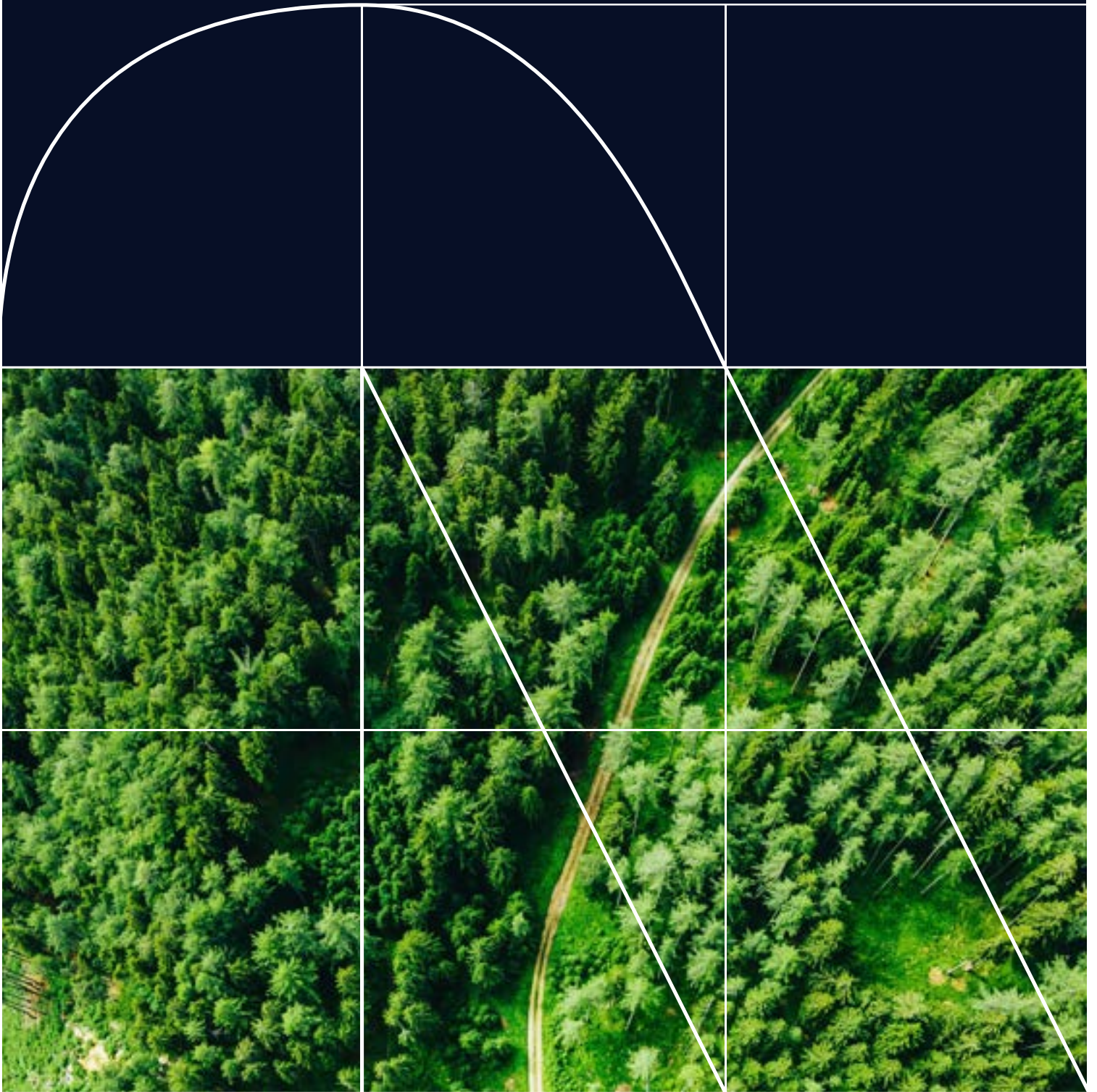# On The Path To Sustainability: The Insurance Industry's Footprint

Thought Leadership

"On The Path To Sustainability: The Insurance Industry's Footprint"

Thought Leadership

Table of Contents.

Chapter 1. Introduction

Sustainable insurance is a strategic approach in which all activities in the insurance value chain and own operations are carried out responsibly and in a forward-looking manner by identifying, managing, and monitoring risks and opportunities associated with environmental, social, and governance issues. Sustainability has been a pivotal part of the world for years now, but in recent years, things have worsened due to the economic effects of the COVID-19 pandemic and escalating climate change impacts worldwide. These factors have increased pressure on industries to take certain measures and be aware of their environmental, social, and governance footprints.

