

# Resilience Creates Added Value

## A PRACTICAL GUIDE

How the sustainability principle of resilience creates entrepreneurial opportunities and corporate success



# Imprint



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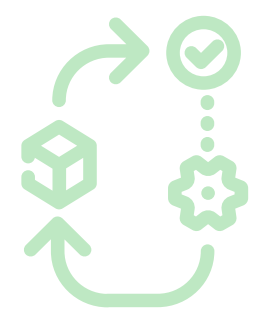
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# Content

|          |  |    |
|----------|--|----|
| <b>1</b> | <b>Foreword</b> .....  | 4  |
| <b>2</b> | <b>Welcome to the Multiple Crisis: New Realities in the VUCA World</b> .....     | 5  |
| <b>3</b> | <b>Resilience is More than Risk Management</b> .....                             | 6  |
| <b>4</b> | <b>Resilience as a Business Opportunity: A New Perspective</b> .....             | 8  |
| <b>5</b> | <b>Resilience as a Fourth Sustainability Principle</b> .....                     | 13 |
| <b>6</b> | <b>Resilience as an Opportunity for Sustainable Corporate Action</b> .....       | 14 |
|          | 6.1 Resilience in Strategy Development .....                                     | 19 |
|          | 6.2 Resilience in Sustainability Management .....                                | 21 |
|          | 6.3 Resilience in Innovation Management .....                                    | 23 |
|          | 6.4 Resilience in Business Model Development .....                               | 27 |
| <b>7</b> | <b>Resilience Matrix: Methods and Tools for Different Management Areas</b> ..... | 30 |
|          | 7.1 Strategic Management .....   | 31 |
|          | 7.2 Sustainability Management .....  | 32 |
|          | 7.3 Innovation Management .....  | 33 |
|          | 7.4 Business Model Development .....   | 34 |



# Foreword

Climate change, pandemics and war-related turbulence in energy supply and supply chains: **The multiple crisis is the new reality.** The overlapping and mutually influencing crises and disruptions create new framework conditions that affect the success or failure of established companies and start-ups alike. Against this backdrop, the concept of „resilience“ has experienced a renaissance in recent years.

Questions of disruptive robustness and the capacity for dynamic stability are not new. For decades, resilience has played a central role in fields as diverse as psychology, ecosystem research, climate science or crisis and risk management.

As our research shows, resilience has so far been understood and used in politics as well as in management sciences and corporate practice as a concept of crisis management and risk management. The dominant question here is how one can protect oneself, one's own organisation or the value chains and supply systems in which one is involved and make them crisis-proof. This risk perspective is important and existential, but it only illuminates one side of the resilience „coin“. It focuses on one's own „fitness“ under stress and crisis conditions.

Completely neglected so far is the question of how companies can support the resilience of their customers, partners and society as a whole with their products and services, in keeping with the exhortation of former US President John F. Kennedy: „Ask not what your country can do for you, but ask what you can do for your country.“

As our work with established companies and start-ups shows, the idea of resilience as a service stimulates new perspectives, opens up entrepreneurial opportunities and creates added value for society. We have therefore entitled this practical guide „Resilience Creates Added Value“.

It is aimed at companies, start-ups, business associations and funding agencies that want to know what resilience can do beyond risk



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management. In this guide, we introduce the concept of opportunity-oriented resilience and explain how the opportunity perspective can be successfully used for sustainable corporate action, based on company examples and four central corporate task areas (strategic management, sustainability management, innovation management and business model development). In this context, we understand resilience as a fourth sustainability principle that complements the principles of efficiency, consistency and sufficiency.

We would like to express our sincere thanks to the Deutsche Bundesstiftung Umwelt (German Federal Foundation for the Environment) for supporting us with the unusual idea of resilience as a service and for making this practical handout possible.

## 2 Welcome to the Multiple Crisis: New Realities in the VUCA World

The impact of numerous current crises poses new challenges for companies and their stakeholders.

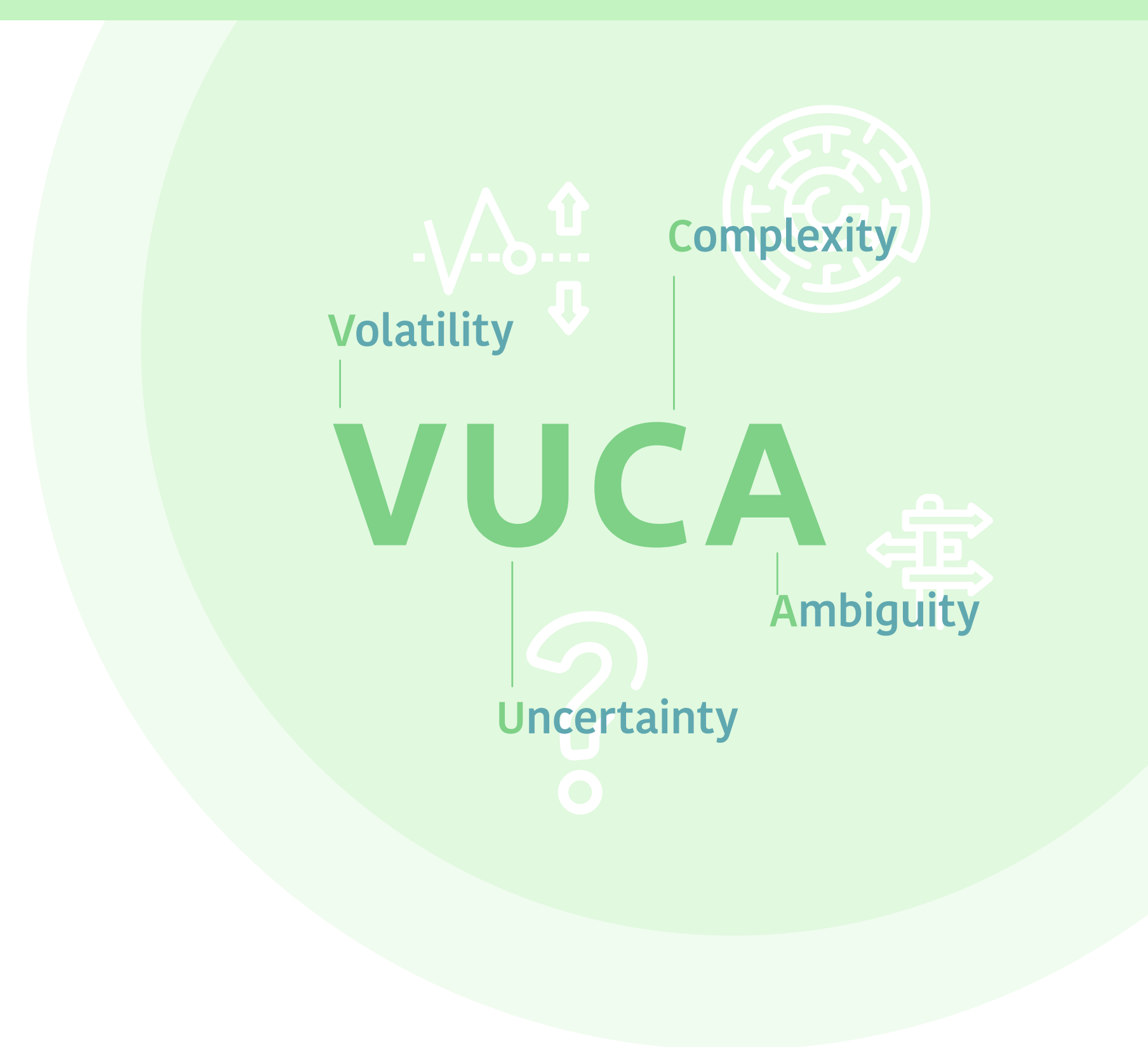
- » Climate change
- » Resource scarcity
- » Loss of biodiversity
- » Wars / terrorism
- » Pandemics
- » Migration flows

### What Does „Resilience“ Mean?

Resilience is the ability to adapt, reorganise or change while coping with disturbance.<sup>1</sup> The concept aims to improve and secure the ability of an affected organisation or ecological, technical, economic or social system to sustain its performance despite massive external disturbance and internal failures.<sup>2</sup>

The accumulation of multiple crises finds its expression in a „VUCA world“. The abbreviation „VUCA“ stands for volatility, uncertainty, complexity and ambiguity. The increasing volatility, uncertainty, complexity and ambiguity of a globalised and highly technical world increases the **risk of instabilities, disruptions, discontinuities and system breakdowns**. This increases the need for solutions that help buffer external disruptive impulses and maintain or dynamically develop the functions of value creation and supply systems. „Resilience“ has become a much-used buzzword in this context and describes the ability to successfully counter external disruptions through adaptation and innovation.

