

HORIZON

Risk Thought » Fast Forward

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**Environment
in Danger**

Risk Thought » Fast Forward

HORIZON

“To be or not to be”? Editorial

"The time is out of joint," lamented William Shakespeare's Hamlet more than 400 years ago. Yet, one could be forgiven for thinking he was talking about the confusion of the present day as we battle crisis after crisis. Many of these crises are sudden, tend to be short-term in nature, and are local or industry specific. They affect us directly and persistently demand our full attention.

Other crises, the climate crisis being a prominent example, are more likely to emerge as developments that gradually manifest themselves. The full extent of their impact will only occur in the future and are therefore not immediately apparent. Due to their abstract nature, these developments are overshadowed by immediate events, although their relevance is often more far-reaching and therefore require our utmost attention.

The concrete crisis dilemma

In practice, companies are often faced with the dilemma of focusing on long-term, sometimes even abstract goals and the necessary resources required for them, when suddenly unforeseen events crop up out of the blue, disrupting the sustainable pursuit of measures that are crucial to achieving the changes that are necessary in the long run. The perception of strategic risks is therefore pushed into the background again and again. At the same

time, sticking to managing these strategic risks is also an important contribution to being prepared for events that could occur at short notice.

» The perception of strategic risks is pushed into the background again and again. «

It is human nature to pay close attention to risks that are tangible and have concrete repercussions in the here and now. Abstract dangers that are not immediately a threat to us are neglected in our subjective risk perception. As a result, politicians are tempted to follow the public mood to maximise their chances of success in the next elections, or the media orients itself accordingly to gain maximum circulation.

In times when public discourse seems to have lost courage and far-sightedness, and society is jumping from one crisis to the next, companies are required to act with foresight and keep an eye on their long-term goals. The urgently needed paradigm shift away from focusing on short-term results towards building strategic resilience is of particular importance.



Why we should listen to the next generation

Many political and economic decision-makers belong to a generation that can look back on an eventful life characterised by confidence and growth. Their diligence and commitment have made a significant contribution to the development of a society in Europe that is based on social prosperity and peaceful coexistence. To ensure this peaceful coexistence in the future, the tolerance that we have towards our fellow human beings and their risk perception and concerns is of the utmost importance. When dealing with long-term risks, such as the long-term effects of the climate crisis on our personal security and economic existence, it is crucial to include the next generation, which will be directly affected by these effects, and to take their concerns seriously.

Risk-based methodology for transformation risks

We have developed a risk-based methodology to manage the risks associated with underlying systemic change. We distinguish between primary transformation risks and secondary transformation risks. Both types of risk signify changes in the risk landscape.

When we look at climate change, primary transformation risks appear as physical risks. They are apparent in the form of changed or an increased exposure to natural disasters, such as floods, storms, and hail as well as heat, drought, or a rising sea level. As far as companies are concerned, these risks can cause anything from material damages to disruptions of transport routes, in energy, or raw material supplies.

Alongside these primary transformation risks, which affect companies as "pure risks" from the outside, systemic change leads to secondary transformation risks that are "speculative". They derive from companies' adapted business strategies that were developed in response to the systemic change and comprise both risks and opportunities.

How companies will deal with their ecological risk landscape - a pragmatic scenario

If climate scientists' models are to be believed, the likelihood and the impact of physical hazards will increase dramatically as global average temperatures rise. The climate-related change, which was previously perceived as a long-term development and the consequences of which will only appear in the distant future, will transform itself

into an acute danger with immediately noticeable effects due to the drastic increase in suddenly occurring, climate-related events.

A possible scenario could be that the dimension of these primary risks is heading towards a tipping point, at which not only a clear public opinion manifests itself, but also political action becomes unavoidable. By then at the latest, banks and insurance companies as well as investors will place additional, non-material criteria at the centre of their risk assessment.

» The costs of physical risk are becoming a competitive disadvantage for companies. «

For both society and the public, the cost of managing these physical risks will be enormous, at some point exceeding the cost of transformation. From this point on, companies will put their full focus on the ecological transformation of their corporate strategy.

The costs of physical risk are becoming a competitive disadvantage for companies. From the tipping point, investments in ecological transformation will therefore pay off insofar as they increase the resilience of the company, open-up new business opportunities, and will ultimately emerge as a decisive competitive advantage.

What does this mean for risk management? In view of the increasing danger from physical climate risks, it is essential to identify their influence on one's own assets and to eliminate weak points as best as possible. In addition, secondary transformation risks must also be identified as early as possible to be able to develop cause-related and effect-related measures for these, often new, risks.

Insurers – innovation vs. aversion

Insurers also play a key role in mitigating transformation risks. However, it is in their nature to primarily look in the rear-view mirror to be able to assess a risk based on the claim's history. However, as we do not have the necessary historical data for transformation risks, the insurance market will have to find new ways to be a systemically relevant part of this transformation.

If insurers want to continue to fulfil their role as "enablers of the economy" in the future and not continue to lose industry importance, then it is time to support the transformation with targeted incentives and innovative solutions instead of with a restrictive underwriting policy only to keep an eye on their own risk landscape.

Therefore, the insurance market must be proactively involved in the transformation at an early stage. The prerequisite for this is the combination of the company's agile and transparent risk management strategy, coupled

with proactive risk mediation by the broker. Only through a joint effort will we be able to meet the challenges of the transformation ahead of us. What matters here is a sense of responsibility, future orientation, and mutual respect, because only a functioning risk partnership between companies, risk carriers and brokers will be able to contribute to the well-being of our society.

» If insurers want to continue to fulfil their role as "enablers of the economy" in the future and not continue to lose industry importance, then it is time to support the transformation with targeted incentives and innovative solutions instead of with a restrictive underwriting policy only to keep an eye on their own risk landscape. «

Our new HORIZON series "Environment in danger" is our community platform for risk thought leadership. It is based on our vision to detect the impact of systemic risk changers at an early stage and introduce risk management solutions that boost our clients' resilience.

This HORIZON series focuses on the new risks and regulatory challenges that companies face because of this transformation, as well as the role of data analytics and AI in this area. We invited clients and business partners to join our risk thought leadership community and provide some insights on their points of view. Also, many of our employees across our group contributed to this series.

I want to thank them all for growing our community and their efforts in doing so.

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Contents



Climate Change Meets Corporate Companies. Captives as a Lifeline? **17**



"To be or not to be"? **3**



HR's Green Transformation: Fad or Future? **20**



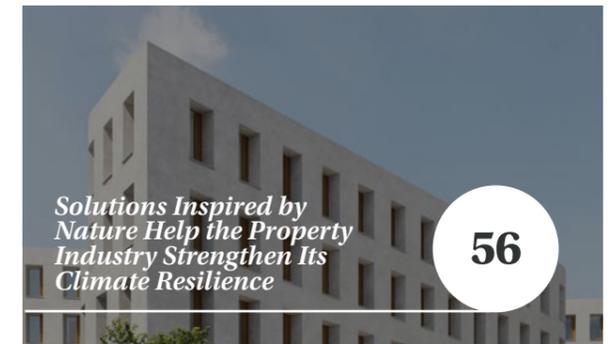
Firefighting Sustainably: How Rosenbauer Group Is Driving Innovation and Change in the Fire Service **35**



Can We Afford to Pay the Price of Growing Soil Consumption and Climate Change in Austria? **53**



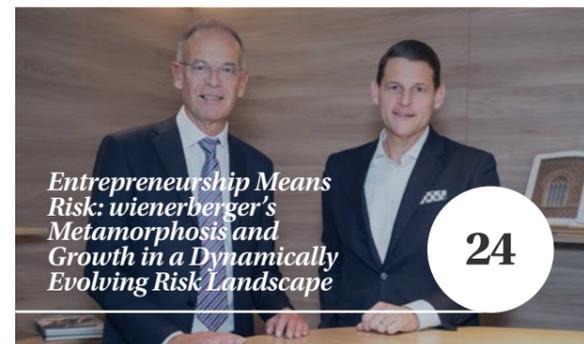
From Yellow to Green: The Austrian Post Service's Mobility Transformation **38**



Solutions Inspired by Nature Help the Property Industry Strengthen Its Climate Resilience **56**



Strategic Resilience - Environment in Danger **8**



Entrepreneurship Means Risk: wienerberger's Metamorphosis and Growth in a Dynamically Evolving Risk Landscape **24**



"You Can't Protect Nature Because You Have to Be Stronger Than Nature Itself" **42**



Concrete Construction the Green Way: Innovative Perspectives for a Sustainable Construction Industry **58**



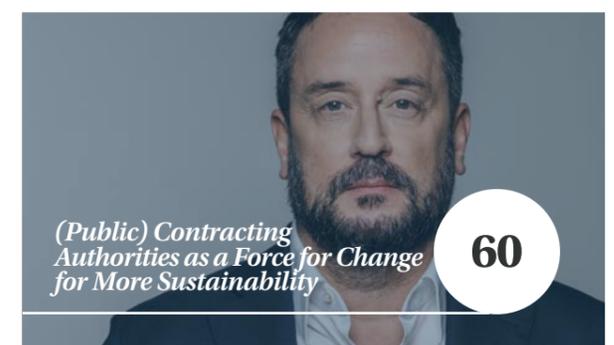
Dawn of a New Era: Decarbonization Strategies To Navigate the Green Deal Landscape **10**



"Saubermacher Will Be a Network Aggregator During The Transition" **28**



Is Water Scarcity Dangerous for the European Food Industry? **45**



(Public) Contracting Authorities as a Force for Change for More Sustainability **60**



ESG Rating and its Effects on Financing **12**



"After All, We Cannot Afford to Wait for Better Times" **33**



How Slovenia's Natural Disaster Points to Systemic Weaknesses in Europe **48**



Digitalisation Not Demolition: Developing the Circular Refurbishment Economy **63**

Strategic Resilience – Environment in Danger

Companies face a variety of challenges. In a business environment characterised by multiple ongoing, simultaneous crises, managers can easily lose sight of what is happening from above. To be able to strategically align your company to the opportunities of the future in a timely manner, a strategic view of the profound transformation processes that are currently taking place is necessary.

The strategic framework affecting companies

Two of these profound transformation processes are currently overlapping as they unfold. They represent technical-ecological paradigm shifts that not only fundamentally change the rules of the economy, but also reflect the increasing development of a profound change in society's values.

One paradigm shift concerns the unfolding wave of digitalisation, which began around the mid-1990s with the emergence of the internet and is now moving into the next phase. This phase concerns topics such as quantum computers, artificial general intelligence, crypto as a payment system and basis for uniform ownership rights, as well as the topic of physical/virtual immersion, which can be summarised under the term metaverse. What these topics have in common is that they will bring with them commercial availability in the next few years along with opportunities that are difficult to imagine today. However, forward-looking companies must prepare for them and prepare today.

The second paradigm shift is that of sustainability. This is currently showing increasing momentum, driven by the European Union's immediate goals for decarbonization, as well as the 2030 Agenda regarding the 17 Sustainable Development Goals (SDGs). Europe has set itself the goal of becoming the world's first climate-neutral continent by 2050, with the interim goal of reducing emissions by 55% by 2030 compared to 1990. Here too, this means that companies are under immediate pressure to act.

The third aspect that companies have to take into account are crises. The multitude of ongoing disruptions in recent

years has coined the terms polycrisis and permacrisis demonstrating that they have become a normal part of everyday life. These disastrous events often come unexpectedly, and the extent of the individual crises is unimaginably high. Nevertheless, managers must incorporate them into their strategic considerations and be prepared to deal with them. Recent crises have included the Corona crisis, the supply chain crisis, geopolitical crises, the crisis of increased inflation coupled with economic stagnation and, depending on the country, even recession.

The need for strategic resilience

Companies must take these framework conditions into account to secure and expand their future competitiveness. A strategic look at the opportunities of the overlapping paradigm shifts of the unfolding next phase of digitalisation with that of sustainability is necessary.



Only companies that identify these opportunities in a timely manner and align themselves with them in a timely and proactive way will also benefit from them economically. Focusing on opportunities is an essential factor in strengthening the company's strategic resilience when dealing with ongoing crises. This enables companies to process unexpected shocks, realign themselves more quickly and consistently seize opportunities.

Strategic resilience combines hard and soft factors and is an emerging management discipline. In a forward-oriented view, it combines levers such as aligning on a continuously redefining core business, such as eliminating non-core businesses and structurally reducing the fixed costs while at the same time substantially increasing financial reserves. It rethinks the business model centring around a net zero growth plan and innovation, and elevates the corporate purpose, diversity and inclusion and agility within the company. The ability to communicate clearly, authentically, and continuously with targeted storylines becomes strategically relevant for distinguishing companies and building up differentiation advantages.

How to deal with an environment in danger

A key driver of change and thus key motivator to increase the strategic resilience of your company is not limited to, but certainly includes the topic of E within the ESG structure. It stands for the environment and comprises the segments of energy use, water use, waste management, biodiversity, and greenhouse gas emissions. It is a necessity to act on these topics, but it can also offer opportunities to build up strategic competitive advantages for companies.

The targets are set: reducing greenhouse gas emissions to net zero by the year 2050 with the near-term target of -55% compared to the year 1990 by 2030. However, the calculation of the carbon footprint of companies will have to include all emissions scopes (scopes 1, 2 and 3), meaning that the entire supply chain will have to be incorporated. For most of the companies, scope 3 makes up the by far dominant part of its emissions. This leaves companies with the fact that they will have to tackle the supply chain issue strategically to turn emissions reductions into the right dimensions and to reduce risks. This fact alone will lead to the need to rethink the own business model regarding the origin, use, reuse, and recycling of resources and will become a major risk factor in need of timely mitigation.

Furthermore, energy independence will become an increasingly important topic of strategic resilience and reduce risks for companies regarding energy supply. When considering the use of water, it is all about finding ways to reduce the usage to a minimum and to divide water use by drinking water and industrial usage. With regards to materials, it is about reducing the need for them to a minimum and avoiding waste along the way, as well as about reusing materials at the beginning and the end of industrial

processes, thus prolonging the lifetime of materials in general. One specific aspect concerns the usage of plastics, as there is a lot of energy needed to produce them, but the usage is often very short and the afterlife disproportionately long - a good case for the cycling economy, if the right partner network is set. As a first step, any single-use plastic should be eliminated as of tomorrow.

This leads us to the topic of biodiversity. Even though often unknown and underrated, biodiversity is a core enabler for many biological processes and affects food variety and security as well as the availability of raw materials. Therefore, it is of utmost importance, to work scientifically on securing and advancing biodiversity in areas which can be influenced by the company. Scientifically because it is a difficult topic to be understood and demands specific expertise.

Recommendations for companies

Companies need to think through these topics on time and think them through strategically, so they can build up strategic competitive advantages. For this purpose, the concept of double materiality needs to be followed:

- The outside-in perspective assesses risk related to the company caused by e.g. external climate impacts such as floodings.
- The inside-out perspective assesses the risks for the company caused by their own activities creating harm to the environment such as interventions into nature.

This implies increasing the strategic resilience of the company, identifying risks on time, and providing mitigation strategies which are incorporated into the strategic initiatives of the company. In addition to that, companies need to start thinking more strategically about opportunities in time, and identify, where competitive advantages can be built up in an increasingly challenging environment.

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About Vladimir Preveden
Dr. Vladimir Preveden is an adviser for strategic transformation and has supported more than 200 companies in the DACH region as well as in Central and Eastern Europe in this role. After 20 years at Roland Berger, much of it in various management functions, he has been working independently for several years and focuses on topics of strategic resilience and sustainability transformation. He also teaches at the WU Executive Academy in Vienna.



Dawn of a New Era: Decarbonization Strategies To Navigate the Green Deal Landscape

In the ever-evolving landscape of sustainable business practices, decarbonization stands out as a critical imperative, especially for energy-intensive companies. The European Union's Green Deal and Sustainable Finance Action Plan have ushered in a new era, redirecting financial resources towards companies committed to sustainability.

Underpinning this initiative are key measures like the Taxonomy Regulation and the Corporate Sustainability Reporting Directive, which establish criteria for sustainable economic activities and mandate companies to report on environmental, social, and governance (ESG) issues. To some it may sound simple enough, but the transition towards a sustainable economy is not without challenges.

Are you completely prepared for the hurdles your business will have to overcome?

Identifying and overcoming the challenges

Businesses must grapple with legislative changes, the financial implications of CO₂ emissions, and the adoption

of innovative technologies. Moreover, they face risks ranging from supply chain vulnerabilities to potential reputational damage. The impact of the Green Deal is not confined to individual companies; even banks and insurance firms are compelled to disclose investment activities, classify sustainable products, and adjust their strategies to consider ESG risks.

In conclusion, decarbonization has become an integral part of a holistic business model. Companies navigating the shifting regulatory environment and market pressures are better positioned to remain competitive. The Green Deal offers a comprehensive framework for this transition, presenting opportunities that companies must seize to secure their future.

The Green Deal and the impact of CO₂ pricing on businesses

CO₂ pricing emerges as a pivotal factor within the broader context of the Green Deal, exerting a profound impact on businesses, particularly those characterised by high energy consumption. The European Emissions Trading Scheme (ETS) is a key driver, affecting approximately 200 companies in Austria engaged in trade amounting to around 30 million tons of CO₂. For energy-intensive companies, the cost of CO₂ emissions and the allocation of pollution rights are significant determinants affecting investment decisions and amortization periods.

The trajectory of CO₂ prices remains speculative, but a consistent upward trend has been observed since 2017. A study by EY underscores the likelihood of increased CO₂ pricing in the years ahead, necessitating a proactive stance from companies. As per the National Energy and Climate Plan (NECP), aligning with the EU's ambitious targets requires companies to adapt. They must contemplate scenarios that include CO₂ pricing as a critical influencing factor in their sustainability strategy.

Beyond emissions trading, companies are exploring diverse approaches, from transitioning to alternative energy sources to altering manufacturing processes and business models. The energy industry, a linchpin in the transition, grapples with challenges tied to new technologies and infrastructure development, including the supply of sustainably produced electricity.

Adapting to climate change: managing physical climate risks

Aside from the imperative strategic need to address physical climate risks, under the new reporting requirements, namely the CSRD, there is a need for companies to address and discuss factors such as temperature fluctuations, rainfall patterns, erosion, wildfires and floods and the associated impacts on their businesses, their processes and business models. Traditionally, companies have relied on historical and statistical data to manage these risks. However, the evolving nature of climate

change demands a forward-looking approach, necessitating consideration of potential environmental shifts.

