



School of  
Management and Law

# Leading the Green Insurance Revolution

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# Abstract

Anthropogenic climate change is a significant and growing challenge. Insurance has thus far not taken a leadership role in its response to the challenge, partly because of modeling uncertainties and partly because of unclear customer expectations. It is, however, too large a sector to wait on the sidelines and a more proactive approach is required. The demand for a program we developed for insurance companies in 2021 sends a positive signal for this development.

Insurers have started incorporating ESG criteria in their product and service development and have taken steps to control their environmental footprint. Both are challenging, as they involved deep collaboration across the organization and along the value chain. Investment management and risk management have also been evolving to meet the challenge, with the latter especially well-positioned to deliver also market-facing services to insurance customers. Claims handling, however, is not typically considered in an insurer's footprint and has lagged behind. This is unfortunate, as the potential for a broader societal impact through claims is significant.

There are several best practices for transforming organizations to deliver more value along corporate responsibility criteria, and insurance companies need to make treasure of this experience. Further, they need to start developing their purpose beyond purely financial dimensions to align important stakeholders and deliver the promise of insurance as a social good in the 21<sup>st</sup> Century.

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## Abstract

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# 1. Introduction

The mission of the Institute for Risk and Insurance IRI of the Zurich University of Applied Sciences is to understand emerging challenges to the insurance industry and support insurance companies in successfully addressing these challenges. While the focus is on Switzerland, the research and solutions sought span several geographies, and we have developed relationships with several other institutions to enrich the understanding of both parties. The relationship with the Singapore College of Insurance (SCI) has been particularly pleasant and productive. In the Summer of 2021, we jointly developed an executive program to address sustainability topics like climate change and the challenge they pose for the insurance industry and identify potential solutions being developed. The program was first delivered in September 2021, and it is our joint intention to continue research and executive training in this area. This document provides a summary of the contents for the executive program *Leading the Green Insurance Revolution* as delivered by the authors.

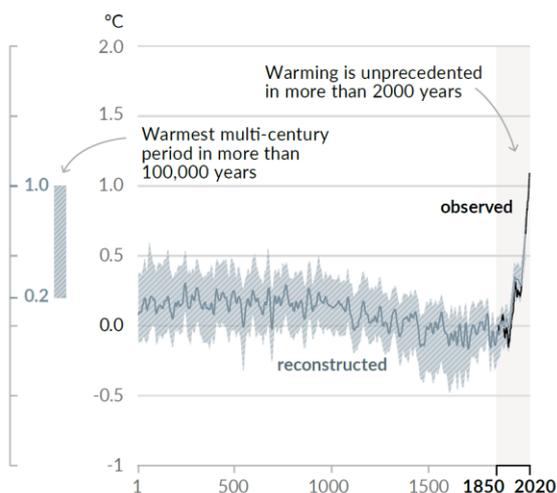
## 1.1. THE ANTHROPOCENE

The latest report from the Intergovernmental Panel on Climate Change (IPCC, 2021) paints a bleak picture of the future of the world. Anthropogenic climate change – that is, the change driven by human activity – is happening, it is accelerating, and the consequences will be widespread and significant. The window to limit the change to an average increase of 2° C has all but closed and humanity is facing an increasingly warming planet (Figure 1).

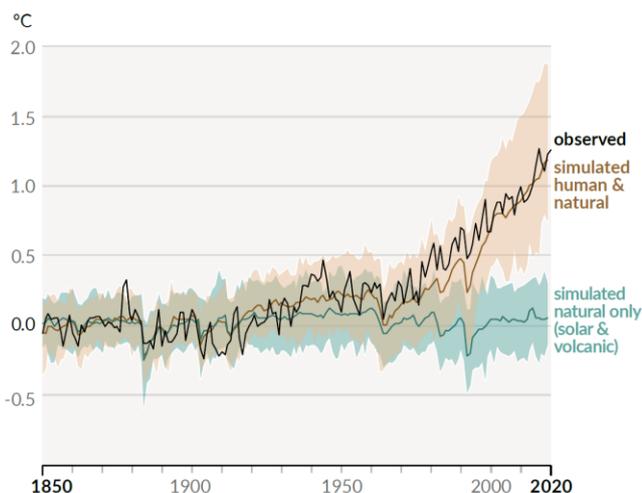
Figure 1: Changes in global surface temperature (IPCC, 2021)

### Changes in global surface temperature relative to 1850-1900

a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and observed (1850-2020)



b) Change in global surface temperature (annual average) as observed and simulated using human & natural and only natural factors (both 1850-2020)



The geosphere – or physical world – is coupled with the biosphere – or all that is organic – in a complex bidirectional feedback loop. While it is clear that the physical environment impacts the living organisms present in it, it is less evident but not less true that living organisms impact the physical world (Steffen et al., 2016). Since the beginning of the industrial revolution human activity has increased the concentration of CO<sub>2</sub> and other greenhouse gases in the atmosphere to a level not seen for at least the last 800,000 years, and this has led to increasing temperatures and climate anomalies that are predicted to become more severe (NOAA, 2020).

### The limits of our analytical tools

These observed and predicted changes should concern us as systems engineers, as risk management professionals and as insurance specialists, as shown in Figure 2.

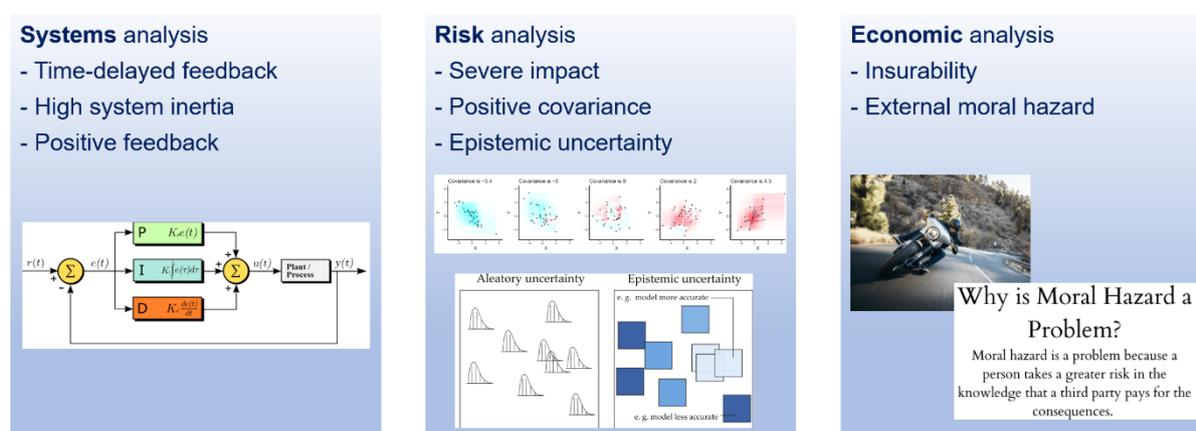
From a systems perspective we have observed a long-time delay between the signal (increased CO<sub>2</sub> emissions) and the response (temperature change). Systems with long feedback delays are inherently less stable as corrective measures tend to over- or understeer. More importantly, several aspects of climate are linked through a positive feedback mechanism. Stable systems have negative feedback – think for example of a rubber band: when you stretch it, resistance increases until it

matches the force you are applying and you can pull no further. Positive feedback loops, on the other hand, reinforce each other until the system spins out of control. As temperatures increase, permafrost melts and releases more greenhouse gases, ocean ice melts and reduces albedo. Each of these changes reinforces the phenomenon and it turns triggers further changes.

As risk managers we are trained to be especially mindful of high severity events, and climate change of the magnitude we are observing brings severe consequences. In addition, the risks are connected with each other, in effect creating a world-wide pool of correlated risks, rendering a traditional insurance risk-pooling solution impossible. Further, even as we learn more about system behavior, we still have unanswered fundamental questions about the dynamics of this system. In essence, we are not just working the numbers in a robust model, but we are debating which model should be applied. This epistemic uncertainty makes the development of a long-range response plan challenging and prone to significant revisions as our state of knowledge improves.

As insurance professionals we have seen how the scale and interconnectedness of the risks renders our traditional business model impossible to deploy. In addition, we are starting to observe examples of external moral hazard. Moral hazard is the phenomenon by which the presence of insurance impacts the risk behavior of the insured. This is typically addressed by deductibles to make sure insureds carry the first tranche of risk and have “skin in the game.” External moral hazard addresses the change in risk behavior by third parties. During the covid pandemic several government agencies placed political pressure on insurers to indemnify business continuity losses not covered in the policy language (Richter and Wilson, 2020). A similar phenomenon could develop as climate losses mount and governments look for funds to indemnify voters.

Figure 2: Systems, risk and economic challenges



Thus, not only are the consequences of climate change inescapable; we also do not necessarily have the tools to preemptively understand and adapt to these changes.

## 1.2. THE CHALLENGE FOR INSURANCE COMPANIES

While many in the insurance world have worked to ameliorate the situation, insurance companies have not typically fully taken advantage of opportunities to tackle sustainability, nor have they typically deployed their full skillset to address the challenges represented by the United Nations Sustainable Development goals in general, and climate change specifically.

The insurance industry, however, is too large a component of the global economy to just sit on the sidelines of this effort as a benevolent spectator. Insurance premiums account directly for 6.13% of the world's GDP, varying between just below 3% in Africa and almost 6.5% in Europe (SwissRe, 2018). Taking into account the multiplier effect of claims payments into a multi-sector economy (Bouakez et al., 2020), the indirect impact of insurance can extend to some 10% of the world's GDP. Similarly, insurance assets constitute a significant wealth reserve to fund responses. In Europe, insurance assets are equivalent to 13.2% of total household wealth (IAIS, 2018; Credit Suisse, 2017), while the assets of the top 100 insurers are equivalent to 7.2% of household wealth worldwide (SWFI, 2021; Credit Suisse, 2017). It would therefore be shortsighted not to fully leverage this financial power to address climate change.

The United Nations have developed a set of principles for sustainable insurance to embed sustainability issues in the decision-making process of insurance companies, ensure collaboration across industry players, and provide transparency of actions and results (Figure 3).

Figure 3: The principles of sustainable insurance (UNEPFI, 2021)



As of August 2021, more than 100 companies worldwide have committed to abide by these principles, including the top three largest players (UNEPFI, 2021). As positive as this development is, only 21 of the top 100 companies are signatories to these principles and the rate of participation is considerably lower for smaller companies (UNEPFI, 2021; SWFI, 2021). That is not to say that non-signatory companies are not actively pursuing climate and other sustainability goals; the low number of signatories is nonetheless an indicator of the current emergent and fragmented approach in the insurance sector.

### Transition risk and integrating ESG

Insurance companies need to address two specific and separate issues in their core business, as shown in Figure 4. First, they need to understand how the risk they underwrite is impacted by climate change – the transition risk. Second, they need to accelerate the development to incorporate climate-friendly solutions in their core product and service offerings.

Figure 4: The challenges for insurance



Sophisticated risk models have been developed over time to monitor overall exposure for individual companies and the stability of the entire financial system. These models capture our best understanding of the situation and are constantly being updated as new insights emerge. They are, however, limited to our state of knowledge, and therefore by definition incomplete. This is particularly problematic in the case of climate change, where we still have significant epistemic uncertainty about climate dynamics. We are therefore exposed to non-linearities, also known as tipping points, where small incremental changes have a step-like and irreversible effect. These are impossible to model with our current state of knowledge and we will likely need to face large unusual and unexpected loss events in the future.

Insurers will also need to integrate ESG-relevant components in their core product and service offering. Simple exclusions in their underwriting guidelines are not likely to be sufficient. For one, it will be difficult to clearly define where and how to determine these exclusions except for egregious cases. While it may be easy to stop underwriting the construction of new coal power plants, it will be more difficult to set the threshold for underlying technologies. Second, and most importantly, insurance is too large a factor in the economy to be content with simple reactive measures. More beneficial, and more effective, would be to send a strong signal to clients and providers and support their evolution to more sustainable business models.

## 2. Program Contents

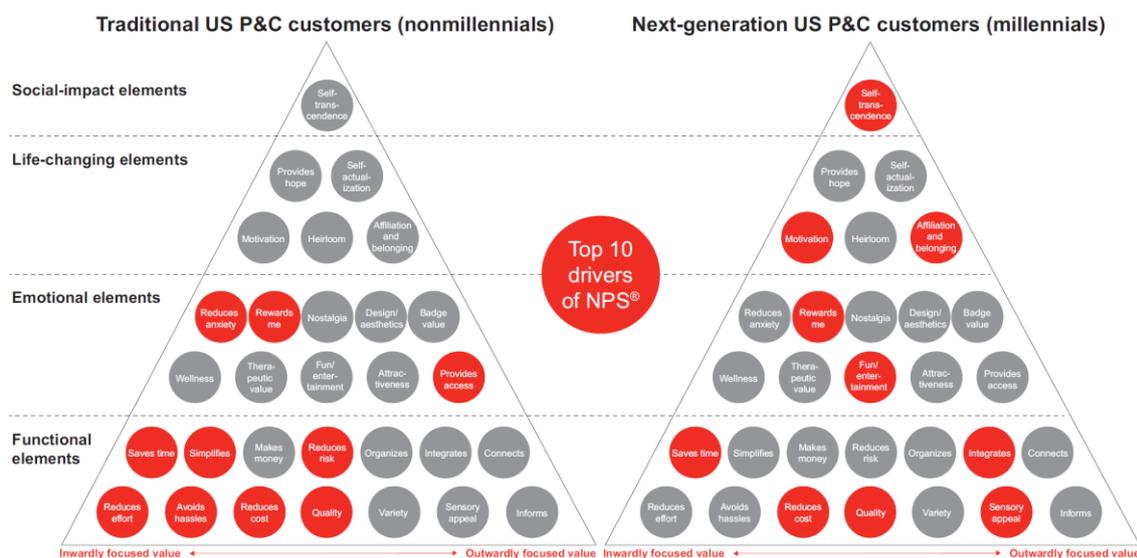
The contents described in the following section mirror and summarize the contents and discussion of the Leading the Green Insurance Revolution executive program from September 2021.