Insurers need to manage their sustainability footprints through both internal and external initiatives. Internal processes include carbon footprint reduction, waste management, data protection, accelerating diversity in the workforce, joining alliances that support specific sustainable missions, and meeting all the required reporting and compliance standards for sustainability. External processes include product innovation, such as differentiated underwriting, Sustainable investment, and sustainable infrastructure, engaging in partnerships that provide solutions to climate risks, and achieving the goals and missions set by insurance companies.

The insurance industry is currently undergoing a profound change as it wholeheartedly adopts green initiatives and prioritizes sustainability. Through creative product development, comprehensive strategies, and educational campaigns, insurers are actively contributing to the battle against climate change. Their role in safeguarding businesses, individuals, and communities from environmental risks is pivotal, contributing significantly to the creation of a more resilient and sustainable future. Dedication to unprecedented challenges, the insurance sector's dedication to green initiatives serves as both a beacon of hope and a driving force for positive change.

Chapter 2. Role of Insurance Towards Sustainable Development

The role of insurance in advancing sustainable development is paramount, as contemporary challenges often hinge on adept risk assessment and management. The insurance sector's profound expertise in comprehending and addressing a myriad of risks positions it as a crucial player in the pursuit of sustainability. The nexus between sustainable issues and the insurance industry is robust, gaining recognition across broader society.

To assess the accomplishments of the insurance sector in terms of sustainability, it is imperative to delve into the interconnectedness of risks and sustainability, highlighting the sector's contributions in mitigating both traditional and emerging risks like climate change and natural disasters.

The involvement and impact of the insurance sector in environmental sustainability are succinctly outlined below:

- Resolution of Environmental Losses: Insurance companies actively engage in settling various environmental losses, whether stemming from human activities or natural occurrences.
- Expertise in Risk Management: Insurers possess substantial expertise in risk management and adeptly handle claims, contributing to the overall resilience of communities and businesses.
- Loss Prevention Guidance: The insurance sector provides valuable loss prevention advice to businesses, the public, and society at large through seasoned professionals.
- Financial Guardian Role: Acting as a financial guardian, insurers extend assistance to society by offering financial support in exchange for nominal premium payments.

- Technological Adoption: The adoption of technology and the burgeoning online insurance market not only streamlines processes but also minimizes resource usage, resulting in positive environmental conservation outcomes. A paperless option is enabled and encouraged within Customer Communications Management and Contact Centers in the US. Driving down customer demand for paper reduces the consumption of wood and water during manufacturing, paper waste in landfills, and the carbon emissions from transportation otherwise needed to deliver claims and communications. Although difficult to quantify, some studies estimate digitizing invoicing processes can reduce greenhouse gas emissions up to 63% per invoice.
- Enhancement of Standard of Living: Through innovative insurance products, the sector contributes to an improved standard of living for society, fostering financial security and resilience.

In essence, the multifaceted involvement of the insurance industry goes beyond mere financial transactions, extending into the realms of risk mitigation, environmental stewardship, and societal well-being. As society grapples with evolving challenges, the insurance sector's role in championing sustainability becomes increasingly pivotal.

Insurers are Applying Different Strategies When It Comes to Sustainability

The sustainability agenda for insurers evolved rapidly last year, and the outlook for 2024 is for more of the same. On climate, we expect to see a greater emphasis on strategy as insurers compete for new low-carbon opportunities — looking beyond disclosure and target-setting to net-zero transitions, planning, and delivery. Meanwhile, a new global deal to protect biodiversity means "nature positive" is about to become the new "net-zero". As the sustainability agenda accelerates and proliferates, a key challenge for insurance executives will be choosing where to focus and what to prioritize.
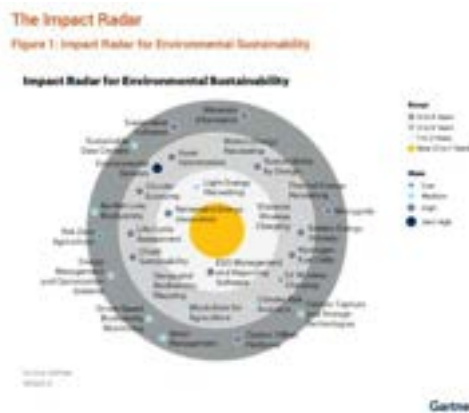
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An Emerging Tech Impact Radar is an analysis of the maturity, market momentum and influence of emerging technologies and trends. This Emerging Tech Impact Radar centers on the environmental sustainability market, a space marked by a constant influx of new entrants and presenting a significant revenue opportunity for technology and service providers. Sustainability has the potential to fuel growth across the enterprise and should be embedded

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[1] https://www.gartner.com/en/documents/4465699

in all relevant core business activities including product management; it should not be maintained as a compliance-based and/or siloed activity.