Climate models and scenarios, such as the IPCC's representative concentration pathways, offer valuable tools for assessing future risks. Beyond internationally agreed-upon climate models, localised models provide enhanced resolution, enabling businesses to evaluate risks-specific to their locations. Companies, spanning industries from tourism to manufacturing and finance, must comprehend the implications of climate change on their business models across short, medium, and long-term horizons. For example, localised data, such as the ÖKS 15 for Tyrol, reveals trends like increasing heat days, extended vegetation periods, decreasing frost days, and altered precipitation patterns. Understanding the societal and economic impacts of these changes is paramount. Businesses must proactively integrate Environmental, Social, and Governance (ESG) factors into their risk management systems to make their operations resilient to climate-related challenges.

Climate risk analyses: integrating sustainability into your company's DNA

In conclusion, addressing physical climate risks is not just a regulatory requirement; it is a strategic imperative for businesses. The Green Deal, with its non-negotiable impact, emphasises that businesses failing to recognise both opportunities and risks may find survival in the new paradigm increasingly challenging. As companies forge ahead, integrating sustainability into their DNA, they not only navigate the challenges but also position themselves as leaders in a future defined by environmental responsibility.

For us it is abundantly clear: ESG affects all companies and is diverse and interdisciplinary. The transformation is inevitable and not adapting your business model is not an option – what's more, time is running out! Non-financial reporting is being fast-tracked by companies and money will flow into green investments. It is crucial therefore that ESG must be part of your organisation's risk management system. To overlook it could be fatal.

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ESG Rating and its Effects on Financing

In a recent interview with Karin Lenhard from Erste Group, Andreas Forster, Practice Leader Financial Institutions in Austria, gained valuable insights into the world of ESG ratings and its profound impact on the finance industry. The interview shed light on various aspects, from the role of Erste Group's ESG Office to the challenges of balancing environmental and social responsibilities.

Erste Group, a member of the Net-Zero Banking Alliance, has set ambitious group goals, including achieving a net zero financing portfolio by 2050 and ensuring that at least 25% of new corporate client business qualifies as green investment by 2026. Green investments go beyond mere environmental criteria; they signify that economic activity significantly contributes to the ESG Taxonomy.

Forster: Let's start by discussing your role at Erste Group.

Lenhard: At Erste Group, we have an ESG Office, a dedicated unit focused on sustainability. We are situated within the strategy department, and our main responsibility is to implement the entire regulatory framework of the EU Green Deal within the bank. This includes ESG in risk management, ESG in the business, and the development of group-wide sustainability strategies that apply to all our locations, from Dornbirn to Bucharest. The goal is to develop strategies that are suitable for the entire group.

ESG, net zero and green investments: short and longer-term goals

Forster: What are the goals for Erste Group regarding ESG?

Lenhard: As a member of the Net Zero Banking Alliance, our primary aim is to achieve a "Net Zero" financing portfolio by 2050. By 2026, we aim to ensure that at least 25% of our new business within the corporate client portfolio qualifies as "Green Investment." It's important to note that "Green Investment" differs from the "Green Asset Ratio" in that it stipulates that economic activity makes a significant contribution to the taxonomy. In practice, we often face challenges due to the

limited availability of data. We must verify taxonomy compliance. A substantial amount of the criteria can typically be met because they are relatively clear regarding climate protection, climate change adaptation, and CO₂ values based on specific economic activities. However, the "do not cause significant harm" aspect is more complex because it implies that the activity should meet one taxonomy goal without significantly harming others. There are currently limited quantitative assessment mechanisms for factors such as biodiversity, recycling, waste management, and so forth.

The third step is the "Minimum Social Safeguard," which includes minimum social standards and addresses issues related to labour rights and human rights, among other things. Interpretation in this regard is somewhat ambiguous, and for a bank, conducting precise evaluations can be challenging, particularly in the context of avoiding greenwashing. Therefore, we define green investments as those that, at a minimum, make a significant contribution to a taxonomy goal, whether it's CO₂ reduction or high energy efficiency. The "do not cause significant harm" and "Minimum Social Safeguard" aspects are evaluated at a high level due to the limited data available. As a result, our goal is to have a minimum percentage of green investments within our portfolios. For commercial clients, our target is 25% by 2026, and for private clients in the mortgage financing portfolio, our goal is to achieve 15% by 2027.

The art of persuasion: convincing clients to reduce their CO₂ emissions

Forster: We are particularly interested in how you approach your customers and what impact this has on financing. How

do you motivate customers to provide relevant information, and have these efforts already had an impact on financing decisions? Can you outline your roadmap for this?

Lenhard: Yes, we've already seen impacts. We are committing to achieving net zero for our scope 1, 2, and 3 emissions by 2050 at the latest. A significant portion of scope 3 emissions pertains to emissions financed. We calculate how many tonnes of CO₂ are associated with our financing portfolio. We assess which economic activities we've financed and how many tonnes of CO₂ are linked to them. This is always in terms of the CO₂ equivalent, as it concerns greenhouse gases. We aim to quantify how many tonnes of CO₂ can be attributed to a particular customer or transaction and then reduce this figure, depending on the economic activity. In our real estate portfolio, for instance, we need to develop a pathway that takes us to net zero by 2050. The same approach is taken for industries like steel, cement, oil and gas, heating systems in the energy sector, and so on. We need different strategies to ensure we become carbon neutral.

» The easiest solution would be to divest from customers in portfolios related to sectors like oil, gas and cement. «

Forster: Especially in challenging sectors like oil, gas, and cement, how do you engage with customers in those cases?

Lenhard: Communication is key. The easiest solution would be to divest from customers in portfolios related to these sectors. While it might be beneficial for us, it doesn't change the emissions produced by these businesses - they will continue to exist. Hence, we strive to engage in dialogue with them and apply pressure, urging them to develop a decarbonization pathway. This means they should make maximum efforts to reduce their own CO₂ footprint, which automatically decreases the tonnes of CO₂ we finance. From a regulatory standpoint in financing applications, we're obliged to include ESG factors. We assess whether customers and their economic activities pose climate or environmental risks and whether they have taken measures to mitigate those risks. This already affects conditions and is noticeable due to interest rate market developments. It's integrated into the overall customer rating. Having a customer with higher risk, for example a ski lift operator, may negatively impact the terms. Eventually, we might question whether we can finance them at all.

Sweetening the pot: rewards for those taking positive action

Forster: So, ESG ratings are already factoring into conditions. Is this noticeable, particularly considering rising interest rates?

Lenhard: Yes, it's noticeable. We've adopted a path of green incentivisation. This means that customers who choose to engage in activities compliant with the taxonomy or aim to reduce their CO₂ footprint receive more favourable terms. In other words, they are rewarded for positive climate transformation behaviour.





Lightening the data entry load

Forster: Let's look at tools and reports, ESG data is in demand across multiple sectors. How can this data be integrated to streamline the process and prevent customers from repeatedly entering the same information?

Lenhard: When it comes to financing, each bank typically employs its own questionnaire, which may share some similarities but often varies in structure. In response to this, we collaborated with OeKB (Austrian Control Bank) last year to develop the ESG Data Hub. OeKB provides companies with a platform to upload their data for free. This service is available for companies of all sizes, but it's especially relevant for larger corporations. Smaller and medium-sized enterprises, partly due to their size fall outside regulatory requirements, and so have not been a primary focus. They may be relieved about this, given the bureaucratic effort required, however, many of them are part of the supply chain for larger enterprises. If they don't start working on their data, they risk losing significant

contracts, potentially leading to an unsustainable business model or requiring them to relocate their business.

With the ESG Data Hub, we now have a standardised questionnaire. Business owners, depending on their size, can answer around 20, 40, or 120-140 questions at no cost. Customers have control over who they share their data with, in compliance with GDPR regulations. This data can be shared with us, the Erste Group, or any other party they choose. It's important to note that all banks use the same questionnaire. To allow for benchmarking, companies can also share this information with their business partners, such as their auditors, tax consultants, or financial advisers. They can see how they rank in terms of ESG sustainability within their industry and size category. This offers insight into whether they are leading the way, in the middle, or need improvement.

The delicate ESG balancing act

Forster: How does this balance between E (Environmental), S (Social), and G (Governance) reflect within the bank?

Could you provide insights into how each of these aspects is managed within the institution?

Lenhard: We talked a lot about E already. Alongside that, we have colleagues in Social Banking who are responsible for the S, focusing on initiatives like the second savings bank and various social projects. For instance, we run a group-wide project called "affordable housing," aimed at providing affordable housing for the socially vulnerable. This initiative is mainly driven by Ceska Sporitelna and addresses the significant need for affordable social housing in Eastern Europe. Social aspects are also integrated into our workforce and managed within our HR department. This encompasses areas such as diversity and gender, workplace agreements, and whistleblower policies. We also consider factors like the number of employees with special needs, those with migrant backgrounds, or those belonging to ethnic minorities.

The G in ESG stands for Governance, which involves regulatory compliance, competition law, antitrust regulations, compliance matters, and embargoes. We have established a robust framework for all three aspects.

In our financing process for larger clients, we assess ESG ratings. This involves evaluating how the E, S, and G components are separated and scrutinised by the major rating agencies. Essentially, we examine whether there have been incidents or issues in the past related to any of these three categories. If there were such incidents, we consider their severity, how long ago they occurred, and the reputation aspect. We also consider whether we want to be associated with a client who has had such incidents.

Forster: There's a delicate balance between the environmental (E) and social (S) aspects of ESG, and a sense of social responsibility comes into play. How do you weigh these factors against each other?

Lenhard: Achieving environmental goals without considering the social aspects is not a viable approach. It simply doesn't work that way. If we were to prioritise the climate, the best course of action might be to close a company like OMV. However, we must also consider the implications for all the employees and individuals who depend on such companies for their livelihoods. The transition to more sustainable practices must be orderly, inclusive, and considerate of everyone involved. But it should also be ambitious and implemented as quickly as possible. This is where the challenge lies.

The knock-on effects of high-risk industries on internal ESG reporting

Forster: Is there a connection between internal ESG reporting and higher risk industries? How does the bank address this aspect?

Lenhard: Yes, we are already required to disclose this information as part of our pillar 3 reporting obligations. It involves

identifying which CO₂-intensive sectors we have financed, as they are subject to transition risks. Activities that are highly CO₂-intensive are at risk of being affected by future regulatory changes that could potentially prohibit their operation in their current form. Considering the long-term nature of some loans, this presents a certain level of probability where we must take corrective action. Therefore, when assessing new business, I will simply refrain from providing financing to clients who lack decarbonization plans. This is due to the increased risk associated with such clients.

» Achieving environmental goals without considering the social aspects is not a viable approach. It simply doesn't work that way. «

On the other hand, I must explore how to mitigate this risk and reduce our carbon footprint. This often requires engaging with our clients to encourage them to transform their business models not only for new ventures but also to address climate change within their existing operations. This approach applies to various sectors. In Austria, we have some excellent examples in the steel and cement industries, with large companies already taking measures. However, some industries are nearing their limits and cannot further reduce emissions. For this reason, we made the decision to discontinue new coal financing. Coal financing carries a transition risk. Existing customers must present a plan by 2025 for their exit from the coal segment. Otherwise, measures will be enforced by 2030 to discontinue their financing with us.

Karin Lenhard
ESG Expert
Erste Group



About Karin Lenhard

Karin Lenhard specialises in capital markets law at European & Austrian level and is involved in cross-border implementation within Erste Group. Until 2021 she was responsible for Erste Group Securities and Markets Compliance for MiFID II, MIFIR and PRIIP-VO in the holding business and for the CEE subsidiaries. Since then she has been working as a Group Expert in Sustainable Finance and as head of the working group "Legal and Compliance" of Zertifikatforum Austria (ZFA), member of DDV, the Legal Committee and the ESG Expert Group of EUSIPA. She is also a member of the ESG Working Group of FinDatEx and the Sustainable Finance Committee of the European Savings Banks Association (ESBG).

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Climate Change Meets Corporate Companies. Captives as a Lifeline?

Captive insurance solutions offer a sustainable and flexible way for large companies (turnover more than 500 million EUR) to protect themselves against the growing, often unpredictable risks posed by climate change and other global challenges. It is critical for risk managers to consider these solutions today when developing their risk management strategies for tomorrow.

The dynamic changes in large companies' risk landscapes have continuously revealed the limits of traditional insurance solutions, whether through lack of capacity, or wording exclusions, or unproportioned price increases. Climate change, with primary and secondary transformation risks in tow, is expected to become an increasing challenge for corporate leaders and their risk strategy in the future.

Primary transformation risks are physical climate risks that derive directly from global warming. Extreme weather events such as floods, storms or wildfires can cause substantial damage to companies' assets and often lead to business interruptions. Recent disasters, such as the August storms in Slovenia, prove this. (Read more on page 48)

Secondary transformation risks are speculative and involve risks and opportunities. They arise from the adaptation of business models (products, applications, processes, techniques) to climate change and thus lead to a change in the risk landscape. For example, the implementation of closed-loop systems, such as recycling and upcycling models, often changes requirements for quality management, logistics structures and liability potentials.

Production processes will also have to be adapted to climate related challenges. The shift in vegetation zones can trigger the risk of drought and bottlenecks in the supply of cooling water. Extreme weather events can lead to power outages or damage to public infrastructure, resulting in production disruptions whose causes are beyond the company's own control. From the perspective of the affected company, this is a so-called "non-damage business interruption" which is traditionally difficult to insure against. If it is insurable, then it is only related to a narrow exclusion regime and a price far above loss expectancy.

For risk management, it is essential to recognise the impact of transformation risks on the assets and to improve the resilience of the company in addition to eliminating weak points as best as possible.

When traditional risk transfer fails...

In the future, it will be an even greater challenge for the insurance and reinsurance market to meet its economic, social, and ecological responsibility and provide society and the economy with sufficient cover for transformation risks.

Worldwide natural disasters are already leading to premium increases in traditional insurance solutions. Solely relying on a NatCat-Models provider will not solve the problem of affordable capacity. The situation will continue: high risks will provoke limited capacity for high-margined prices.

However, large companies have options. There are proven solutions available to leave the classic risk transfer behind, or at least partial solutions that can be shaped into alternative options.

Managing tomorrow's risks sustainably and flexibly

Alternative risk transfer (ART), for example through captives, offers sustainable and flexible solutions, especially where traditional risk transfer reaches its limits. Among large companies, we are observing a shift in the mindset towards alternative, innovative risk financing models.

Captives need a long-term commitment (7-10 years at least) by the owner. A captive can be developed over time by further adjusting its flexibility if changes are required by the risk landscape. An equalisation reserve will stretch potential claims payments over time. This is a significant advantage compared to ownership via operating cash flow or balance sheet funds. Systemic changes such as climate change or geopolitical developments will gain further importance and lead to strategic change.

Background

A captive is an independent re-(in)surance company owned by a corporate company. Worldwide, there are about 9,000 captives in about 70 domiciles. Popular captive regions for European companies are Luxembourg, Ireland, and Malta. About 80% of captives are established as reinsurance companies. In this set-up, a professional primary insurer takes over the usual duties via a fronting arrangement.

Strategic reasons:

1. Flexibility

Future growth and changes in business models and the risk landscape require flexible solutions. Captives offer the possibility to customise insurance cover, i.e. to adapt to future - often traditionally uninsurable - risks and to insure them in the long term - regardless of the risk appetite of the insurance market. This also has a smoothing effect on balance sheets for such risks. Captives can make insurance programmes resilient.

2. Increasing the independence of insurers

Captives are long-term instruments in risk management. They can provide funding to fill "gaps or capacity constraints" in traditional insurance programmes. This can also eliminate or reduce constraints related to natural catastrophes. As the captive matures, the

surplus grows, giving it greater capacity to bear risk and further increase independence.

3. Signalling effect for the insurance market

By bearing risk and establishing a captive, companies signal to the insurance market that they are convinced of the strength of their risk management. This means that a captive combines the interests of the insurance market with those of the companies; this is a strong message and can lead to more strength in negotiations with the insurance market.

The tough market of the last few years has put additional focus on the financial drivers of captive solutions for companies in heavily affected sectors, such as chemicals/ pharmaceuticals or the wood processing industry. Captives at least partially decouple companies from the volatility of the traditional insurance market and stabilise prices.

Financial reasons for alternative solutions:

1. Cost control and price stabilisation

If the claims experience's so-called loss ratio is unexceptional and below technical pricing, a captive offers more flexibility related to the risk versus reward and promotes all kinds of active risk management. To a certain extent, premium increases due to market changes can at least partially be absorbed by increasing their own risk retention. Companies can thus better control the costs of their insurance programmes. The prerequisite is a properly functioning risk management system.

2. Optimised risk tolerance at group level

A captive can be used to leverage the group's risk tolerance, thereby increasing insurance efficiency while protecting smaller subsidiaries or business units when deductibles exceed their risk tolerance.

3. Direct access to reinsurance markets

As "re-(in)surers", captives have direct access to reinsurance markets and can benefit from a broader offering where more favourable risk premiums or transaction costs are available. Increasing the captive's ability to carry more exposure often increases the willingness of reinsurers to offer a more effective risk transfer at better pricing.

Mix the old with the new! Our best practice approach:

An intensive examination of the company and its risk profile is always the starting point for change. This includes identifying new, future risks and transforming existing risk profiles into a comprehensive risk landscape with a focus on operational risks, but without limiting them to traditionally insurable risks. Based on the strategic risk forecast of this agile risk management methodology, transformation risks are anticipated at an early stage. This allows suitable cause and effect-related measures (e.g. the identification of an adequate risk transfer) to be initiated in good time. In addition, existing solutions are analysed for effectiveness and cost efficiency.

A risk quantification and simulation by a qualified analytics team forms the basis for an initial assessment of whether ART, e.g. in the form of a captive, can represent an effective solution for the interaction of insurable, partially insurable and non-insurable risks of future risk potentials.

With modern methods of modelling risks, the so-called "sweet spot" (optimal ownership capacity in interaction with classic risk transfer) can be worked out in an "ART pre-study". If two or more insurance programmes and non-insurable risks are included in the alternative risk transfer, individualised modelling with customised parameters is necessary to consider diversification factors. The insight from the modelling for optimal risk management provides a realistic estimate of the total costs to be expected. This includes the costs within the basic deductible, the self-support via ART and the risk transfer beyond this via classic insurance markets.

In a next step, the structuring of the solutions, the analysis and evaluation of the captive vehicles and the various domiciles can be carried out in detail via a supplementary feasibility study.

The key to everything is patience!

Captives are not a quick fix. In principle, it is important to see a captive as a long-term form of risk financing, because the positive effects are often only visible after a few years. This is especially true when it comes to hedging traditionally uninsurable transformation risks.