### 2.1. THE EVOLUTION OF CUSTOMER EXPECTATIONS

In addition to the social responsibility arguments highlighted in the previous section, insurance customers are also evolving to require more involvement in sustainability from their insurers.

The consultancy Bain has developed a model to understand how companies deliver value to customers comprising 30 elements and grouped into functional (what does it do?), emotional (how does it feel?), life-changing (how does it change my life?), or social-impact (what is the value to society?) categories in a pyramid of increasing impact. This value pyramid has been used to understand the drivers for the net promoter score (NPS) for customers across a variety of industries. For traditional insurance customers, functional and emotional value elements are the key drivers to customer satisfaction. Functional elements like *Saves time* and *Quality* and emotional elements like *Reduces anxiety* are ranked highly both for P&C and Life insurance products. For life insurance, two life-changing elements – *Self-actualization* and *Heirloom* – round out the top-ten, whereas none do for P&C. For millennial customers, however, life-changing and social-impact elements enter the list of most important value drivers even for P&C. Thus, millennial customers are looking for insurance products to provide *Motivation*, *Affiliation and belonging*, and *Self-transcendence*. Figure 5 shows this change for P&C customers in the United States, but similar shifts are becoming evident in several other markets, and insurers are not well prepared to address these customer requirements (Bain, 2018). This shift, especially relating to the social-impact elements indicates a need for insurer to be relevant for larger societal issues, including ESG, in their core product offering. At this moment this need seems to be linked to generation-specific priorities, but it is likely that it will continue to grow with newer customers and perhaps propagate across generational boundaries. This result, however, is not fully confirmed (IBM, 2020; ING, 2020), and the covid pandemic may impact these results going forward.

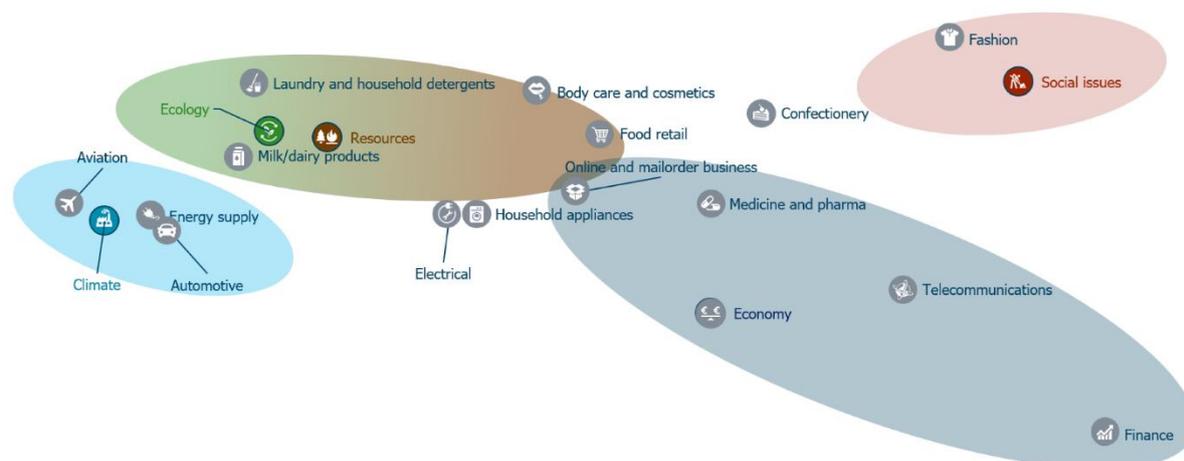
Figure 5: High NPS value elements for nonmillennials and millennials (Bain, 2018)



Our own research has found elements of this shift. In an investigation of customer priorities for insurance services in Switzerland (Pugnetti and Seitz, 2021) we found that customers place a higher importance on prevention / risk management services and non-insurance specific life services than on traditional insurance risk-transfer and cost-efficiency improvements, and that they are willing to change providers if the right opportunity arises. This dynamic is well understood by industry specialists. Insurance companies, however, are focusing on the traditional service elements. Customers are generally willing to share personal information to achieve these targets. While they understand information is valuable, offering services explains more than 70% of their willingness to share information for automotive insurance (Pugnetti and Elmer, 2020).

A further challenge for insurance companies is the customer perception of the role of insurance in ESG. While some industries are closely associated with particular dimensions of sustainability, the finance sector in general is not closely associated with any of them (GIM Foresight, 2020). Figure 6 shows a correspondence analysis with different industries (in grey) shown in their proximity to different ESG dimensions (in color). For example, customers closely associate companies in the automotive sector with climate, whereas they associate fashion companies with social issues. This gives companies operating in these sectors a clear focus for action and communication. Finance, on the other hand is equidistant and far from individual sustainability dimensions, indicating more freedom of action but also a much more diffused focus.

Figure 6: Correspondence analysis - industry responsibility and sustainability (GIM Foresight, 2020)



To address this question more specifically, we are developing a survey of retail insurance customers to investigate how well insurers understand the requirements of their customers regarding sustainable and, in particular, green issues, and how they are employing this knowledge to develop green products and services and raise the customers' awareness of these issues. Preliminary results are not encouraging and confirm that the insurance industry is lagging behind its potential to drive positive environmental impact in its core business activities.

## 2.2. RETAIL P&C PRODUCTS AND SERVICES

### 2.2.1. Defining green insurance products

Sustainable, and more specifically, "green" insurance products are not a clear-cut category. Despite the rise in investor scrutiny and the ongoing evolution of regulations and standards from non-binding into more unified frameworks, the interconnectedness and complexity of sustainability efforts will result in a continuous analysis and adaptation of green products and services in the foreseeable future. What is understood by the general public, investors, regulators and consumers as "green" will depend on a variety of factors including scientific knowledge, policy development, technological solutions, communication and mindsets.

Some pointers on definitions from a reporting perspective:

- The voluntary SASB reporting standards for insurance products mention "policies designed to incentivize responsible behavior" regarding "health, safety, and/or environmentally responsible actions and/or behaviors" (SASB, 2018).
- Within the EU, the SFDR article 8 defines product level disclosures "where a financial product promotes [...]" environmental or social characteristics [...]" with a more detailed definition on products targeting sustainable investment in article 9 (European Parliament and the Council of the European Union, 2019).
- The Task Force on Climate-related Financial Disclosures lists the following example metrics for climate-related cross-industry category "climate-related opportunities": "net premium written related to energy efficiency and low-carbon technology" as well as "revenues from products or services that support the transition to a low-carbon economy" (TCFD, 2021).
- Efforts for an insurance-specific interpretation of the Sustainable Development Goals – in itself helpful to assess local, company-specific and product-specific priorities - are underway (Chiew, 2021; SwissRe, 2020).

In the current absence of a more detailed, comprehensive industry standard definition, various dimensions focusing on green insurance products were observed and might help stimulate considerations on "green" insurance products and services (Table 1).

Table 1: Dimensions of green product characteristics

Dimension	Example
<b>Risk object:</b> Is the underlying already eco-friendly or is it transitioning towards being (more) eco-friendly?	Cover the design, production and use of sustainable products, or the liability associated with their production and use (Zona, Roll et al., 2014)
<b>Premium:</b> Does the insurance premium recognize eco-friendly objects or behavior?	Policies where certain features promote sustainable or green behavior (Zona et al., 2014) Product features that incentivize health, safety, and/or environmentally responsible actions and/or behaviors (SASB, 2018) Products which differentiate insurance premiums on the basis of environmentally-related characteristics (UNEPFI, 2007)
<b>Proposition themes:</b> Does the product / service cater to a specific sustainability theme or related risk? Does it promote eco-friendly characteristics?	Risk reduction (UNEPFI, 2021a) Net premiums written related to energy efficiency and low carbon technology (SASB, 2018) Products tailored for clean technology and emission reducing activities (UNEPFI, 2007)
<b>Goal:</b> Does the product / service address a specific sustainability goal or objective?	Positive impact on ESG issues; Literacy programs on risk, insurance and ESG issues (UNEPFI, 2021a)
<b>Outcome:</b> Does the product / service target a measurable sustainability metric?	Impact of products / services on GHG emissions, physical risks, transition risks (TCFD, 2021). Impact on company's sustainability goals (e.g., amount of people benefitted, contribution to SDG target)
<b>Underwriting approach:</b> Does the product exclude non-sustainable business or consumer practices? Does it support customers transitioning to a more sustainable behavior?	Electricity supply companies at which the proportion of electricity generation attributable to coal exceeds a defined level; exclusion of mining companies (SIA, 2019)

Sustainable, or more specifically, green insurance solutions are not a new category. A CERES review of 244 insurers and related organizations worldwide found 643 real-world examples in the products and services category (Mills, 2009). What arguably has changed since then is the context:

- general perception of the risk and the urgency to act as demonstrated by the Global Risks Report (WEF, 2021) and the IPCC sixth assessment report (IPCC, 2021a)
- Consumer expectation towards brands, their products and readiness to act (Townsend, 2018; GlobeScan, 2020; IBM, 2020; ING, 2020),
- Expectations directed at the end consumer to act sustainably. As an example, IEA scenarios place a high importance on the role of the user in the energy transition (IEA, 2020)
- Shift to greener underlying objects – albeit more pronounced in the Motor than in the Home segment
- Digital opportunities for sustainable propositions, such as the use of Telematics and Mobility ecosystems and Smart Home solutions, as well as overall reduced interface costs of multi-stakeholder cooperation.

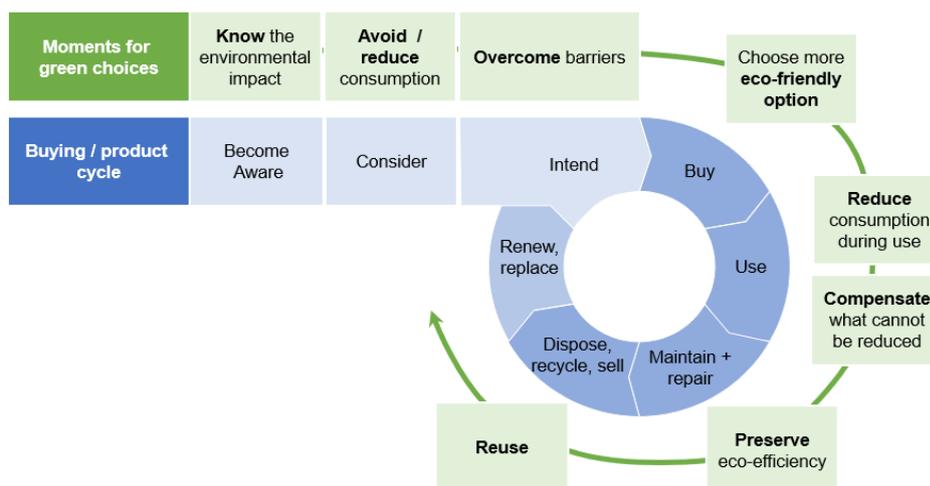
Green products are but one part of a comprehensive approach towards sustainability along the insurance value chain. An isolated offer that could be interpreted as a symbolic action or selective disclosure might be regarded as greenwashing by consumers. A number of mitigation actions – such as inventory reporting, impact quantification, third-party verification and integration of SDG reporting into internal decision making – contribute to an exhaustive sustainability approach including product development, communication and reporting (Verles, 2018; Spohrs, 2021).

### 2.2.2. Moments for green choices

The ability to offer green insurance products for retail consumers depends on customer behaviors regarding the underlying risk objects as well as their acceptance for greener insurance solutions. From a consumer perspective, there are various moments of choice during the purchasing process and product lifecycle that can be useful when evaluating the potential for green insurance products and services (Figure 7). For example, when buying a new car, consumers might first need to become aware of what kind of mobility features they need, which solutions already exist and whether they are willing to consider them. After the purchase, car-owners use their car, but also need to maintain and repair it and will eventually dispose of the car and replace it with a new mobility solution.

During those steps, there are several opportunities for greener choices: During the awareness phase, consumers might become aware of their own environmental mobility impact – or also be made aware of it, as consumer differentiation between low- and high-impact sustainability measures is limited (Ipsos, 2021). This awareness might result in an impetus to reduce consumption and consider electric vehicles as an option. During research, consumers might weigh the pros and cons of such a solution in their personal setting (e.g., charging infrastructure available, cost implications, etc.) and intend to overcome perceived barriers of such a solution (e.g., asking the garage owner for permission to install a charging box). Alternatively (e.g., when they chose a conventional car), or in addition, consumers might aim to reduce their consumption through more sustainable driving behaviors or compensate the remaining emissions. During repair, consumers might strive for eco-efficiency (e.g., opting for a refund or used parts instead of new parts) and at the end of their usage period, they might steer the car towards a sustainable reuse.

Figure 7: Consumer moments for green choices



Product and service opportunities for insurers are thus not limited to the coverage of an already green insurance object (mostly by adding specific covers or offering an adjusted tariff) or a “green” policy feature for a conventional object (e.g., as part of a core product or an independent service). Transitions after a claim (e.g., ecological repair or upgrade) as well as the promotion of environmental customer behaviors early on in the process with incentives, ecosystem advantages and communication (i.e., independent of a claim) are additional, important and often overlapping solution categories to consider.

The following sections show selected challenges and insurance solutions available today in the Mobility and Home lines for Retail customers.

### 2.2.3. Mobility: Facilitating the transition to sustainable mobility

From a global standpoint, the transportation sector is the largest emitter of greenhouse gases. While electric vehicles (EV) are one of the few technologies on track under the Sustainable Development Scenario, total energy use continues to grow despite efficiency improvements, driven by slower sales of more efficient cars, consumer preferences for large cars and lower vehicle occupancy rates (IEA, 2019). Solutions catering to the growing, but still minoritarian EV market segment with 2.5% of global market share in 2019 (Deloitte, 2020) are becoming more important, but overcoming barriers towards transitioning as well as alternative mobility solutions form part of green insurance products offered today.