To better understand the trends and innovations underpinning the environmental sustainability market, we have identified 29 technologies and trends that fall into one of these five overarching themes:

- Energy encompasses power and energy-related technologies, such as energy harvesting and battery energy storage, that are key to drive forward the global energy transition efforts. Other technologies discussed under this theme include electric vehicle (EV) wireless charging and microgrids.
- Sustainable business discusses the technologies and methods underpinning sustainable business strategies, such as sustainability by design and environmental sensing technologies. This also includes cloud sustainability and sustainable software.
- The climate theme discusses trends and challenges around carbon footprint measurement and other important methods and tools that are needed to reach the multilateral goal to attain net-zero by 2050, to keep global warming below 1.5 degrees Celsius by the end of this century. Climate risk analytics tools and Carbon capture technologies are some of the key trends discussed here.
- Circularity highlights trends and strategies needed to drive adoption of the circular economy (as opposed to linear models). Life cycle assessment and material informatics are important trends discussed here.
- Biodiversity, food, and agriculture examines newly emerging trends and technologies that enable the monitoring and preservation of natural resources (such as drone-based biodiversity monitoring), as well as transparency and traceability of farming products using distributed ledgers.

Emerging Technology In The Insurance Industry

Insurers are exploring foundation models, intelligent applications, and embedded insurance to deliver new kinds of value to customers through contextualized experiences, personalized services, and integrated insurance offerings.

Adaptive AI, industry cloud, and sustainable Activities can be leveraged to transform the financial model. They can generate forms of revenue outside traditional core businesses or directly monetize data within regulatory frameworks. Technologies such as generative AI, composite AI, and hyper-automation are creating the underlying capabilities that insurers need to augment human decision-making. They can also reimagine business processes for increased productivity and market expansion.

Leveraging AI, blockchain and IoT technologies helps to better risk underwriting, improving claims management and predict and prevent/limit the impact of climate-related catastrophes through incentivizing clients to pre-emptively take adaptive measures. Insurers must also collaborate with communities, government, and global NGOs to shape the policies and guidelines to address the sustainability challenges.

Climate Change And Net-Zero Target

Climate change is increasingly becoming an important topic in the insurance sector. Many insurers have started disclosing their sustainability initiatives in recent years. The sector has improved its overall level of risk climate change from 25%-41% in two years. Contribution to climate change action or joining the fight against climate change involves reducing emissions and developing strategies so that the global goal is attainable. Insurers these days have been focusing on greenhouse gas emission within their operation and establishing ESG criteria for their investment portfolio. Greenhouse gases have been the key driver of climate change since the mid-20th century. At the COP 21 in Paris, it has been agreed by 200 nations to limit global warming to below 2 degrees compared to pre-industrial level. In addition to investment portfolio decarbonization, a significant trend is underwriting portfolio decarbonization. This

is marked by recent commitment by members of the Net-zero Insurance Alliance (NZIA) to disclose emissions in underwriting portfolios and set related net-zero targets.

The insurance industry is already underwriting some physical risks like hurricanes, floods, wildfires, etc. helping to survive in the change in the climate disasters. Insurers can also influence the public behavior given their services to businesses and individuals.

Insurtech companies like kettle and Zesty.ai are analyzing enormous amounts of geospatial imagery, location-specific data, and weather data to predict future wildfire patterns and certain risks that can occur. Another Insurtech like Kita is planning to offer insurance products that guarantee the quality and delivery of carbon units from buyers and sellers.

Bringing down the carbon footprint in the atmosphere is the primary cause of climate change. Bringing down the carbon footprint should be the priority for all businesses. Though mitigating climate change through reducing emissions remains a central goal for insurers, the sector is also reducing losses and increasing resiliency by advancing climate adaptation of its policyholders and their communities. The insurance sector should find new ways to deploy its unique capabilities – risk finance, risk analytics, Impact investing, strategic philanthropy, and stakeholders' engagement – to help advance community level climate adaptation.

Net- Zero Strategy

The transition to a net-zero emissions world opens an investment opportunity that totals almost $200 Tn by 2050 — or nearly $7 Tn a year, according to Bloomberg.

Addressing climate concerns presents challenges as it permeates every aspect of operations, making decisive action complex. Transitioning to a net-zero strategy involves navigating an evolving landscape, creating solutions that align with client and policyholder needs, and delivering tangible business value. Despite these challenges, adopting the right strategic approach can turn uncertainties into manageable aspects.