The threshold value above which it makes economic sense to operate a captive as a long-term risk management instrument and to carry out the necessary contractual implementation is related to the (future) exposure. In the overall view, the smoothing effect, and the flexibility to be gained in the hedging of substantial - also traditionally non-insurable - risks and the constant increase in independence from the volatile insurance markets usually prevail.

Not infrequently, however, it is precisely this "long-term nature" and the fact that the operation of a company's own "insurance" is outside its core competencies and thus "alien" to it that are obstacles to the company manager's decision-making process. In any case, the in-depth examination of transformation risks and the possibilities for overcoming them, also within the framework of a feasibility study, ensures more transparency in the group-wide risk landscape.

If carefully designed and managed, a captive is a tool in the risk manager's toolbox for large companies that can help build resilience to future transformation risks as a result of climate change, amongst other things.

Gert Wellhöfer
Managing Director
Ecclesia Reinsurance-Broker GmbH



About Gert Wellhöfer
Gert Wellhöfer is Master of Insurance business and has been working in the industry for about 35 years. He was responsible for the global management of the Allianz Captive as well as consulting international clients on their ART topics. In 2021 he joined Ecclesia Reinsurance Broker where he took over the position as Managing Director.

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HR's Green Transformation: Fad or Future?

The complexity and speed of the various changes in our VUCA (volatile, uncertain, complex, and ambiguous) world have impacted the role of HR departments in many organisations. A gradual shift from HR administrators to decision makers has become visible. And, in recent years, the Covid pandemic has proved to be the catalyst for more flexible and stronger HR departments.

While stability and security are still very important to employees and potential candidates, environmental consciousness, sustainability, and corporate responsibility are ranking high as decisive criteria for job selection across Europe. HR representatives have begun to see that there is a green wave on the horizon. However, is it a fad or will it dictate the future for HR teams?

What do the experts say?

Gabriele Andratschke, Head of HR at GrECo Group, hosted a virtual roundtable discussion with experts from across the HR industry.

» We looked at the complexities of ESG requirements, how the new trend for all things green is impacting HR departments, and its relevance to the organisations of tomorrow. «

Gabriele Andratschke

Green HRM [Human Resource Management] refers to all aspects and practices [of HR management] that pursue the goal of environmental sustainability.¹

Defining green HR and the HR department's role in green transformation

Green HR can be defined by the cultural shift towards an eco-friendlier and more sustainable organisation and corporate culture. This includes practices, policies and initiatives by HR, and a strong employer brand. Recruiters are noticing that green factors are gaining relevance in job interviews, regardless of age group and generation. The wish to make an impact and do a meaningful job also includes being part of an eco-friendly and sustainable organisation. Even if the topic of green culture is not yet predominant in job interviews, it has become relevant when employees need to be retained.

Green HR initiatives – how are recycling and carbon footprint related to HR?

» It is becoming more and more important for me to work for an employer who is socially responsible for our planet. «

Ewelina Jaworska-Bien

In recent years, several green initiatives have become more commonplace in organisations. For example, systems for waste disposal to facilitate recycling, paperless policies in offices, solar panels on the roof of office buildings, or a new means of saving energy are just some of the measures that spring to mind. These measures have not traditionally been associated with the HR department, yet our round table discussion agreed we are seeing a turning tide in this regard. HR is beginning to create mobility packages which they promote among the management board and employees alike. These packages are designed to financially support the reduction of the corporate carbon footprint, and may include e-cars as company vehicles, job bikes or job scooters, as well as contributions to public transport or even mobility benefits payouts, if they are not fully used.

Slowly, slowly, catchy monkey! Transforming HR one step at a time.

It is HR's task to create working environments where healthy and environmentally friendly habits are promoted that will attract people who are interested in sustainable topics. To achieve this, organisations must start with a few key initiatives and add more as they go along.

» You always have to grow and do more and be more innovative. «

Bettina Augeneder

These small steps, or at least initially small steps, need to be closely linked to the corporate culture and made visible to create the impact that is desired. It is not about singling out one initiative, but rather ascertaining that the company is taking its ESG responsibilities seriously.

» We must be brave and do things that could potentially trigger a transition in the role of people and culture. «

Susanne Dachgruber-Wanner

No one is as deaf as the man who will not listen

Actor Ian Somerhalder once said: "going green doesn't start with doing green acts, it starts with a shift in consciousness", and this is exactly where HR can make a difference - dealing with the people: listening to them, approaching them as a group and on an individual level - and then bracing ourselves for their feedback which may not always be as positive as we might hope for. It is all about listening to the positive and negative voices, acting accordingly, and convincing people, making them understand, and winning them over to HR's initiatives.

Time for a complete overhaul?

During the roundtable discussion, it became clear that in many cases HR departments are already making great strides in terms of green initiatives; we need to be careful not to throw the baby out with the bath water! We simply need to make visible what is already in place (and shout about it!). The legal framework of ESG reporting will help HR departments to do this. The HR experts all agreed that complying with the EU's and the differing European local government's legal frameworks causes a lot of additional work and is creating barriers to be overcome.

» HR has become a crucial part of an organisation. It is the people who count, and we need to place people in the right places to participate in the transformation. «

Raik Thiele

¹ Dron, Müller-Carmen, Obereder, 2018

They were also in agreement that ESG is an opportunity to demonstrate existing and future achievements to attract not just investors and shareholders, but more importantly people. Organisations can use ESG as leverage to transform the corporate culture and to make a difference environmentally in a more collective way. It is a chance to build a strong employer brand and speed up the transformation.

HR is but one drop but together we are an ocean

What HR has already realised is the variety of new skills and competencies organisations need to acquire to support their sustainability efforts. There will be entirely new job profiles not only to meet the additional workloads caused by reporting, but also to create new KPIs to measure the successful implementation of initiatives.

Our people are key to the green transformation process. Learning programmes can help raise awareness of recurring ecological topics, not only within organisations but in everybody's daily lives: these include rising temperatures, severe weather conditions, and other natural catastrophes, to name but a few. If organisations make it their objective to invest time and money in educating their people, it will trigger the process of change. Employees' mindsets will shift as they become more educated about how ESG topics are impacting all of us. By enabling people accordingly, they will contribute, convince others, promote change, and start making small changes towards a green mindset.



The HR community is in the process of learning from each other, sharing ideas and best practices. In doing so, what has become clear is it is important to observe the personal boundaries of each individual employee by offering choices and providing them with the freedom to choose. Once we've achieved that, understanding the resulting facts and figures of those choices will support the transformation towards a greener mindset and make people act accordingly. What is more, if HR manages to present a business case based on employees' choices, it will be easier to convince management boards of the importance of introducing and maintaining ecological measures.

» The company is its people, and if each and every one of us plays our part, then we can bring green transformation to the next level. «

Jovana Pavlovic-Radovanovic

The new faces of corporate ESG

However, HR alone cannot promote the openness to this learning journey; it needs ambassadors to help anchor the green mindset in the corporate culture.

» If you can show in fact and figures what you have done, it's always your credibility joker. «

Sigrid Uray-Esterer

So, who will be the role models who share their passion for all things ESG across the organisation? Interestingly, the group agreed that while there is a lot of generational talk in organisations, saving our planet is not limited to gender or one single generation. As we are becoming more mindful of diversity and green factors in our workplaces, we are learning not to be afraid to embrace new things. This isn't just limited to our employer branding efforts, but also includes our efforts to attract potential new candidates, employee retention objectives and introducing the new AI "colleague" into our HR activities. Using the technology wisely will enable our HR teams to create green transformation milestones, as they learn how to master the new ESG requirements and learn how to implement them faster.

It became clear through our discussions that HR should use the chance ESG is providing to become a role model, a disseminator of green messages, to motivate employees and create a sense of belonging. By introducing initiatives that help employees to be proud of their company, it will encourage them to shout about them, turning each employee into an ambassador thus spreading the word more widely which will, at the end of the day, translate to financial success.

Sustainability efforts and initiatives are part of an organisation's development and thus should be a top priority for management. When it comes to cost efficiency, HR needs to outline the costs of complex and long recruitment processes, as well as calculate the cost of employee retention, or rather the lack of retention. There are qualified people out there who are purpose-driven and willing to make a change in organisations. Those are the people organisations want to attract. Therefore, HR



must help management understand the link between green sustainability and its positive effects on long-term financial success and sustainable profit.

» Putting the focus on sustainability will increase employees' pride and this pride will drive engagement; engagement drives profitability. «

Martina Ernst

HR to lead the charge in a brave new world

In conclusion, green transformation is not an HR fad. It is our future. To counteract the speed and complexity of the current changes to our working environments, HR must seize the opportunity to lead the charge for all things ESG which will in time create innovative organisations. It is essential to have senior management buy-in to support creative approaches and invest in projects and people development. ESG will be a huge opportunity for HR to further improve their standing within organisations, thus contributing to and promoting the cultural changes needed. As we become more open to new, brave ideas, people's mindsets will change towards the benefits of a green corporate culture.

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Entrepreneurship Means Risk: wienerberger's Metamorphosis and Growth in a Dynamically Evolving Risk Landscape

Heimo Scheuch, CEO at wienerberger, the leading provider of innovative, ecological solutions for the entire building remit, discussed with Georg Winter, CEO at GrECo Group their meteoric growth and risk solutions in a continually changing and ever-challenging risk landscape.

Winter: On our HORIZON - "Risk Thought » Fast Forward" platform, we take a close look at the systemic influences of ecological, geopolitical, technological, and social change on a company's risk landscape. How do these risk changers affect wienerberger and where do you see the main risks during future transformation?

Scheuch: At wienerberger we have established a proactive risk management system. Instead of avoiding challenges, we actively recognise them and work on them continuously. For this reason, I no longer see these risk changers as acute risks for us. It is my entrepreneurial responsibility to protect myself in these areas within the bounds of what's possible.

For example, we keep geopolitical risks manageable by operating almost exclusively in North America and Europe. Our exposure to large supply chains is limited and we avoid geopolitically unstable regions in developing countries. We have reacted quickly and pragmatically, especially when faced with geopolitical challenges, such as Russia. Our company is not known for holding on to issues like these for long.

In the social sphere, various problems could arise, such as strikes or social unrest – there's a variety of possible scenarios. I am confident that our employee participation policy helps to ensure that our employees are seen as an integral part of the company. Through this sustainable policy that also takes into account the concerns of employees, we hope to achieve a stable organisation that can calmly ride any social unrest.

Winter: At the recent Capital Markets Day 2023 in Belgium, you presented impressive facts about your integrated IT infrastructure across the group, i.e. 60% digital order intake

and 55% digitally connected production lines in 2023. Does digitalisation also mean new risks for wienerberger?

Scheuch: We are a frontrunner in many technological areas; with over 200 factories, we have dealt intensively with the topic of digitalisation and Industry 4.0. Our focus is on continuous development by actively shaping the industry and taking our key suppliers with us.

» Even if artificial intelligence and the like play an important role, we still need human intelligence. «

Companies that maintain simple IT structures and protect them with appropriate security measures can guarantee a certain level of protection. However, many companies are rushing into the new era of digitalisation unprepared, underestimating the interfaces and risks that could jeopardise their business models. It is generally recognised that 100% protection cannot be achieved. It is therefore becoming increasingly important to regularly train employees, customers, and stakeholders to minimise the risks - an ever-evolving topic that we will continue to address.

Personally, I see digitalisation more as an opportunity than a risk. Even if artificial intelligence and the like play an important role, we still need human intelligence.

Winter: Over the last ten years, wienerberger has completely realigned its strategy and developed into a full-service provider of innovative, sustainable, and digital

solutions for energy-efficient new construction, renovation as well as water and energy management. What are the risks of such a transformation?

Scheuch: It is essential that we continue to develop as a company, promote innovation processes and move away from purely mass-produced, interchangeable products. The pursuit of innovation should be anchored deeper in the system, away from pure product orientation and the idea that mass production and standardisation are the only goals.

Our consultancy work, particularly in the application of our products, ensures increased quality on construction sites. This enables us to ensure that our products are installed correctly and do not harbour any risks, both during installation and during subsequent use. It is crucial to obtain solutions from trustworthy sources - this is my main concern.

By providing solutions and ensuring that they are applied correctly, we significantly reduce risk. The more transparent and clear the company is to the customer, the better it is for risk management. Our biggest challenge is to make our products more user-friendly and easier to use. If we are successful in these different areas, we are in fact eliminating risks. That is our goal.

Winter: Decarbonization, circular economy, and biodiversity: wienerberger has defined a clear strategy in its Sustainability Program 2026. The goal is to cut 2020's carbon emissions from primary energy sources and raw materials as well as from electricity consumption and generation by 25% by 2026. What is your strategy in the energy-intensive field of brick production?

Scheuch: Currently, the majority of energy worldwide comes from fossil sources such as coal, oil and, above all, gas. For wienerberger, it is crucial to take a closer look at the energy sector: where can I get my energy sources from? What alternatives are available? And how can I optimise this process?

We must prepare ourselves for sustainable access to energy resources, whether through self-supply or external sources. Different energy sources will be used in different countries - biogas in some, electricity in others, and natural gas in others. Our adaptability in terms of energy supply will therefore have to be very flexible to do justice to the different resources.

Winter: Another pillar of your Sustainability Program is circular economy...

Scheuch: When it comes to recycling, there is currently a trend towards downcycling, whereby materials are converted into lower-quality forms. However, it is important to pay more attention to equivalent or even



value-enhancing recycling (upcycling). Particularly around plastics, it is now possible to upgrade materials with a certain amount of energy. Increased support for upcycling at a public level, be it at European or national level, would be extremely helpful for the future.

Legislation is required here, whether at local, regional, national, or European level. There are often calls for increased recycling, but the actual regulations and implementation are so restrictive that appropriate realisation is made difficult due to high product requirements. There is a discrepancy here between the requirements and the actual possibilities, which urgently needs to be overcome.

Winter: In your latest press release you state you are confident of delivering a very solid performance in the 2023 business year. Do you consider wienerberger resilient to the challenges ahead?

Scheuch: Yes, but I can't sit back now. The issues are not only becoming more complex, but also more dynamic. We must adapt extremely quickly to constant change. In today's business world, it is crucial not to judge companies solely on their quarterly results. A company's management can appear to be brilliant by delivering an impressive performance over two years. However, the true strength or weakness only becomes apparent when we can navigate a

company through different economic phases. That is what resilience is all about.

» The true strength or weakness only becomes apparent when we can navigate a company through different economic phases. «

A striking example of this was our situation in 2008: the biggest mistake many people made was to ignore the looming crisis and overestimate their own potential. It is a well-known phenomenon that success leads to self-confidence and companies can develop a certain operational blindness. This is precisely what led us to ill-considered overinvestment and excessive capacity expansions. We were caught up in the belief that the crisis would only be short-lived and that we could immediately get back to full speed afterwards.

Winter: In 2022 wienerberger achieved record results and outperformed its markets by following its value-accretive growth strategy. This is an impressive development compared to 2008. What has changed?



Scheuch: It's fascinating to realise that companies have to constantly reinvent themselves amid various crises – but, that's the wonderful thing about it. This ability to reinvent is a huge strength, which is why I argue that people are far more important today. The future of risk management will have to pay close attention to recognising the risk in the human factor, especially in business management. The more competent, experienced, responsible, and future-oriented the management is, the lower these risks will be.

» Entrepreneurship means risk and that's the beauty of it! «

It is crucial to develop a corporate culture that will last for the next 20-30 years. Take a look at today's training and development, the changing values, shows the need to build future leaders within the organisation. Values are often underestimated.

The important thing here is that managers not only need continuity, but also openness to innovation and change. At the same time, they must stand on a foundation of values and principles that is stable. Without this foundation, the entire risk management system remains ineffective.

This makes it clear that people are crucial to recognising opportunities and risks together and forging a path into the future.

Entrepreneurship means risk and that's the beauty of it!

Heimo Scheuch
CEO
wienerberger AG



About Heimo Scheuch

Heimo Scheuch joined wienerberger in 1996 and has held various management positions. He was appointed COO in 2001 and then CEO in 2009. His skills include intercultural management based on extensive cultural experience in several countries, extensive leadership qualifications and work experience in matrix and line organisations, and more than ten years of experience in stakeholder management at the European level in various industry associations. In addition to his role at wienerberger, he is Chairman of the Supervisory Board of Wiener Börse AG, President of the Association of Issuers on the Vienna Stock Exchange as well as holding a number of other positions.

About wienerberger

wienerberger is a leading international provider of innovative, ecological solutions for the entire building envelope, in the fields of new buildings and renovations, as well as infrastructure in water and energy management.

Since 1819, wienerberger has improved people's lives through our more than 19,000 employees. Their products and solutions make energy efficient, healthy, climate-friendly, and affordable living possible worldwide. They are #1 in brick production worldwide and in clay roof tile production in Europe, with over 200 production sites in 27 countries. Additionally, they are the leading providers of pipe systems and surface pavings in Europe.

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“Saubermacher Will Be a Network Aggregator During The Transition”

Ralf Mittermayr, CEO at Saubermacher AG, the most sustainable waste disposal company in the world, discussed with Jürgen Spari, Regional Manager of GrECo Steiermark their zero waste vision and what zero waste will mean for the insurance industry.

Spari: Saubermacher has a zero waste strategy. Please can you explain what this means and how it works?

Mittermayr: Zero waste has two meanings. Firstly, if we want to move towards a circular economy where only a small part remains as waste management then we have to say goodbye to the permanent concept of waste. Today, only 7% of all raw materials worldwide are recycled. Conversely, this means that 93% of raw materials are not recycled. Austria is at 11%. Pioneering countries like the Netherlands are at 27%. In concrete terms, this means that the rest is not

recycled as raw materials. Our biggest goal is creating a circular economy, with Saubermacher positioned as a partner to industry to close raw material cycles.

» Globally, only 7% of all raw materials are recycled, which means 93% of raw materials are not recycled. «

Secondly, zero waste means lean thinking: how can we prevent waste? How can we constantly improve and continually optimise? How can we continue to innovate and progress? Nature serves as our model because it typically doesn't waste anything.

Spari: What sustainability goals is Saubermacher pursuing?

Mittermayr: We have two very distinct sustainability focuses. The first is for the company to become CO₂-neutral. We are making great strides in some areas - more than 30% of our car fleet is already electric and we aim to be completely electric by 2030, and for our entire vehicle fleet of almost 700 vehicles to be CO₂-neutral drives by 2040. We are also forging ahead in supplying our own electricity with photovoltaic systems and purchasing CO₂-free electricity. Plus, we're trying out many other solutions: we have the first hydrogen waste collection truck, and have already experimented with alternative, liquid-based fuels which are produced with zero CO₂.