One example for overcoming barriers in EV adoption is the approach taken by Zurich Insurance in Switzerland: The electric vehicle cover “E-Mobility Protect” addresses potential protection gaps for charging stations and accessories and a comprehensive battery cover (Zurich Insurance, 2021). Both cover and knowledge articles on the website (Zurich Insurance, 2020) address the potential adoption barrier posed by safety concerns consumers might have regarding the battery. Indeed, safety concerns with battery technology have increased among consumers from 2018 to 2020 (Deloitte, 2020a). Further adoption barriers, such as concerns about the charging infrastructure, might be addressed in cooperation with other stakeholders – one example regarding reservations about costs and infrastructure is the offering of a country-wide flat rate across different charging partner networks (Zurich Insurance, 2021a). Figure 8 gives an overview of various insurance product and service options based on Allianz (2020), Autosense (2021), Capgemini (2021), Laka (2021), Mills (2009), UNEPFI (2007), VCS (2020), and Zurich (2021a).

Figure 8: Selected examples for green mobility insurance propositions

Cover of a „green“ insurance object	„Green“ policy features	Support of transition after claim	Promotion of environmental behaviour / characteristics
<ul style="list-style-type: none"> <li>• Specific cover</li> <li>• Tariff</li> </ul>	<ul style="list-style-type: none"> <li>• Part of core product or related service</li> <li>• Independent service</li> </ul>	<ul style="list-style-type: none"> <li>• Ecological repair / replacement</li> </ul>	<ul style="list-style-type: none"> <li>• Incentives</li> <li>• Ecosystems</li> <li>• Communication</li> </ul>
„Green behaviour“ discounts for low- / no-emission vehicles	Pay as you drive / Pay how you drive	Virtual repair / optimized physical repair network	Partner networks services (e.g., charging at fix price)
Electric vehicle cover	Green consumption services	Repair instead of replacement (e.g., windshield repair)	Mobility ecosystems and services (e.g., joint mobility platform services)
Hydrogen / alternative fuels cover	Bicycle cover with club rewards	Transition incentives to „greener“ mobility choice (e.g., replacement upgrade for hybrid / EV cars)	Sharing mobility covers (e.g. B2B2C partnerships with additional individual covers)
E-Scooter cover	Compensation of mobility emissions		

#### 2.2.4. Home: Sustainable use of buildings and small appliances

Buildings and their construction account for 35% of global energy and 38% of total global energy-related emissions, with residential buildings (excluding construction) accounting for 22% and 11%, respectively (UNEP, 2020). Globally, the green building market delivers continuous growth despite a small pandemic dip (Research and Markets, 2021). However, neither residential buildings nor household appliances are on track for the Sustainable Development Scenario (IEA, 2019): Efficiency gains, often driven by energy policies, are outpaced by structural changes such as residential floor area per capita and increased device ownership. CO<sub>2</sub> emissions from the building sector are the highest ever recorded (UNEP, 2020). Another complexity factor is the change in risk patterns. Floods in Germany in July 2021 were a tragic example of more extreme precipitations affecting also areas with hitherto low risk, resulting in losses of life. From a property perspective, many homeowners were not covered (Majeed, 2021), illustrating the consequences of a protection gap meeting unprecedented risk events.

The current proposition landscape is shaped by different ownership structures (e.g., focus on homeowners; separation of green investment benefits and costs of energy efficiency measures in rented property), divergent technological standards (e.g., smart home technologies), and consumer trends. With energy efficiency being one of the key challenges, insurance solutions can contribute to overcoming adoption barriers, e.g., by supporting owners of solar thermal installations for remuneration losses incurred after damage, or helping them get a provisional supply of heating. Figure 9 gives an overview of various insurance product and service options, based on Allianz (2020), Capgemini (2021), Mills (2009), Sharely (2021), Thingsy (2021), and UNEPFI (2007).

Figure 9: Selected examples for "green" home insurance propositions

Cover of a green insurance object	„Green“ policy features	Support of transition after claim	Promotion of environmental behaviour / characteristics
<ul style="list-style-type: none"> <li>• Specific cover</li> <li>• Tariff</li> </ul>	<ul style="list-style-type: none"> <li>• part of core product or related service</li> <li>• Independent service</li> </ul>	<ul style="list-style-type: none"> <li>• ecological repair / replacement</li> </ul>	<ul style="list-style-type: none"> <li>• Incentives</li> <li>• Ecosystems</li> <li>• Communication</li> </ul>
Discounts for certified buildings (e.g. LEED, EnergyStar)	Technical / maintenance / warranty support for green installations	Ecological repair / replacement	Green building advice
Discounts for property loss mitigation actions (e.g. home installations that mitigate NatCat impact)	Renewable energy reimbursement (in case of power outage)	Eco-friendly replacement material endorsements	Localized NatCat risk information
Insurance for solar installations	Consumption-based services	Green building upgrade after loss / the course of normal renovations	Smart home solutions (with climate impact)
Cover for certified buildings (e.g. LEED, EnergyStar)	Compensation of emissions		Behavioural discounts
Cover for cover for eco/self-built homes/alternative builds			Sharing society services
			Circular economy services

In addition to line-specific solutions, insurers may contribute to address overlaps between the home and mobility sector in cooperation with partners and / or as asset owners (e.g., triggering sustainable mobility solutions as integral part of property developments).

While products and services will evolve in the future, the insurance industry will also need to consider potential effects of sustainable materials, technologies and behaviors on risk profiles and underwriting portfolios. Policy strategies to cope with externalities and changes in regulation as well as shifting consumer mindsets, but also opportunities for differentiation and ecosystem building will keep the product and service landscape a dynamic field in the years to come.

### 2.3. SUSTAINABLE COMMERCIAL UNDERWRITING

Whenever a commercial risk (such as a power plant, an office building, a paper mill or a railroad) is to be insured the insurer taking on the risk performs an underwriting assessment. Large risks are usually insured with the support of a brokerage firm. The broker provides risk information and information about the intended scope of coverage to the insurance companies. On large international multi-location accounts the insurance wording is usually also provided by the broker.

The underwriting process without environmental, social and governmental (ESG) analysis itself consists of different steps:

- Risk Assessment
  - Loss ratio which is the proportionate relationship of incurred losses to earned premiums expressed as a percentage at least for the last 10 years on operational risks (operational risks are facilities which are already in commercial operation in comparison to project risks)
  - Large losses already occurred on operational risks
  - Implemented risk improvements
  - Technology
  - Existence of loss prevention systems
  - Loss mitigation procedures
  - Experience of the proposed contractors on projects of similar nature. When a contractor performs a specific project for the first time there is an increased probability for damages and defects because of inexperience
  - Natural perils exposure
  - Other potential perils (political, pandemic...)
- Calculation of the possible maximum loss
- Scope of cover and limits
- Wording
- Maximum share to be offered
- Premium rate
- Risk engineering services necessary during policy duration

The elements of the underwriting process described above are mainly focused on the profitability of insuring the account. In the last two decades several insurance companies have become more sensitive to the issue of reputational risks. The starting point for Engineering Lines covers, as an example, were dam projects involving forced resettlements of local people and the negative media reports related to such projects. Today the focus on reputation and sustainability when underwriting is much broader, and the underwriting function has in most companies the obligation to analyze beside the risk quality and scope of cover also if the reputational/sustainability exposure is within acceptable limits. Such acceptable limits may not be written down as such. Although the traditional underwriting process has trained the underwriting function to an excellent understanding of risk, decision-making on risk engineering activities, cover evaluation and proposing the adequate share was not at all focused on reputational risks. To assess reputational risk first a definition is needed. Figure 10 shows the assessment part of the underwriting process. On the left side the classical risk and wording analysis and on the right side the sustainability assessment which is today performed by many insurers in additionally. The result enables the insurer to perform an evaluation of the overall risk quality.

To perform the sustainability part of the underwriting the risk appetite and a proper approach reading how to carry out the assessment should be defined. In principle there are at least two different methodologies:

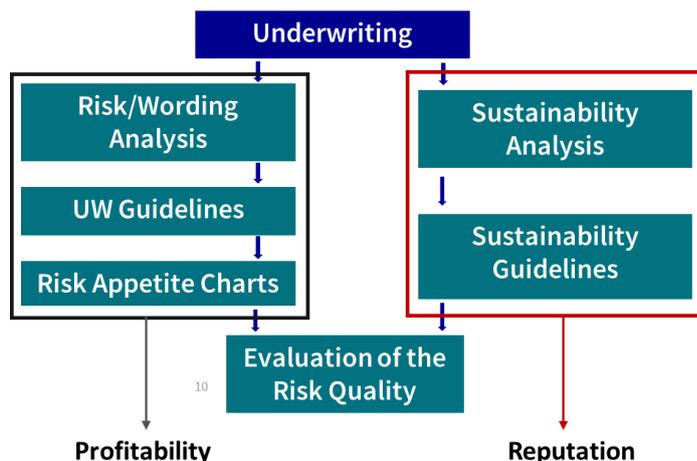
1. Include risks
2. Exclude risks

A possible solution of the first approach is for example to except risks when the company has implemented the following standards (or equivalent depending on region):

1. ISO 14000 – Environmental Management
2. ISO 50001 – Energy Management Systems

The implementation of the standards above is an indication that the company to be insured is trying to mitigate the negative impact on the environment.

Figure 10: The commercial underwriting process today

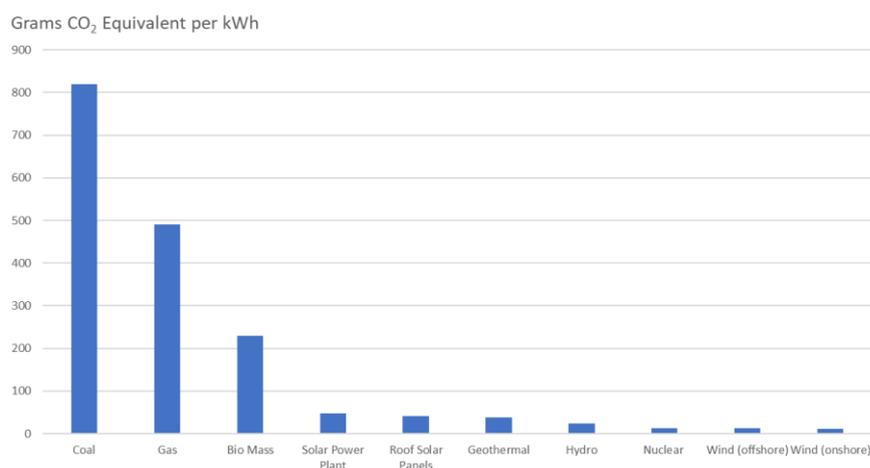


A much broader approach has been provided by the UNEP Finance Initiative – Principles for Sustainable Insurance (UNEPI 2020). The aim of this guideline is to provide a definition of the risks above with respect to the non-life insurance business. Furthermore, a matrix indicates specific risks for the various industry segments and insurance covers. Insurers might then start to define their risk appetite with respect to the industry segments and insurance covers. The intention is to exclude specific risks because of a potential negative impact. Realistically, this approach can only be understood as a starting point for discussion and to increase the ESG sensitivity of underwriters.

For example, the industry segment Power Generation has been classified as ‘High Risk’ in the following categories:

- Air pollution
- Greenhouse gas emissions
- Transition risk

However, this may apply realistically to coal- and gas-fired power plant but not to solar power and wind energy. Thus, it is necessary to investigate which technologies are included in the different industry segments and perform an analysis on that basis.

Figure 11: CO<sub>2</sub> emissions from different power generation technologies (Der Spiegel, 2019)

Whereas the environmental impact of the technology to be insured is assessable by underwriters, as they are normally experienced with technologies in their field of expertise, the assessment of the social and governmental risk would need specialist support. This is because knowledge about the local situation and/or a substantial data analysis about the company or project to be insured is necessary.

Some external companies exist to provide the necessary data on social and governmental risks. They are able to create a risk report with an indication of the risk classification with respect to ESG parameters. In case insurance companies rely on such data, insurers only need to define to which level they accept ESG risks as acceptable and base their underwriting decision on it. Underwriting of commercial risks has always been a complicated process and with the necessary focus on sustainability the complexity has increased even further – there are more aspects to take into accounts when considering the risk holistically.

## 2.4. CLAIMS MANAGEMENT

Claims Management is one of the most important elements of the value chain of an insurance company. The insured buys insurance because he needs financial indemnification in case of a loss. There are at least three groups of insurance products: Property, Financial Loss and Personal. Although Personal insurance has the largest premium volume, the potential of improvements in respect of ESG has not been fully analyzed, and it is potentially lower than for the Property insurance. The reason for that assumption is that a property loss normally requires repair or replacement and therefore resources and energy is needed. Accordingly, the highest ESG improvement potential can be assumed to exist in Property insurance including all their sub lines/products such as:

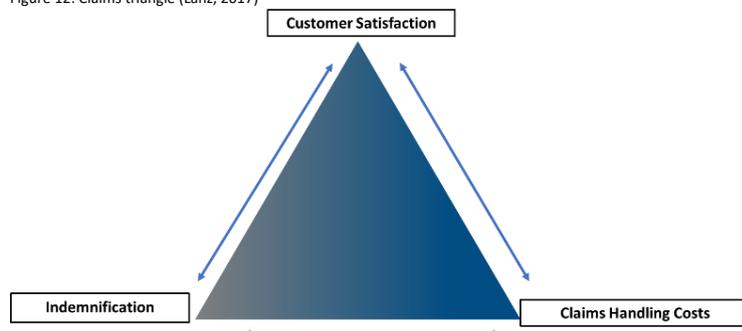
- Industrial All Risk
- Building
- Household
- Motor comprehensive
- Engineering
- Transport
- Civil Engineering Completed Risks
- ...

The Global Property insurance premiums in 2020 (excluding comprehensive motor insurance) were approximately USD 450 bn (Howard, L.S. 2021). Assuming a loss ratio of 70%, USD 250 bn are being paid by insurance companies to repair or replace damaged property (or to pay business interruption claims) per year. The repair or replacement is normally accompanied by CO<sub>2</sub> emissions and resource consumption, both of which are not quantified.