Beyond aiding in prioritization, a net-zero strategy can confer a competitive edge. Consumer preferences are increasingly leaning toward low-carbon alternatives, and companies that proactively adapt to market transitions can optimize pricing and introduce relevant services. Insurers embracing an active net-zero stance can also attract additional funding. A notable example is a global insurer that experienced a twofold increase in market capitalization by taking prominent steps in environmental, social, and governance (ESG) initiatives. This heightened financial support significantly reduced its cost of capital.

Building a Net-Zero Insurance Strategy

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Source: NTT Data Insurtech Outlook Research, 2023

Key aspects and trends related to the insurance industry's pursuit of net-zero goals include:

- Carbon Neutrality Commitments: Many insurance companies are making commitments to achieve carbon neutrality or net-zero emissions. This involves taking comprehensive actions to reduce their own carbon footprint and offsetting any remaining emissions through investments in projects that remove or reduce greenhouse gas emissions.
- Climate Risk Assessment and Management: Insurers are increasingly recognizing the importance of understanding and addressing climate-related risks. This includes assessing the impact of climate change on insurance portfolios, incorporating climate risk into underwriting practices, and developing strategies to manage and mitigate climate-related risks.
- Green Insurance Products: There is a growing trend in the development and promotion of "green" insurance products. These products may incentivize policyholders to adopt environmentally friendly practices, such as using renewable energy sources or implementing energy-efficient technologies.
- Investment in Sustainable Ventures: Insurers are also aligning their investment portfolios with sustainable and responsible practices. This involves divesting from industries with high carbon footprints and increasing investments in renewable energy, green infrastructure, and other sustainable ventures.
- Engagement in Climate Advocacy: Some insurance companies are actively engaging in climate advocacy, supporting policies and initiatives that aim to address climate change and promote sustainability. This may involve collaborating with governments, NGOs, and other stakeholders to drive systemic change.
- Integration of Environmental, Social, and Governance (ESG) Criteria: The adoption of ESG criteria in investment and underwriting decisions is becoming more prevalent in the insurance industry. This approach considers environmental, social, and governance factors to assess the long-term sustainability and ethical impact of investments and business practices.
- Collaboration and Industry Initiatives: Insurers are increasingly collaborating with each other, as well as with governments, regulators, and environmental organizations, to develop industry-wide initiatives and standards for achieving net-zero goals.

The Implementation Strategy To Build Net-Zero Insurance Covers Four Phases

Source: NTT Data Insurtech Outlook Research, 2023

- INITIATION- This phase includes the following actions: Stakeholder Mapping, Status quo evaluation, ESG framework set-up, Goals breakdown, and Market trends analysis. Faced with a complex challenge, where all professionals need to balance financial feasibility with environmental impact, user experience, societal effects, purpose compatibility, and much more, we introduce this 4P framework (Purpose-Profit-People-Planet), explored by McKinsey, to help insurers assess and reshape their design when taking these actions, ideation, integration, and implementation.
- IDEATION - This phase involves Gap Analysis, Drivers Analysis, and Pattern Adaptation, based on the previous phase, utilizing the method of Business Model Navigator (who-what why-how)
- INTEGRATION - This phase aims to shape a new business model and set plans to complement the gap through technology, talent, or partnership. As introduced above, insurers should consider the integration and creation of new lines of business, like parametric insurance, new processes of underwriting, new products based on innovation, and new resilience services.
- IMPLEMENTATION - Finally, at this stage, insurers can adopt the following process: PoC–Go to market–Validation and measurement–Scale–Continuous innovation.

Insurance Underwriting Portfolio

Insurers have been focusing on greenhouse gas emissions within their operation and establishing ESG criteria for their investment portfolio. However, the emission related to the underwriting portfolio was not a focus for them other than announcing a high-level direction in restricting the underwriting of fossil fuel-related businesses over a period.

Net-Zero Insurance Alliance (NZIA) launched its Target-Setting Protocol, the first-ever global accounting standard to measure greenhouse gas emissions associated with insurance underwriting portfolios ("insurance-associated emissions") at the World Economic Forum's Annual Meeting in Davos, Switzerland, on 17th January 2023. The Protocol is developed by the Partnership for Carbon Accounting Financials (PCAF) in collaboration with the NZIA and sets out the recommended approach to target setting and reporting.

Target Setting For Underwriting Portfolio[3]

Version 1.0 of the NZIA Target-Setting Protocol (the Protocol) will enable NZIA members to independently set science-based, intermediate targets for their respective insurance and reinsurance underwriting portfolios in line with a net-zero transition pathway consistent with a maximum temperature rise of 1.5°C above pre-industrial levels by 2100. With the launch of the Protocol, existing NZIA members are required to set and disclose their initial target(s) by 31 July 2023.