Our second sustainability focus is to help our customers to reduce CO₂. For example, Saubermacher is the largest producer of substitute fuels in Austria. Fuels from waste residues and a substitute fuel can - with the same calorific value - contain up to 40% less CO₂. It has the same CO₂, of course, but it uses biogenic fractions from the waste and, because these are not newly extracted from the earth but are reincorporated in the biogenic cycle every year, they are not subject to CO₂ tax.

Spari: You previously mentioned the end of the classic waste management industry. What adjustments will Saubermacher make in its own value chain to seize these developments as an opportunity for sustainable corporate success?

Mittermayr: In the future, waste management will not be an isolated industry. We predict that classic waste management

will evolve, transforming waste products into secondary raw materials. This requires classic services such as collection, identification, sorting, separation, and treatment.

The concept of ownership becomes exciting: today it is the case that a company hands over the waste to us and pays for it. We then own this waste and can make all kinds of things out of it. But the future looks different: The waste products created during production will no longer be taken out of the producers' hands.

» The ownership of waste will change: The waste products created during production will no longer be taken out of the producers' hands. «

We are already seeing very clear trends to this end: increasingly in France materials are no longer being handed over to waste management, but instead they remain the property of either specific companies or are systems bundled by companies. In Austria we have the ARA, and Germany has the Green Dot. These are systems that find optimal recycling solutions on behalf of the distributors of the products.

In the past, the focus was on a quota: X-amount must be collected and recycled. That has now changed considerably: Today, beverage producers, for example, want their material back, e.g. PET bottles, and they want it qualitatively processed so that they can use it for the next life cycle. In France, this has already gone much further. In the case of furniture or textiles, waste management never reacquires the concept of ownership. Rather, as a partner of industry, it helps to keep the cycle going.

As specialists in logistics and in processing these material flows, this is not a huge challenge for Saubermacher, but we must learn to integrate ourselves into these networks and to think in a larger-scale industrial way.

Spari: What solutions do you see for battery recycling, especially with the increasing quantities of lithium-ion batteries?

Mittermayr: Battery recycling is probably the most sensible thing one can do. Today it is technically possible to recycle 80 to 90% of the metals in lithium-ion batteries.

A battery in an electric vehicle can easily be used for 10 to 15 years. So, to do a simple calculation, let's say that that battery can be used for 10 years and 80% of it can be recycled. That means that this battery can be driven four times if I can recycle 80% of the metals, which in turn means the material I initially took out of the earth can be used for 40 years. If I use that battery for 15 years and recycle 90% of it (there are no barriers to achieving such rates), the battery can be used for over 120 years!

Battery recycling will become a normal thing, just like paper recycling or glass recycling is today. The battery recycling industry is very young, and we aren't seeing big volumes yet, but this is just like the beginning of glass or paper recycling.

Electromobility and the electrification of our society through these products is irreversible. The solutions

are there - what is often lacking is the maturity of the solutions. This is a technically challenging issue, but we have already solved many other things on a large industrial scale and can do the same again.

Spari: What will Saubermacher AG look like in five to 10 years?

Mittermayr: That's a good question. How long do these change processes take? My experience is that they usually take much longer than you think, but not always! There's a huge dynamic in our industry so I think we will see both, and Saubermacher will have a strong role as an industry partner and as a partner to the big companies during this transition.

Saubermacher will grow as it continues to absorb and integrate smaller companies. Today we have 76 holdings, and this will continue to grow because smaller, often family-owned, companies will no longer be able to cope with the flood of future requirements.

We are specifically driven by legislation, very strongly by the CSRD and the EU taxonomy. Non-financial reporting means nothing other than that large companies, which have waste streams due to their business activities, need a partner who will report back on the real, genuine CO₂ content that takes place in the processing of their waste and show them ways to improve. In Austria, probably only a handful of companies will be subject to this EU taxonomy, so how is a company with 12

employees, which is not subject to this system itself, supposed to provide a company with data suitable for auditing? Saubermacher will therefore be a network aggregator that aggregates resources that are needed in the industry.

Spari: The European circular economy package provides for digitalisation as a key measure by 2030. Digital technologies such as censoring, Internet of Things, or blockchain are seen as the essential building blocks of waste and recycling management for industry and commerce. The adaptation to new business models, for example for sustainable recyclables management, leads to a sometime radical change in the risk landscape. What risk management measures is Saubermacher taking to anticipate and manage future risks arising from these changes and innovations so you are prepared for changing risk potentials or threat scenarios?

Mittermayr: The biggest risk in all these developments is that you don't know when and how they will occur, or in what form. We talk about this thoroughly in our strategy meetings. Once a year, the entire strategy is adapted in an iterative procedure - including the existing guard rails. Every few years we also review these guard rails. For the most part, we do this by developing theories and assessing their opportunities and risks and how likely they are to occur. We also consider counter-theories to these hypotheses and their impact.

We have an expert panel who undertakes these deliberations consisting of top managers who have been in the business for many years, top young talent who are simply socialised differently and see the world differently and perceive trends differently, and middle management. To date this expert team combined with our risk management approach of strategy, forming a thesis, and falsifications, hasn't let us down and we've had most things on the radar.

Spari: Let's talk briefly about insurance. We want to take an extremely critical look at the insurance and reinsurance markets, because there is a big dichotomy: on the one hand, we have the way insurance companies deal with the recycling industry, which is burdened with losses, but on the other hand, we have the essential role of the recycling industry in the fight against climate change. Recyclers can become ESG heroes. How do you see this contradiction and how can it be resolved?

Mittermayr: Due to the circular economy, an insurance company that finds recycling too risky will have a hard time finding customers in the future. Increasingly, very large companies will include recycling capacity and capability in their own portfolios, and the insurance companies will not be able to cherry-pick which parts of the organisation will be insured, e.g. insuring the new production facilities and offices but not the part where recycling and the circular economy take place.

The hotspot risk will become more widely distributed. Today we have a few waste management companies that have

many large recycling plants and thus a disproportionately high risk. However, developments in recent years show that the newer investments in treatment plants are very often made in joint ventures together with industry, as in Saubermacher's case. This changes the risk profile for the insurer because the recycling, the waste treatment, the circular economy all take place on-site at the industrial company. The risk for the insurer becomes more fragmented. What is more, I am convinced that the risk profile for recycling plants will decrease due to technological progress - as we have observed with timber companies.

» Insurance companies will not be able to cherry pick which parts of an organisation will be insured. «

As an industrial company, I would seriously consider whether I would want to work with an insurance company that simply does not want to insure a significant part of our future as humanity. I implore the insurance industry to think about this very carefully - this is a megatrend. I would heavily question an insurer's strategy of not wanting to insure such risks at all, and not wanting to learn what it means to insure this industry.



Ralf Mittermayr
CEO
Saubermacher AG

About Ralf Mittermayr
DI Ralf Mittermayr, born in 1968, has been working for Saubermacher AG in Feldkirchen near Graz as Spokesman of the Executive Board and Head of Marketing since 2014. He studied at the Technical University of Graz and after graduating held numerous positions at well-known companies such as Philips Semiconductor, GRIPS Electronic and Infonova.

About Saubermacher
Saubermacher AG is an international waste management and recycling company based in Feldkirchen near Graz. The family-owned company was founded in 1979 by Hans and Margret Roth. The company is a qualified partner for approx. 1,600 municipalities and around 42,000 companies. They employ around 3,600 people in Austria, Germany, the Czech Republic, Hungary, Slovenia, and Croatia.



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“After All, We Cannot Afford to Wait for Better Times”

Sabine Schellander, Co-Head of Sustainability at Greiner, describes why Greiner is sticking to a sustainable transformation process to create a circular company.

Why we introduced our own recycling plant: reduction of risks and dependencies through sustainability measures

In 2022, Greiner acquired a Serbian PET recycling company, now named Greiner Recycling d.o.o., to underscore our commitment to using recycled materials in our packaging in the form of PET flakes. We firmly believe that by entering the recyclables business in addition to our plastic packaging production business, we will be able to expand our own recycling know-how. For the first time ever some of our recycled materials are coming from our own company and are no longer having to be purchased externally. This helps us to reduce dependencies, which is beneficial for us: The demand for recycled plastics is currently very high and so recyclates are much more expensive on the market than new material. Additionally, we do have the possibility to gain knowledge and competence.

For several months now, Greiner Recycling's PET flakes have been being used successfully at our site in Slušovice, Czech Republic and, more recently, our site in Wartberg has also benefited from our move into recycling. But, for the plant to be able to serve Greiner Packaging's production as well as customers throughout Europe in the future, we plan to greatly expand the capacities at the recycling plant – stay tuned!

We are all in the same boat – innovations only really work if everyone plays along

Consumers also play an important role in a sustainable circular economy. By disposing of packaging properly, they help to ensure that it ends up in the right waste stream and that a Greiner yoghurt cup, for example, can become a yoghurt cup again.

Innovations such as the Greiner K3 cup, which enables the separation of the cardboard wrapper from the cup, are of course a gamechanger, but plastic packaging cannot be replaced everywhere by plastic-cardboard combinations. Greiner is therefore constantly working on further innovations to reduce the proportion of plastic in its products,



or to increase the proportion of recycled material. We see a great deal of leverage around "Design for Recycling" – meaning, as early as the product design stage, we are thinking about how all the materials used can be deployed in the sense of a circular economy. In the case of packaging, for example, these considerations concern the right combination of materials for the cup, label, film, and lid as well as the type of decoration. And we even go one step further: at Greiner Packaging, packaging is considered "good" if, in addition to being recyclable, it also saves resources and contributes to climate protection – we call this "Design for Sustainability".

Technological change is still necessary for the recycling infrastructure.

Worldwide, the recycling infrastructure is still developed in very different ways, which poses great challenges for internationally active companies like Greiner. In Austria, for example, technological change is still needed in recycling sorting plants – but this requires high investments. Without financial incentives, we will not succeed in making recycling more attractive. By way of comparison: In Austria, there are many subsidies for the changeover to renewable energies – but when it comes to recycling, subsidies for companies are still meagre. Yet, to make a fully functioning circular economy, a financial incentive is essential to encourage the sorting companies to invest in the changes required to overcome the technical challenges we face. In addition, the use of recyclates is also limited by legal regulations, particularly in the case of plastics for medical products and food packaging where there are justifiably high requirements for purity and product safety. It is therefore even more important that sorting plants are further developed.

A change in thinking is also necessary: the higher the recycled content in a product, the more likely a different shade of colour will occur. The benefit is there, but acceptance must also be created for e.g. colour deviations (no pure white).

Creating space for ideas and innovations

We always desire ideas and input from employees on topics such as the conversion of production processes or energy transformation, but Greiner Innoventures, our innovation hub, also invests in technologies outside of Greiner's core business. When the start-up spirit and the competencies of a globally active group of companies are combined, both worlds can benefit enormously from each other. Greiner Innoventures has proven itself as a mediator between these two worlds. In the future, our innovation hub will focus even more on circular business models and the related issues of our divisional companies and customers. During this strategic realignment, the focus will therefore be on identifying and further developing innovative solutions within the core business. In this way, we want to further expand our pioneering role in the circular economy field.

One such example is, earlier this year we acquired the start-up Zeroplast, which is developing alterna-

tives to thermoplastics from sustainable fibres. It is not yet clear to what extent this can have an impact on common product properties or whether this alternative can replace existing products 1:1 in the future, as the products are not yet ready for serial production. However, the long-term goal is to bring the bio-based (and thus particularly sustainable plastics for the serial injection moulding industry), onto the market.

Financial and personal responsibility

Greiner has taken out a sustainable promissory note, which includes three ESG targets that, if achieved, will reduce the interest burden of the note for Greiner. These targets by 2030 include a 100% share of renewable electricity; EcoVadis ratings for 99% of our suppliers with volumes over 500,000 EUR; and management positions filled by at least 40% women. If the targets are (not) achieved, adjustments will be made to the interest margin.

However, to achieve our planned goals and underpin our financial commitment, a special heartfelt concern of ours is to anchor a corresponding awareness amongst our company's employees. A significant part of this is to show employees how they can make important contributions to the future. For example, we have launched a global internal training programme called the Climate Ambassador Programme. This programme helps our employees to better understand the climate crisis and encourages them to question the way our company currently works. We also have a large internal sustainability conference once a year. Most recently, we had over 500 participants from across all divisions from all over the world.



Sabine Schellander
Co-Head of Sustainability
Greiner AG

About Sabine Schellander
Co-Head of Sustainability at Greiner AG, Schellander is an expert in the implementation of sustainable practices in companies. She holds two degrees, one in Natural Science, and the other in "Social Innovation".

About Greiner AG
Established in Austria in 1868, Greiner is a world-leading plastics and foam solutions company for the packaging, furniture, sports, and automotive industries, as well as medical technology and the pharmaceutical sector. It has three operating divisions: Greiner Packaging, NEVEON, and Greiner Bio-One.
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Firefighting Sustainably: How Rosenbauer Group Is Driving Innovation and Change in the Fire Service

Rosenbauer Group is a thought leader and technology and innovation front-runner in the firefighting industry. Sebastian Wolf, CEO at Rosenbauer International, discusses with Argun Zia-Dam, Account Manager at GrECo, how Rosenbauer Group is blazing a trail in this industry and why cities in the future will rely on electrically powered firefighting vehicles.

Zia-Dam: Rosenbauer has combined sustainability with technological progress and innovation from the very beginning. How has it managed to actively fulfil its role as a thought leader in the firefighting industry for many years?

» We have been systematically analysing the megatrends that are shaping our society because trend and future research serves as the basis for our future-oriented innovation work. «

Wolf: The Rosenbauer Group is proud to be a technology and innovation leader in the field of preventive and defensive fire and disaster protection. We want to help sustainably develop our industry and be a leading light for others to follow. As such, research and development are of central importance to our group of companies.

For years, we have been systematically analysing the megatrends that are shaping our society because trends and future research serve as the basis for our future-oriented innovation work. In 2012, we created the first so-called fire service trend map, which is now available in its fifth, updated version. This trend map establishes a connection between the major megatrends and the fire service. It was the starting point for the development of our first fully electric fire engine, "Revolutionary Technology".

Mapping today's trends to make sustainable changes for the future

Zia-Dam: Let's take a closer look at the Fire Service Trendmap 5.0. Did the analysis of ecological, social, and economic megatrends play a part in its creation? What conclusions were drawn, and which insights were gained for the future of the fire service and civil protection sector?

Wolf: The trend map provides an overview of the most relevant changes and trends that have an impact on fire services, their areas of operation, work equipment, and tactics. It also outlines possible future scenarios and framework conditions that fire services will be confronted with. The content is regularly reviewed and revised in terms of its value. For example, the megatrends of neo-ecology, digitalisation, and social change are becoming increasingly important for the fire service sector. Let's take a quick look at each in turn.

"Neo-ecology" is all about the climate crisis. As a result of climate change, natural events and extreme weather conditions will become more frequent and more severe and will affect larger areas of land than ever before. Increased forest fires and flooding will require comprehensive system solutions. Green pressure is also creating

a new environmental awareness and as part of this fire services are increasingly being encouraged to rethink their approach to reducing emissions, energy supply, and the use of extinguishing agents.

Digitalisation and networking based on modern communication technologies are also playing an increasingly important role in the fire service. In both urban areas with well-developed infrastructure and in the countryside, for example, various data from sensors can be used to recognise critical changes at an early stage. This is entirely in the interests of fire prevention and more efficient deployment management. However, these new technologies can also be used for predictive vehicle and equipment maintenance, and the avoidance of critical technical failures.

And last but not least, social change will alter the fire services. On the one hand, this is about demographic change. We are all getting older; the average life expectancy in countries with a high per capita income is already 80 years old. At the same time, the proportion of older people in the population is increasing. Secondly, there are the issues of diversity and gender equality. Women have long been an indispensable factor in economic life and in the world of work, and they are also increasingly entering operational organisations. Together, these two factors will lead to a redefinition of functionality, and an adaptation of fire service vehicles and equipment so that these groups can also fulfil the requirements of the profession and their voluntary commitment.

Accompanying fire services into the age of electromobility

Zia-Dam: Speaking of e-mobility, tell me more about the development of electrically powered fire engines, such as the "Revolutionary Technology"(or RT for short), now in use in cities such as Berlin, Vienna, Basel, and Los Angeles. What results have the fire services trialling them reported?

Wolf: The RT is our trail-blazing engine, and we won the 2021 State Prize for Innovation for it. This accolade is testament to our long-term group strategy "Rosenbauer City 2030" which positions the development and implementation of firefighting vehicles with alternative drive systems at its core.

Rosenbauer sees it as its responsibility as an innovation leader to accompany fire services into the age of electromobility, actively driving this transformation forward and developing climate-friendly, state-of-the-art vehicles. And we've been doing just that. The first RT pre-series vehicles were delivered to selected lead customers - the Berlin, Dubai, and Los Angeles fire services - in autumn 2020. The practical results were convincing. Taking Berlin as an example: around 1,600 operations were carried out during the 13-month test period. More than 95% of the missions were carried out purely electrically, far exceeding the target of 80%. A diesel engine is now only used as an energy reserve in emergencies, for example when the equipment and machines onboard need to be operated over a long period of time.

The emergency services trialling the RT also praised its quiet electric motors and conference seating arrangement, and, according to the Berlin fire service, around ten tonnes of CO₂ were saved during the test operation compared to operating a diesel LHF. As you can see, in this way, the fire services can actively support the sustainability management of city governments and make a significant contribution to the fulfilment of municipal climate protection targets.

» Rosenbauer sees it as its responsibility as an innovation leader to accompany fire services into the age of electromobility, actively driving this transformation forward. «

Zia-Dam: Why is e-mobility such an important milestone in firefighting and what role will the vehicles in the electric line-up play in Rosenbauer's portfolio over the next few years?

Wolf: In the next few years, more and more regions will be restricting the use of vehicles with combustion engines. From 2035, newly registered cars in the EU will either have to have an alternative drive system or run solely on e-fuels. There are also staggered fleet reduction targets for CO₂ emissions for lorry manufacturers. The current trend is therefore clearly in favour of e-mobility, as there are no emissions on site and this technology is the most advanced. Rosenbauer's e-mobility will make an essential contribution here.

The RT already combines many of the features that will be important in the fire service of the future: a highly ergonomic vehicle architecture, a low-emission drive, an innovative operating concept, and comprehensive connectivity. Today, we assume that every second vehicle we sell in 2030 will have an alternative drive.