The term resilience goes back to the Latin word „resilio“, which means „to bounce back“. Resilience can thus initially be understood as the ability of a system, an organisation or a person to restore the initial state after a disruptive event or, from an organisational or systemic perspective, to maintain the basic functions of the system (bounce back).



In addition to this rather passive form, an active form of resilience (bounce forward) goes beyond the mere adaptation and survivability of a person, an organisation or a system and focuses on proactive action and the recognition of (entrepreneurial) opportunities. Change and learning processes also take place in a bounce-back approach. It is not a matter of, for example, a company having exactly the same structures, processes and decision-making patterns after a disruptive event. However, a bounce-back approach focuses on incremental adaptation processes.

# 3 Resilience is More than Risk Management

The resilience discourse has grown significantly in the last two decades, both in the management literature and in the public and political debate.

The increasing use of the term resilience can be attributed to terrorist attacks (9/11), disasters (Fukushima) or pandemics (coronavirus) as well as global megatrends such as climate change and digitalisation. Resilience is discussed in management literature and in corporate practice primarily under the following aspects.

- » Resilience as an entrepreneurial response to external disruptive events
- » Development of management processes to deal with external uncertainty
- » Resilience as an attribute to empower employees
- » Strengthening entrepreneurial resilience through the development of adaptive business models
- » Identification of requirements for the design of resilient value chains

The resilience discourse in management science is broad and multifaceted, but clearly focuses on hazard and risk aspects. Thus, resilience is primarily used as an approach for the development of concepts that aim to avoid or reduce risks in the corporate context when disruptive events occur. References are usually found in risk management, (preventive) crisis management or business continuity management. In the sustainability strategies of politics and business, the focus on protection against negative external influences or on contributions to strengthening the stability of (infra-) structures, people and nature also predominates in the reception of the resilience idea. Companies and start-ups are identified either as actors or as a target group to be promoted in order to strengthen resilience, but are hardly seen as proactive actors (bounce forward) with the corresponding skills/competences to promote or strengthen resilience.

The extensive evaluation of both the scientific literature and policy strategies and practice documents of companies and business associations carried out in the DBU-funded project “Resilience as an Opportunity for Sustainable Corporate Action” shows quite clearly: there is a lack of clearly defined, practice-oriented resilience concepts that are not only risk-oriented but also opportunity- and innovation-oriented.

The analysis of practical examples and the numerous dialogues with corporate partners in the project show that an opportunity-oriented resilience approach can create competitive advantages for companies and start-ups. The disruptions and disruptive changes caused by the VUCA world have so far often led to disaster learning. Here, a short-term perspective and strategy to cope with current disruptive events usually prevails. The breaking up and changing of structures in the sense of a sustainable transformation rarely takes place.





## Software Solution for the Analysis and Management of Physical Risks

For reinsurers, the risk assessment of potential loss events is becoming increasingly complex. However, they have an extensive databases at their disposal, which offer entrepreneurial opportunities.

Against the background of past risk assessments, loss events that have occurred, modelling and scenarios, however, reinsurers have a knowledge base that relates, for example, to the probability of occurrence of natural disasters.

Reinsurers can also use this knowledge base beyond their core business and, for example, offer modular software-as-a-service solutions with global evaluations of natural catastrophe and climate change risks. This strengthens the resilience of clients and creates added value for them.

# 4 Resilience as a Business Opportunity: A New Perspective

Although the concept of resilience has played a central role for decades in various fields of knowledge and action such as psychology, climate science or crisis and risk management, hardly any concepts for an opportunity-oriented use of the resilience idea can be found in the management and practical literature so far.



We have therefore developed a concept that combines four fundamental perspectives:



**Opportunity perspective**

1



**Multi-level perspective**

2



**Business model perspective**

3



**Sustainability perspective**

4

With regard to companies, we have formulated a guiding question for each of these four perspectives. The figure on [page 9](#) shows the questions and their interrelationship.

We assume that the VUCA megatrend and the multiple interrelationships of simultaneous crisis phenomena will result in a growing need for resilience among different groups in society. The growing need for resilience is articulated by the various stakeholders. It is already leading to the need for solutions for a secure, affordable and ecologically sustainable energy supply or climate-adapted agriculture, for example, and will do so to an increasing extent in the future. This opens up new business opportunities. The start-up SeedForward GmbH from Germany is taking advantage of this challenge and has developed an innovative seed coating for regenerative

agriculture that makes plants more robust in the face of increasing extreme weather events. The product performance leads to a clear benefit for the farmers, who perceive it as added value. In the end, however, it is not only the customers of SeedForward GmbH who benefit, but entire supply systems. The security of food supply from organic farming and regenerative agriculture is increased. The resilience of the value creation and supply systems increases. The combination of different sustainability principles (efficiency, consistency, sufficiency and resilience) creates added value (impact) for society as a whole (cf. [Chapter 5](#)).

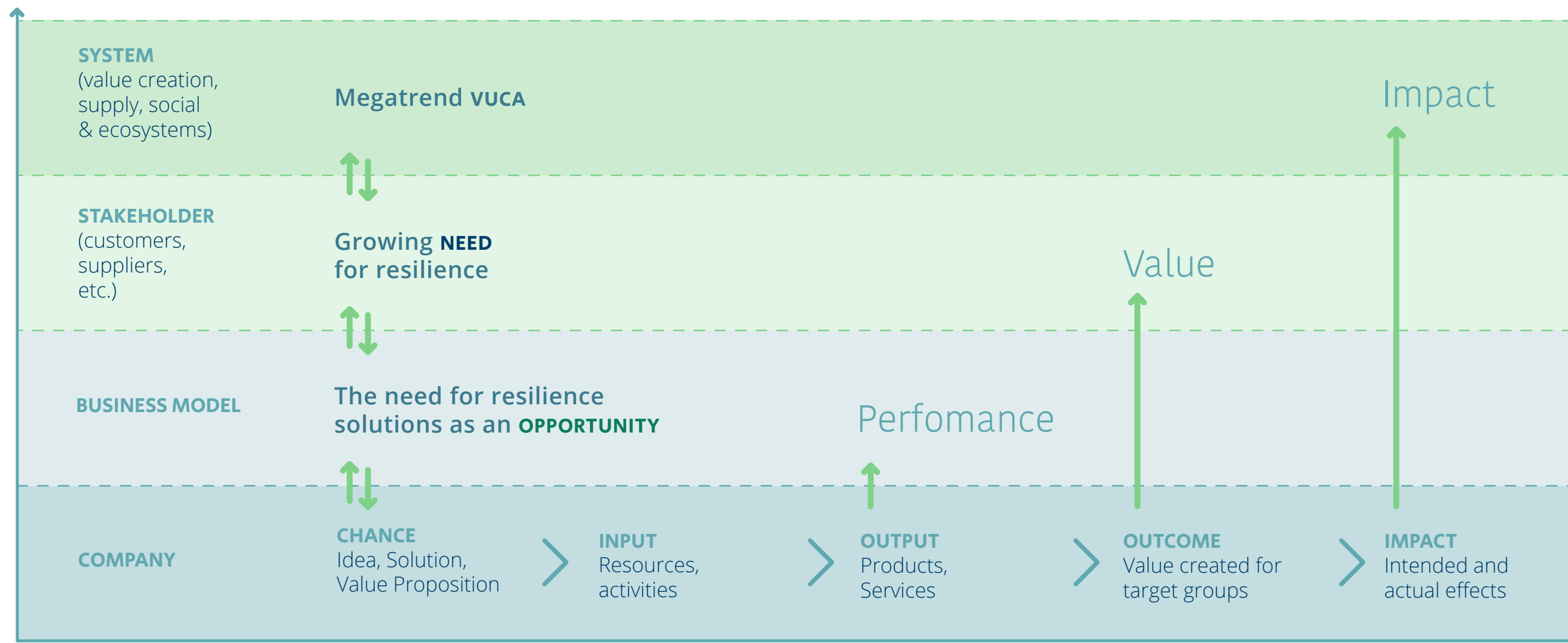


# An Opportunity-Oriented Resilience Concept

for Corporate Sustainability Action

**1**  **OPPORTUNITY PERSPECTIVE**  
What business opportunities does the growing need for resilience open up?

**2**   
How do entrepreneurial opportunities develop in a **MULTI-LEVEL PERSPECTIVE**?



**4**  **SUSTAINABILITY PERSPECTIVE**  
What do resilience-oriented business models achieve?

**3**  **BUSINESS MODEL PERSPECTIVE**  
How can sustainable business models be developed from the growing need for resilience?