The Protocol outlines five target types within three target categories (i.e., two types within the emissions reduction category, two types within the engagement category, and one for the re/insuring the transition category). According to NZIA, Existing NZIA members will be required to set at least one of the five target types by 31 July 2023 and at least one in each of the three target categories by 31 July 2024. Those joining the Alliance after January 2023 will have six months to set their first target and one year after that to set a target type in each of the three target categories.

This protocol aligns with the SBTi' (Science Based Targets Initiative) Corporate Net-Zero standard for target setting. However, SBT has yet to come out with an exact definition of "net zero" in a financial institution's context (including re/insurance underwriting portfolios). SBTi is currently doing this for the upcoming FINZ Standard.

Science Based Targets Initiatives Has Four Key Elements For Net-Zero Target Setting

- Near–term science-based targets are 5 – 10-year GHG mitigation target within a company's own value chain in line with 1.5-degree pathways.
- Long-term science-based targets extend the near-term targets towards a residual level in line with 1.5 degrees by no later than 2050.
- Beyond value chain mitigation, targets are set around actions that will also help others to mitigate their emissions.
- The neutralization target requires that any residual emissions must be removed from the atmosphere and permanently stored to reach the net–zero state.

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[3] Climate Change and Net Zero Target Setting for Insurance Underwriting Portfolio | Celent

Europe Is Leading The ESG Practices Around The World

- European countries lead the pack in ESG practices. The Nordics and eurozone came out on top of sustainability rankings, according to the country-level scored from Morningstar Sustainalytics. Over 15 significant legislative initiatives have been adopted by the EU since 2020 (Strategy&/PwC, 2022).
- Sustainable investing in its current form has recently experienced considerable market momentum, driving large inflows into ESG-focused products, resulting in an average Compounded Annual Growth Rate (CAGR) of 27% in global assets under management (AUM) over 2015-2021, according to KPMG.
- Positive ESG performance improves returns globally, Europe shows higher excess returns. Companies with ESG in their portfolios perform better when compared to the other companies with less ESG scores, based on ESG Book which is backed by groups including HSBC, Deutsche Bank and Swiss Re.
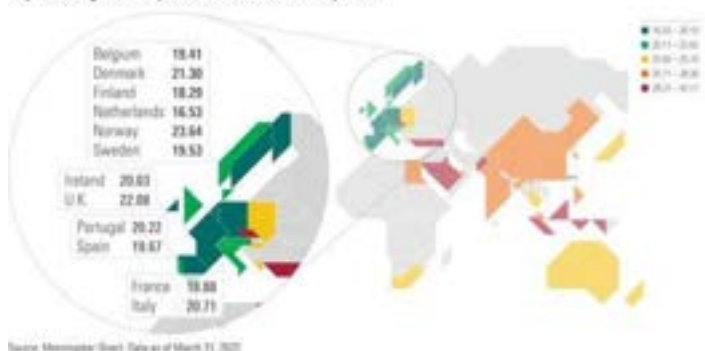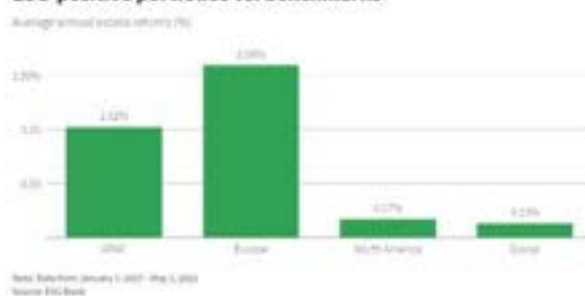
Source: NTT Data Open Insurance Deep dive, 2023

Chapter 3. NTT DATA´S Vision on Sustainability

How Is NTT DATA Positioned on Sustainability

As we come together as NTT DATA Inc., we recognize the importance of embedding sustainability into the fabric of our new entity. As a trusted global innovator, we will continue to use technology for good to create a more affluent and harmonious society.

Our brand promises to transform businesses for success, disrupt industries for good, and shape a better world for all informs our combined future approach to sustainability.

Amid the rising global demand for accelerated initiatives toward achieving net-zero emissions and given the expansion scope of operations resulted from the business combination with global IT infrastructure service provider NTT Ltd., NTT DATA revised its vision for achieving net-zero greenhouse gas emissions to reflect even higher standards.

As a result, the timing for our targeted achievement of net-zero emissions, as described by SBTi was moved forward from 2050 to 2040, and this target was incorporated into our newly formulated NTT DATA NET-ZERO Vision 2040, setting the target to achieve net zero emissions in our operations by 2030, and across our value chain by 2040.