Managing your own risks whilst helping others to manage theirs'

Zia-Dam: You've created an impressive depiction of the future of the firefighting industry. How does Rosenbauer ensure that the changes in its own risk landscape are identified, evaluated, and managed?

Wolf: We use a system for risk management that enables a clear presentation of the risks and opportunities existing in the different sectors of the Rosenbauer Group. Business risks and opportunities are identified and recorded twice a year using a structured process, and risks and opportunities are assessed in terms of their likelihood of occurrence and their impact on the earnings.

The necessary control and management measures, as well as the instruments for risk management, are derived from risk analysis at an operational level. In addition, the

results of the risk inventory are reported to the Audit Committee once a year.

One example of the individual risks identified around environmental and sector risks is global warming: in 2020, an analysis of climate-related risks and opportunities was carried out with the support of an external consultancy. The recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) were applied. The first step was to identify those climate-related risks and opportunities that could potentially be financially relevant for Rosenbauer. These were assessed in terms of their financial impact and how likely they were to occur. The physical climate risks for the production and assembly sites were identified as the main climate-related challenge, while the generally increasing demand for fire protection products and the opportunity for new Rosenbauer products and services were identified as the main climate-related opportunity.

Zia-Dam: Thank you very much for your insights into the future of the firefighting industry and the crucial role that Rosenbauer is playing. We look forward to seeing how Rosenbauer drives the trend reversal away from the classic combustion engine towards alternative, low-emission drives.

Sebastian Wolf
CEO
Rosenbauer International AG



About Sebastian Wolf
Since August 2022, Wolf has been the acting CEO of the Rosenbauer Group. Together with more than 4,000 staff, it is his ambition to bring Rosenbauer to the next level and to change the firefighting industry towards alternative drives and sustainability. He started his career as a management consultant. In 2008 he joined Rosenbauer Group and between 2017 and 2022 he was their Chief Financial Officer.

About Rosenbauer Group
Rosenbauer is the world's leading manufacturer of systems for firefighting and disaster protection. The company develops and produces vehicles, fire extinguishing systems, equipment, and digital solutions for professional, industrial, plant and volunteer fire services, and systems for preventive firefighting. With revenues of 972.2 million EUR and around 4,100 employees (as of December 31, 2022), the Group is the world's largest firefighting technology provider. This listed family company is in its sixth generation and has served fire departments for more than 150 years. A strong customer focus, innovative strength, and reliability are Rosenbauer's key assets.

Link to the fire brigade trend map 5.0:
<https://innovation.rosenbauer.com/de/#c20>

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From Yellow to Green: The Austrian Post Service's Mobility Transformation

Despite Austrians receiving more and more parcels every year, by converting its fleet, Austrian Post AG is still managing to reduce its emissions. Daniel-Sebastian Mühlbach, Head of CSR & Environmental Management, and Paul Janacek, Head of Group Vehicle Fleet at Austrian Post tell us how.



Striving to meet ambitious climate targets to increase energy efficiency

Due to the increasing importance of sustainability and the company's integrated corporate and sustainability strategy, Austrian Post is incorporating ESG more and more into its risk management strategy, as well as the requirements of NaDiVeG (the sustainability and diversity improvement act), EU taxonomy regulation, and the necessities set out by the TCFD (the task force for climate-related financial disclosures). As such, this approach identifies risks and opportunities arising from sustainability and the climate crisis at an early stage, so that the strategic orientation of the company and the achievement of corporate goals can be supported by appropriate measures.

To minimise the impact of climate change risks, we have been setting ourselves ambitious climate targets for more than a decade to successively increase our energy efficiency. Since 2017, we have been submitting a science-based climate target of limiting global warming to 2°C to the science-based targets

initiative. At the beginning of 2022, we amended this submission by committing to a new 1.5°C CO₂ reduction target by 2030, and net zero by 2040. We are thus pledging ourselves to the targets of UNFCCC's Paris Agreement.

Green and efficient mobility

For Austrian Post, the transport sector is the biggest lever for avoiding and reducing CO₂ emissions. Every year, our delivery staff deliver around five billion items to about 4.8 million private households and companies in Austria. On their delivery routes, they circle the globe several times - on foot and by bicycle, but also by moped, car and truck. We are therefore working hard to make our transport as environmentally friendly as possible.

Every day, Austrian Post uses thousands of vehicles, so when it comes to buying new ones, our focus is very much on how environmentally friendly they are: since spring 2022, we have only purchased e-vehicles to deliver the post in Austria.

Use of alternative drives: achievements to shout about

But we're not stopping there, we have set ourselves a clear ecological goal: By 2030, the entire delivery of all letters, parcels, advertising mail, and print media in Austria will be carried out by electric vehicles or by emission-free means. We are being supported in achieving this by various public funding programmes. At present, the share of electric vehicles in delivery at Austrian Post already exceeds 30 per cent and is being successively increased. We currently have 3,039 e-vehicles, including 1,183 single-track and special vehicles (quads and trikes), and 1,856 e-cars. This makes us the largest e-fleet operator in Austria. In the Post Group, 3,121 electric vehicles were in use in 2022.

Since autumn 2021, in the provincial capital of Graz, all letter and parcel deliveries have been emission-free. Here, we have completely dispensed with fossil fuels. No more conventional mopeds or cars are used, only

muscle power and electrical energy. To achieve this goal, we have put more than 100 new e-vehicles and e-charging stations into operation. E-package transporters with correspondingly large loading volumes are also being used for the first time.

In 2023 and 2024, respectively, the provincial capitals of Innsbruck and Salzburg are also scheduled for conversion to emission-free delivery. This will require another 200 or so e-vehicles and charging facilities. In Vienna, the go-ahead for emission-free parcel delivery has already been given - by the end of 2022, we had 50 e-parcel transporters in operation. In total, more than 1,000 electric delivery vehicles will be procured in 2023.

Many are probably wondering where the electricity supply comes from for such a large e-fleet. The simple answer is, that we either generate the electrical energy required to operate the e-vehicles ourselves through photovoltaic systems, or we exclusively purchase green electricity from Austria.

Fleet optimisation in freight transport

The rejuvenation of the vehicle fleet and the use of modern technologies have been a focus for quite some time - with regards to freight transport, Austrian Post has done a lot in recent years to protect the environment and the climate. The entire transport logistics fleet is equipped with the most modern EURO-6 emissions technology available on the market. In 2022, 13 new trucks with engines which are extremely efficient and low in pollutants were purchased. The interaction of highly effective catalytic converters, the additive AdBlue, and closed particulate filters reduces their emission of soot particles and fine dust from the engine.

To encourage our hauliers to use a modern and environmentally friendly fleet, we have adjusted our remuneration accordingly. For example, we only pay the tolls incurred for road use to the extent of the best possible emission category and thus motivate them to use modern truck fleets.

New technologies in test operation

In 2020, as a test, we installed for the first time solar panels on three trucks in our fleet. In 2021, two more solar panels were fixed on trucks with a chassis for swap bodies. The energy generated is fed into the vehicle battery, reducing fuel consumption, and lowering CO₂ emissions. For the future, we are looking at other systems from alternative suppliers to finding an even more efficient system. Since 2021, we have been operating our first liquefied natural gas (LNG) truck. In partnership with the CNL (the Council for Sustainable Logistics), we have also been exploring other avenues. We used an electrically powered truck in a one-month test on a route driven several times a day in Vienna. This test provided valuable insights for the future use of e-trucks. We already have six trucks in our fleet operating with Hydrotreated Vegetable Oils (HVO). This is a renewable fuel that can be produced from waste, fats, vegetable residues, and vegetable oils. What makes this even better is that HVO can be used in diesel engines



without technical conversion and according to the manufacturer, up to 90 percent of CO₂ emissions can be saved over the product's life cycle compared to diesel.

During the three months from July to September 2023, we deployed three HVO-fuelled Post trucks in each of the Vienna and Graz metropolitan areas. The vehicles were used on daily postal routes between logistics centres, delivery bases, and post offices and transported parcels, advertising mail, letters, and print media. During the test period, we determined the driving characteristics, fuel consumption, and the actual achievable CO₂ savings. The trucks were refuelled in Graz and Vienna with fuel from Eni Sustainable Mobility and Biofuel Express at filling stations with their own HVO dispensers.

The HVO fuel used by Austrian Post is subject to the European Renewable Energy Directive (RED II). It aims to ensure that biofuels have no negative impact on food production, the environment or social sustainability.

Outlook: alternative drives in Austrian Post's transport logistics

In 2020 and 2021, we signed letters of intent with OMV and Wien Energie for the use of green hydrogen in heavy-duty transport: an important milestone for climate protection. The focus is on the procurement of green hydrogen, the development of the necessary infrastructure, and the integration of fuel cell trucks into our fleet. In addition, Austrian Post is represented nationally in various initiatives and other consortia in the field of hydrogen through Transport Logistics. Together with the Austrian Federal Economic Chamber, various ministries, and other renowned national and international companies from the fields of industry, energy, freight forwarding, and logistics, we are focusing our attention on sustainable and environmentally friendly change in heavy goods transport through alternative drive systems and synthetic fuels (e-fuels).

On the way to emission-free heavy goods transport, Austrian Post would like to bring further future technol-

ogies onto domestic roads and test them as quickly as possible. Within the framework of the "Emission-free Commercial Vehicles and Infrastructure (ENIN)" funding programme of the European Union, the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology, and the Austrian Research Promotion Agency (FFG), Austrian Post has therefore submitted and received funding applications for a total of four emission-free trucks.

The first funding submission involves the testing of two e-trucks. These are to replace two diesel trucks that currently commute around the clock seven days a week between the logistics centre in Vienna-Inzersdorf and Vienna-Schwechat Airport. A dedicated fast-charging station will be installed on the logistics centre's premises so that the vehicles can be back on the road quickly. Depending on the funding decision and the delivery time of the vehicles, Austrian Post expects the vehicles to be in use in the second quarter of 2024.

The focus of the second funding submission is the testing of two hydrogen trucks. The route planning is done along roads with existing green hydrogen filling stations, which are currently available in Tyrol and Vienna. Further green hydrogen filling stations are already being planned and will soon cover all the main traffic routes in the country. With an expected range of around 400 kilometres per refuelling, and the existing filling stations, the hydrogen trucks can be used on all postal routes throughout Austria. Due to the long delivery times and the currently still scarce supply of green hydrogen, the first two postal hydrogen trucks are expected to be deployed by the end of 2024.

Daniel-Sebastian Mühlbach
Head of CSR &
Environmental Management
Austrian Post AG



About Daniel-Sebastian Mühlbach
Daniel-Sebastian studied at the University of Natural Resources and Applied Life Sciences in Vienna, followed by a course in environmental management and ecotoxicology at the University of Applied Sciences Technikum Wien. He started as a Sustainability Consultant at thinkstep, with later positions at PostEurop and ISA Lille. He has been working for Austrian Post since 2013 and, as Head of CSR and Environmental Management, is responsible for the sustainability activities of the entire Group.

Paul Janacek
Head of Group Vehicle Fleet
Austrian Post AG



About Paul Janacek
Paul was educated at the Rotterdam School of Management. He started his career at T-Mobile Austria in the finance and audit department, before moving to Group Customer Finance at Deutsche Telekom AG. Since 2015, Paul has been working at Austrian Post AG, where he is head of the Group fleet responsible for over 10,000 vehicles and is in charge of the conversion to e-mobility.

Sustainability and Risk Management in Car Fleets

The discussion about the sustainability of the automobile industry is currently going in different directions. From e-vehicles to hydrogen or renewable energy-fuelled transport, there's a lot to consider: The CO₂ balance should not only consider local emissions, but also pollutants during production, the logistics chain, and recycling. In various calculations, it can be shown that an electric car has lower emissions than a combustion engine after about four years of operation. While other studies show that a medium-sized electric car in Europe emits about two-thirds less harmful greenhouse gases than a combustion engine. With pure green electricity, the values are even higher¹.

In addition to these considerations, the charging infrastructure for electric vehicles in many countries is currently still under construction and is therefore often a factor that prevents companies from purchasing e-vehicles for their fleets. For example, if we assume the charging process of an electric car takes about six times as long as filling up at the pump, 100,000 public charging units would have to be available for Austria alone to satisfy the needs of business and the public. Currently, Austria has only about 20% of this requirement².

Austrian Post has laid the right tracks for vehicle fleet sustainability in the haulage and logistics industry with its future-oriented strategy:

- It is not only equipping its fleet for electric or hydrogen mobility, but it is also ensuring its vehicles can be charged or fuelled en route. Furthermore, to guarantee the fleet is still driving efficiently, it makes sure the routes are also optimised.
- Its use of muscle power or partial muscle power, leads to an even greater CO₂ reduction.
- In the light commercial vehicle sector, Austrian Post is only using electric vehicles, and for heavy transport, the company is experimenting with hydrogen.
- The issue of noise pollution also plays a major role in the Post's field of activity. By operating electric vehicles or using vehicles powered by muscle power, noise pollution is massively reduced.

With this future-oriented use of alternative mobility, Austrian Post has steered its fleet towards sustainability.

Common car fleet pitfalls to avoid.

For vehicle fleets, it is important to keep an eye on the overall risk costs. In addition to passing on the costs to

insurance companies, risk-reducing measures are particularly useful. By analysing individual damage lists, one can determine the frequency of different types of risks and react accordingly. Based on our experience, we have identified the following recurring problems:

- **Distraction by mobile phone:** Thanks to hands-free systems, talking on the phone is no longer so critical, but the transmission of text messages or the use of the mobile phone as a navigation device (e.g. looking at the mobile phone display for the correct route) have increased enormously.
- **Visual impairment:** If the driver wears corrective glasses or contact lenses for long-sightedness for example, it can be difficult to read the directions on maps or satellite navigation systems whilst driving. Theoretically, unless they have bifocals, they may have to switch between reading glasses and long-distance glasses. This leads either to a distraction when switching glasses, or to reduced visibility when reading the device without glasses.
- **Utilising the right vehicle for the job:** This is especially an issue in the commercial vehicle sector, where loads must be delivered efficiently and economically. If you provide a vehicle that is too large, it could cause manoeuvring and parking problems for the driver. According to our findings, manoeuvring and parking activities are the most frequent cause of damage for commercial vehicle traffic. Many vehicles are equipped with parking sensors or cameras, however, where time and little space are at stake, these helpers are often ignored. With smaller vehicles, parking and manoeuvrability become easier, but then the economic savings and efficiency are lost.

We have seen many such damages not only have an impact on the damage statistics and thus on the insurance premium, but also on other company costs. For example, an employee is unable to work due to an injury caused by an accident, or the vehicle is not available for transporting goods whilst it is repaired which leads to reduced efficiency and additional costs. Accidents because of causes such as these, and many others, can be tackled with effective risk management.

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¹ www.co2online.de, www.carbon-connect.ch, www.theicct.org
² Comparison of figures from Wien Energie and Statista

“You Can’t Protect Nature Because You Have to Be Stronger Than Nature Itself”

Times of climate change call for Johannes Ehrenfeldner, Director of Lake Neusiedl National Park, to address the restoration of biodiversity and ecosystems even more intensively. Erwin Pichler, Regional Manager GrECo Burgenland, spoke with him about the threats and impacts, economic risks, and current measures.



How climate change is impacting a national park beyond the obvious environmental toll

Pichler: Climate change influences the entire national park - affecting nature and the environment, and having economic repercussions. What's your experience of this?

Ehrenfeldner: I don't see my role as National Park Director as being limited to nature conservation, but much more comprehensively in a regional and sustainability context. I see my responsibility as an equilateral triangle - the ecological, the social and the economic. Each responsibility is equal. As a national park society, we move within this triangle. For example, the region feels climate change first-hand: when there are really dry years, as there were two years ago, the immediate consequence is that birds stay away because they choose other resting places. As a result, tourists who come here especially to bird watch stay away. This leads to less added value in the region.

Pichler: The absence of the birds also reduces the added value. So, it's a 1:1 effect?

Ehrenfeldner: Exactly. One can rarely intervene in nature, maybe a little but usually not at all. No one has ever managed to make it rain, for example. But you can at least simulate rain or tweak things so that the groundwater remains at a reasonable level. At least this buffer remains an option for us.

Pichler: In general, biodiversity is declining. Can we do something about it in the National Park?

Ehrenfeldner: We can't save the world, but we can manage the conditions so that the birds find the habitats they need. Bird migration is a global phenomenon. Species of wading birds are declining sharply. The much-used Bird Index, which mainly catalogues the small birds that used to thrive on agricultural land, shows that the number of these birds is also severely diminishing. However, there are also climate change winners, for example the so-called mid-winter species. Historically, the wintering and over-summering were dominated by northern species, but now more species like the shelduck and the hoopoe are arriving. They feel very much at home in the dry climate when they can also find sand.

Pichler: Where do the birds that no longer come to migrate go to?

Ehrenfeldner: That is an interesting question. Animals have only two options, either to migrate upwards or to migrate northwards. Either they colonise higher areas or more northerly areas. If they can't go further north either, they die out.

Pichler: You once said that you can't protect nature because you have to be stronger than nature itself. What do you mean by that exactly?

Ehrenfeldner: That is a bit of a philosophical statement, if you like. But I am firmly convinced that we as human beings are not capable of protecting nature. Nature will always be stronger than us humans. We can preserve and maintain our living space in such a way that it is worth living in. These large, protected areas such as national parks are part of this. These are places where a person would like to go. If this is no longer the case, because desires get out of hand, such as building development, the purpose of protection becomes relevant again, but not with the purpose of protecting nature itself, but basically protecting it for humans, who then retain these valuable habitats.

Protecting a wealth of biodiversity as eco-systems become unbalanced

Pichler: The national park that you manage is a huge area, which is also partly cultivated. Can you tell us a bit more about how that works?

Ehrenfeldner: The national park covers 10,000 hectares, 5,000 hectares of which belong to the strictly protected nature zone. You're not allowed to go into this zone, unless it's for scientific reasons. Would you want to nor would you want to, because it's uncomfortable in the reed beds, there are mosquitoes, it smells like rot. The other 5,000 hectares are a millennia-old cultural landscape where very sustainable grazing has taken place, which has also led to a wealth of biodiversity. The variety of rare plants, birds, and insect species are the product of this extensive management. The fact that the area of the national park is actually a border landscape also has a potentiating effect on biodiversity. It is the last foothills of the Alps (Rax, Hohe Wand, Schneeberg, Leithagebirge, Ruster Hügelland) and part of the Hungarian lowlands. We have plant communities and ecosystems that have the westernmost distribution boundary as well as those with the easternmost. Two climatic zones meet. One is continental and the other is maritime/atlantic.