An opportunity-oriented resilience concept: How crises can be turned into entrepreneurial opportunities and innovative services with social impact



*The Home Coming Days for our alumni from the part-time MBA programme Sustainability Management in 2022 was dedicated to the topic „Resilience: Facing Crises powerfully“. It became clear that it is not only about making one’s own company resilient to disturbance, but that it is also about responsible entrepreneurship that sees itself as a problem solver and as a „supplier“ of resilience solutions for others. This creates added value for society.*

**PROF. DR. DR. H.C. STEFAN SCHALTEGGER**  
Leuphana University Lüneburg

#### Methods and tools

## The Example of Sustainable Value Designer

Various methods and tools were selected and tested in the project for the identification and use of entrepreneurial opportunities (cf. [p.30](#)). These include the **Sustainable Value Designer**, a method of sustainability-oriented business model development<sup>3</sup>. It can be used to identify and develop products and services that ensure and strengthen the **resilience of customers, value chains or entire supply systems**. The development of needs-oriented resilience takes place in three steps.

These steps are explained in more detail on the following [page \(11\)](#).

<sup>3</sup> Zorn, C. & Fichter, K. (2021). Sustainable Value Proposition Designer. Anwendungsleitfaden zur Erarbeitung eines nachhaltigkeitsorientierten Nutzenversprechens. Berlin: Borderstep Institute

# The Development of Needs-Oriented Resilience Takes Place in Three Steps

## 1 Value Mapping

List all products and services around which the value proposition of your business model is built and answer the following questions:

- » Which products and services fulfil which functional, social or emotional “jobs” for customers and users?
- » How do they contribute to making value chains and supply systems safer and maintaining them in the event of disturbances?
- » To what extent is resilience relevant for your products and services or can resilience aspects be integrated into them?
- » To what extent does a VUCA-related problem eliminate or reduce the value proposition?
- » What are the consequences for your value proposition?



Use of the resilience perspective in the development of value propositions and product-market fit

## 2 Resilience-as-a-Service as a Gain Creator

Describe how your products and services add value that your customers/stakeholders expect, desire or are surprised to receive. Answer the following questions:

- » What resilience aspects add value to your value proposition?
- » To what extent do the products or services help build resilience, flexible stability or resilient structures?
- » To what extent do the products and services contribute to creating a good balance between resilience, efficiency, consistency and sufficiency?

## 3 Resilience-as-a-Service as a Pain Reliever

Finally, in step 3, describe how your products or services alleviate the problems and pains of your customers and stakeholders.

- » How do they eliminate or reduce unwanted costs, negative emotions or risks experienced by your customers and stakeholders?
- » To what extent can a VUCA-related problem of customers, stakeholders, value chains or supply systems be solved?
- » To what extent can the products and services contribute to reducing the likelihood of a disruptive event occurring?
- » To what extent does the solution help to reduce the extent of damage caused by a disruptive event?



Opportunities through strengthening the resilience of customers and society

## Resilience-as-a-Service as a New Business Model Pattern

The question of how business models can support sustainable entrepreneurship has received increasing attention over the last decade. Sustainable business models are understood here as entrepreneurial activity systems that are associated with positive impacts and/or significantly reduced negative impacts on society and the environment.

So far, various classifications and „models“ of sustainable business models are available for practical use. These are intended to help those responsible in companies and start-ups to develop value creation architectures and revenue models that are both profitable and create a positive social and ecological impact.

One of the most developed and elaborated classifications of sustainable business models comes from Lüdeke-Freund, Breuer & Massa (2022). It is derived from numerous practical examples and distinguishes 45 patterns of sustainable business models. These describe an environmental, social and/or economic problem that arises or is addressed when an organisation wants to create

value, and it describes the core of a solution to this problem that can be repeatedly applied to a variety of paths, situations, contexts and domains. Resilience issues are not considered in the business model templates available so far. We therefore propose a systematic expansion to include the business model pattern „Resilience-as-a-Service“.



### What is Resilience-as-a-Service?

The Resilience-as-a-Service (RaaS) business model pattern addresses the sustainability problem of securing or increasing the resilience of a customer (organisation or individual) or a technical, economic, social or environmental system that the customer depends on or cares about. The core value proposition of RaaS is resilience for clients, systems and society. RaaS delivers and captures value through products and services that secure or enhance the resilience and innovation capacity of the client or its relevant surrounding systems.



*The concept of opportunity-based resilience expands the discussion on sustainable business models. The 45 patterns of sustainable business models that we have identified based on numerous company examples over the years can now be complemented with the sustainability-related concept of „Resilience-as-a-Service“. This concept enables numerous new business model patterns and fills an important gap. It also provides new impetus for systematically thinking about the sustainability principle of resilience as a business opportunity.*

PROF. DR. FLORIAN LÜDEKE-FREUND  
ESCP Business School Berlin





*The concept of resilience fills a gap in sustainability management: we can better understand how to ensure dynamic stability and prevent system collapse.*

**ALEXANDER BONDE**  
Secretary General of the Deutsche Bundesstiftung Umwelt (German Federal Foundation for the Environment)



## 5 Resilience as a Fourth Sustainability Principle

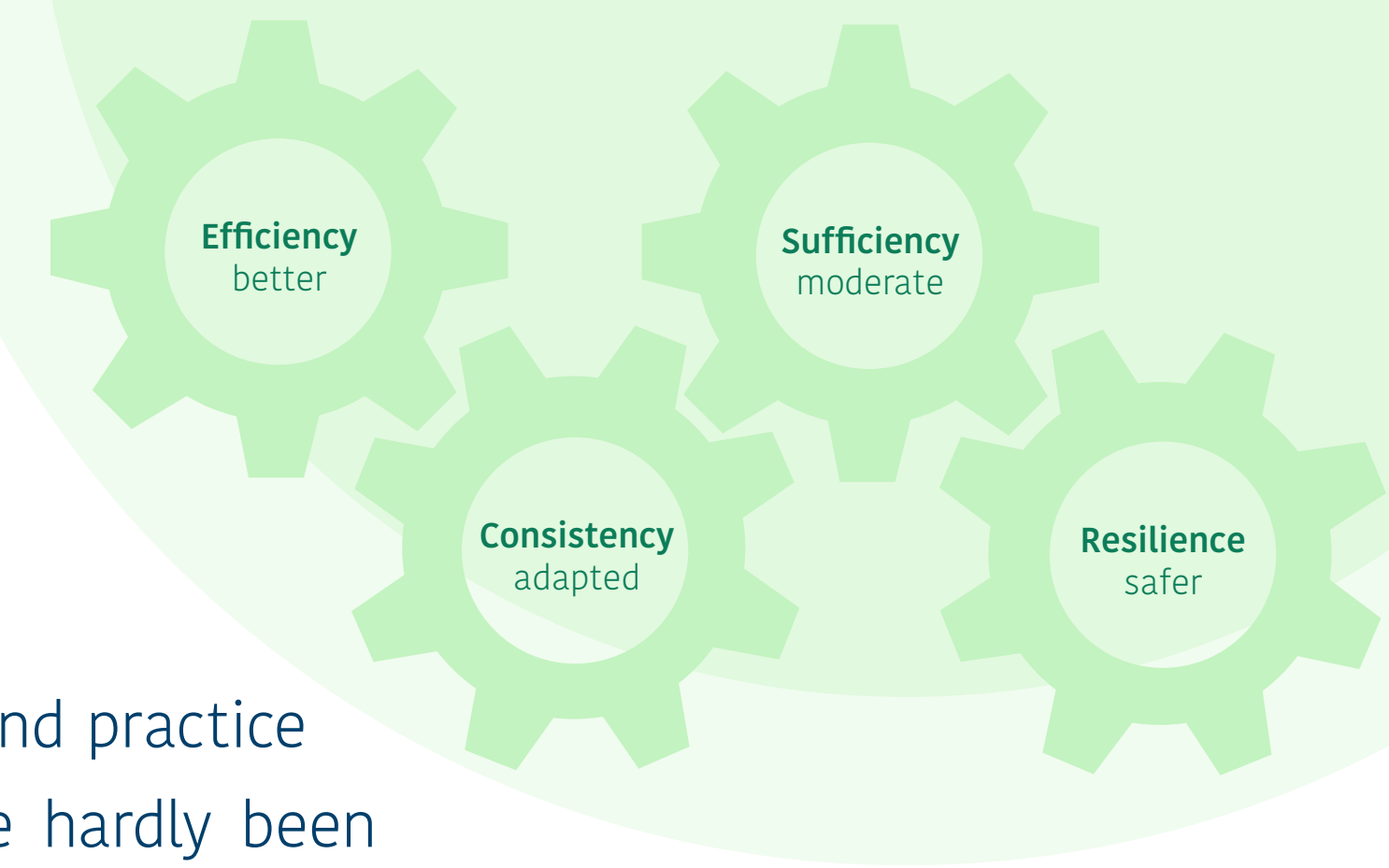
As an extensive evaluation of policy strategies, scientific literature and practice documents shows, the resilience and sustainability discourses have hardly been linked so far. This is surprising insofar as both discourses are concerned with the conditions for long-term dynamic stability and the avoidance of system crashes.