At NTT DATA Inc. we are proud of the progress we have made in sustainability, and we are resolute in our continued journey to drive positive impact for the planet, people, and society.

Source: NTT DATA Inc. 2023

Prosperity Positive

NTT DATA aims to transform businesses and society for successful growth with 100% sustainable services and solutions involving our end-to-end value chain.

Through Smart X Co-Innovation, NTT DATA co-creates new value with clients and partners to realize a smart and sustainable society. We work to establish resilient and sustainable value chains to maximize efficiency and manage volatility that aims to transform businesses and society for successful growth with 100% sustainable services and solutions involving the end-to-end clients.

This can be achieved through Smart solutions, by creating secure digital solutions with partners to tackle social and environmental issues for clients across multiple sectors.

NTT DATA is committed to maintain the best standards of cyber security, data privacy and data protection. We also ensure high standards of ethical behavior in line with our code of business conduct and Ethics.

Client Success Stories

City of Las Vegas

Our private 5G network for the City of Las Vegas is making roads safer and giving local children access to online resources. The City of Las Vegas municipality, its stakeholders and the business community will benefit from the capabilities of a private 5G network: ultralow latency, greater reliability, massive capacity, seamless security, and flexible management. As additional use cases arise, the network will become a framework for revenue generation that can improve the city's bottom line while supporting network maintenance, expansion, and enhancement.

Schneider Children's Hospital, Pharmacy Services

The digitalization of healthcare has the potential to improve health outcomes and lives by helping to better predict and avoid disease. A digital healthcare ecosystem needs to be borderless, resilient, and accessible to all, seamlessly connecting people to high-quality care and creating equitable experiences and outcomes. NTT Ltd., Nihilent and NTT Innovation Laboratory collaborated with Schneider Children's Hospital, Pharmacy Services to reduce pollution and inventory losses. Together, we developed an algorithm to calculate the use of pharmaceuticals over time based on the quantity purchased and quantity discarded. This has enabled optimal pharmaceutical inventory forecasting and a system that can reduce environmental pollution and inventory losses. During the pilot scheme, the hospital saved over USD 38,350 from the disposal of expired pharmaceuticals.

Planet Positive

NTT DATA uses technology solutions to help protect, restore, and regenerate the natural world, and conserve precious natural resources for future generations.

We are committed to tackling climate change by reducing the emissions to net zero across our operations by 2030, and value chain by 2040 through innovation, and proactively responding to climate related risks.

NTT DATA is an active member of the World Economic Forum by participating in the Centre for Nature and Climate. We're contributing towards identifying sustainable, impactful, and systemic long-term solutions. This is aligned with our commitment to drive positive change and mitigate our environmental impact.

For circular design, we are accelerating our efforts to incorporate circular economy and regenerative-design principles into our client solutions and the way we operate, working in partnership with stakeholders across our operations and our value chain.

Here is a sample of some of the initiatives we are leading:

Circular Design

In South Africa, our Johannesburg 1 Data Centre uses on-site borehole water, automatic cleaning and large, non-evaporative storage tanks for the closed chilled water-cooling system which cools the data centre. The underground water and inlet supply temperature is roughly 16°C and, once returned through the facility, it has heated to roughly 25°C. The water is then stored in tanks, cooled and reintroduced into the facility.

On the other hand, we promote the circular economy with the donation of our device's electronics. We also have a wide range of certifications under which it is committed to its environmental performance in relation to responsible production and consumption; it promotes these policies and strategies to its employees through the newsletter and communities, raising their awareness and making them participants in NTT DATA's commitment to the environment.

Offices and Facilities

NTT DATA's headquarters in Barcelona, acknowledged as the most sustainable office in Europe.

Thanks to its design, NTT DATA EMEAL's headquarters in Barcelona has obtained LEED (Leadership in Energy and Environmental Design) certification, the most prestigious sustainable construction standard in the world, achieving the highest score in Europe in its modality. Consequently, it has been acknowledged as the most sustainable office in Europe, and the second in the world.

This recognition was granted after evaluating the environmental impact of the building's design and construction, which incorporate significant energy and water consumption savings. Besides, 82% of construction waste was recycled and priority was given to using more sustainable materials, such as those with environmental product statements and low VOC (volatile organic compounds) emissions.

The interior design of the offices focuses on reducing the carbon footprint, promoting the use of clean energy and eliminating plastic, thus conserving the environment.

People Positive

NTT DATA aim to shape a better world for all, applying our digital capabilities to improve livelihoods and contribute to a diverse, equitable, and inclusive society.