The UNEP Finance Initiative Principles for Sustainable Insurance has identified that insurers can improve the negative impact of repair and replacement. However, they have not yet published any detailed guidelines on how to achieve this target. An additional problem is that many insurance companies globally have not yet signed up to the agreement. For example, only 4 of the top 10 German Motor insurers support the agreement (UNEPFI 2020)).

There is no standard definition available for sustainability on claims handling. However, the ESG criteria defined by the UNEP FI PSI guideline 'Managing Environmental, Social and Governmental risk (ESG) in non-life insurance business' (UNEPFI 2020) provide a good basis which could be valid for claims management as well.

Figure 12: Claims triangle (Lanz, 2017)



The claims triangle describes the targets of the claims management process and the interactions between the different targets. For example:

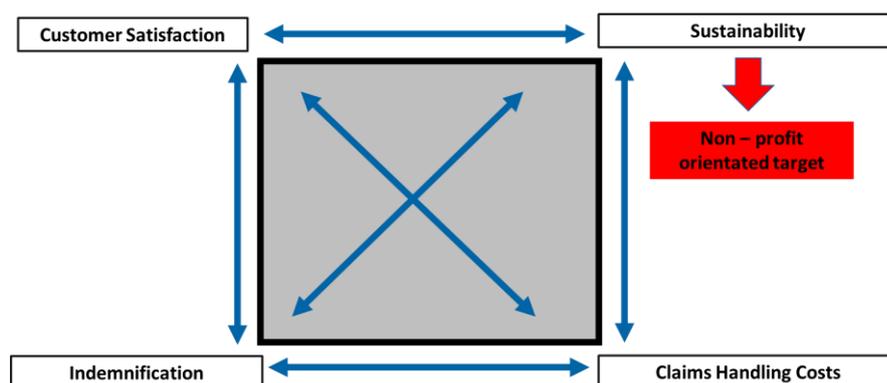
- Lower indemnification most likely reduces the customer satisfaction.
- Involving experts to investigate the claim more thoroughly might reduce the indemnification but will increase the claims handling costs.
- Cost reduction might impact the service level and reduces the customer satisfaction.

The three targets above are profit oriented:

- Reducing loss indemnification and claims handling costs are increasing the portfolio profitability.
- The customer satisfaction has an impact on customer retention and is therefore also a profit orientated target.

All three targets need to be considered when developing claims handling strategies. In order to include sustainability, the triangle needs to be extended to a square to include this additional target. The claims square shows now the three original targets plus the additional target of sustainability (Figure 13):

Figure 13: The claims square



Potential interactions (shown as arrows in Figure 13) between the new and the original targets are as follows (worst-case scenario):

- Insured wants replacement but is getting only the repair paid by insurance in order to increase the sustainability (potentially negative for the customer satisfaction).
- The sustainable reinstatement method is more expensive (negative in respect of the indemnification).
- The evaluation and performance of sustainable reinstatement is more costly (negative for the claims handling costs).

The difficulty is that a non profit-oriented target such as sustainability does not sit comfortably with profit-oriented targets. Accordingly, insurers need to develop and implement guidelines which force the claims managers to explicitly take sustainability into account, rather than rely on commercial incentives. Thus, there are perhaps steps where sustainability could be improved in the claims handling process.

Figure 14: Claims process (Lanz, 2017)

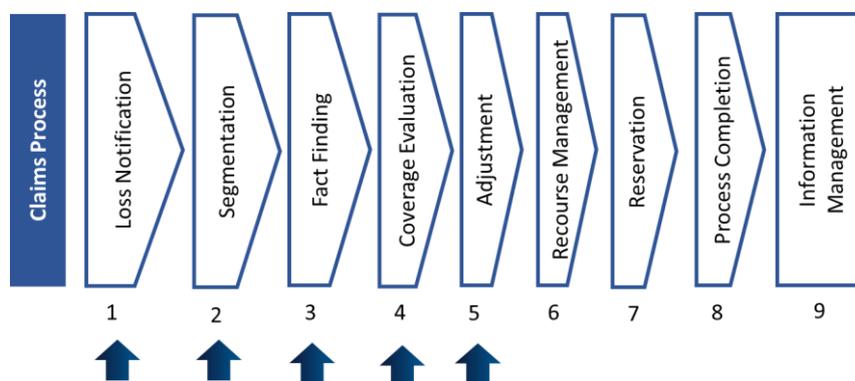


Figure 14 shows the complete claims handling process. In some of the process steps (marked with an arrow) the claims manager has a o lot of influence to reduce the negative impact on sustainability.

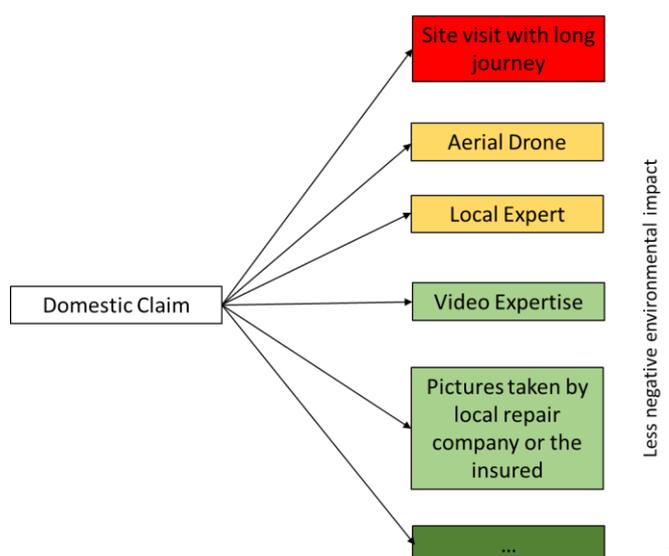
### Loss notification and segmentation

When the loss notification arrives at the insurer it is important to check whether immediate action is necessary to reduce the loss. With the proper segmentation, such losses are routed to the function which can react immediately. For example, water damage leads to mold if it is not dried very quickly. Another topic is for example how to respond to Cyber claims. Such claims often cause a very negative environmental impact for Example during the Colonial Pipeline Cyber Incident (Energy.Gov 2021) the fuel had to be transported with trucks (Spiegel Online 2021) which caused additional pollution. The principal question should be if the ransom should be paid, which in turn could lead potentially to additional Cyber-attacks. Irrespective of whether the ransom payment is covered or not, the insurer should support the insured in order to reinstate the systems by using back-up data.

### Fact finding

The insurer needs to investigate the claim to assess coverage and indemnification. It might be necessary to visit the site. Such visits can cause extensive travel activities for claims managers, loss adjuster and specialists. Depending on the size and nature of the claim, it needs to be decided who should visit the site and if there are alternative methods possible. Every investigation method has a different ecological impact, and this should be considered when deciding on the best course of action. For example, if the insured or a local repair company can provide informative pictures and facts a site visit by the claims manager or the loss adjuster can potentially be prevented which means less negative environmental impact.

Figure 15: Environmental impact of different loss investigation methods



### Coverage evaluation

Insurers should implement a comprehensive fraud prevention to minimize the fraud cases. Insurance fraud causes mostly a negative impact on the environment.

Example for fraud scenarios:

- Car Insurance Accident Scams (e.g., damaged cars to be replaced or repaired)
- Death Fraud (intensive search actions by e.g., coast guard, police or other law enforcement agencies)
- Disaster Fraud Schemes (e.g., large fires causing pollution and requiring repair or replacement)

### Adjustment

In case of adjustment, the insurer should steer the reinstatement proactively. For example, when an insurer pays the workshop directly, he has influence on the repair method and the disposal of damaged parts. In comparison to that, if the insurer pays a settlement amount to the insured, he has no influence on the sustainability of the repair/replacement solution. Ideally, repairs should be preferred to replacement because replacement usually consumes more resources and energy. Should a replacement be necessary, ideally it should employ used material or material with the lowest negative impact on the environment (e.g., wood instead of bricks or concrete). Furthermore, the insurer should take care that the repair companies are working according to ESG criteria. This should also include the handling of replaced materials.

### Summary

Claims Management could have a significant impact on the ecological footprint of repair and replacement of insurance claims. As of now, such claim items are not included in the CO<sub>2</sub> balance of the insurer or the insured. As the consequence, most insurers are not focused on ESG targets in connection with claims handling. This perhaps be changed for the good of the environment. Sustainable claims handling guidelines should be developed and implemented.

## 2.5. OPERATIONS

In this section, we will first investigate a practical guide to achieve carbon neutrality in insurance or re-insurance operations. In the second part, we will reflect on the leadership implications of a transformation towards sustainability.

### 2.5.1. Achieving Carbon Neutrality – a practical guide

The goal of achieving carbon neutrality, often called a net-zero emission target, has gained significant momentum. Many international insurance and re-insurance companies have joined the pledge over the last years. The challenge now lies in its implementation. The 3-step approach suggested here is not a novelty to operations practitioners:

1. Measure the baseline
2. Set meaningful targets and define actions
3. Measure progress, act on deviations from targets, and report outcomes

What may be new, though, is that this transformation requires the involvement of all parts of an organisation to be successful. Even more, it requires the involvement of numerous outside parties. It is for this reason that we must accompany the practical

guide in this chapter with reflections on the nature of sustainable leadership in the next chapter—acknowledging that this discussion is still at its infancy.

The need to collaborate between private, public and the non-governmental sector will quickly become apparent. Another very practical consequence of the ubiquitous nature of the journey towards sustainability is the need to apply global standards as a common metrics to facilitate this collaboration. We will encounter several such forms of collaboration as well as standards in this chapter.

### Measuring the baseline

The journey towards carbon neutrality starts with a solid baseline from which targets can be set and progress can be measured. The most common global framework used for corporates is defined by the Greenhouse Gas Protocol (GHG). The GHG Protocol has been established in 1998 and is maintained by the World Business Council for Sustainable Development (WBCSD), a non-profit organization funded by over 200 corporations based in Geneva, and the World Resource Institute (WRI), a non-profit research organization based in Washington D.C.

The GHG protocol (see Figure 16) specifies three types of emissions, all requiring a distinct reduction approach:

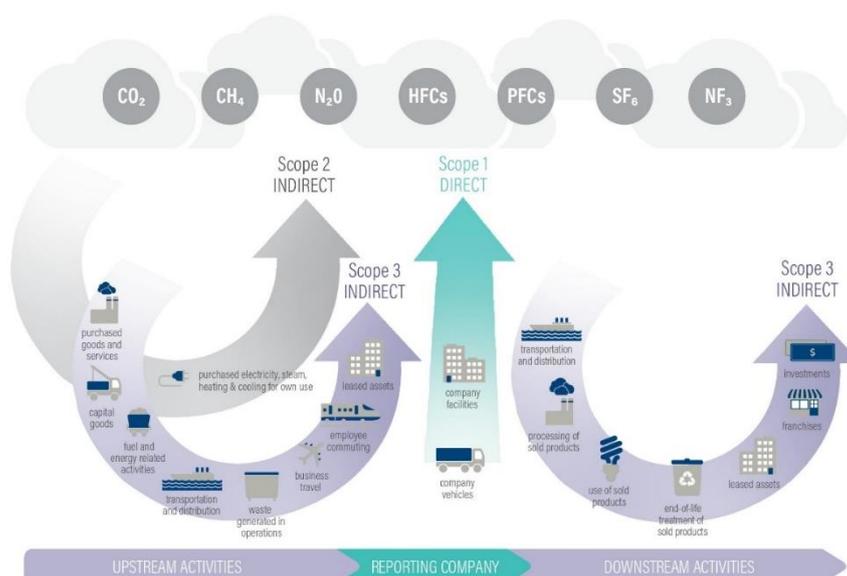
1. Scope 1 emissions: All direct emissions generated in the operations of the reporting company
2. Scope 2 emissions: All indirect emissions from purchased electricity, gas, and steam
3. Scope 3 emissions: All indirect emissions up- and downstream not covered by Scope 2

Gases have varying Global Warming Potentials (GWP) in the atmosphere. The GHG Protocol provides specifications to summarise them all in one metric, the so called CO<sub>2</sub>equivalent (CO<sub>2</sub>e). The GWP of carbon dioxide (CO<sub>2</sub>) is set at 1. All other gases are normalized considering their ability to absorb heat as well as their average duration in the atmosphere. Methane, for instance, has a GWP of 25 on a 100-year basis. The 100-year basis is set as standard by the UN. Note that the 1997 Kyoto Protocol decided to use the values as defined by the IPCC 2nd assessment report. The 2013 Warsaw meeting of the UN Framework Convention on Climate Change (UNFCCC) updated those to the IPCC 4th assessment report (dated 2007), using a new set of 100-year values. These values are still used, albeit not undisputed by science. This exemplifies that standard, while important to create a common language for collaboration, are still in a developing mode.

The absolute carbon footprint of a company and its relative share of scope 1, 2 or 3 emissions strongly depends on the nature of the business. The good news for (re-)insurance companies is that overall emissions are moderate as compared to other industries. The challenge lies in the fact that the bulk of emission is scope 3, often accounting for more than <sup>2</sup>/<sub>3</sub> of total emissions. Measurement of those emissions can be tricky, and reductions do not entirely lie in one's own hands. A useful resource to support a systematic approach for keeping an inventory of greenhouse gases is provided by the ISO 14064 standard.

Scope 2 emissions deserve a separate treatment. For (re-)insurance companies, they almost entirely consist of emissions stemming from purchased electricity. The GHG Protocol Scope 2 guidance defines two allocations methods: the first location-based and the second market-based. The location-based method reflects the average emissions intensity of grids on which energy consumption occurs. The market-based method reflects emissions from electricity that companies have purposefully chosen. It derives emission factors from contractual instruments, e.g., a guarantee by the utility company that the electricity provided is from renewable sources only. Insurance companies often refer to the RE100 initiative, led by the Climate Group, when it comes to establishing electricity supply from fully renewable sources. Certification is provided via a partnership with the Carbon Disclosure Project (CDP).