Pichler: Can one still speak of a balance in this ecosystem as a whole?

Ehrenfeldner: No. The area of the national park and the adjacent areas are one of the most intensively used agricultural areas in Austria. It is the epicentre of Austrian agriculture. Also because of the climate and the soils, the fertility of the land is very high. The limiting factor is currently the water.

Pichler: So, the biggest threat to the national park is the lack of water. What do you think are the main causes of this situation: The climate or intensive agricultural use?

Ehrenfeldner: There are always three components - the shift in precipitation or too little precipitation in the winter months, higher temperatures, and consistent drainage/extraction of groundwater for agricultural drainage. The Seewinkel is a wetland. Thus, agriculture only became possible through drainage. On the Hungarian side they

acted more cleverly than on the Austrian side, ensuring their canals could be used for drainage as well as for irrigation. On the Austrian side, however the focus was on alpine water management, where the drainage of water was the main concern.

It is possible to intervene in the systems, the drainage, and the agriculture, and create a trend reversal. Drainage should be controlled in such a way that as much water as possible remains. Not a single drop should leave the region!

Striving for a circular economy is inevitable. We have submitted a proposal to the EU, which we want to implement in the next five years. The province of Burgenland uses drainage channels with controllable sluices, which thus consistently retain water. There is also the question of which crops are more suitable, i.e. which do not need so much water. For example, seed corn and outdoor vegetables with overhead irrigation such as onions consume a lot of water and produce a high loss through evaporation. Glass houses are more effective for these crops because they have a closed water cycle. And I don't want to blame farmers and growers now, it's just the agricultural industry's system.

Insuring environmental risks, a lost cause, or a beacon of hope?

Pichler: *These are developments that have taken place over the last 150 years, and it's only now we are seeing the results. So now we must find a solution to them. At GrECO, we try to manage risks in many situations, but we can't manage everything. The best-case scenario, and we try very hard to achieve it, is to prevent risks from occurring in the first place. That is probably - to use the word sustainable once again - the most sustainable method. Do you agree?*

Ehrenfeldner: Awareness of hazards has become much more prevalent today, but despite our awareness of drought damage, it can't really be covered by insurance, even though it is almost a calculable risk. And, sadly, at some point, society will no longer be able to afford it.

Pichler: *We see more and more of these direct dependencies. Parametric weather insurance pays out when a predefined value is exceeded or not reached. For example, the amount of precipitation or the temperature. Settling claims with this type of insurance is simple. The prerequisite, however, is to ensure that the data is collected in an objectively independent manner. A promising insurance solution that is still in its infancy.*

Ehrenfeldner: These are such systemic risks that endanger the functioning and stability of an entire economic area. Where there is not just one cause.

The future: what's in store?

Pichler: *Resource management will become a major issue for Burgenland agriculture, especially in the Seewinkel regions. Do you have visions of future-oriented management?*

Ehrenfeldner: Future-oriented management is like a high-risk investment because you have a limited view. You are dependent on certain parameters being correct in order to make a profit. If you as a farm depend on only one crop, it brings more risk. Therefore, all sectors (agriculture, forestry, or manufacturing companies) that depend on nature must take a broader view. Forestry and agricultural enterprises already do this to some extent. They do not focus on one tree species, but on a whole range. In the short term, this diversification is accompanied by lower yields during the trial period, but in the long term it brings advantages. In forestry, you have to think in terms of rotation periods, which are, for example, 100 years. A challenge, but investing for the longer term is completely necessary.

Pichler: *What goals do you have personally, for yourself and for the National Park?*

Ehrenfeldner: In the medium term, to renew the (structural) infrastructure of the National Park.

My longer-term goal is to become the European benchmark in terms of strategy development, extensive grazing, and dealing with climate change: To show people how we do it, maybe not perfectly, but at the very least how it can work.

Pichler: *Thank you for your time and your insights.*

Johannes Ehrenfeldner
Director of Lake Neusiedl
National Park



About Johannes Ehrenfeldner

Johannes has been actively involved in projects related to biodiversity and ecosystems. Under his leadership, the National Park continues to protect the rich biodiversity of the Neusiedler See - Seewinkel region.

About Nationalpark Neusiedler See

Since its foundation in 1993, it has been the goal and obligation of the Lake Neusiedl - Seewinkel National Park to actively protect and preserve habitats for plants and animals, as well as maintaining the park's infrastructure to enable visitors to experience nature and recreation.

Covering a total area of 10,000 hectares, over two states and 1,200 landowners, the park is home to 348 species of birds, wild horses, water buffalo and baroque donkeys, as well as many other animal and plant species.

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Is Water Scarcity Dangerous for the European Food Industry?

We're all taught at school that 70% of the earth's surface is water. However, what we're not taught is that only 2.5% of the world's water is fresh, or that most of it is ice, or deep underground. In reality, only the 1.2% found in bodies of water on the earth's surface, such as lakes and rivers, is easily accessible.

Something else we're not taught is how much water goes into food production. Do you know how many litres of water are needed to produce 1kg of steak? 15,000 litres! And the production of 1kg of chocolate uses 17,196

litres of water! According to statistics from 2019, Europe produced 3.7 tonnes of chocolate which equates to an eye-watering amount of water! 63,625,200,000 litres to be precise!

With statistics like these, it is easy to see why this sector qualifies as the biggest consumer of water: It is estimated, that around 60% of all water consumption in the EU is expended by the food and agriculture industry.

Why the EU food & agriculture sector uses the most freshwater

And here's why: As a key processing element and a major ingredient, fresh water is a vital, irreplaceable resource for the food processing industry. Animal products like meat, dairy and eggs have the highest water footprint of all foods. Most meat's water footprint, for example, comes from the water that goes into growing the crops that livestock eat. Similarly for beer, it's not just the water in the bottle that counts, but also all the water needed to cultivate the barley and hops necessary to brew the drink in the first place. Fruit and vegetable processing is also a heavy user of water largely because it requires water to grow the crops and an exponential amount of water to wash the end product.

Fresh water is also used in different technological food processing operations; however, their demands are different to other industries because the quality of the water must guarantee food safety: in some specific sectors almost 70% of the total water used is for sanitation operations, whilst cooling and heating operations rank second with a share of about 20% of the total water consumed. Although a proportion of the water used becomes part of the food product, it is not higher than 20-30% even for the brewing and soft drinks sectors. What this means is that, in general, more than 70% of the total water used is discharged as effluent which has high levels of biological (BOD) and chemical oxygen demand (COD), as well as fats, oils, and grease (FOG). Among the different industries, at between 10-30%, the food and beverage industry emits the highest amounts of organic water pollutants.

The reality of water scarcity in Europe: More consumption means more risk

The risk of water scarcity is one of the key considerations in the risk management and ESG policies of food and agricul-

ture companies. In 2019, 77% of 35 publicly traded food & agri companies in the UK explicitly cited water as a risk factor in their annual reports, up from 59% in 2017. In addition, interviews with food processors in the UK conducted by Loughborough University's Business School found that 50% of respondents rated water loss as a high or medium risk.

And it's not just in the UK. Water scarcity is most prevalent in Southern Europe, particularly during the summer because of higher abstractions from agriculture, public water supply, and tourism. We regularly see intensive irrigation throughout the year leading to severe water scarcity in the Middle Apennines and the Po Basin (Italy), in Guadiana (Portugal and Spain), and in Segura (Spain). Similarly Mediterranean islands such as the Balearic Islands, Crete, and Sicily, experience incessant and severe water stress conditions throughout the year due to agriculture and tourism. Meanwhile in other parts of Europe, food and agriculture businesses are at risk of water scarcity caused by urbanisation combined with high abstractions from the energy and industrial sectors for cooling purposes, and from the public water supply sector. In addition, after unforeseen drought in areas such as Scandinavia in 2018, the Elbe basin in 2015, and the Black Sea basin in 2007, many companies are also including water scarcity in their risk evaluations where previously it might not have been perceived as a critical issue due to their geographical location.

What is more, it's not just water scarcity that the food and agriculture industry is concerned about; it's also risks posed by water quality, especially where insufficient water resources of a certain quality are available to satisfy the requirements of the industry and of the public. When the balance of water demand exceeds the water supplied by the natural system, governments are often required to employ temporary or permanent legal bans or restrict water usage. This in turn causes a major headache for food processing plants and other businesses in the sector.

The impact of water scarcity for the food industry

When fresh water is scarce, there are many consequences for the food industry, and it's like a domino effect which

culminates in the termination of food production or food processing, leading to higher prices, food and drink shortages, and more.

Let's look at some of the knock-on effects: Reduced water availability impacts the ability of farmers to irrigate their crops, leading to lower agricultural productivity. This, in turn, can affect the supply and cost of raw materials for the food industry. Disruptions in the transportation of goods and the operation of processing facilities on the water ways can also occur which leads to delays in production and distribution, impacting the overall food supply chain and again increasing prices. In times of drought, stricter regulations related to water use and wastewater discharge are often enforced meaning the food industry faces additional compliance requirements, necessitating investments in water-efficient technologies and sustainable water management practices.

The industry is also having to take into account changes in consumer preferences. Increased awareness of environmental issues, including water scarcity, is leading many to favour products and companies that clearly demonstrate their water conservation efforts. Businesses that fail to address water-related risks could also face reputational challenges on top of the risks created by a marked reduction in water supply.

Insurance and environmental response

The problem of global water scarcity and the reduction in water availability has forced the food industry to make water management a top priority to ensure the industry as a whole is acting sustainably. Insurance, as a tool for financing losses, is used in the event of scenarios of acute water supply disruptions. Losses due to accidental water shortages can be covered through a conventional property damage and business interruption agreement as an additional extension of utility BI. When it comes to damage caused by third parties, losses can be compensated through contingent business interruption, trade disruption, or parametric policies.

But where there are acute risks, there are huge opportunities for change: Water scarcity concerns are driving innovation in the food industry and with members of the public. Companies are investing in water-efficient technologies, sustainable agricultural practices, and water recycling systems to mitigate the impacts of scarcity on their operations.

Spatial climate adaptation activities, such as the relocation of production plants from southern Europe to more water-rich areas are also taking place. Moreover, individuals are increasingly aware of their water footprint which is leading to the reductions of direct water use (less showering, flushing, turning off taps, using water butts to collect rainwater to water the garden etc.). This increased consciousness is creating an opportunity for long-lasting sustainable change in our individual food choices as we start to consciously opt to buy products which are sustainably made.

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How Slovenia's Natural Disaster Points to Systemic Weaknesses in Europe

When a month's worth of rain fell in just 24 hours in Slovenia it was the country's worst ever natural disaster and resulted in ruinous consequences for its people and its economy. We ask: How can politics help in such a crisis? And what specific role should the insurance industry play to help corporate companies strengthen their resilience against such extreme weather events in the future?



The August floods were an unprecedented natural disaster causing many to lose their lives, their homes and more. The damage caused to Slovenia's infrastructure, agricultural land, and business assets was immense and caused significant financial losses for business and the public sector alike. Vast parts of the country were affected: 183 out of 212 municipalities suffered losses. Or in other words, of Slovenia's approximately 20,000 square kilometres, about 17,000 were affected by the floods. In total, this natural disaster has caused an eye-watering 9.9 billion EUR worth of damage.

Is anyone to blame and what's being done about it?

From a risk management perspective, initial analysis shows that the main reasons for such significant losses were due to lack of essential riverbed maintenance; installing an inappropriate infrastructure such as building the wrong type of river bridges; and mistakes made by previous governments who decided in the past to allow building on 100-year flood zones.

To address these issues, the Slovenian government has implemented several measures. These include contingency plans, and faster and better coordination between the various authorities involved in the post-flood management process, as well as using the Post Disaster Needs Assessment (PDNA) method to recover the physical damages, the economic losses, and the identification of human recovery needs based on information obtained from the affected population. In addition, several new legislative measures were quickly put in place, including a law to speed up the post-flood recovery process at state level, and to allow for the provision of compensation to those who suffered losses.

Time is of the essence

Currently, one of the government's main concerns is the potential for November's rainy season to worsen the current situation. Their focus is on ensuring that all riverbeds are cleared of debris; all ongoing landslides are cleared and under control; and that critical infrastructure (gas, hot water, telecommunications, roads, etc.) is fully operational before the rainy season starts. Everyone is hoping November's rainfall won't be too heavy, so that all the improvements and measures being implemented will help Slovenia weather the forthcoming winter.

Beyond the immediate weather-related concerns, the Slovenian government, aided by international support and funding, continues to work towards the full recovery and long-term resilience of the flood-affected areas. This includes continuously monitoring the recover process, actively maintaining flood prevention systems, and implementing mitigation measures to reduce future flood risks. Despite all these efforts, the total estimated time for flood rehabilitation in Slovenia is substantial. Initial estimates predict it will take five to 10 years to fully recover. This is due to the extent of the damage and the complexity

of the recovery process. It involves not only repairing and rebuilding infrastructure, but also addressing environmental issues such as removing contaminated sediments and restoring ecosystems.

What is more, there is also a financial expectation. The Slovenian government is therefore working on the introduction of an intervention law to implement a new tax and solidarity contribution which will help to quicken the restoration process. This law will define that each citizen will contribute 0.3% of their annual income tax, and that all corporate entities will contribute 0.8% of their pre-tax profits, to help with the country's financial recovery.

Beyond Slovenia: Global supply chain disruption

The Slovenian floods have not just affected Slovenians. They have also had an indirect global impact. Slovenia has many companies involved in the global supply chain, producers of automotive parts, for example. Two such major Slovenian companies are KLS Ljubno and TAB Mežica.

KLS Ljubno is a key supplier of gear rings to most of the European automotive industry. They supply 80% of all European manufacturers and have a share of 17% of the global market for these automotive parts. The knock-on effect of their shutdown because of the floods meant Volkswagen was forced to reduce their production hours in Wolfsburg, and even had to stop production in Portugal for several weeks. Similarly, TAB Mežica, as one of the main suppliers of batteries to Volkswagen, Volvo, and Daimler, also caused supply chain disruptions.

How is the EU prepared for the impact of climate change

Devastating natural disasters like the one in Slovenia are unfortunately no longer exceptions. Worldwide natural disasters are becoming more prevalent and unfortunately, we must assume that due to climate change and various other influencing factors they will not decrease any time soon.

So, is the EU prepared for the future impact of climate change? To a certain extent yes, they are:

In 2002 the European Union set up the Solidarity Fund in response to the devastating floods in Central Europe that summer. This fund provides financial support to its member states or candidate countries in the event of a major natural disaster. Since 2020, the Solidarity Fund has also covered major public health emergencies such as the Covid 19 pandemic. Slovenia is to be provided with 400 million EUR from the Solidarity Fund to support reconstruction.

In addition, further resources are available from the Cohesion Fund which was established in 1994. The Cohesion Fund provides financial support for environmental projects and trans-European transport network projects ("connecting Europe") in those member states whose gross national income per capita is less than 90% of

EU disaster relief

The EU reserve for emergencies currently amounts to a maximum of 1.2 billion EUR per year. In view of numerous natural disasters, the EU Commission warns of bottlenecks - so it plans to increase the fund by 2.5 billion EUR for the years 2024 to 2027 (approval of the member states still pending).

the EU average. Even before the floods, Slovenia had been promised funding of 3.3 billion EUR. The EU Commission now wants to show maximum flexibility and redistribute the use of the approved funds as best as possible to aid the country's reconstruction.

Furthermore, a recently established fund from which resources can be drawn is the Next Generation EU reconstruction fund (Economic Stimulus Package 2021 - 2027; volume 750 billion EUR in 2018 prices) which was launched in response to the Covid 19 pandemic and is a major EU initiative to promote economic recovery and accelerate green and digital transformation in member states. Its main mission is to reignite economic growth and facilitate the European Union's transition to a more sustainable and technologically advanced future. To achieve this, member states are encouraged to invest at least 37% of the funds into green transformation and at least 20% into digital transformation. In addition, the fund requires that all spending be assessed for environmental sustainability (goal of climate neutrality by 2050). Slovenia has been allocated 2.7 billion EUR from this stimulus fund, and financial resources from it are to be used for the reconstruction of the flood disaster.

These funds are of substantial benefit to any country, but are they enough?

Balancing necessary relief efforts with long-term transformation goals

One of the main challenges in using the EU's Next Generation Fund, as well as the Cohesion Fund, for post-flood reconstruction is finding the right balance between necessary relief and long-term transformation goals. While it is crucial to provide rapid and comprehensive support to the affected regions, it is equally important not to undermine the resources earmarked for green and digital

transformation. A careful and critical approach to these issues is essential. First and foremost, it is important to recognise that the main role of these EU funds is to drive sustainable change. Therefore, any diversion of disaster recovery funds should be guided by a clear plan to ensure that these investments also contribute to broader green and digital goals. For example, post-disaster reconstruction projects could be designed to include green infrastructure, renewable energy sources, and resilient digital systems.

Time for action: How can the government and insurers co-operate?

Over the past nine months, Europe, including the eastern tip of the continent and the Middle East, has been affected by severe storms, floods, droughts, wildfires, and earthquakes. No matter what the disaster, it is undeniable that all of them are having a colossal negative impact on social and economic life, and those who are affected by them are struggling to cope.

This means partnership solutions between the public sector and the insurance industry are in demand more than ever before. In some countries, compulsory insurance pools have been established to lessen the financial consequences of natural disasters. Good examples of these can be found in France, Spain, and Turkey.

- **France:** The so-called "Garantie contre les risques de Catastrophes naturelles" (CatNat Pool) was established by Law on 13 July 1982. This pool covers losses, including consequential losses and expenses. The insured must pay a compulsory additional premium, which is linked to and regulated by the above-mentioned law. Cover is granted as soon as the French authorities have officially declared a natural disaster.
- **Spain:** Established in 1941, the Consorcio de Compensación de Seguros is a catastrophe insurer that provi-

Natural disasters in Europe in 2023

Germany: Severe storms brought heavy rain and damaging winds to several towns and cities across the country.

Austria: Floods and landslides occurred in Styria, Tyrol, and Salzburg, whilst Carinthia suffered hailstones up to eight centimetres in diameter

Italy, Croatia, and Bosnia and Herzegovina: all suffered relentless rainfall which caused severe flooding

France: The west of France was hit by a rare 5.8 magnitude earthquake. A month later, the central western region was hit by flooding.