A systematic clarification of the relationship between these two concepts has hardly taken place so far. Basically, there are three ways to relate them: (1) resilience as a component of sustainability, (2) sustainability as a component of resilience, and (3) resilience and sustainability as separate goals. We follow the first category here, as the substantive scope of the sustainability construct is much broader and resilience can be systematically defined as a sustainability principle.

The idea of using resilience as a guiding concept for the design of socio-technical systems goes back significantly to work by Gleich et al. (2010), which origi-

nated in the context of climate adaptation research. Building on this, resilience can be understood as a fourth sustainability principle alongside efficiency, consistency and sufficiency. Efficiency strategies of companies aim to improve the use of resources in the company or in the value chain in order to increase productivity. The basic idea is „better“. Consistency strategies, on the other hand, strive to replace environmentally harmful resources with environmentally friendly and harmless resource flows and to adapt these to natural cycles or to lead them in a circle („adapted“). Sufficiency strategies aim to reduce resource consumption and support sustainable consumption patterns („moderate“).

Although all three principles are essential for achieving sustainability goals, they do not address the most fundamental aspect of sustainable development, namely system stability and the avoidance of collapse of ecological, social or economic systems. Therefore, the concept of resilience can fill this blind spot in the concept of sustainability. Resilience, as the fourth sustainability principle, aims to improve and secure the ability of an organisation, client or ecological, technical, economic or social system to maintain its performance despite massive external disruptions and internal failures („safer“).



# 6 Resilience as an Opportunity for Sustainable Corporate Action: Starting Points in Four Management Areas

## Need and occasion

In many cases, companies and start-ups do not yet recognise the need for an opportunity-oriented approach to resilience because this new perspective is unfamiliar and no explicit approaches are available in the context of the complex VUCA world. Thus, there is a need for appropriate methods, formats and cooperation opportunities that sensitise for an opportunity-oriented resilience approach and initiate the integration and implementation in management processes. By systematically addressing resilience-related entrepreneurial opportunities, established com-

panies and start-ups can help customers and stakeholders with their products and services to successfully respond to external threats, ensure value creation processes, strengthen the resilience of employees and redevelop or adapt business models. For example, the start-up SPARETECH (<https://en.sparetech.io>) provides a SaaS solution for the digitalisation of industrial spare parts management which increases the resilience of value chains by procuring spare parts at the time of actual need on the basis of failure and wear forecasts, thus reducing storage costs.

The ordering of spare parts can also be automated on the basis of data. Start-ups such as SPARETECH offer appropriate solutions here and thus strengthen the resilience of the value chains of customers from large-scale industry.

An opportunity-oriented resilience approach can act as a „door opener“, as here, against the backdrop of multiple crises, the urgency of action is linked to entrepreneurial opportunities. It is therefore to be expected that the demand for resilience solutions that strengthen the resilience

of customers, stakeholders and society will remain high or even increase.

Against the backdrop of increasing flood hazards, for example, the demand for mobile flood protection systems is increasing. A tube dike can be quickly filled with water, the length of the tube dike is flexible and the system is reusable. To strengthen the resilience of society in another area, suppliers of the hose system are also developing the range further for use as a mobile vehicle barrier for terror defence.



**YVONNE ZWICK**

Chairwoman B.A.U.M. e.V. - Netzwerk für nachhaltiges Wirtschaften  
(German Network for Corporate Sustainable Management)

*Thinking of resilience as a business opportunity and as a service for others opens up new perspectives for sustainable corporate action. This is a very good impulse for B.A.U.M. e.V., a network with almost 800 members that is committed to sustainable business within planetary boundaries, and we are happy to take it up. Sustainable economic activity is only possible if one is not only resilient oneself, but also ensures the resilience of the entire value creation system through adaptation and innovation.*

## Forms of Implementation/ Approach

As the cooperation and dialogues with companies in the project have shown, an occasion-related problem and pressure to act often forms the starting point for dealing with resilience and an opportunity-oriented perspective.

This perspective helps companies and start-ups to discover new ideas and possible solutions. For example, the German Supply Chain Duty of Care Act has an impact on the management processes of companies. Therefore, it is necessary for companies to make appropriate preparations to comply with the requirements. Obtaining the additional sustainability information involves a survey effort. Instead of simply requesting information, there is also the possibility of proactively advising suppliers on sustainability aspects. This could be developed as a „Resilience-as-a-Service“ offer. Such an innovative service offer can be provided by the company itself, in cooperation with partner organisations or by external parties. For-profit and non-profit business models are conceivable.

### Examples of occasions where an opportunity-oriented resilience perspective helps



**Customer complaints:** A VUCA-related customer problem eliminates or reduces the benefit of the product/service offered.



**Changes in demand:** The effects of VUCA megatrends lead to decreasing or fluctuating demand.

- » Central competitors are less affected by the impact of VUCA megatrends due to their business model / value creation.
- » Due to the consequences of VUCA megatrends, key resources are only available to a limited extent.
- » The value chain is disrupted by impacts from VUCA megatrends. Key activities are therefore affected.
- » Central key partners are strongly affected by the impact of VUCA megatrends.



**Supply Chain Duty of Care Act:** The requirements to review the supply chain from a social and environmental perspective offer, for example, the opportunity to uncover deficits in the suppliers' resilience to disruptions and risk of failure and to make them fit, for example, with specialist consultations to increase their resilience (“resilience-as-a-service”).

There are many different definitions of resilience in management literature. In corporate practice, too, there are various approaches and diverse points of reference on the topic of resilience. Overall, there are hardly any opportunity-oriented references to be found so far. It is therefore important to clarify one's own understanding of resilience and to examine where it offers the greatest added value in one's own corporate practice.



**Two different opportunity perspectives on resilience**

Companies can adopt two perspectives if they want to adopt an opportunity-based approach to resilience.

How do I strengthen the resilience/  
fitness of my own company?

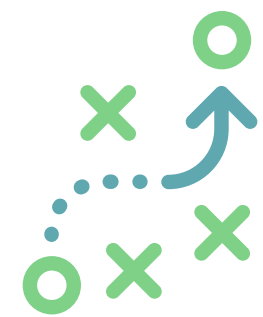
**How can the company contribute  
to strengthening the resilience of  
stakeholders/society/environment?**

In the spirit of resilience as added value, the **focus** in this guide is **on the second perspective**.



## Starting Points in Four Management Areas (1/2)

The analysis of the historical development of the resilience concept in management literature and in corporate practice has shown that for sustainability-oriented corporate action, the following management areas in particular offer starting points for an opportunity-oriented understanding of resilience:



### Strategic Management

Sustainability-oriented corporate strategies could be strengthened by taking resilience principles into account, as strategy development based on resilience principles looks beyond the boundaries of one's own organisation and thus seeks co-creative solutions together with business partners and social actors.



### Sustainability management

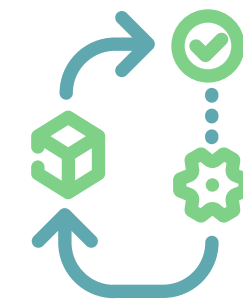
The concept of resilience is becoming increasingly important in sustainability management. However, the question of what contribution companies can make to socio-ecological resilience has so far been insufficiently prepared for sustainability management. Thus, resilience as a fourth sustainability principle can contribute to system stability and the avoidance of collapses of ecological, social or economic systems. Expanding established sustainability management processes and systems to include this resilience-oriented perspective offers the potential, for example, to more systematically capture the added value created for direct and indirect stakeholders.

## Starting Points in Four Management Areas (2/2)



### Innovation management

While resilience is considered a key concept in various disciplines and in interdisciplinary research, it has received little attention in the literature on innovation. In the innovation context, resilience can initially be understood as the ability to self-renew through innovation. Innovative capacity is thus a basic prerequisite for entrepreneurial resilience, as innovative companies tend to constantly and continuously anticipate a variety of crises and adapt proactively.



### Business model development

The two different perspectives on resilience have not yet been systematically taken into account in business development issues. However, resilience is an essential success factor for many business models in times of multiple crises. On the one hand, it is a matter of strengthening resilience in one's own value creation processes. The focus is on the direct and immediate effects of potential disruptive events. On the other hand, a resilience perspective has not yet been explicitly adopted in the analysis of customer benefits. In the sense of „resilience as added value“, entrepreneurial opportunities arise here that even go beyond direct customer benefits and can, for example, also show added values for overall societal value creation, supply, social and ecosystems.



## 6.1 Resilience in Strategy Development: the Example of an Energy Supplier

Conflicts of objectives often arise for companies, as a lack of information about the type, probability and time of occurrence of VUCA-related events and the sustainability-relevant impacts increases uncertainty in strategic decisions.

The effects of VUCA megatrends are particularly noticeable for energy suppliers against the backdrop of the climate and energy crisis as well as the consequences of the corona pandemic and the effects of the Ukraine war. On the one hand, regional energy service providers are systemically relevant for a region by ensuring a supply of electricity and gas, among other things, and on the other hand, organisational resilience must be taken into account at the same time.