Figure 16: Overview of GHG Protocol scopes and emissions across the value chain (ghgprotocol.org)



### Setting targets and defining actions

Once a baseline is established, the next step is to set reduction targets. To ensure credibility and to avoid accusations of using the topic as a marketing spin to just appear environmentally friendly (so called “greenwashing”), it is again useful to apply accepted standards. A widely used framework is being provided by the Science Based Target initiative (SBTi). The SBTi is part of WRI's Center for Sustainable Business and a collaboration of WRI, CDP, WWF and the UN Global Compact.

The SBTi ensures private sector targets are linked to the ambition of the Paris agreement of keeping the temperature increase well below 2°C compared to pre-industrial levels. It provides target setting methods and the independent assessment and validation of targets.

Targets set under the SBTi must include a base and the target year (5 to 15 years from the base year), be aggressive, i.e., beyond business as usual in an organization's sector, and aim for an absolute reduction in GHG emissions, covering global operations in their geographic boundaries. Provided scope 3 emission account for more than 40% of total, they must address all three emission scopes. While SBTi demands ambitious targets, they must go hand in hand with a realistic action plan. Table 2 includes a few illustrative examples on KPIs, related actions and useful standards or resources.

Table 2: Illustrative examples on KPI, related actions, and frequently referred standards

Type of emission	Key Performance Indicator	Potential related actions	Frequently referred standard/certification
Scope 1	Onsite heating emissions	- Thermal insulation of office buildings	LEED certification
Scope 1	Fleet emissions	- Switch to electrical fleet	
Scope 2	100% renewable energy	- Negotiate contractual agreement with utilities - Compensation measures where needed	RE100 initiative
Scope 3	Emissions from travel	- Introduce internal carbon levy	UN Global Compact
Scope 3	Emissions from suppliers (such as paper suppliers, data centres, repair workshops, etc.)	- Include ESG criteria in vendor management - Compensation measures where needed	ISO 14001 and ISO 50001
Scope 3	Emissions from employee commute	- Home office policy - Incentives for employees supporting use of public transport or electrical vehicles - Limitation of parking lots in offices	n/a

A controversial debate related to this chapter is the question of emission compensation. Carbon offsetting programs have been available on the market for many years and offer a simple, if not inexpensive, way to reduce one's carbon footprint. However, the quality of these compensations is often disputed due to verification challenges and the danger of double-counting reductions that would have taken place anyway (e.g., forests growing naturally). More progressive corporates therefore adopt two approaches to this topic:

1. They prioritize own reduction activities limiting compensation to areas with no other viable options
2. They prioritize active carbon removal measures to compensation despite their significantly higher price

As an example of the second point, SwissRe uses an internal carbon steering levy to finance external carbon removal certificates. Those include a USD 10m deal with Climeworks that captures and stores carbon dioxide from the air.

### Measuring progress, acting on deviations, and reporting outcomes

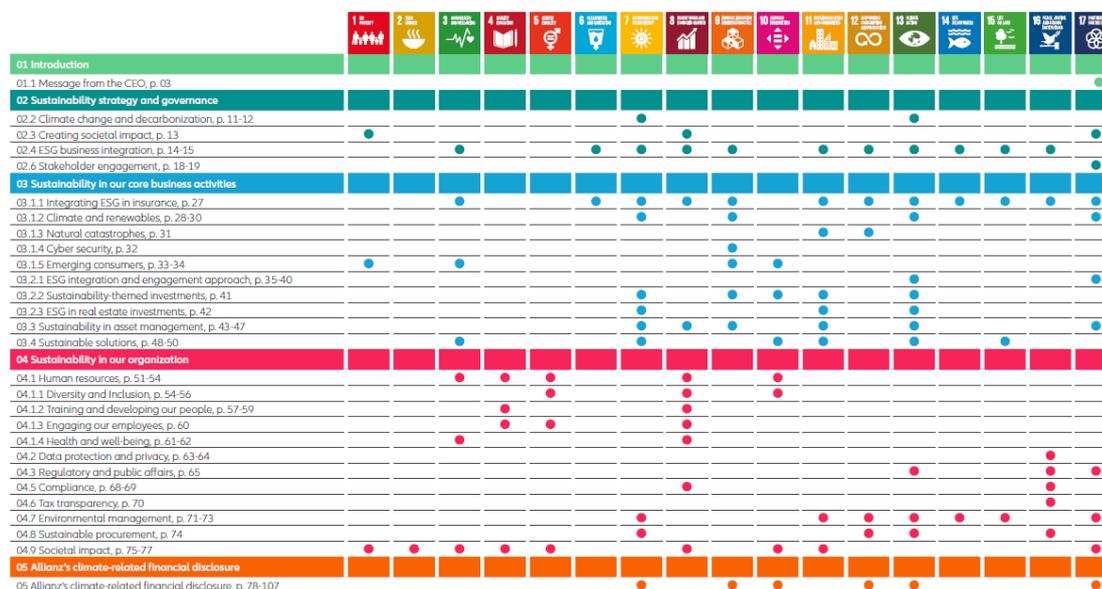
The implementation of a zero-emission target is a long journey. It requires a governance framework that reaches beyond the typical yearly goal setting or even the 3–5-year strategic cycle. Given the reputational significance of ESG topics and the potential personal liabilities involved, the best practice approaches include the formation of a distinct committee at board level to whom all sustainability related activities ultimately report. This also helps to reduce the potential conflicts of interest the executive management may encounter along the road – or at least make them more transparent. It is clear however that the topic requires a coordinating body with a distinct mandate, typically provided by the board, to align all levels of the organization involved in the measurement, target setting and execution of the sustainability strategy.

Within the EU, Corporate Social Reporting (CSR) including matters of sustainability is mandatory for listed companies. Insurance companies and banks are explicitly included (even if not listed). Switzerland announced a similar legislature by 2024, while the in the US reporting remains largely voluntary so far. Nevertheless, by 2021 some 90% of companies listed in the S&P 500 index did report in some form on their sustainability efforts. Again, several standards have emerged supporting reporting, for the insurance sector most notably the TCFD (Task Force on Climate-Related Financial Disclosure). TCFD provides information to investors about what companies are doing to mitigate the risks of climate change, as well as being transparent about the way in which they are governed. It was established in December 2015 by the G20 Financial Stability Board and is chaired by Michael Bloomberg.

Often, sustainability reporting is linked to the UN Sustainable Development Goals (SDG), set up in 2015, consisting of 17 interlinked global goals, as can be seen in the example in Figure 17.

Figure 17: Corporate Sustainability Reporting linked to the UN SDG, as reported by Allianz (Allianz, 2020)

## 06.2 Our impact on the U.N. Sustainable Development Goals



### 2.5.2. Towards sustainable leadership

The introduction of a comprehensive sustainability strategy in a corporate company adds several layers of complexity to daily management:

- It adds many stakeholders and governance boards to consider in the internal decision-making process
- It requires collaboration across silos and beyond the borders of the own organisation
- It tends to expose what used to be considered “internal matters” to the public
- It requires both clear top-down leadership as well as local execution and the ability to quickly react to external influences and events

Extending the purpose of an organisation towards the Triple Bottom Line—profit, people, and the planet—inevitably creates potential conflicts of interest at all levels. Rather than ignoring them in an enthusiastic rush towards sustainability, it will be key to recognize them and give guidance to people involved in daily management on how to deal with situations where previously profit-driven decisions are now challenged by ESG considerations. One way to systematically consider the other two “Ps” in every-day, profit-oriented decisions taken by insurance professionals is to learn from risk management practices. Section 2.7 describes risk management in the sense of optimizing risk-return trade-offs. In such a framework, any decision gets an “ESG price tag” attached, which may change the picture even from a pure profit standpoint. The challenge is to develop a comprehensive—including external risk factors—and yet sufficiently easily applicable model. Eventually, it is also conceivable that ESG risks will be reflected in the way regulators look at solvency, e.g., through a risk-oriented total balance sheet approach.

Russell Reynolds Associates and Global Citizen (2015) define eight behaviours sustainable leaders should display. Building on those, a UN Global Compact-Russell Reynolds Associates study has been issued in 2020. The study summarizes the common traits of sustainable leaders as follows:

- Multilevel Systems Thinking: incorporate the interplay with larger business, societal and environmental systems, cutting through the complexity to drive targeted decisions
- Stakeholder Inclusion: not just managing stakeholders but including them in actioning and benefits sharing
- Disruptive Innovation: driving the breakthrough innovation that is needed to find novel solutions and thus overcoming the potential conflicts of interests inherent to the TBL
- Long-Term Activation: moral courage to stay the course against inevitable odds on the long journey towards sustainability

Summarising the lively debate on what sustainable leadership entails it is fair to state that the discussion is far from being concluded.

## 2.6. INVESTMENT MANAGEMENT

Insurers are increasingly being called upon to play their part in the effort to alleviate the Environmental, Societal and Economic issues through a more sustainable investment paradigm. One way is by implementing guidelines meant to channel investments towards activities designed to either mitigate climate change or foster our adaption to its consequences. This creates new obligations for insurers in an already challenging low-rate investment environment. The source of this part is the Guide to Sustainable Investing published by Candriam (Candriam, 2021).

### 2.6.1. Sustainable Investing: constraint or opportunity?

How can insurers best meet the challenge of Sustainable Investing? Is it another portfolio constraint? Or can Sustainable Investing be a source of opportunity and added value?

Insurers are increasingly seeking out the investment and commercial opportunities that Sustainable Investing can develop. Sustainable Investing is the integration of ESG dimensions into company and country analysis and investment decisions. It offers insurers a richer framework for identifying, measuring and managing risks. After all, the insurers' core business is to insure risks. Therefore, they have a particular incentive not to contribute to the escalation of new and unmeasurable types of risks. Investing sustainably can help reduce financial and reputational risks and manage new regulatory obligations. An overview is shown in Figure 18.

It is clear that failure to fully consider Sustainability represents risks for insurers and their assets. Insurance portfolios that invest in equities, bonds and other assets are not immune to the increasingly significant Sustainability risks of the global economy. If the issuing companies and countries are not analyzed in terms of ESG factors, it is increasingly likely that unwanted risks are unknowingly taken on in the insurers' investments. It is vital that insurers have a comprehensive understanding of ESG factors.

While financial analysis and risk management typically touch on matters such as Governance, they generally do not thoroughly evaluate and price many of the extra-financial ESG risks inherent to companies and countries. A well-considered Sustainable Investing process can integrate these into risk management. In an environment where risk-free returns are minimal or negative, thorough risks identification and management is critical to investment returns.

Figure 18: Risk and opportunities of sustainable investments for insurers (Candriam, 2021)

## Sustainability and insurers' investments: Risks & opportunities



Practical experience and academic research demonstrate that integrating ESG factors into investment processes does not necessarily have a negative impact on the risk/return profile. On the contrary, the experience of many institutional investors has been that the impact on returns is neutral or positive. Academic studies also show that sustainable strategies tend to perform in line with or better than conventional strategies. A comprehensive academic review in 2015 analyzed more than 2,000 empirical studies. More than 90% of the studies found that individual companies with strong ESG profiles tend to outperform their non-ESG counterparts (Friede et al., 2015).

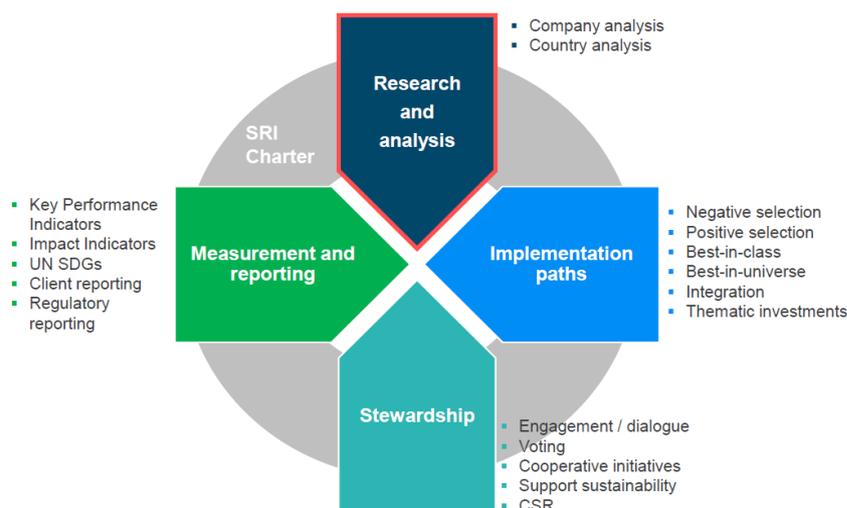
### 2.6.2. How to implement Sustainable Investing

Implementing Sustainable Investing should be adapted to the needs of the individual insurer, the make-up of its portfolio of assets and its objectives, regulatory requirements and accounting constraints. There are a few generally applicable cornerstones of Sustainable Investing that can help insurers structure their approach.

The underlying research and analysis is the basis for understanding and evaluating ESG opportunities and risks. If the ESG assessments and ratings that underpin investment decisions are not thorough and of quality, the insurer could unwillingly maintain unwanted ESG risks in the portfolio and miss out on ESG opportunities. While regulatory measures and the general trend towards Sustainability are improving the transparency of invested companies and countries, ESG data availability and heterogeneity remains such that thorough research and analysis are needed to properly understand and interpret ESG factors. Research and practical experience offer important considerations and critical success factors for insurers to consider when building these cornerstones internally or selecting external service providers.

Figure 19: The 4 pillars of institutional sustainable investment (Candriam, 2021)

## The 4 pillars of institutional sustainable investment



An implementation path is an exclusion list. Negative selection means excluding from the investment universe those companies and countries that fail to meet certain specific criteria. Often, the UN Global Compact Principles relating to human rights, labor rights, the environment and corruption, are used as guidelines. Ideally the analysis should also consider how companies and governments respond in the event of non-compliance (Candriam, 2021). Taking sincere action to prevent a recurrence is obviously more sustainable than one which just ignores a breach.