Spain: Drought continues, and the country faces ongoing water shortages.

Greece: More than 80 wildfires were recorded following a series of heatwaves.

Turkey: On 6 and 7 February 2023, a series of massive earthquakes devastated the south-east of Turkey and the north-west of Syria. 55,000+ people died, and many buildings were destroyed.

Total economic losses reached 40 billion USD, while insured losses were 5 billion USD.

des compensation for losses caused by a range of natural perils. Sociopolitical risks (e.g. terrorism) occurring in Spain are also covered by this pool. Insured parties are required to contribute to this pool by paying an additional premium, the amount of which depends on the type of risk and the sum insured.

- **Turkey:** In 2000, an insurance pool was established by law to provide mandatory earthquake coverage for residential buildings - the Turkish Catastrophe Insurance Pool (TCIP). As a result, the insurance density to cover homeowners against earthquake damage has increased to more than 50% nationwide. The tariff to be paid for this coverage depends on the location of the insured premises and, in some cases, on the deductibles that the insured choose to retain. In Turkey, four earthquake zones have been defined for premium calculation, each having a different premium rate.

Should other countries follow suit by creating their own compulsory insurance pools to mitigate against natural disasters, or is there another solution?

Unequal treatment due to different national insurance systems for natural disasters

In summary, despite good intentions, certain EU funds are being misused for disaster relief, or at the very least diverted from their original purpose. A major problem in this complex issue is the fact that each member state deals with the issue of insurance against natural disasters in a separate and independent manner. There are member states that have introduced compulsory insurance against damage caused

by natural disasters (for example, France or Spain) whilst in other member states, such as Germany and Austria, there are intense and ongoing political discussions, but no solutions. If one was to be provocative, one could also speak of unequal treatment of member states in the use of EU funds.

It is clear a harmonised European solution should be worked on as a matter of urgency. At the very least, common minimum standards for member states should be established and, building on this, a common reinsurance vehicle / a new coordinated catastrophe fund should be set up.

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Can We Afford to Pay the Price of Growing Soil Consumption and Climate Change in Austria?

The challenges facing Austrian agriculture are diverse and complex. Prok. Dr Mario Winkler, Head of Communications at Österreichische Hagelversicherung, talks with Laura Hochegger, Executive Assistant at GrECo Group, about the alarming long-term ecological and social consequences of climate change and soil consumption in Austria. With the livelihoods of future generations at stake, can we afford not to make changes now?

Hochegger: *In the future, where do you see the greatest challenges for domestic agriculture in terms of sustainability?*

Winkler: Domestic agriculture faces several challenges. However, from our perspective as a comprehensive agricultural speciality insurer in Europe, the two biggest are climate change and soil consumption.

» Soil consumption is the most pressing environmental issue in Austria at the moment. «

Why? Global warming is jeopardising agriculture due to increasing weather extremes such as frost, drought, hail, and flooding etc. Soil consumption, which is a national homemade problem, is the most pressing environmental issue in Austria at the moment because of the speed we are constructing on valuable agricultural land.

Ultimately, it is about securing the livelihood of future generations.

Austria is the worst for soil consumption and sealing in Europe

Hochegger: *With 11.3 hectares of land being built on every day - the equivalent of 16 football pitches - Austria is the European champion when it comes to soil consumption and soil sealing. What impact does this have on food security and what solutions do you see for curbing soil consumption?*

Winkler: Austria is the European champion in a negative sense when it comes to destroying the soil on which we live. With 60 supermarkets per 100,000 inhabitants, we have 50% more than Germany, and are the leader in terms of road length with 15 metres per capita. In the last 20 years, 130,000 hectares of fields and meadows in Austria, equivalent to the arable land in Burgenland, have been sacrificed for construction projects. This includes 72,000 hectares of prime farmland alone. According to a WIFO study, this means that we will be able to feed 480,000 fewer people in Austria every year. If we carry on like this, in 200 years there will be no more agricultural land. This not only jeopardises our national food supply, but also leads to more flood damage, the extinction of animal and plant species, and the disfigurement of the landscape. The keyword in this explanation is food supply: We already have a low level of self-sufficiency in many areas. For example, we are 90% self-sufficient in bread grain, around 50% in fruit and vegetables, and only 30% in soya. So, as you can see, we are already very vulnerable. We need to realise this: We can't eat concrete!

However, according to the experts, there are several possible solutions to curb soil consumption (as well as other issues): Firstly, we should replace the current federal states' regional planning system with an independent

body at the federal state level. Secondly, municipalities that act in a soil-conserving manner should be rewarded through financial equalisation. Thirdly, the best agricultural land should be absolutely protected from further development and the high vacancy rate should be revitalised through financial incentives. Furthermore, we must utilise the right to direct democracy, such as referendums on major development projects, and make it clear that the old economic thinking from the 1970s "more concrete brings more prosperity" is obsolete. Because when it comes to soil, there is only one thing at stake: our future and the future of future generations. Soil protection is climate protection and therefore life protection!

Expansion as a response to climate change

Hochegger: *But it is not only soil consumption that has an impact on food security. Droughts in Austria now cause more damage than any other natural disaster. Drought damage is expected to quadruple by 2050. How can we counteract this?*

Winkler: Drought is unfortunately, a very good, but negative, example. This accumulation risk now occurs every three to four years in this country. In Vienna, for example, we used to have around 10 hot days a year in the 1980s and 1990s, i.e. days with temperatures of more than 30°C, there are now almost 30 hot days a year - three times as many. 2023 was the hottest year in the 257-year history of temperature measurements!

Global warming is also causing vegetation growth to start earlier in spring. This leads to increased frost damage in fruit growing and viticulture. Measures that can be taken in the event of frost include frost irrigation and fumigation, while in the event of drought - where technically feasible and profitable - irrigation or the cultivation of more heat-resistant crops such as millet can be used.

No matter what the issue is, in the long term, soil consumption must be stopped and more must be invested in climate protection overall.

So, what does this mean in insurance terms? More than half of the compensation for drought damage is already quite regularly being paid out. Broad reinsurance cover is therefore necessary, despite the fact we have recently seen many small reinsurers go out of business. However, to be able to continue to offer comprehensive insurance cover, it is necessary to diversify risks. We do this through the areas we insure. As the growth in area in Austria is limited, partly due to land consumption, we started expanding abroad in 2006 and are now active in five Eastern European countries - Czech Republic, Slovakia, Slovenia, Hungary, and Romania. Bulgaria will be added in 2024. This expansion is our response to climate change, with the aim of better risk diversification.

Eliminate the basic problems to continue to produce at all!

Hochegger: *What other factors influence food security?*

Winkler: In addition to climate change and soil consumption, food security is influenced by many other factors. Economic factors are important, including price fluctuations. The availability of water, resources, and soil quality are also further decisive elements. Social aspects such as population growth and urbanisation also influence food supply security. As you can see there are lots of factors, and whilst technological developments, such as innovative cultivation methods and modern storage technologies, are playing an important role in overcoming some of the challenges in food supply, the basic problems must be eliminated first to be able to produce at all: These are climate change and land consumption!

There are also threats to animal husbandry which we haven't yet touched upon. Global warming is causing certain animal diseases to spread across Europe that previously did not occur or hardly occurred at all in this region. This is due to the spread of mosquito species that are native to warmer climatic regions. Some examples of this are bluetongue and, for the first time since 2022, epizootic haemorrhagic disease, a ruminant viral disease.

In addition, other new pathogens are reaching us - for example African swine fever. This disease, which is harmless to humans but fatal to pigs, is spreading further and further, particularly in Eastern Europe. Fortunately, no case has yet been detected in Austria. However, it is advisable for farms to be covered by insurance because it's likely to only be a matter of time.

Insurance is indispensable for farmers right now

Hochegger: *So, the threats to agriculture range from environmental impacts to demographic challenges. Are we already seeing trends in how farmers are dealing with these difficulties?*

Winkler: The loss of a year's harvest can easily threaten farmers' livelihoods. No harvest means no income. Furthermore, we must not be misled by the historical or often "romantic" image of agriculture. We are talking about entrepreneurs with ever larger farms that produce food, and in view of the risks, they are relying on comprehensive operational risk provisioning. Most agricultural businesses are already insured with us. In total, these insured farms cultivate almost 85% of the agricultural land in Austria! The diversity ranges from fruit growing and viticulture to arable farming, horticulture, vegetable growing, grassland management, and animal husbandry. What is clear is all farms, no matter what they are farming, have one thing in common: risk management in the form of insurance has become indispensable for securing their livelihoods.

Hochegger: *What solutions can be used to counteract these challenges to food supply?*

Winkler: A basic prerequisite when it comes to climate change is the fulfilment of obligations under international law, such as the Paris Agreement. But more efforts

are also needed on a national level to protect the climate. One of the main problems in Austria comes from CO₂ emissions from transport. Between 1990 and 2021, CO₂ emissions from transport increased by 57%. In the same period, CO₂ emissions from agriculture were reduced by 16%. Austrian agriculture is taking climate protection seriously and taking the necessary measures to help reach the Kyoto Protocol goals, but it is falling victim to extreme weather events driven by climate change which in turn is being impacted negatively by other industries. Agriculture is proving both climate protector and climate victim number one!

All in all, what is abundantly clear is that in addition to increased awareness of the issue, soil consumption needs a comprehensive package of measures, as mentioned earlier, with quantifiable limits on daily land consumption. We need this to protect the environment and for the benefit of our future generations!

Hochegger: *Thank you for your time.*



Prof. Dr Mario Winkler
Head of Communications
Österreichische Hagelversicherung

About Prof. Dr Mario Winkler

Mario Winkler graduated as a Doctor of Veterinary Medicine in 2001. He then worked for the Austrian Chamber of Agriculture and for the European Commission, DG Agriculture and Rural Development in Brussels. In 2008, he joined the Österreichische Hagelversicherung as Head of the Animal Insurance Department. Mario Winkler also served as assistant to the CEO and deputy head of the branch in the Czech Republic, before becoming head of communications and marketing and press spokesman for the company in 2013.

About Österreichische Hagelversicherung

A specialist agricultural insurer, Hagelversicherung was founded in 1946 in Austria and is now also active in the Czech Republic, Slovakia, Hungary, Slovenia, and Romania. They specialise in weather risk provision for the agricultural industry in these regions, with a comprehensive product range, including hail, drought, flood, storm, frost and ten other risks

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Solutions Inspired by Nature Help the Property Industry Strengthen Its Climate Resilience

Erwin Soravia, CEO of SORAVIA, talks to Fritz Neubrand, Chairman of the Supervisory Board of the GrECo Group, about the property developer's responsibility in terms of sustainability, and how innovation and technology can strengthen the industry's climate resilience.

Neubrand: The property sector is one of the world's biggest emitters of CO₂ and is therefore a major driver of climate change. What strategic priorities and measures is SORAVIA taking to fulfil its responsibilities towards the environment and society?

Soravia: Sustainability has been firmly anchored in SORAVIA's corporate DNA for more than 140 years. We are deeply convinced that acting sustainably not only benefits the environment, but also pays off economically in the long term, and so with all of our projects we are always very ambitious when it comes to sustainability. We value old buildings and always do our best to preserve and carefully renovate them. We revitalise old factory buildings, or burnt-down historical gems - because it is sustainable, and because historic charm cannot usually be replicated with new construction.

We don't just renovate old buildings though. We create green living and recreational spaces by bridging existing motorways for modern urban developments, such as Triiiple, DANUBEFLATS, and TownTown. We are also developing neighbourhoods in which the essential infrastructure is within walking distance wherever possible to help reduce the number of cars on the roads; Our project Parkstadt Mülheim in Germany is a great example of how we aim to achieve this. And, whilst we are developing our buildings, we always have alternative energy concepts front of mind – our river water plant Rivergy on Vienna's Danube Canal supplies 10,000 people with CO₂-free energy, for example.

In addition, building affordable housing is a major concern for us. It is becoming increasingly important due to the current high level of inflation. Our subsidiary IFA AG alone has developed around 7,000 subsidised flats in recent

decades. The IFA Sustainability Bond has officially been listed by the International Capital Market Association (ICMA) as a "Sustainable Bond". To date, only a few bonds issued by Austrian companies have been included in this highly prestigious listing.

Inspired by nature: how termites are helping build the offices of tomorrow

Neubrand: ROBIN Seestadt, one of your innovative and sustainable property projects, is inspired by nature. This office complex, which is designed not to release any CO₂ emissions during system operation is a sustainability-lovers dream. Which of nature's master builders have inspired its design, and how can an optimal indoor climate be created without heating or air conditioning?

Soravia: The ROBIN office buildings in Seestadt stand as a testament to sustainable innovation, drawing inspiration directly from nature. Mirroring the ingenious natural ventilation systems of termite mounds, these structures showcase a unique approach to climate control. Let me explain how it works.

The termites produce a lot of heat in the mound. The warm air escapes upwards and the resulting negative pressure creates a suction that draws in fresh air. As a result, the termite mound is always well-ventilated, and the temperature inside remains constant. Similarly, ROBIN utilises the waste heat from people, lighting, and electronic devices for heating. The smart ventilation system uses sensor-controlled ventilation blades to regulate the temperature and CO₂ content, ensuring a consistently pleasant room temperature and unfailingly high air quality. This means the companies based here will never see heating or air conditioning costs again!

A closer look at the environmental balance sheet for sustainable property developments

Neubrand: In concrete terms what does this mean for the "environmental balance sheet" of ROBIN and for the costs of construction, operation, and maintenance?

Soravia: ROBIN produces zero CO₂ emissions for heating and cooling during system operation and it is already ÖGNB Gold pre-certified and EU taxonomy compliant. As far as construction costs are concerned, sustainability naturally has its price. We see it as an investment in the future, but one that can be well-controlled thanks to a high level of expertise and innovative capacity, and which has an immediate positive impact on lifecycle costs throughout property management process once it is completed.

ROBIN, for example, has excellent values for energy efficiency and lifecycle costs. By dispensing with the usual building services, there's no need to plan, procure and maintain them; the smart software minimises the maintenance costs. Above all, ROBIN sets a new standard in efficiency, slashing operating and energy expenses to just half of those incurred by traditional buildings. While the industry norm for operating costs hovers around 4 EUR per square meter, ROBIN impressively maintains an average of merely 3 EUR per square meter. Furthermore, the typical energy cost of 3 EUR per square meter is entirely eliminated with ROBIN, thanks to its innovative design that negates the need for additional heating and cooling expenses.

Neubrand: The three ROBIN buildings are being constructed in aspern Seestadt, one of the largest urban development areas in Europe. What is it about the location which makes it so perfect for your buildings?

Soravia: aspern Seestadt offers a real-time insight into the future of modern urban district development. By the 2030s, high-quality living space for more than 25,000 people and over 20,000 modern training and workplaces will be created here. It is perfectly connected, planned for the future, diverse and open. Some of our first buyers, are so convinced by the location and the plans for the area, that they bought off-plan, before the realisation of the buildings even began.

Managing changing risks brought about by new technology and innovation

Neubrand: Adapting the SORAVIA business model to sustainability goals is also changing SORAVIA's risk landscape. Be it through innovative construction concepts or simply the increased use of digital connections through smart services. What measures is SORAVIA taking in its company-wide risk management to anticipate and manage risks arising from these changes and innovations?

Soravia: As a property developer and investment manager, SORAVIA bears great responsibility towards society and the environment. Consideration of the most significant ESG

risks in a company's day-to-day business is essential for sustainable business success.

In the environmental sector, these include, for example, difficult access to the capital and investor market for non-sustainable property projects, high energy prices and the scarcity of fossil fuel resources, as well as sales problems with projects that are not sufficiently forward-thinking.

Our project development is at the forefront of innovation and sustainability. We are setting new standards with projects such as ROBIN and the Rivergy river water plant. In addition to managing our ESG risks, we are also becoming more attractive to and successful with our customers and investors.

Risk management and, as a sub-aspect of this, risk transfer, are generally a high priority at SORAVIA. We work closely with GrECo to favourably cover existing risks in the insurance market on the one hand, and to anticipate and manage emerging trends and risks in good time on the other.

Neubrand: Thank you very much for the fascinating insights into the world of SORAVIA. It is clear you are making a significant contribution to combating climate change and creating sustainable living spaces with ambitious sustainability goals and innovative solutions for the entire property development and its lifecycle. Others in the industry can, and should, learn a lot from you.

Erwin Soravia
CEO
SORAVIA



About Erwin Soravia

Erwin Soravia founded Soravia Baurträger GmbH in 1989 during his academic tenure. As CEO of SORAVIA, he views his role as pivotal in shaping the living spaces within Austria and Germany. In 2020, he was a key founding member of the Austrian Project Developers Association (VÖPE). Leveraging his extensive experience and a deep personal commitment, Soravia actively champions sustainable practices in property development, investment, and construction.

About SORAVIA

SORAVIA is one of the leading real estate companies in Austria and Germany, with a realized project volume of over 7 billion EUR. With over 140 years of experience in the construction and real estate industry, the name Soravia stands for expertise and continuity. Today, SORAVIA offers 360-degree real estate competence, covering the entire life cycle of a property for its customers and investors. Its core business covers areas such as project development, investment and asset management, hospitality, and property and facility management.

Additional investments, such as numa and Ruby Hotels, as well as LOISIUM, complement the portfolio. With all of its holdings, SORAVIA employs about 4,210 employees. For more information visit www.soravia.at

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Concrete Construction the Green Way: Innovative Perspectives for a Sustainable Construction Industry

Concrete, the most widely used building material in the world, poses two major sustainability challenges: It causes immense CO₂ emissions and requires enormous quantities of sand, which is becoming increasingly scarce. These problem areas require future-orientated solutions to provide new impetus and contribute to the sustainable transformation of construction with concrete.

The search for concrete ideas to overcome CO₂ emissions is on

Concrete is one of the most influential building materials of our time. It is durable, versatile and has outstanding structural and physical properties.

Concrete in various forms has been used for millennia to hold together structures such as the 2,000 year-old Pantheon in Rome to contemporary skyscrapers and expansive highway networks. The oldest concrete was found in a hut in Israel and dates back to around 7,000BC.

Nevertheless, despite its historic popularity and extensive benefits, this building material has one major disadvantage: it is responsible for 8% of global CO₂ emissions. To be more precise, cement is the real misdeed here. When combined with water cement acts as a binding agent that binds the grains of rock in the concrete together and gives the building material strength.

During the manufacturing process, however, CO₂ is produced as a by-product due to a chemical reaction. Added to this are emissions caused by the energy required to grind the raw materials, heat the kilns, and transport the cement. Innovation is very much in demand and people from a wide range of disciplines around the world are working to find a solution as quickly as possible.