For example, the customer service of energy suppliers is doubly affected. On the one hand, customer enquiries and problems are increasing against the backdrop of the climate and energy crisis, and there is a need to strengthen customer resilience. On

the other hand, the employees in customer service are feeling the effects of the “stack crises” through high workloads, backlogs of customer enquiries, restructuring, system introductions as well as increasing sick leave. This raises questions of personal and organisational resilience.

At the same time, there is a potential for entrepreneurial opportunities if existing knowledge about the needs and resilience conditions of customers and employees is used. This knowledge can be a source for improving business performance and developing innovative new services and business models.



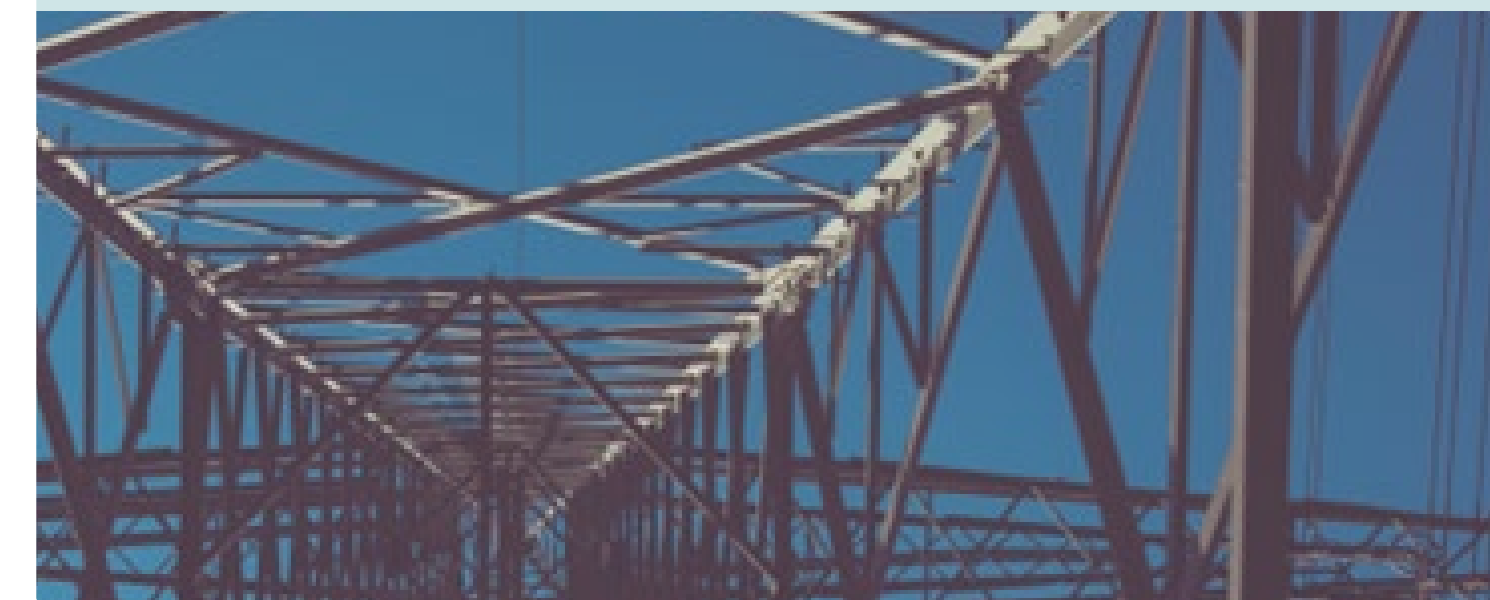
*The war-related turbulence on the energy markets is reflected in the concerns and queries of our customers. This increases the number of customer enquiries and increases the burden on our employees in customer service. At the same time, the energy turnaround with new products and services as well as changing customer requirements are having an impact on EWE. The trick is to maintain an efficient service for our customers at the same time as making organisational adjustments and innovations.*

*This “two-handedness” is supported by an opportunity-oriented understanding of resilience.*



**DOMINIK DUBBER**

Energy and Telecommunications Customer Services Centre, Head of Billing & Payment, EWE AG



The following strategic questions have been dealt with within the framework of the project in cooperation with an energy supplier.

- » How can the resilience of the customer service be guaranteed and strengthened in the face of the current crises?
- » How can the performance of the customer service (in the routine process) be guaranteed and at the same time improvements and innovations be tackled?
- » What approaches are there to provide information and services that ensure and strengthen customer resilience?



### The task involved three steps:



**Conduct interviews with different employees** who are entrusted with customer service in different roles/functions. For this purpose, a suitable interview guideline had to be developed and the interviews had to be conducted and documented. In addition, it had to be examined which concepts or methods are suitable for this.



**Systematic evaluation of the interviews** with regard to the guiding questions.



Processing of the results and **development of suitable methods and measures** to create the preconditions for the implementation of resilience as added value by increasing organisational resilience of the customer service.



## 6.2 Resilience in Sustainability Management: The Example of Food Companies

Depending on the size of the company, the German Supply Chain Duty of Care Act has a direct or indirect effect on companies in the food sector via the trade. This means that the obligations arising from the Act are passed on to food businesses either directly due to the size of the business or indirectly via the trade.

In particular, companies in the food industry that source their raw materials from a global supply chain need to adapt their sustainability management accordingly. This includes the implementation of measures to prevent and remedy human rights and environmental risks at suppliers in order to strengthen the resilience of relevant supply chains. Systems and processes, such as supply chains, must therefore not only meet defined quality, cost and time requirements, but also be designed to be resistant to disruptions and as fail-safe as possible in order to ensure their socially desirable economic function.

For example, existing sustainability assessments of the suppliers of a company in the food industry did not include resilience issues. Up to now, the sustainability risk of suppliers has been assessed on the basis of a catalogue of criteria. Based on the evaluation of this information, discussions have been held with suppliers in order to implement measures for action at the suppliers. The challenge for the company is that the identified measures have to be implemented and further preventive measures have to be implemented in addition to the procurement of information. In addition, an opportunity-oriented resilience perspective has not yet been taken into account.



*As Rügenwalder Mühle, we pursue the claim with our sustainability commitment: „We do not act today at the expense of tomorrow and here not at the expense of elsewhere.“ The opportunity-oriented resilience approach that we learned about in our collaboration with the University of Oldenburg has enabled a broader perspective on our sustainability management, e.g. when looking at our supply chains. The targeted search for weak points and increasing the disruption resilience of our suppliers contributes to the sustainability of the entire value chain.*

**CLAUDIA HAUSCHILD**  
Head of Corporate Communication &  
Sustainability Management, Rügenwalder Mühle



The following challenges, among others, were worked on within the framework of the project in cooperation with a food company. The focus was on innovation ideas for supply chain-related sustainability management.



**Environmental and social sustainability opportunities through backward integration of raw materials in the supply chain**

A method (opportunity-risk matrix) has been developed for prioritising strategic opportunities and risks arising from the backward integration of selected raw materials. In addition, recommendations for action have been derived to what extent business ideas can be generated through backward integration and innovation and sustainability potentials can be tapped.



**Expanding the sustainability disclosure of suppliers to include resilience issues**

The extent to which existing sustainability information is suitable for capturing resilience-related opportunities and risks has been examined. Recommendations for action for resilience monitoring were developed.



**Development of a resilience assessment method for purchasing and sustainability management**

The focus of the developed resilience assessment method is on ecological and social aspects.



**Increasing resilience among suppliers for selected raw materials**

A process has been proposed to increase resilience among suppliers for selected raw materials. It has been examined whether possible business models can be identified to support small and medium-sized suppliers, especially in environmental and social issues.