Controversial activities are another factor which can provide a screening tool. Companies or countries involved in the production, trade, testing or maintenance of certain controversial goods or services can either be excluded entirely or excluded above a percentage of sales volume or profit. Examples include controversial armaments, tobacco and certain types of energy production. After these exclusions, the investment manager then selects stocks or bonds from the remaining investment universe based on financial criteria.

Another important cornerstone of Sustainable Investing for insurers is stewardship. This is composed of Voting (actively exercising shareholder rights) and Engagement (dialogue with invested companies).

Reporting should ensure that the insurer can quantify, track and understand the impact that Sustainable Investing has on the portfolio. It should help insurers need to consider the perspective of their end clients, the insurance-takers. End-client demand is growing for products which integrate Sustainability. Easy-to-understand reporting is an important element when positioning sustainable products.

Capturing the new opportunities offered by Sustainable Investing will be key to the long-term earnings potential of insurance assets and the competitive position of insurers. It is vital for insurers to build significant in-house know-how or to carefully select their external partners. The goal is to make Sustainable Investing a source of potential value.

## 2.7. RISK MANAGEMENT

“ESG risks are events or conditions related to environmental, social and governance aspects that if they occur have potential or actual negative impacts on the financial position, performance, reputation of the entity” (BaFin, 2019). ESG-related or sustainability risks are not necessarily new. However, both prevalence and attention have accelerated rapidly (COSO and WBCSD, 2018). Insurers are challenged to consider potential impact and need to increase their focus on oversight, governance and management of ESG risks. The goal of the risk management function is to embed the management of ESG risks, including climate change risk, in the organization by taking an economic risk-based and total balance sheet approach. The journey of embedding should be:

- guided by strategy: Aligning risk culture, risk policy, risk appetite and tolerance framework to adequately consider ESG risks; and
- implemented operationally: Defining and reviewing processes and responsibilities to identify, assess, manage, monitor and report ESG risks in a timely, consistent and transparent manner across the organization.

In this chapter, we outline the meaning of ESG risks and how to embed ESG aspects into the risk management framework. We argue that ESG risk management is not a “compliance task” and requires both top management attention and leadership as well as new methodological approaches.

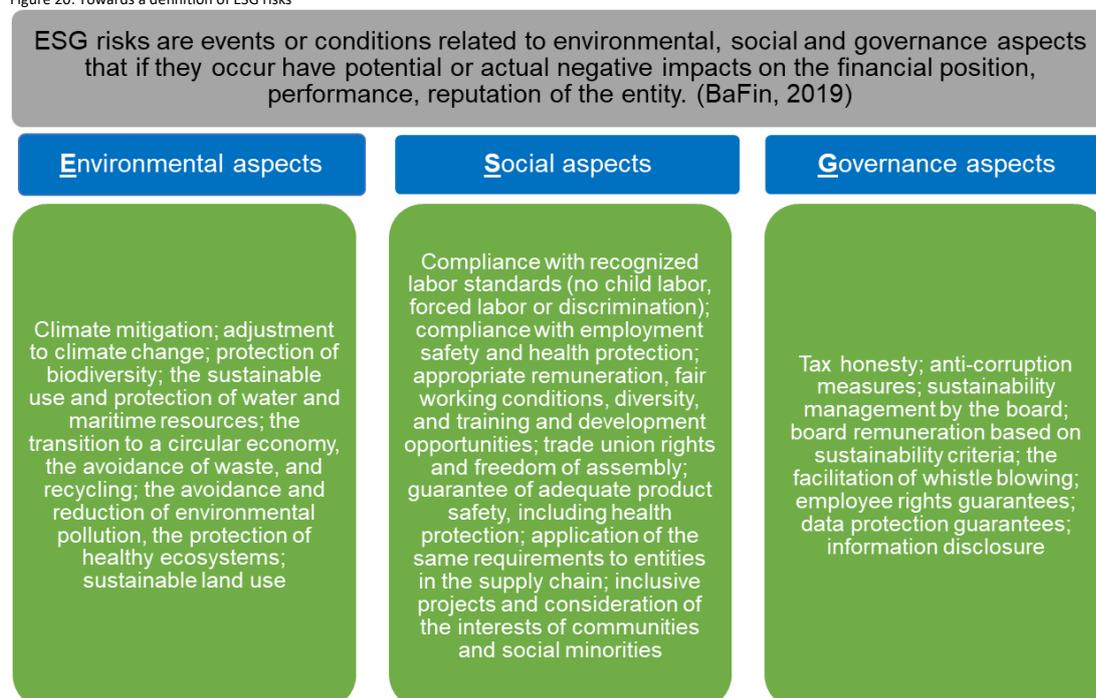
### 2.7.1. What are ESG risks?

While there is general agreement in the literature and practice about the three ESG factors, only few authors or institutions provide a definition of ESG risks. In fact, most international frameworks and standards have refrained from establishing a definition. In consequence, each insurer is challenged to outline and communicate its understanding of ESG risks depending on the own business model. However, what can be said is that ESG risks are commonly understood as financial and non-financial impact that are driven by three aspects (c.f. UN-backed Principles for Responsible Investment (PRI, 2017) and UNEP (2016)):

- (i) Environmental (E) issues relate to the quality and functioning of the natural environment and natural systems,
- (ii) Social (S) issues relate to the rights, well-being and interests of people and communities, while
- (iii) Governance (G) issues relate to the governance of companies and other entities.

We argue that ESG risks are not a subcategory of emerging risks because some already have an impact (such as physical damage caused by environmental risks). EIOPA (2019) define sustainability risks as “risks that could affect the insurance and reinsurance undertakings’ risk profile, on the investments and liabilities side, due to ESG factors”. BaFin (2019) extends on the type of impact and defines ESG risks as “events or conditions related to environmental, social and governance aspects that if they occur have potential or actual negative impacts on the financial position, performance, reputation of the entity.” Figure 20 outlines ESG risks based on BaFin (2019), COSO and WBCSD (2018), EIOPA (2019), European Banking Authority (2020), Pfeifer and Langen (2021).

Figure 20: Towards a definition of ESG risks



The main focus of the insurance industry currently rests on climate risks. Typically, climate change risks are divided into three groups:

- **Physical risks** are related to actual climate change and the impact on the value of assets and liabilities. They can be driven by events or longer-term shifts in climate patterns.
- **Transition risks** are seen as uncertain consequences of the transition to a sustainable, low-carbon economy such as public policies, regulations, technological advancement, market conditions and other aspects of societal transition that affect the level of climate change risk and the future risk landscape.
- **Liability risks** relate to possible increase in litigation.

### 2.7.2. How do ESG risks impact insurers?

ESG risks can be translated into the familiar risk categories. They are diverse and can have potential and actual impact on both the liability and asset side. DAV (2021) provides the following examples:

- Higher rates of morbidity and mortality due to a climate related rise in air pollution, leading to higher life and health insurance claims.
- Rising sea level leads to decreasing values of real estate investments near coast or in government bonds of strongly exposed countries.
- Transition to low-carbon economy reduces demand for products of an important customer segment leading to shrinking premium and potential reputational loss.
- A natural catastrophe occurs simultaneously to falling market values of investment and increasing reinsurance prices.
- Business interruption, unexpected regulatory changes, damage to infrastructure as a consequence of natural catastrophe lead to service issues and expense increase.
- Due to lack of ESG know-how and awareness, customer or partner relationships with critical ESG exposures are not identified or regulatory rules not complied with. Rating agencies punish the company with poor rating, which in turn leads to decreased customer and investor demand.
- The company misses to align its products to changing environment and customer needs (i.e., lack of product development for new forms of work and life styles).

Several institutions work on advancing the development of **methodologies and scenarios**, for example:

- [Climate Financial Risk Forum \(CFA\)](#)
- [Casualty Actuarial Society \(CAS\)](#)
- [The Geneva Association Task Force on Climate Change Risk Assessment](#)
- [Task Force on climate-related financial disclosure ledge Know Hub \(TCFD\)](#)

Scenarios, however, should not only include direct effects but also consider that many losses such as weather-related losses are not insured. This protection gap can lead to significant burden on households, businesses, and governments.

### 2.7.3. Why do ESG risks require increased attention?

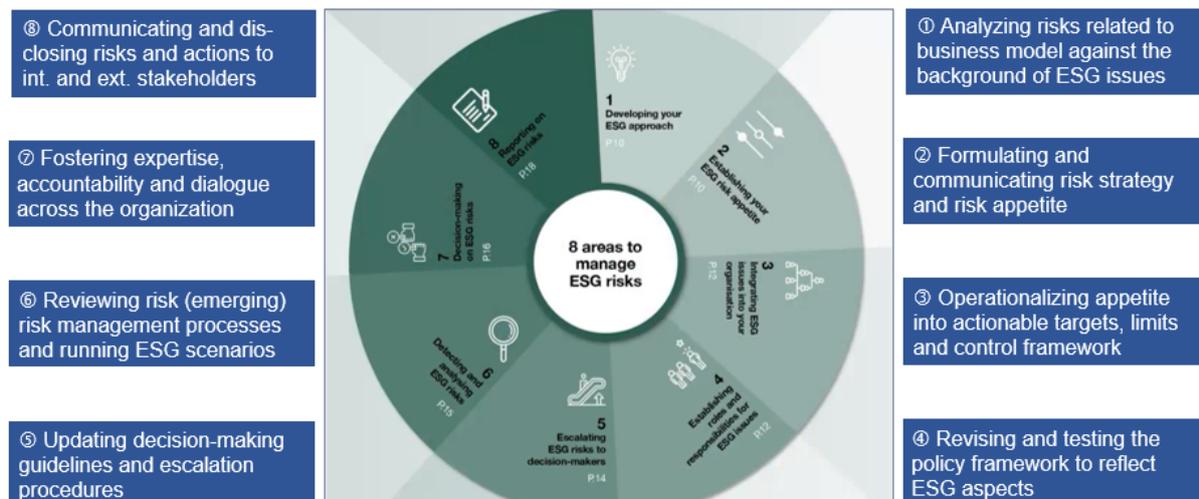
ESG aspects have uncertain but potentially material, irreversible impacts over diverse time horizons. Insurers not only need to review their investment strategy but also assess potential impact on the core insurance business and operations. Finally, societal, regulatory and customer expectations are rising and increasingly expect insurers to take an active role.

However, complex interdependencies, non-linear effects and negative externalities complicate adequate pricing of ESG risks. Model risk is present, data is scarce and time horizon often does not match with other managerial instruments and processes. Hence, the argument that current ERM frameworks are effective and efficient enough is increasingly being replaced by an understanding that new practices are necessary. Moreover, the UNEP Finance Initiative & PSI Principles for Sustainable Insurance (2020) argues that “the benefits for companies taking an active role in developing an ESG approach not only helps mitigate reputation risk to their organizations and manage societal expectations but will also help them capitalize on developing understanding of the financial benefits of clients with strong ESG performance”. Research shows though that ESG is “not a strategy for the half-committed” (Cappucci, 2018). Bluntly spoken, just charging more premium to compensate the increase in natural disaster losses is not a sustainable solution. It is crucial for insurers to not only build resilience but to take an active role – supported by the expertise of the risk management function. Embedding ESG requires investment of time irrespective of firm.

### 2.7.4. Why the risk management function has a dual role to play

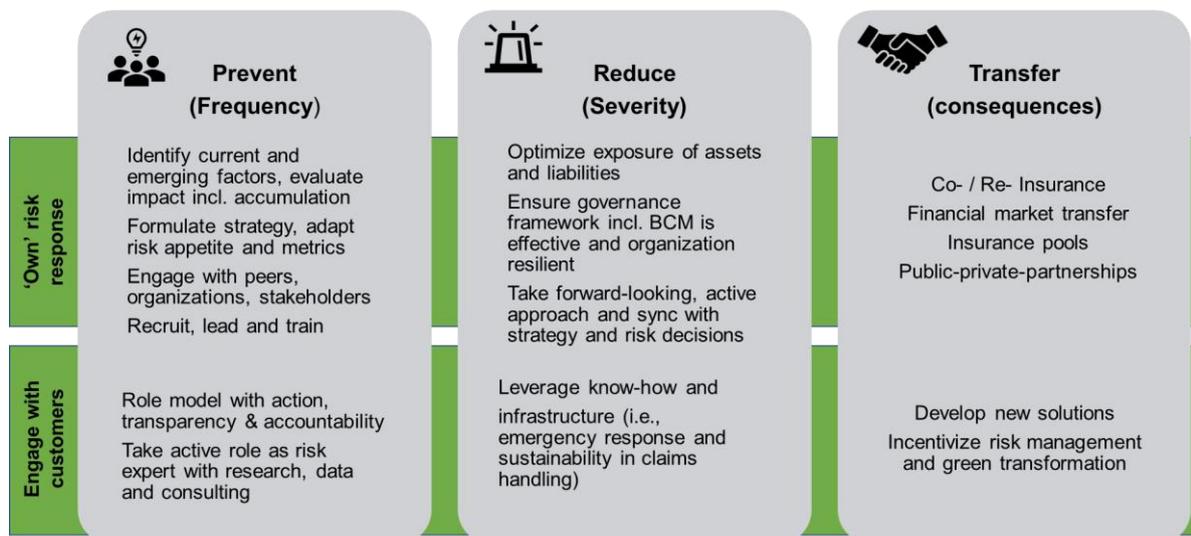
After all, risk management should not only be concerned about assessment and mitigation, the function has a key role to play by fostering the optimization of the risk-return trade-off. Figure 21 outlines the essential steps in embedding ESG into the risk management framework. As with other risks, results from risk and scenario analysis and reverse stress test should inform risk and strategy decision-making (1-2, 6). Insurers will have to review their risk appetite and governance framework to cascade ESG-aware strategy throughout the organization (3). Developing metrics to inform and guide decision-making is key which entails to develop useful and integrated reporting and disclosure processes and to reflect the management of ESG aspects in the policy framework (4-5). Finally, effectively managing ESG risks requires expertise, not only among underwriters, but also among risk managers and senior management to foster accountability and dialogue across the organization (7). Communication and disclosure of ESG risks and their management underline the commitment (8).