Living concrete: How bacteria can replace CO₂-intensive cement

Naturally occurring bacteria can offer a solution for emission-free cement. Combined with a special solution, these bacteria can be colonised on small pieces of rock, and within a few days, they produce a cement-like material that can be reproduced at will. According to the researchers, the material is as hard as cement and the bacteria can work at room temperature, saving energy through reduced CO₂. What is more, this new cement reaches its optimal strength in just 72 hours, unlike conventional concrete which takes 28 days after hardening to reach this state.

While research into living concrete is ongoing at numerous universities, the US start-up Biomason has already launched biocement on the market in the form of a brick-like building block. Biolith® is already being used in projects in the USA and Europe, such as flooring in H&M Group stores. Biomason is striving to use biocement material to eliminate 25% of CO₂ emissions from the concrete industry by 2030.

Self-healing concrete: How bacteria is extending the service life of concrete

Bacteria is also being used to extend the service life of concrete structures through autonomous self-healing tech-

for maintenance or are very exposed to the weather. The longer service life of self-healing concrete and the savings on reinforcement due to the larger permissible crack widths leads to a reduction in CO₂ emissions and saves maintenance costs.

This idea is not only limited to new builds, the bacteria can also be applied to existing structures that are being refurbished. Dutch start-up, Basilisk is leading the charge in implementing a wide variety of these self-healing concrete solutions. The products are used in construction and renovation projects worldwide, such as tunnel renovation in Holland and in sewage treatment plants in Japan.

The global sand paradox: are we running out of sand?

Our lives are literally built on sand because concrete is predominantly made of sand, making this raw material the megastar of our age. A United Nations Environment Programme (UNEP) report stated that the world uses 50 billion metric tonnes of sand a year. And, according to the UNEP, a wall 27 meters high and 27 meters wide could be built around the equator with the annual consumption of sand in the construction industry alone!

It is the second most widely consumed natural resource, earning it the nickname "new gold". Water is the first. When you think of the vast quantities of sand in the world's deserts, you might think that the likelihood of the world running out of sand is almost impossible. The problem, however, is that sand from the desert is not suitable for producing concrete. The grains are too smooth, too round, and too small to be able to bond firmly with cement - an important prerequisite when producing building materials. As a result, the global demand for sand suitable for construction already exceeds the amount that is supplied by erosion and natural transport in rivers.

Studies by the University of Amsterdam have predicted that because we are dredging sand from our rivers at a rate faster than nature can replenish it, we are likely to have run out of construction-grade sand by 2050!

Political tensions, ecological consequences and natural disasters caused by sand extraction

Due to the increasing demand for sand, which has tripled in the last 20 years, sand mafias are flourishing. In addition to political tensions, extraction is having massive consequences for marine ecosystems and their inhabitants. In Indonesia, for example, coral reefs and fish are being lost due to sand mining and many families are losing income and their livelihoods. The Mekong Delta in Vietnam, has already sunk so far that formerly fertile fields have become salinized. The risk of natural disasters is also increasing. Riverbanks are becoming unstable due to sand extraction and consequently offer less protection against flooding.

Governments must enact legislation regarding sand harvesting, utilization, conservation, and trading, while also

spearheading regional initiatives aimed at curbing sand trafficking. But is that the only solution?

How the world's deserts could counteract the shortage of raw materials

Scientists around the world have stepped up their efforts to get a grip on the sand dilemma. The key question is: how can the approximately 95% of the world's sand that appears unsuitable by current standards be developed and utilised for construction purposes?

The German start-up MultiCON has the answers: In MultiCON's process, grains of sand are finely ground into rock flour and then pressed into pellets. By adding cement and water, the pellets can be processed in high-speed mixers to produce concrete that is even stronger than conventional concrete. Contracts have already been signed with Saudi and German companies for an initial pilot plant. The breakthrough of this technology, which enables the use of desert sand to produce building materials, could curb the devastating political and ecological effects of sand mining.

Bioeconomy as a business model

These technologies are just some of the many promising innovations integrating environmental protection and resource management into the construction industry's business models. The brief insight into the innovations of the three start-ups highlighted in this article illustrates that sustainability, as an essential cornerstone of the corporate strategy or business model, can combine economic opportunities for companies with ecological aspects of climate change.

In order to anticipate the short to medium-term effects on a company-wide risk profile, it is important to consider not only the opportunities (such as positive material properties) but also any risks that new technologies and products may entail for the company's own assets or potential liability towards third parties. Scenario analyses as part of an agile risk management process offer approaches for qualitative and quantitative consideration. The focus is on knowledge of the risk potential, i.e., risk transparency, regardless of whether this is to be borne by the company itself or passed on to the insurance market via risk transfer.

With the correct risk management in place, innovations such as these offer possible approaches to overcoming the current challenges for the building industry and open up a green path for concrete construction in which sustainability and efficiency go hand-in-hand.

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(Public) Contracting Authorities as a Force for Change for More Sustainability

Procurement law expert and thought leader Martin Schiefer helps companies to implement sustainable procurement in practice, among other things. He is driving this topic forward on various platforms, including keynote speeches and workshops for Climate Lab (www.climatelab.at), a climate protection initiative of BMK, Impact Hub, and numerous companies or organisations. In an interview with Laura Hoegger, Executive Assistant at GrECo Group, he explains why public clients have the strongest leverage for a sustainable future.

Public sector tenders provide the greatest opportunity for sustainable change

Hoegger: With a share of approximately 18% of GDP in Austria, public contracts provide one of the strongest levers for a sustainable future. What opportunities are there when tendering to take ESG criteria into account and which areas/sectors are particularly affected?

Schiefer: There is a quick answer to the last part of the question: all sectors are affected. Regarding the 18%: that doesn't sound like a lot at first, but it is the equivalent of more than 62 billion EUR that the state pumps into the economy every year via public contracts. An enormous sum that must be seen as an investment in Austria's future. Investing means rethinking public procurement law and focusing on sustainability, regionality and innovation. In procurement practice, there are many opportunities to take ESG criteria into account in tenders, such as weighting the award criteria in favour of ESG compliance.

In addition to the sustainability aspect, this approach has another important benefit for the client: It positions them advantageously with banks and insurance companies. Large and costly infrastructure projects in particular, need to be financed. Even if compliance with ESG criteria is

not yet required by law for the public sector (apart from compliance with the principle of "environmental performance"), banks and insurance companies must be guided by them. Banks want to have as green a portfolio as possible so that they can refinance themselves well. We have the same procedure with insurance companies. In a positive sense, this is already putting pressure on the public sector - and therefore also on the supplier who must be suitably qualified to meet the new criteria.

Driving change through the law

Hoegger: What developments can be expected when the EU Supply Chain Act comes into force?

Schiefer: On December 14, 2023, the European Parliament and the European Council reached a provisional agreement on the content of the European Supply Chain Act. After the directive finally enters into force, the EU member states will have two years to implement it. The Supply Chain Act obliges large companies with 500 or more employees and an annual turnover of at least 150 million EUR to respect human rights and environmental standards throughout their entire supply chain. Companies can also be held liable in civil court if they violate their duty of care. There is a threat of severe

penalties of up to 5% of net turnover. A gradual expansion of the law is planned so that small and medium-sized companies will also be affected in future. Implementation will certainly not be easy for them.

» The supply chain issue concerns each and every one of us. «

Nevertheless, I see this law as a great opportunity: the supply chain issue concerns each and every one of us. We must all be concerned that, for example, a clothing manufacturer does not source its goods from suppliers that use child labour. Or that no illegal deforestation or other environmental sins occur in the supply chain. The Supply Chain Act should not be seen as another act of formalism and bureaucracy. It is in fact a seal of quality that will work in Europe and across borders.

Regionality is key to sustainably managing the procurement process

Hoegger: The argument often put forward against sustainable procurement is that it is more expensive and is therefore not economically efficient. In construction, for example, one must consider more than just the construction costs. The entire building cycle is under the spotlight from planning the construction through to its operation and dismantling post completion. In public procurement, this means not only thinking economically, expediently, and economically within the legislative period, but also thinking about the longer term. And that's where the sustainable approach usually comes out on top. However, higher demands on contractors also mean a greater effort required to monitor them and their processes. How can clients manage many suppliers and their data?

Schiefer: This may come as a surprise, but in my opinion, the effort involved in procurement is manageable: you define which benchmarks you need and which specific certificates you want from contractors. The latter in particular - the certificates - can also be a substitute for verification. A certificate can be checked just as quickly as a criminal record extract. I therefore see the bidder having to make the most effort because they must invest time and money in attaining these certificates.

Hoegger: To what extent is the idea of sustainable procure-





ment already anchored in the minds of clients? Can you tell us about examples of best practices where ESG criteria have already been applied in tenders?

» *Focusing on regionality is one of the most important pillars of sustainable procurement.*

If there is now an even stronger focus on compliance with ESG criteria in this area, it will help sustainable procurement achieve a breakthrough. «

Schiefer: There are many examples of best practices, particularly at a local authority level. Municipalities are keen to keep value creation in the region through regional procurement. Focusing on regionality is one of the most important pillars of sustainable procurement. If there is now an even stronger focus on compliance with ESG criteria in this area, it will help sustainable procurement achieve a breakthrough.

Challenging the 'cheapest is best' mentality

Hochegger: Despite a sense of upheaval there is a feeling that sustainable action is not being mobilised at the necessary speed and scale. What do you think is needed for us to achieve a sustainable transformation?

» *Public procurement must be seen as a reward system.* «

Schiefer: I keep saying that public procurement must be seen as a reward system. Companies that operate and act in an exemplary manner in their sector must be given preference in tenders. How can this be achieved? By adapting the criteria accordingly and finally moving away from the principle of the cheapest bidder, which is still being pushed far too often. After all, sustainable procurement means rewarding the best in ecological, social, and economic terms - for the best long-term result.

Hochegger: Thank you for your time and insights.

Martin Schiefer
Expert in public procurement law
Schiefer Rechtsanwälte



About Martin Schiefer

Martin Schiefer is Austria's top expert in public procurement law and a partner in the law firm Schiefer Rechtsanwälte. He studied law at the University of Graz and started his career as a research assistant at the European Parliament in Brussels. Martin Schiefer has been a leading expert in public tenders for over 20 years and is one of the thought leaders in the field of public procurement law.

About Schiefer Rechtsanwälte

Schiefer Rechtsanwälte is the top public procurement law firm in Austria with headquarters in Vienna and further offices in Salzburg, Graz, Klagenfurt, and St. Pölten. The 50-strong team of experts led by partner Martin Schiefer has set itself the task of rethinking public procurement law: strategically, innovatively, and regionally. The firm's customers include prominent clients as well as decision-makers from politics, administration, and the private sector. Schiefer Rechtsanwälte advises and assists on tenders with high reputational risk in the areas of digitalisation & innovation, information & communication technology, health & social affairs, construction & infrastructure projects, mobility, energy supply, and compliance. In April 2023, Schiefer Rechtsanwälte was once again voted the top law firm in the field of public procurement in Austria in the renowned "Legal 500" ranking.

More information at: <https://www.schiefer.at>

Laura Hochegger
Executive Assistant
Strategy, Sustainability, Innovation
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Digitalisation Not Demolition: Developing the Circular Refurbishment Economy

*Steffen Robbi, CEO of Digital Findet Stadt tells
Laura Hochegger, Executive Assistant at GrECo Group about
how digitalisation can contribute to a sustainable transfor-
mation and risk minimisation in the construction and real
estate industry, especially in the circular economy and
in the refurbishment of existing buildings.*

Hochegger: *The construction sector accounts for 35% of the total waste generated in the EU and is also a huge consumer of resources. In your opinion, what are the most important levers for making the construction sector more sustainable?*

Robbi: For decades, the narrative of ecological sustainability in the construction sector consisted of reducing energy consumption and switching to fossil-free energy sources. More recently however, massive progress has been made in regulatory, technical, and economic terms. Energy saving and the switch to renewable energies have also become part of public perception.

The impact of the Circular Economy Action Plan on construction

However, the situation is completely different when it comes to the consumption of resources in construction. That which is a matter of course in waste management is only just beginning in construction. Driven by increasing scarcity (and now also rising raw material prices), the European Union initiated a paradigm shift in our entire economic system in 2021 with the Circular Economy Action Plan, which was developed as part of the Green Deal. It focuses on seven economic sectors, one of which is the construction industry.

The circular economy in construction begins with the design of products and construction systems. Firstly, in the future these must be non-destructively dismantled, separable into individual elements, and repairable. Secondly, to ensure that products can be reused, a higher degree of freedom from harmful substances is required. And thirdly, an increasing proportion of recycled material is being demanded and promoted in production itself.

» *That which is a matter of course in waste management is only just beginning in construction.* «

The circular economy is currently working well in downcycling, particularly in the use of demolition material for backfilling. The landfill ban for important construction materials (concrete demolition, asphalt, road demolition, technical fill material, etc.) came into force in January 2024. These building materials may no longer be sent to landfill, but must be sorted, processed, and reused. A requirement for the separability and reprocessing of plasterboard is also due to be adopted in 2024. To answer these new demands and ensure the construction industry is well prepared and can make the technical transition in terms of recycling, the first large-scale recycling plants have been commissioned or are in the pipeline.

The infancy of the reuse supply and demand market

However, the situation is different when it comes to the reuse of products and materials at an equivalent quality level, i.e., not recycling, but reuse. So far there is only a

very small supply and demand market. The first industrial partners are beginning to refurbish old wooden parquet floors and bring them back onto the market, used raised floors are being reused in large quantities, leasing models are being offered for lights and partition walls, and trading platforms for used building materials are emerging.

» *The situation is different when it comes to the reuse of products and materials at an equivalent quality level, i.e., not recycling, but reuse. So far there is only a very small supply and demand market.* «

The market is in its infancy, but it is growing. The transformation from a linear to a circular economic system cannot be solved purely technically with new construction principles; it also requires new business and financing models. As great a challenge as this may be, it also creates new business and growth opportunities for companies. It is an enormous lever in terms of sustainability and economic growth.

» *The transformation from a linear to a circular economic system cannot be solved purely technically with new construction principles; it also requires new business and financing models.* «

Attention to detail: Differentiating circular refurbishment from conventional methods

Hochegger: *Digital Findet Stadt is working with its partners to increase resource, energy and cost efficiency in the construction and real estate industry with the help of digitalisation. One of the Digital Findet Stadt projects deals with "circular refurbishment". How does circular refurbishment differ from conventional methods?*

Robbi: In line with the principles of the circular economy, avoiding the use of natural resources is the top priority. A building that does not have to be rebuilt is the most efficient building from a circular economy perspective. This means that the refurbishment and value retention of buildings is particularly important. As part of a circular refurbishment, it is important to reuse and refurbish as many of the available building materials and products as possible. It is only in the third step that consideration is given to the use of new products, (partially) based on recycled materials.

In contrast to conventional conversion work, circular refurbishment can only be achieved by carrying out a very detailed survey of the existing building. This is utilisation-oriented conversion and demolition instead of straightforward demolition. The inventory itself includes the creation of plans and documentation of the materials used, including their location in plans or 3D models. This goes far beyond the mere exploration of damaged and contaminated materials and requires experts with constructive knowledge as well as a creative aesthetic understanding - a certain creativity as to what things could be used for again is essential. As there is currently little experience in this area, we offer further training with leading experts at our Digital Akademie.

Once the inventory, documentation and evaluation of the existing buildings have been carried out, the recycling-oriented dismantling and conversion begins, in which all the materials that are to be reused or recycled are separated and processed according to type. As mentioned above, there are more and more industrial partners and trade companies that are taking on the task of reprocessing. However, the market is currently still small, and a great deal of personal commitment is required.

During the planning stage, particular attention is paid to the principles of separability, non-destructive dismantling, and freedom from harmful substances. It must be possible to separate, replace and repair building systems even after 20 years or more of operation or, ideally, to use them elsewhere. Ultimately, most projects will also require certification or other proof of their commitment to conserving resources. To this end, there are several providers of building certification that have integrated the topic of the circular economy as well as companies that create material building passports.

Digitalisation helps to minimise investors' risks

Hochegger: *How can digitalisation help to allay investors' fears of incalculable risks and refurbishment costs and thus promote the transformation to sustainable construction?*

Robbi: Digitalisation can help minimise risk for investors in many ways. Above all, it is about cost transparency in terms of ongoing control and quality assurance. It is becoming increasingly easy to develop, simulate and compare scenarios right from the preliminary design stage. The building resource passports mentioned above are not only used for final certification but can also be used for variant studies as part of the planning process. The more data is available in digital form, the easier and faster the decision-making process. Especially if planning changes have to be made later in the project.

An important tool here is Building Information Modeling (BIM), which offers the possibility of combining all necessary building data in specialist models and exchanging it between planning disciplines. This data can then be prepared specifically depending on the application.

Investors, for example, require information on areas, types of use, costs, etc., whereas the building physicists mentioned above require material types, volumes, and masses for the creation of building passports - all data that can be combined in a BIM model.

With and without BIM, it is becoming increasingly necessary to create a digital image of the building before construction begins. The increasing complexity and regulatory requirements can no longer be managed with analogue working methods. The digitalisation toolbox will be needed at the very latest when the EU Taxonomy Regulation forces companies to regularly provide data on the carbon footprint, energy efficiency, and resource consumption of properties and when investors must provide evidence of this data as part of audits.

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About Steffen Robbi:
DI Dr. Steffen Robbi is founder and managing director of the innovation lab Digital Findet Stadt, platform for digital innovations in the construction and real estate industry. Prior to this, he was Business Manager and Senior Engineer at the AIT Austrian Institute of Technology, where he was responsible for Digital Building Technologies. The digital transformation of the construction industry towards greater sustainability and productivity are the main driving forces behind his work.

About Digital Findet Stadt:
Digital Findet Stadt offers research and consulting services on digitalisation and sustainability, events and trainings for the industry at www.digitalakademie.at

You can find a current and free publication on the topic of the circular economy at SPRINGER Verlag under the following link: [E-book Digital basics for circular planning and building - Digital Findet Stadt](#)

For more information about Digital Findet Stat follow this link: [Digital Findet Stadt - The platform for digital innovations in the construction and real estate industry](#)

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In this publication you can find a handpicked assortment of articles from our latest campaign. While some pieces have been condensed here, you'll find the full-length versions on our website. Additionally, discover more content from previous campaigns - all conveniently accessible online. Don't miss out - scan the QR code for an even deeper dive into our world of risk thought leadership.

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