We have been externally acknowledged as a top employer. In 2024 NTT DATA was one of the only 17 Global Top Employers to be recognized for their outstanding People policies and practices worldwide by Top Employers Institute.

NTT DATA has also been awarded Top Employer 2024 regional certification in Asia Pacific, Europe, Latin America, and North America including 29 countries.

Engaging our employees to take action:

Engaging our employees to effect change is fundamental to our company values and aligns very strongly with our employee value proposition.

We encourage employees to contribute either through helping our clients realize their ambitions or helping to shape a better world and make an impact on their local community.

We advocate for our people to work on projects that will protect, restore, and regenerate the natural world, and our people have three days' paid volunteering leave annually.

Here is a sample of some of the work our employees have been involved in:

Volunteering

· At NTT DATA EMEAL, 10% of NTT DATA employees were involved in corporate volunteering activities in FY22.

· At NTT Limited, 3 days paid volunteer leave annually are offered to our employees to support education and conservation projects within their local communities. In FY22, we contributed 2,825 days of volunteer time and during the most recent World Cleanup Day our employees collected more than 12,700 kgs of litter – more than four times what we collected in 2022.

Inspiring the technology users of today and leaders of tomorrow

· NTT DATA EMEAL teams took part in the new edition of Technovation Girls, the international competition that promotes STEAM talent in girls by developing applications with social or environmental purpose.

· Together with HotTopics, we're the founding partner of Tech Girl 2023, an initiative designed to expand the skills and jumpstart the careers of girls considering entering the technology sector. It will provide girls in the UK aged 16 to 18 the opportunity to showcase their innovative ideas and equip them with the mentorship and experiences essential for a successful career in tech.

Chapter 4. Sustainability Customer Engagement

Sustainability As A Driving Force For Customer Engagement In The Insurance Industry

In today's dynamic and interconnected world, sustainability is no longer a niche concern but a fundamental aspect of business operations and customer engagement. The insurance industry stands at the forefront of this transformation, recognizing the opportunity to leverage sustainability initiatives to enhance customer experiences, foster loyalty, and contribute to a more environmentally responsible future.

Source: S&GT| Sustainability Engagement, 2023 NTT DATA Italia
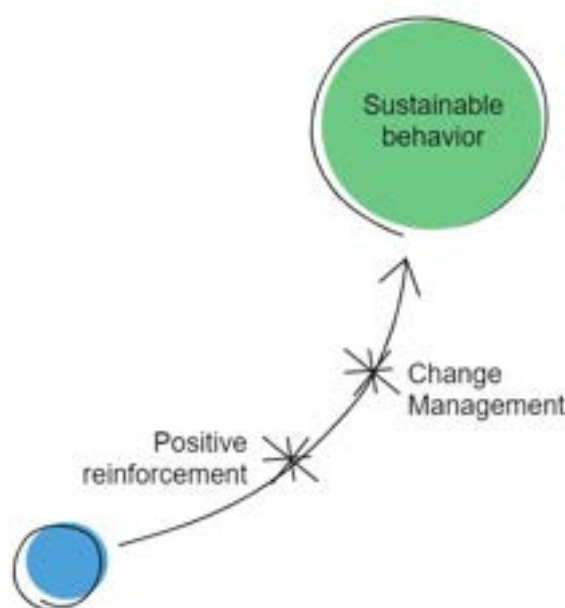
Beyond meeting ethical expectations, integrating sustainability into business practices is a strategic imperative. It enhances brand reputation, fosters customer loyalty, and attracts a growing, environmentally conscious consumer base.

Insurance companies, whose businesses leverage a large customer base, can influence mindset changes by promoting digital products that prioritize meaningful user experiences, ethical considerations, and long-term sustainability, integrating behavioral principles that encourage users to adopt positive and sustainable habits. This, in turn, creates a symbiotic relationship between user behaviors and environmental responsibility.

Creating meaningful innovations by insurance companies involves addressing real user needs and societal challenges, the possibilities of technology and the viability of the business. Still, to truly innovate, it is essential to consider the broader social implications, contribute positively to communities, and encourage sustainable actions for continuous evolution and a lasting impact on societies and the world.

Harnessing The Power Of Data-Driven Solutions

Insurers are uniquely positioned to leverage vast amounts of customer data to drive sustainable behavior change. By analyzing data on energy consumption, driving habits, and environmental impact, insurers can tailor personalized risk assessments and incentives that encourage customers to make eco-conscious choices.