Figure 21: Essential steps in embedding ESG into the risk management framework (based on Unepfi, 2020)



The challenges that insurers face besides quantification issues are shortages of knowledge and skills specific to ESG factors and risks. Hence, training and dialogue with experts and peers will be prerequisite. Another issue to tackle is the lack of effective third-party risk management. Risk management not only plays a role in driving the own risk response across the organization, it can also contribute to sustainable engagement with clients: providing advice as risk expert, contributing to accountability and transparency by reporting on ESG risks and actions or by supporting the aligning of underwriting guidelines (Figure 22).

Figure 22: The dual role of the risk management function



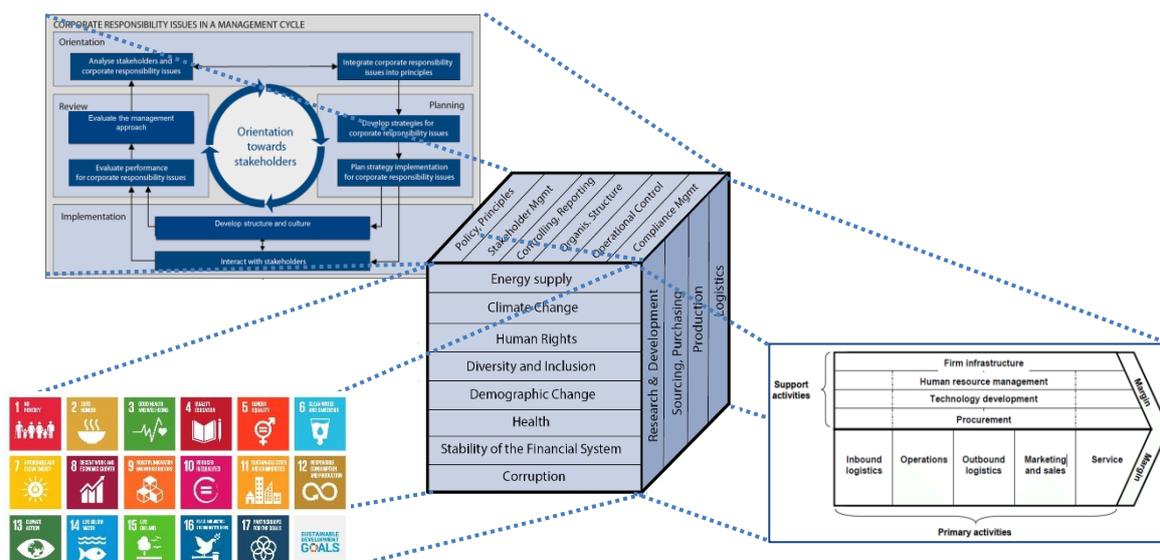
## 2.8. RUNNING A SUCCESSFUL PROGRAM

How can companies effectively integrate topics of “responsibility” or “sustainability” into normative, strategic and operative management? This knowledge is not only of relevance for an insurance company’s own sustainability approach, but also to be qualified to assess the sustainability approaches of importing business partners such as policy holders, invested companies or reinsurers. This section therefore introduces a few basic concepts and models of a modern “corporate responsibility management” (to be understood as synonymous to the terms “sustainability management” or “ESG management”)

### 2.8.1. Corporate responsibility management – systematic and strategic

Corporate Responsibility (CR) management can be defined as the sum of all activities within an organization aimed at an improvement of the organization’s impacts on society. A simple, cube-like model of three dimensions can best capture all potential activities related to CR management, as shown in Figure 23 (based on Porter 1985; Brand and Winistörfer, 2017).

Figure 23: A simple, overarching model for corporate responsibility management



- The front side of the cube shows (examples of) **CR / sustainability topics** of potential relevance for a company. They are defined by the challenges; society is facing and may change in time. Depending on a company's impacts, these topics can potentially affect the company's success. Currently, the most widely accepted catalogue of CR topics is given by the UN sustainable development goals (SDG).
- The right side of the cube shows (examples of) **company activities or processes**. All of a company's impacts on society are determined by the company's (or its upstream or downstream business partners') primary and support activities. A widely used model for primary and support activities within a company is Porter's value chain (Porter, 1985).
- The upper side of the cube shows (examples of) **elements of governance** for CR topics. With these elements, a company is able to actively manage its impacts on society. A useful model for such elements of governance can be found in standardized management systems (e.g., ISO 9001, ISO 14001) with a continuous improvement approach with the distinguished steps plan-do-check-act (PDCA) or orientation-planning-implementation-review.

Brand and Winistörfer (2017) proposed a management system model for CR. Its core elements are (1) identify stakeholders and issues, (2) develop principles (orientation phase); (3) develop strategies, (4) plan objectives and measures (planning phase); (5) develop structure and culture, (6) interact with stakeholders (implementation phase); and (7) review performance, evaluate performance (review phase).

Whereas some of these elements are not too specific in the realization of CR topics when compared to other topics (e.g., product quality) and thus represent not much more than "good management", others require special attention when it comes to CR topics. Two of them are explained in sections 2.8.2 and 2.8.3.

### 2.8.2. Define corporate responsibility topics of high priority

This element is crucial for the entire CR management, as here, the scope is defined for all subsequent elements. If at this stage, an important topic is missed, all other steps may become meaningless. Usually, this element includes two steps: topic identification and topic prioritization.

**Topic identification** will result in a long list of topics of (potential) relevance for the company. To establish this longlist, a series of analyses is usually applied:

- Analysis of stakeholder expectations
- Analysis of competitors: What topics do they work on?
- Analysis of the media landscape (traditional and social)
- Analysis of the value chain: Which topics concern (sub-)suppliers, customers etc.
- Analysis of binding legal provisions (e.g., environmental law, labor law)
- Analysis of voluntary standards (e.g., ISO 26000, GRI, SASB)
- Analysis of future studies and long-term trends

Topic definition is a tricky thing. By following a few rules, problems in further stages of the CR management can be avoided:

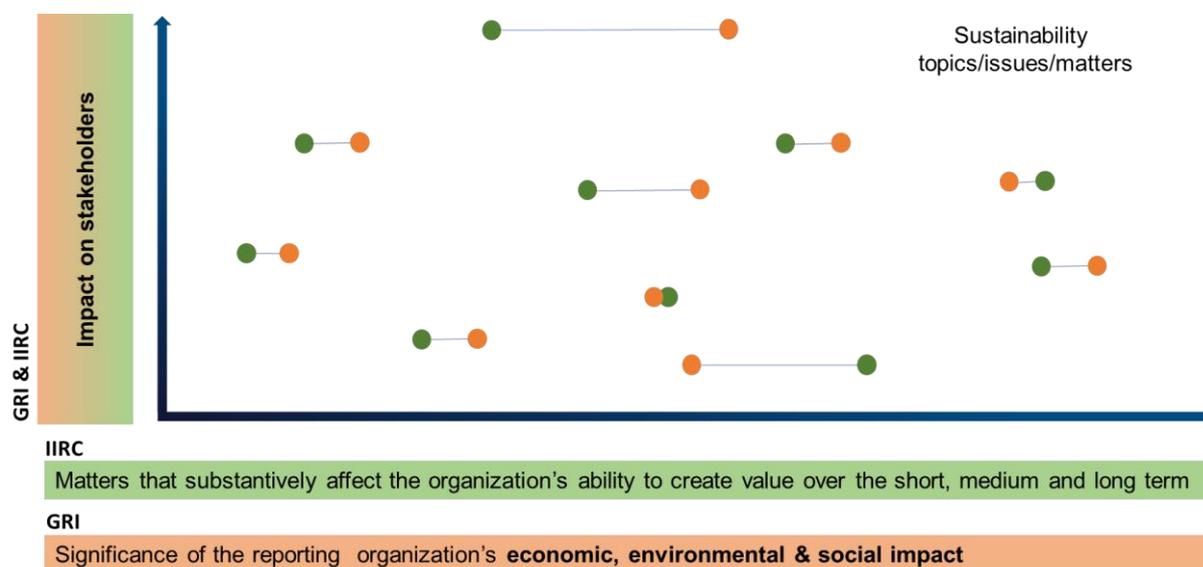
- Define topics as far as possible in terms of impact instead of value chain stages (stakeholders affected) or management instruments; the cube model (see Figure 23) shows that topics defined in terms of different sides of the cube inevitably lead to redundancies.
- Define topics as precisely as possible i.e., avoid redundancies
- Define topics at a similar / comparable level of aggregation

**Topic prioritization** is used to examine the list of issues that have been identified and select the ones which require a strategic approach. Inspired by the most widely applied standard for sustainability reporting, the standards (GRI, 2021) by the Global Reporting Initiative GRI, the process is called “materiality process”. In general, two different methods are applied to prioritize topics, sometimes separately, sometimes in a combined approach:

1. The application of criteria for assessment: The company first defines a number of criteria for the importance of topics and then applies the criteria using the necessary expertise (internal or external).
2. The questioning of stakeholders for assessment: Internal and/or external stakeholders are asked to assess or rank the topics according to their importance for the company; methods applied can be surveys, interviews or focus groups.

Examples of criteria that may be applied can be found in the two reporting standards by GRI and SASB (see Figure 24). Both suggest to applying two criteria, however, not identical ones.

Figure 24: Comparison of the evaluation criteria for prioritization of CR topics in GRI and SASB



### 2.8.3. Define a corporate responsibility strategy

The strategic anchoring of corporate responsibility is a core task during the planning phase. The goal is to link CR topics with the overall targets or the purpose of the company (defined, usually, by the ownership or, on their behalf, by the board of directors). If no specific purpose is defined, it is usually assumed that the purpose of private, profit-oriented organizations is to increase the enterprise value (determined by cash flow and cost of capital). This is largely determined by value drivers such as turnover, costs, depreciation, tax, investments.

The starting point for strategy development is the definition of high priority CR issues (see section 2.8.2). Based on this, the internal conditions and environment for each topic are analyzed, and the opportunities and risks of each strategy identified. For this process, the design school process of strategy development (e.g., Helms and Nixon, 2010) can be adapted. A SWOT analysis will then lead to developing strategy options. The central question is: What options (the utilization of opportunities and/or threats by employing strengths and/or resolving weaknesses) arise for the company in the face of a given CR topic in respect to specific value drivers? A useful model for value drivers related to CR comes from the UN Global Compact (see Figure 25).

Figure 25: A value-driver model for corporate responsibility (UN Global Compact, n.d.)

<b>Return on Capital Employed (or equity, shareholder value, economic value added)</b>	<b>Growth</b>	<ul style="list-style-type: none"> <li>• New Markets &amp; Geographies</li> <li>• New Customers &amp; Market Shares</li> <li>• Product and Service Innovation</li> <li>• Long-term Strategy</li> </ul>
	<b>Productivity</b>	<ul style="list-style-type: none"> <li>• Operational Efficiency</li> <li>• Human Capital Management</li> <li>• Reputation Pricing Power</li> </ul>
	<b>Risk Management</b>	<ul style="list-style-type: none"> <li>• Operational &amp; Regulatory Risk</li> <li>• Reputational Risk</li> <li>• Supply Chain Risk</li> <li>• Leadership &amp; Adaptability</li> </ul>

An alternative or supplement to the “classical” way of strategy development related to CR topics is called Creating Shared Value (Porter and Kramer, 2006; Porter and Kramer, 2011). By combining an inside-out perspective (mapping the social impact of the value chain) with an outside-in perspective (mapping the social influences on competitiveness), a company can classify all relevant CR topics (“social issues”) into three categories:

1. Social issues that are not significantly affected by a company’s operations nor materially affect its long-term competitiveness.
2. Social issues that are significantly affected by a company’s activities in the ordinary course of business.
3. Social issues in the external environment that significantly affect the underlying drivers of a company’s competitiveness in the locations where it operates.

For each of the three categories of topics, the authors suggest appropriate strategies they either call “responsive” or “strategic” (see Figure 26).

Figure 26: Creating shared value through social issues (Porter and Kramer, 2006)

	<b>Generic Social Issues</b>	<b>Value Chain Social Impacts</b>	<b>Social Dimensions of Competitive Context</b>
<b>Categories of Social Issues</b>	Social issues that are not significantly affected by a company’s operations nor materially affect its long-term competitiveness.	Social issues that are significantly affected by a company’s activities in the ordinary course of business.	Social issues in the external environment that significantly affect the underlying drivers of a company’s competitiveness in the locations where it operates.
<b>Strategies</b>	<p>Good citizenship</p> <p><b>Responsive CSR</b></p>	<p>Mitigate harm from value chain activities</p> <p>Transform value-chain activities to benefit society while reinforcing strategy</p>	<p>Strategic philanthropy that leverages capabilities to improve salient areas of competitive context</p> <p><b>Strategic CSR</b></p>

## 2.9. THE PURPOSE-LED STRATEGY

### 2.9.1. Purpose is unfolding

This section addresses the question why corporate strategy needs to know about purpose. First by providing a better understanding why purpose is a true business driver. Second why corporate strategy needs to combine doing well (financial performance) with doing good (create social value). And finally, how the process of formulating and implementing strategy can be enriched with a 5-step framework towards a purpose-led strategy that is transformative to a company.

The recent work by Kate Raworth (2017 on Doughnut Economics and the recent research on purpose-led strategy (Huizenga, 2020; Malnight et al., 2019) inspires the strategy practice field to think and act upon the economic and societal challenges of the 21<sup>st</sup> Century. Today many companies embrace the idea of having a purpose statement as part of their mission and vision. The convenient truth is that a purpose statement is trending among organizations. Yet the depth and impact of purpose

statements varies from shallow statements to the ones that become value-based drivers for a company's growth and transformative business.