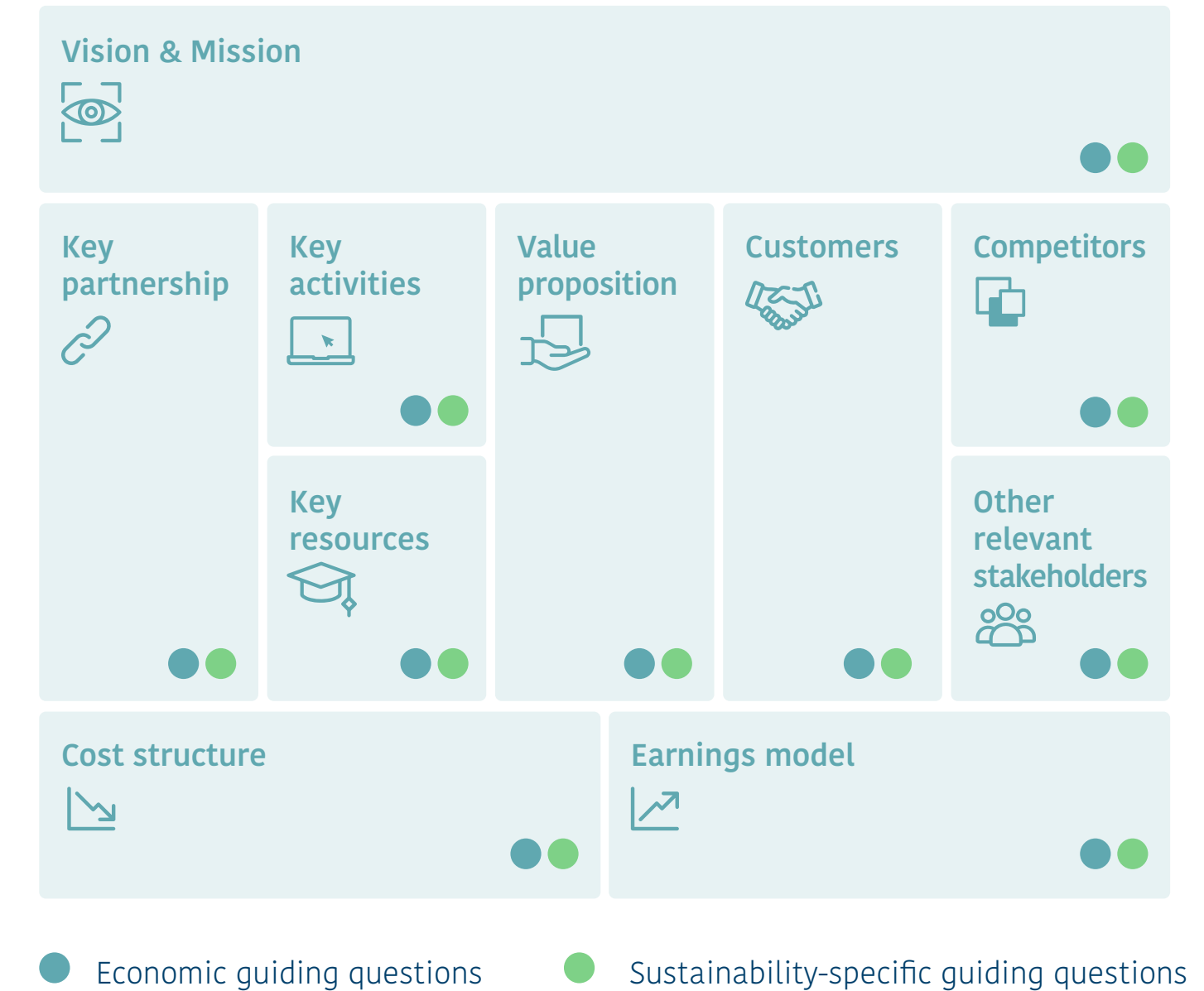


## 6.3 Resilience in Innovation Management Using the Example of Co-Innovation between Students and Companies

In recent decades, the ways in which new products, services or processes are developed and successfully implemented have become more diverse. Based on the guiding principle of „open innovation“, innovation processes today are characterised by extensive cooperation across company boundaries.

In recent years, a novel approach to knowledge transfer between universities and business has also developed that combines concepts of problem- and project-based learning by students with co-operative innovation processes by students and companies. The Chair of Innovation Management and Sustainability at the Carl von Ossietzky University of Oldenburg can draw on over ten years of developing and testing co-innovation processes here.

In the DBU-funded project „Resilience as an opportunity for sustainable corporate action“, the approaches were used specifically to integrate questions of resilience into idea and innovation management. As part of the innovation management module, the concept of opportunity-oriented resilience was taken up in co-innovation processes by students and companies for the first time in the winter semester 2022/2023. The Resilience Challenge cooperation format developed for this purpose used the concept of resilience to generate ideas and develop innovative sustainability solutions for companies.



Source: Tiemann and Fichter 2016, p. 7.

Mixed teams of company employees and students jointly developed innovative ideas for opportunity-oriented resilience approaches.

Among other things, the concepts of design thinking were expanded to include aspects of resilience. Student groups of four to six people worked on defined challenges for several weeks together with topic mentors from the companies. Under the supervision of the teaching team, the student groups were then able to develop appropriate solutions and proposed methods, which were presented to the companies and provided free of charge for further use.



**1 Background and initial situation:**

German Supply Chain Duty of Care Act and its repercussions for food businesses. Cf. the description at the beginning of [chapter 6.2](#).

**2 „Challenge“ formulated by the company for the students:**

Obtaining additional sustainability information involves a survey effort for our company. Instead of simply requesting information, there is also the possibility of proactively advising suppliers on sustainability aspects. This could be developed as a „sustainability-as-a-service“ offer. Whether such an innovative service offer should be offered by the company itself, in cooperation with partner organisations or by external parties, and whether it should be a for-profit or a non-profit business model, needs to be examined.

**3 Solution approach of the students:**

With the help of creativity methods, the student team first developed ideas for the challenge and selected the best ones using systematic evaluation approaches. In addition, with the help of the so-called “turtle model”, the central external influencing factors (regulatory push & pull, market pull, etc.) and internal company forces for the realisation of the idea were worked out. A business model was then developed for the selected consulting approach “Sustainability-as-a-Service” with the help of the Sustainable Business Canvas (cf. [figure on p. 23](#)). It is entitled “Green Mill Consulting”. Two exemplary fields (vision and mission) are presented below:

**Vision**

“Green Mill Consulting stands for a resilient future hand in hand: where farmers of critical raw materials for the food sector contribute significantly to a socially and environmentally sustainable future through training and development measures. Our goal: to strengthen our supply chain resilience through social and environmental sustainability and create global social and environmental added value!”

**Mission**

“Creating value and worth: At eye level, directly on site with the farmers of important raw materials for the food sector, their social and ecological sustainability is checked, trained and certified in the sense of the German Supply Chain Duty of Care Act. Making them capable of action in order to create resilience - for the farmers, but also for our company. Our values: transparency, responsibility and justice.”

Example of task and solution approach in a co-innovation process between students and companies



Various innovative resilience solutions have emerged from collaborations between the University of Oldenburg and medium-sized companies in recent years.

These include the climate construction materials of the HanseGrand company from Selzingen in Lower Saxony, Germany. The family-run company began developing materials and systems for resistant and climate-adapted road surfaces more than ten years ago. Due to climate change, weather extremes such as heavy rain and droughts are becoming more frequent. This poses completely new challenges for road construction. A central task here is to mix a wide variety of building materials and use them to develop building materials adapted to climate change, so-called „climate building materials“. To this end, HanseGrand cooperates with several laboratories and also conducts its own research.



*At the Climate Service Center Germany (GERICS), an interdisciplinary team develops scientifically based prototype products and services to support decision-makers from politics, business and public administration in adapting to climate change. For this purpose, regional climate change information is used, climate parameters are calculated and site-specific analyses are prepared. There are major links between an opportunity-oriented resilience approach and entrepreneurial adaptation to the consequences of climate change. The idea of ‚resilience as added value‘ connects the two concepts nicely.*



**DR. PEER SEIPOLD & DR. MARKUS GROTH**  
Climate Service Center Germany

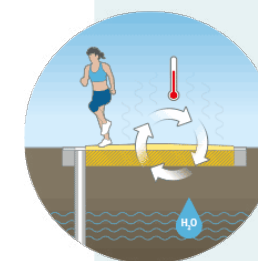


## HANSEGRAND® KLIMABAUSTOFFE



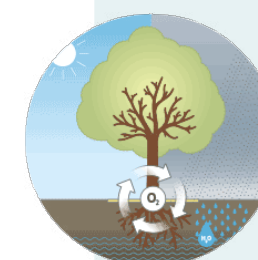
### WATER-PERMEABLE

The low fines content of the road surfaces ensures intelligent water management and good soil respiration.



### CLIMATE-FRIENDLY

The road surfaces are made of pure natural materials and are low-dust, shear-resistant and easy to work with.



### DURABLE

The path surfaces are weather-resistant and can be loosened and smoothed repeatedly.

Instead of simple water-bound road surfaces, HanseGrand provides complete, open-pored road surface systems that have a high water permeability and can also store water. The mineral-based climate construction materials are made from natural resources and do not contain any problematic pollutants.

With the climate construction materials, HanseGrand provides products and services that increase the resistance of road surfaces and urban squares (see [illustration on p. 26](#)). In this way, HanseGrand's climate building materials contribute to the resilience of path infrastructures, such as cycle paths, and urban living spaces.



