENCE?


Sustainability reports are not only mandatory by law for many companies; they are also key strategy and marketing tools. But are the data and facts they contain correct? TÜV SÜD has the role of an impartial third party, issuing report statements which serve as generally recognized “signed and sealed” confirmation of their accuracy and correctness.

As Global Product Performance Manager Sustainability at TÜV SÜD, Sara Brandimarti is thoroughly familiar with the maxim that “experience is the key to success.” The name of TÜV SÜD has stood for quality auditing, certification, and verification for decades, with sustainability increasingly one of the aspects under examination – and precisely the area in which Brandimarti and her team operate.

A luxury resort on Lake Garda in Italy provides a good example of her duties. Sustainability is a vital factor for anyone planning to open an oasis of relaxation in an area where the demands of tourism clash with the landscape’s particular need for protection. The resort goes to enormous lengths to achieve it,

publishing the results of its efforts in a sustainability report. Sustainability is no longer confined to the concerns of environmental organizations or governments. Stakeholders in all areas are increasingly calling for companies to step up their activities in corporate sustainability with its three pillars of Environmental, Social, and Governance (ESG). “To enhance trust among consumers and guests, the resort decided to apply to us for verification of its sustainability report,” explains Brandimarti.

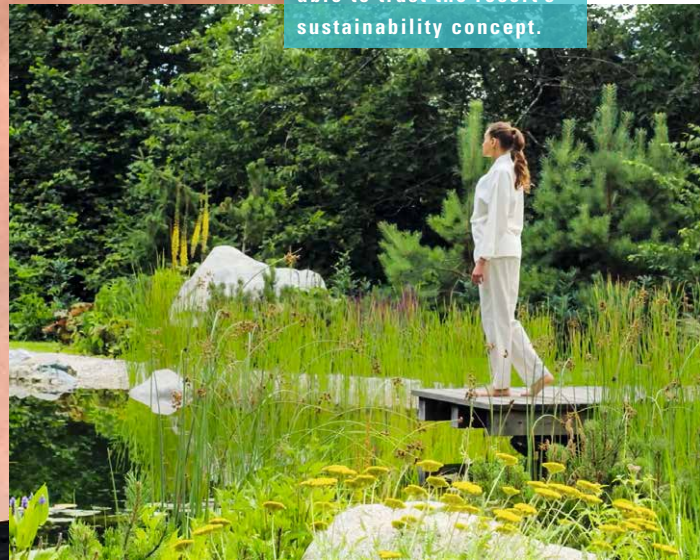
She and her team analyze and validate the data supplied and collate evidences and documentation: “Performing activities from on-site inspections to employee interviews, we ensure that all of the details provided are genuinely informative and credible.”



Thanks to TÜV SÜD, even luxury resort guests are able to trust the resort's sustainability concept.

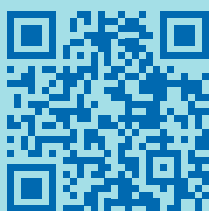
17

Performing activities from on-site inspections to employee interviews, we ensure that all of the details provided are genuinely informative and credible.



For more interesting information about sustainability verification from TÜV SÜD, watch the video on our Annual Report website.

MORE INFORMATION AND FILMS ON "ONE CHALLENGE" CAN BE FOUND ONLINE



[www.
annualreport.
tuvsud.com](http://www.annualreport.tuvsud.com)

TÜV SÜD AG
Westendstraße 199
80686 Munich
Germany

PHONE +49 89 5791-0
FAX +49 89 5791-1551
MAIL info@tuvsud.com
WEB www.tuvsud.com



IMPRINT

Published by

TÜV SÜD AG
Global Corporate Communications
Westendstraße 199
80686 Munich
Germany

Phone +49 89 5791-0
Fax +49 89 5791-1551

© TÜV SÜD AG, Munich.
All rights reserved.

Sabine Hoffmann,
Jörg Riedle (project manager)

Concept, editing and layout

MPM Corporate Communication
Solutions, Mainz
www.mpm.de

Photography

p. 04–07 MPM; TÜV SÜD
p. 08–11 Tim Jackson; Stocksy/Caleb
Gaskins; Adobe Stock/Vasyli; Stocksy/
Dreamwood videography – Mikhail Nilov
p. 12–13 Pixelflow TV & Filmproduktion;
Bipinchandra Chaugule/Ambi Creations
p. 14–15 Kellersohn-TV Sascha Keller-
sohn
p. 16–17 Pixelflow TV & Filmproduktion;
Lefay Resort

Text

Stefan Tomm, MPM
TÜV SÜD

Printed by

Peschke Solutions GmbH, Parsdorf

Published May 2022