Kate Raworth's (2017) compelling argument on why we need to act on purpose is twofold. Organizations need to be aware on their ecological overshoot on e.g., climate change, freshwater withdrawal, biodiversity loss and many more ecological challenges. Next, the awareness on the shortfall on the social foundations of society like diversity, food availability and malnutrition, health, access to education and inequality. If we bring this point of view back to the strategy field, the strategy task is unfolding to incorporate a purpose dialogue in the strategy cycle of organizations. It can drive the annual strategy planning cycles and influence the way we make decisions, allocate budgets, and imagine the company future directions. As In the strategy practice we need to ask ourselves in the business and corporate strategy dialogues how the company can contribute to create a world that supports for human needs while safeguarding the planet from ecological overshoot.

Academic research shows that it's time for beliefs and theories about strategy to catch up with the way thought leading companies transform their business to meet society challenges today (Moss Kanter, 2011). Investing in the future of people and society drives new beliefs and leading companies use a different logic and have a well-defined purpose as part of their core strategy. It's just more than an add-on, it's a 'hot button' topic. Scholars point out to ways to create social value, improve people's morale and commitment to an organization and the benefit of doing good to the community, and help the environment. Even more the evidence builds up that companies with a purpose-led strategy become the thought leaders of their industry and show a performance surplus. Malnight et al.'s (2019) global study on high growth in companies investigated the importance of three strategies for growth e.g., creating new markets, serving broader stakeholder needs, and changing the rules of the game. Affirmative on these three strategies to boost growth they identified a fourth driver: purpose. The recent research by Leleux and Van der Kaaij (2019) indicates that companies with a clear purpose have a 27% better performance. The presence of a purpose statement with a well-defined impact on society seems essential for developing a company direction equipped with a surplus of purpose. In their research, based on the Dow Jones Sustainability Index data from 10 sample industries, the top decile performers outperformed their peers by as much as 27%. This work supports the idea to have an explicit formulation of a purpose statement with a narrow societal scope, that is, concentrating on just a few sustainability issues.

Next to clarifying why purpose is a 'hot button' topic we have clear reasons to highlight that purpose plays three important strategic roles. One reason being that purpose helps companies to redefine their playing field, inspired and led by values, beliefs, heritage and history of the company. Another reason is that purpose allows to reshape the value proposition, creates differentiated offerings and is transformative to the core business. And finally, Malnight et al. (2019) state that purpose-driven strategy can overcome the challenges of slowing growth and declining profitability. It affects the corporate strategy task of budgeting, forecasting and investments and consequently builds the case for transformation.

Inspired by Kate Raworth's (2017) Doughnut framework we can identify 5 strategy levels to how purpose is addressed in the corporate strategy task.

Figure 27: The purpose-led strategy framework (Huizenga, 2020)

PURPOSE LEVEL	STRATEGY
Level 1 DO NOTHING	<ul style="list-style-type: none"> <li>Strategy narrows to an economic responsibility and identification of opportunities to add value (&amp; risk)</li> </ul>
Level 2 DO WHAT PAYS	<ul style="list-style-type: none"> <li>Strategy includes social, financial and resource impact addressed with CSR programs</li> </ul>
Level 3 DO YOUR FAIR SHARE	<ul style="list-style-type: none"> <li>Purpose elevates strategy at business portfolio level</li> <li>Purpose is guiding belief in decisions for growth, ESG commitments and targets</li> </ul>
Level 4 DO MISSION ZERO	<ul style="list-style-type: none"> <li>Purpose is integral part of business and corporate strategy process</li> <li>Incumbents show a roadmap and start ups step in with a simple articulation of what people or planet issues they are trying to solve</li> </ul>
Level 5 BE GENERATIVE	<ul style="list-style-type: none"> <li>Purpose led strategy brings 'doing well &amp; doing good' together</li> <li>Purpose is simple, connects, owned, rewarded and exemplified in strategy with purpose dialogues.</li> </ul>

**Level 1 - Do nothing with purpose**

Typically, strategy takes the state of the business and industry for granted and just narrows the corporate strategy task to identification of opportunities to add value and assess risk. This point of view presumes the strategy task focuses merely on the market opportunities and do business within (regulatory) boundaries.

**Level 2 - Do what pays**

Typically, strategy determines the level of the company's material, technical, financial resources impact to ecological overshoot. Strategy primarily considers the bottom-line impact of the company's business model in the annual strategic planning cycles. Examples include companies that feel the need to accelerate efforts to reduce its carbon emissions by 2030 and get green.

**Level 3 - Do your fair share**

Typically, strategy takes a more proactive portfolio management approach to the business (units) in a company. A portfolio approach to assess the non-economic responsibility of the company to society. In this stage it is not an incremental, once a year process but strategy commits to targets to cut greenhouse, emissions and fulfill a fair share to tackle inequality. For example, on the social topic AIG Insurance nonprofit and community efforts in achieving sustainable and resilient development to offer end-to-end resilience services with the Rockefeller Foundation's 100 Resilient Cities (100RC) program.

**Level 4 - Do mission zero**

Typically, strategy gets to a purpose definition that is essential to the core business and part of the mission. Strategy gets to a transformative responsibility (both portfolio and business unit level) to relate to the ecosystem of the company and address all value chain opportunities for reducing ecological overshoot and social shortfalls. Examples include those companies that make a serious attempt to meet SDG goals. Companies that put a strategy in place in becoming social transformative, like e.g., Lemonade's insurance model with a give back to causes that matter to people, protecting people and strengthening local communities.

**Level 5 - Be generative and responsible**

Beyond any 'add on' this gets to a true purpose led strategy that brings 'doing well & doing good' together and brings humanity in the business. Strategy typically takes the lead in the business strategy and the corporate strategy dialogue and lifts these meetings to a Purpose Dialogue. The business values and corporate strategy dialogues take the driver's seat and guide the way decisions will be taken, industry scenarios are built up and a transformative direction is set. One that's about the overshoot, shortfalls and accompanying value creation and audacious goals to transform.

Two examples of companies that think different and act on 'level 5', being generative, include Ørsted and DSM, historically being coal companies. Companies that completely transformed and purpose led revamped their core business. Ørsted from being a pretty coal-intensive energy utility provider to becoming a pure-play renewable energy provider. Their transformation of divesting in fossil fuels and Ørsted's investments in offshore wind power is guided by their purpose and vision of a world that runs entirely on green energy. The company takes the responsibility on the ecological overshoot and to prove solutions to one of the world's most difficult and urgent problems, to speed up the green action and saying farewell to coal in 2023 ([www.orsted.com](http://www.orsted.com)). DSM transformed from coal mining to chemicals and nowadays nutrition. Their level 5 approach of the corporate strategy cycle and 5-year strategic programs was induced by purpose dialogues over the period 1995-2020 and transformed the core business into nutrition by 2021. DSM rejuvenated the strategy on the belief of 'doing well and doing good'. DSM's purpose is to create brighter living for all ([www.dsm.com](http://www.dsm.com)) and the company success includes the big goal in keeping the world's growing population healthy. This includes measurable purpose goals like ending all forms of malnutrition by 2030. The strong financial performance shows clear signs that a purpose led strategy can take the lead in both doing well and doing good.

**2.9.2. Strategy – call for action**

Key takeaways include:

- Purpose is a 'hot button' topic for strategy, and we have clear reasons to highlight purpose plays an important role in the strategy process. Academic research and evidence build up that accomplishing societal purposes as part of the core strategy adds up to better company performance.
- Purpose is not an add-on and companies need avoid shallow purpose statements. It can start by defining and understanding at a business portfolio level the ecological overshoot and social foundation shortfall of the company.
- Deploy purpose statements in the strategy cycle with purpose dialogues. This will guide strategy to make better decisions or make *other* decisions. If strategy includes the purpose dialogue in the annual strategy process one can start to crystalize on the ways to address ecological overshoot and social shortcomings and the consequences for strategic plans and investment decisions.
- Purpose led strategy builds the case for transformation. Purpose being an integral part of the business and corporate strategy dialogue will drive the leadership agenda and the investment agenda to identifying new opportunities and get to a generative level and transform the core business and guiding new directions for innovation, research and development.

## 3. Conclusions

This paper, and the program it is based on, provide an overview of the challenges and state of the art solutions of Sustainability in insurance. In particular, it focused on incorporating environmental considerations in the core business of insurance carriers. The challenges of climate change are significant and set to become more critical over time. Insurance is a very significant component of the economy, and in spite of limitations to our modeling, needs to play a more proactive role in managing this challenge. This needs to be achieved not just through more sophisticated risk models, but by evolving core insurance products, services and processes.

### 3.1. INSIGHTS FOR INSURANCE COMPANIES

The key insights can be summarized following a market-in view of the firm, and extending into organizational transformation insights.

#### **Customers, products and services**

Retail insurance customers are evolving their expectations to increasingly incorporate higher-value elements. This process could be driven by generational changes, and at this time we do not yet have a clear strong market signal for specific components of sustainable products. Within insurance, green products are not yet a well-defined category. However, several frameworks have been developed. There are several possibilities to make products greener: not just by covering a green asset or by providing green coverage for a traditional asset, but also through claims and by providing support for a transition to greener consumption patterns. Green products, therefore, need to be a part of an integrated approach along the entire value chain. Mobility products mostly focus on the underlying change of technologies in Motor, but also the rise of sharing platforms. For Homeowners, the key challenge lies in improving energy efficiency and mitigating climate-related changes in risk patterns. Commercial risks, on the other hand, may need support from a broker because of the complexity. Dealing with reputational risk further complicates the underwriting process in the commercial business.

#### **Sustainable commercial underwriting**

Through the analysis of the proposed wording and the risk information, underwriting should be able to define the quality of the risk (e.g., industrial all-risk cover for a power plant). Furthermore, wording amendments and risk improvements might be requested by the insurer in order to make the risk insurable. However, this is not sufficient for most insurers today, as reputational risks have become more relevant. The sustainability of the account is assessed, and the result is a component of the risk quality assessment. Thus, the responsibility of the underwriting function has become much broader than in the past.

#### **Claims handling and operations**

Claims handling can have a substantial impact on the ESG footprint of an insurance company. For example, proactive claims handling can reduce the overall financial loss and the environmental impact by forcing the use of environmentally friendly or refurbished components. However, ESG considerations tend to be separate and distinct from commercial interests, at least for the time being. Thus, ESG needs to be treated as a separate category and cannot be subsumed in traditional economic and commercial incentives. Claims is traditionally also not considered in the environmental footprint of an insurance company and is therefore not being pursued actively – more can and needs to be done in claims.

Managing a company's environmental footprint is much more common, and is typically linked to greenhouse gas emissions of upstream, own, and downstream activities. Managing this footprint requires a dedicated governing body, longer term planning horizons than typically considered in strategic planning. It is typically also subject to a growing set of reporting requirements, some of which are voluntary. Leadership challenges are also significant, due to increased number of stakeholders, the need to coordinate across all organizational units, and the disclosure "company internal" information. This will require incorporating ESG criteria in established profit-driven decision-making processes and continuing to drive the process forward.

#### **Risk management**

The impact of ESG risks is uncertain but potentially wide-ranging, and becoming increasingly significant for insurers. Currently, insurers tend to focus on climate risks, but they need to expand their analysis to include other risk categories in the near future. Pricing ESG risks is a challenge due to complex interdependencies, non-linearities, externalities, and long time-horizons. While quantifying impact is critical, it is not enough a proactive approach to managing and mitigating ESG risks is necessary: Aligning risk culture, risk policy, risk appetite and tolerance framework to adequately consider ESG risks; and defining and reviewing processes and responsibilities to identify, assess, manage, monitor and report ESG risks in a timely, consistent and transparent manner across the organization. In addition, risk management can and should fulfill a dual role in the organization. On the one hand managing and mitigating own risks; on the other working with underwriters to take a market-facing role by engaging and advising clients on their risks.

**Investment management**

Sustainable investment management and the inclusion of ESG factors is a necessary and welcome development for insurer portfolios. Contrary to early concerns, the net effect of this development on portfolio returns has been neutral or positive. Thus, portfolios perform better in addition to supporting a positive environmental and societal contribution. While generally driven by company-specific considerations, tools and best-practices exist to guide sustainable investment decisions.

**Organizational transformation**

Examples and processes exist for guiding a company's migration towards more effective CR management. Especially critical in this transition are the definition of high priority topics for CR and the definition of an overall CR strategy. Topics should be identified and prioritized by impact rather than by value chain stages and should be defined as precisely as possible. Issues with high material impact and which require a strategic approach should be incorporated in the strategic planning process alongside more traditional dimensions.

The level of ambition for corporate responsibility as a component of strategic planning can vary significantly. Recently, we are starting to see successful examples for purpose-led companies. These are companies who are not only paying lip service to corporate responsibility or trying to honestly do their fair share towards a positive societal impact. They are companies who have lifted from history and cultural heritage to redefine their mission, strategic beliefs and playing field beyond the purely financial reward and towards the broader mission. These companies combine doing well and doing good and are well-positioned for the long term with aligned shareholders, employees and management.

**3.2. THE PATH FORWARD**

While customers are not yet fully clear on their priorities for sustainability and environmental contributions from insurance, there is nonetheless a clear pattern towards the increasing significance of these issues. Insurance companies have taken steps to manage their investment portfolios and evolve their risk management frameworks to incorporate and manage these issues proactively. They have also taken significant steps to improve their own environmental footprint. However, they are still in the early stages of incorporating these issues into their core product and service offerings, as well as in evolving their claims handling processes. This is in part due to the complexity of the issue, and partly due to muted market signals.

A much more determined, long-term and purpose-driven push is necessary from insurance companies to fulfill their societal role towards a long-term sustainable economic environment. Insurance is too large a sector to simply await the progress by other players. There are several emerging examples of companies that have reshaped their strategy to make purpose, rather than financial considerations, the core unifying characteristic of their strategy. These companies have tended to perform well in the market and have provided a coherent mission for employees and shareholders, engendering long-term commitments. Insurance companies need to more proactively and courageously move in this direction to fulfill the promise of insurance as a social good in the 21<sup>st</sup> Century.

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Facing climate change and helping society evolve to a more sustainable system is a significant and increasingly important issue for insurance companies. This paper summarizes the current understanding of the challenge, the state of the art of the solutions being investigated along the insurance value chain, and our understanding of our path ahead.



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