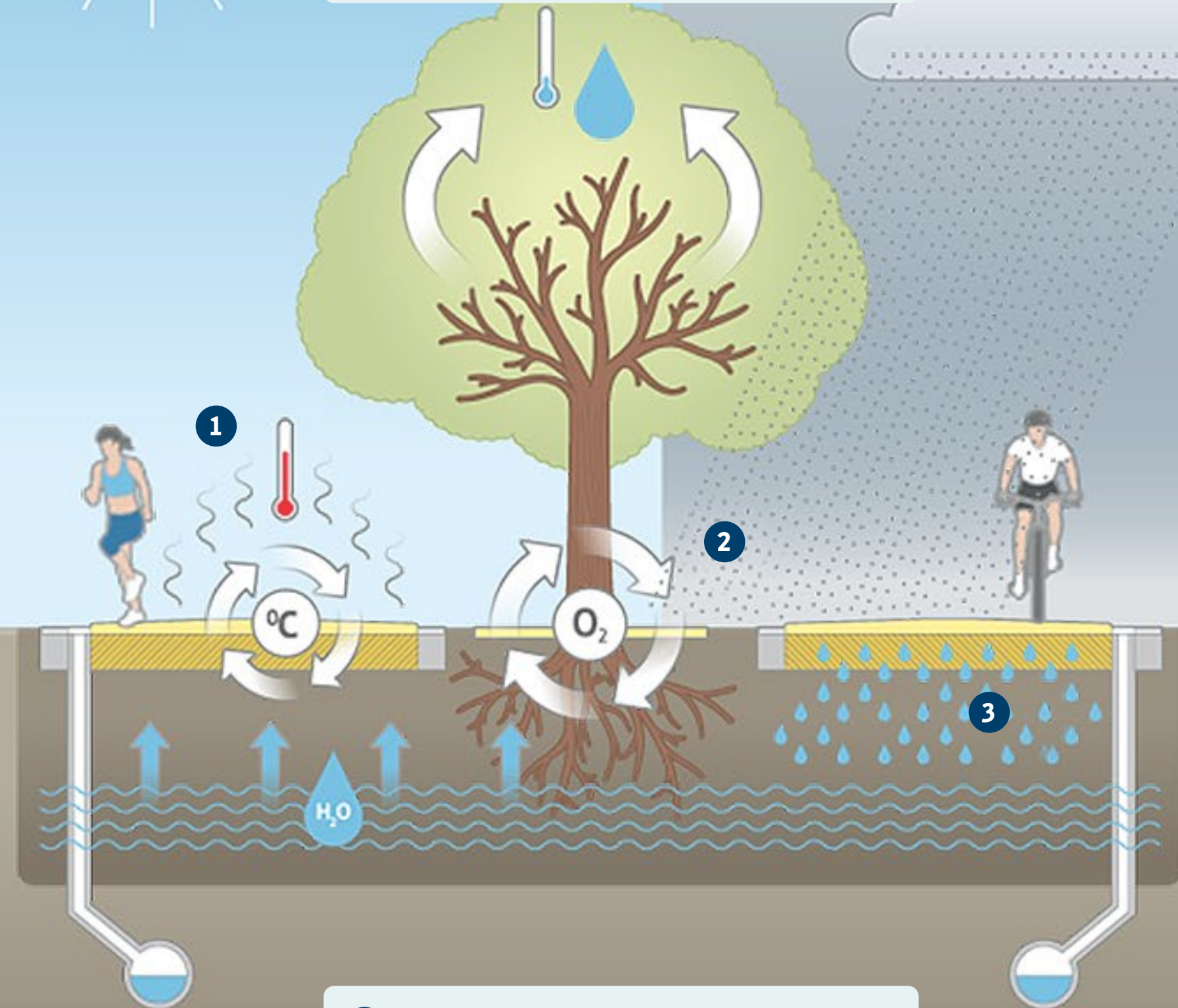
HanseGrand® path materials are available in many colours

**Heat / drought periods**  
will increase in the future and lead to a significant deterioration in the quality of life, especially in urban areas.



**Sealing of the cities**  
leads to overheating in summer, flooding during heavy rain, damage to the urban greenery and is a burden on the health of the population.

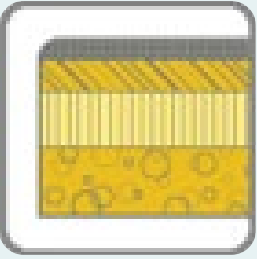
**Heavy rainfall / floods**  
will occur more frequently and more violently in the future. They endanger urban infrastructures and, in extreme cases, can cost human lives.



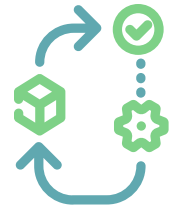
**1 Temperature compensation**  
Climatic building materials provide open-pored surfaces that heat up less than closed ceilings in extreme sunlight.

**2 Air / water exchange**  
Climatic building materials can absorb and release water and ensure good soil respiration.

**Squares / Paths**  
are playing an increasingly important role as design elements against the effects of climate change.



**3 Water permeability / storage**  
The combination of open-pored surfaces with water-storing base layers using climate building materials enables intelligent water management.



## 6.4 Resilience in Business Model Development: the Example of Green Start-Ups

Most companies and start-ups are not aware of the impact of VUCA trends on the resilience of their business model. Yet resilience is central to a sustainable business model.

There are great entrepreneurial opportunities for sustainability-oriented companies and start-ups, as the respective business models in many cases already offer the foundations for services and products that incorporate resilience as added value. In this way, start-ups also secure and improve the „fitness“ of their business model.



*HEDERA supports microfinance institutions with innovative software solutions to assess and improve the sustainability impact of their microcredit programmes. Our software solutions strengthen the resilience of our clients and microcredit borrowers in many ways, especially climate resilience. For us, resilience is part of our DNA, and I find that the more start-ups recognise that they can help reduce the vulnerability of society, the more we ensure that innovations aim to improve resilience. That's why the „Resilience as Added Value“ workshop of the University of Oldenburg, which was aimed at green start-ups, was so important. The workshop also made it clear to us once again how central it is to see resilience as part of the value proposition.*

**DR. NATALIA REALPE CARRILLO**  
CEO and Co-Founder Hedera Sustainable Solutions GmbH, Berlin

An occasion for including resilience in business model development can be created, for example, with a compact workshop format for start-ups. The following goals can be pursued with a corresponding workshop:

- » Demonstrate the impact of resilience requirements on the business models of start-ups
- » Discuss examples of how resilience in the offering creates concrete added value for customers
- » Analysis of the value proposition of the participating start-ups with a view to resilience
- » Elaboration of the added value of the products/services of the participating start-ups with a view to the resilience needs of the customers

In this context, it is necessary to reduce complexity. Open futures and multiple crises are difficult for companies to integrate into their business models. For example, the long-term effects of climate change are rather “diffuse” for companies. Being affected at the level of the business model and possible opportunities can provide concretisation and orientation for action. In the context of business model development, the fit between value proposition and customer needs plays a central role. Therefore, in corresponding workshop formats, work should be done with selected questions that explicitly address the business

model of the respective start-up. Otherwise, a discussion can quickly arise that is only conducted on a meta-level.

The workshop concept consists primarily of two elements: First, raising awareness for an opportunity-oriented resilience approach and, second, elaborating or including resilience aspects in the start-up’s value proposition. Optionally, if necessary, the existing business model or business idea can be prepared using the Sustainable Business Model Canvas (see [p. 23](#)). This should be done in advance in another workshop.

|  |  |   |
|--|--|---|
| <b>Welcome and introduction</b>  | » Presentation of the workshop objectives and process  | » Introductions:<br>Who are you? What do you do?<br>Why are you here?                                     |
| <b>Input: VUCA and Resilience-as-a-Service</b>   | » Impact of selected VUCA megatrends on companies/start-ups  | » Resilience as the fourth principle of sustainability<br>» Practical examples: Resilience as added value |
| <b>Value proposition of the participating start-ups</b>  | » Presentation of guiding questions and a template for a value proposition statement   | » The moderation should support the discussion and the work on the template.                              |
| <div style="background-color: #e0f2f1; padding: 10px;"> <p><b>Guiding questions</b></p> <p>What is your relationship to resilience?<br/>What do your products and services have to do with resilience?<br/>To what extent can resilience be integrated into your value proposition?</p> <p><b>Value Proposition Statement</b></p> <p>Our _____ helps _____, the _____,<br/> <small>Your product / service</small>      <small>Customers / value chains / supply systems</small>      <small>Task / job to be fulfilled</small><br/>             by giving him/her _____ .<br/> <small>The service of your value proposition. Remember to bring in your sustainability and resilience aspects</small></p> <p>Other than _____ .<br/> <small>Optional: competing value proposition</small></p> </div> <p>Example of a template</p> |  |   |
| <b>Presentation of the results from the work phase</b>   | » Start-ups present the results from the work phase  |   |
| <b>Next Steps / Conclusions</b>  | » Discuss the following question:<br>What is the added value of resilience for your value proposition and further business model development?                                |   |
| <b>Outlook / Final Round / Feedback</b>  | » On a scale of 1-10, how satisfied are you with the workshop?<br>» What is the most important takeaway from the workshop?<br>» Do you have any suggestions for improvement? |   |

The project has shown that a compact workshop format with a small number of participating start-ups and intensive support from the moderator is very effective. If necessary, the resilience of the business model as a whole can be tested with the following core statements:

### Benefit

A VUCA-related customer/stakeholder/society problem can be solved through resilience-oriented sustainable corporate action. The solution supports for example

- » when analysing the probability of occurrence / extent of damage of a disruptive event
- » in the development of buffer capacities, resilient structures
- » in resolving the tension from resilience to efficiency, sufficiency, consistency

### Customers

The effects of the selected VUCA megatrend lead to new customer groups and/or sales markets.

### Competition

You can position yourself as a „first mover“ in the competition with resilience-oriented sustainable corporate action.

### Stakeholder

Taking into account the impact of the respective VUCA megatrend can lead to new promising cooperations and/or increase the resilience of stakeholders and society.

### Key activities

Considering the possible impact of the VUCA megatrend on key activities increases the company's internal resilience.

### Key resources

The recombination of key resources of the company enables the development of products and services that specifically create or increase the resilience of a customer or user or their organisation and thus represent value for them.

### Key partner

Suitable key partners already exist for the implementation of resilience solutions.

### Cost and earnings situation

The product or service increases/ensures the resilience of the customer/user (stakeholder) and/or of value creation, supply or other systems and generates an additional return.



# 7 Resilience Matrix: Methods and Tools for Different Management Areas

In the project “Resilience as an opportunity for sustainable corporate action”, numerous methods and tools for an opportunity-oriented resilience approach were developed and tested with practice partners. A selection of these is listed in the resilience matrix below. They are presented on the following pages. The methods and tools are aimed at established companies, start-ups, management consultancies, associations, chambers, networks and funding programmes.



Strategic Management

- » VUCA Opportunities-Risks Matrix
- » Resilience-as-a-Service Workshop



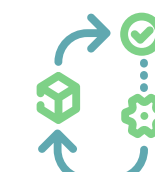
Sustainability management

- » Resilience Business Score
- » RaaS Impact Management



Innovation management

- » Impulse Method “∞ Opportunities Hats”
- » Resilience Challenge-Cooperation formats
- » Resilience Business Idea Jam
- » Sustilient-Living-Lab



Business model development

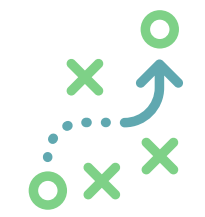
- » Resilience Spider Chart Workshop
- » Sustilient-Business-Canvas
- » Sustilient Value Proposition Designer



*Our members are among the pioneers and trailblazers of sustainable business. Sustainability principles such as resource efficiency, climate-friendly business and respect for human rights are firmly anchored. New concepts are being developed to arrive at circular business models and to contribute to a reduction in consumption (sufficiency). The expansion proposed by the University of Oldenburg to include resilience as an important sustainability principle enriches the discourse and addresses questions of stability and security of supply systems in a holistic way.*

**DR. KATHARINA REUTER**

Managing Director Bundesverband Nachhaltiges Wirtschaften e.V. (BNW) (German Federation of Sustainable Economy)



## 7.1 Strategic Management

| APPROACH                                | DEMAND   | DESTINATION  | TARGET GROUP   | METHOD   |
|---|--|--|--|--|
| <b>VUCA Opportunities-Risks-Matrix</b>  | Knowledge of strategic opportunities and risks arising from the impact of VUCA megatrends  | Prioritisation of strategic opportunities and risks posed by the impact of selected VUCA megatrends                                    | Company, management consultancies  | Resilience of the corporate strategy is assessed in relation to impacts of VUCA megatrends with an opportunity/risk matrix |
| <b>Resilience-as-a-Service Workshop</b> | Knowledge of the Resilience-as-a-Service (RaaS) business model pattern and exemplary products and services that increase customer/user resilience. | Raising awareness of business opportunities that increase resilience of stakeholders and society (in the sense of a value proposition) | Companies, start-ups, associations, science, management consultancies, public institutions | Presentation: Resilience-as-a-Service business model template, discussion of practical examples and needs                  |

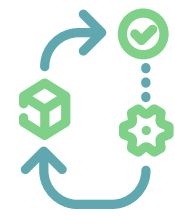
## 7.2 Sustainability Management

| APPROACH                         | DEMAND   | DESTINATION  | TARGET GROUP   | METHOD   |
|----------------------------------|--|--|--|--|
| <b>Resilience Business Score</b> | Initial assessment of start-ups, new business fields, business and innovation ideas in terms of resilience-related opportunities and risks | Assessment of the resilience of a start-up, business field, innovation idea with defined indicators in qualitative form using a scoring approach and a ranking scale | Start-ups, companies, capital providers, evaluation institutions | The assessment is done in qualitative form using resilience-related questions and a ranking scale (Strongly agree, Partly agree, Strongly disagree, Unclear - further information needs to be obtained, Not relevant, Need for action: Yes, No). For each criterion, a brief justification of the assessment should be given |
| <b>RaaS Impact Management</b>    | Capturing and evaluating the sustainability-related impact of resilience-oriented business models  | Analysis and management of the effects of (innovative) resilience solutions within a multi-level system  | Funding institutions, companies, evaluation institutions         | Effects and sustainability contributions of a resilience solution are described along an “impact chain”: Input (resources, activities), output (e.g. products, services), outcomes (benefits for the target group, e.g. customers) and impact (effects at systemic level, e.g. market, society, environment).                |



## 7.3 Innovation Management

| APPROACH  | DEMAND  | DESTINATION  | TARGET GROUP  | METHOD   |
|---|---|--|---|--|
| <b>Impulse Method “∞ Opportunities Hats”</b>      | Impulses for the development of opportunity-oriented resilience approaches in companies   | Identify hypothetical resilience-related change opportunities that serve as impulses for innovation opportunities.   | Innovation actors, employees, managers, management consultancies    | Card set for developing impulses for eight resilience-promoting qualities: Anticipation, Flexibility, Modularity, Resourcefulness, Diversity, Ecosystem Thinking, Agility and Sustainability.  |
| <b>Resilience Challenge collaboration formats</b> | Creation/evaluation of resilience-oriented innovation and business ideas  | Evaluation of innovation and business ideas against the background of securing and increasing resilience, generation of impulses and ideas for innovative solutions.                   | Companies, students   | Challenge-Based Learning and Co-Ideation format (workshop, course)   |
| <b>Resilience Business Idea Jam</b>               | Identification of sustainable and resilient innovation ideas  | Idea generation and evaluation: Mixed teams of company employees and students jointly developed innovative ideas for opportunity-oriented resilience approaches                        | Companies, students   | Workshop format: Discussion of existing and new ideas, grouping of ideas according to the type of contribution to resilience assurance of the company and of stakeholders and society, evaluation of selected ideas with the help of an innovation radar method and guiding questions. |
| <b>Sustilient-Living-Lab</b>                      | Need for interactive transfer and cooperation formats between universities, companies and stakeholders to generate needs/ ideas/ innovations for Resilience-as-a-Service solutions. | Promotion of sustainability- and resilience-oriented knowledge and technology transfer from universities to the economy and society within the framework of open innovation processes. | Companies, start-ups, universities, customers/ users, social actors | Early involvement of potential Resilience-as-a-Service customers/users in the innovation process, new forms of research cooperation between industry and universities  |



## 7.4 Business Model Development

| APPROACH                                     | DEMAND  | DESTINATION   | TARGET GROUP                                   | METHOD   |
|--|---|---|--|--|
| <b>Resilience Spider Chart Workshop</b>      | Testing the impact of VUCA megatrends on the resilience of a business model   | Assessment of VUCA-related opportunities and risks for a business model, basis for RaaS business model template   | Companies, start-ups, management consultancies | Resilience of business model elements is assessed with the help of a spider diagram.   |
| <b>Sustilient-Business-Canvas</b>            | Consideration of resilience as a fourth sustainability principle in business model development  | Development/further development of a sustainable business model that integrates resilience as a fourth sustainability principle, taking into account possible conflicting goals.    | Companies, start-ups, management consultancies | Building on the Sustainable Business Canvas, sustainability and resilience-related guiding questions are developed.  |
| <b>Sustilient Value Proposition Designer</b> | Consideration of resilience as a fourth sustainability principle in the development of a value proposition in the context of business model development | Development/further development of a sustainable value proposition that integrates resilience as a fourth sustainability principle, taking into account possible conflicting goals. | Companies, start-ups, management consultancies | Building on the Value Proposition Designer, sustainability- and resilience-related connecting points (e.g. in the form of resilience-related guiding questions) are developed for an opportunity-oriented resilience approach. |

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