AWorld, an innovative app, serves as a prime example of how data can be harnessed to promote sustainable lifestyles. The app gamifies environmental actions, rewarding users for making eco-friendly choices such as reducing food waste, conserving water, and adopting renewable energy solutions.

Incorporating gamification and social engagement elements into sustainability initiatives can further amplify their impact.

Baoba's AI-based insurance platform, for instance, provides parametric technology providers and underwriters with 'weather scores' derived from geo-specific data, covering parameters like rain, snow, air quality, and solar radiation. This enables insurers to create innovative products, such as event cancellation coverage and compensation for farmers facing low rainfall.

The platform not only allows partners to assess the impact of their insurance solutions throughout development but also facilitates quick refinements. Sustainability scores are integrated into the insurance value chain, enabling the alignment of location intelligence with consumer behavior and risk profiling based on environmental, social, and governance considerations. Insurers can incentivize environmentally friendly choices, such as investing in green energy solutions, by offering rewards like lower premiums. Overall, data-led solutions are transforming the insurance landscape, offering tailored and sustainable products while addressing climate-related risks.

The ADKAR Model: A Framework For Sustainability Transformation

The ADKAR change management model provides a structured framework for insurers to successfully implement sustainability initiatives. The model breaks down the process of change into five distinct stages:

- Awareness: Raising awareness about the importance of sustainability and the benefits of making sustainable choices.
- Desire: Motivating customers to embrace sustainable behaviors by highlighting the positive impact they can have.
- Knowledge: Equipping customers with the knowledge and tools to make sustainable choices effectively.
- Ability: Establishing the enabling conditions for customers to take action, such as providing access to green products and services.
- Reinforcement: Continuously reinforcing positive behaviors and celebrating achievements to sustain the change.

By embracing the ADKAR model, insurers can effectively embed sustainability into their core operations, fostering a culture of environmental responsibility among their customers and employees.

Usage-Based Insurance: Incentives For Sustainable Behaviour

Usage-based insurance (UBI) programs leverage telematics devices or smartphone apps to monitor and assess customer behavior, providing personalized insurance premiums based on driving habits, energy efficiency, or health metrics. This incentivizes customers to adopt sustainable behaviors, such as eco-driving, energy conservation, and healthy lifestyle choices.

The following diagram shows how an insurance company can create a personalized customer experience by understanding the customer's life stage and needs.

The diagram is divided into six cases, each of which represents a different life event or stage. For each case, the diagram shows the different channels that a customer can use to interact with the insurance company, as well as the products and services that the company can offer at that stage.

For example, in the case of a customer who is buying a new car, the company can offer a loyalty program that rewards the customer for purchasing a car that meets certain environmental criteria. The company can also offer a discount on the "RCA" policy if the customer buys a zero-emissions car.

By understanding the customer's life stage and needs, an insurance company can offer products and services that are relevant and valuable to the customer. This can help to improve the customer experience, identify new business opportunities, and increase customer satisfaction.
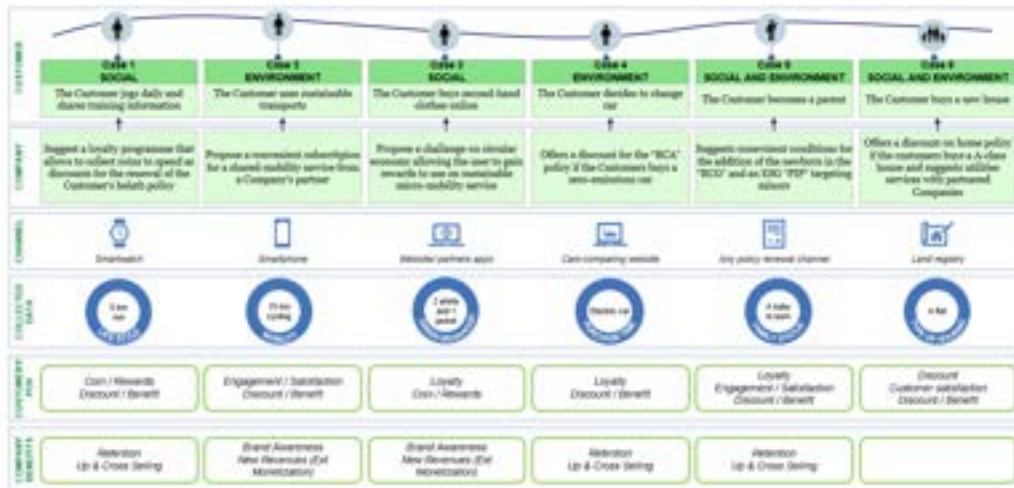
Source: S&GT| Sustainability Engagement, 2023 NTT DATA Italia

Partnerships And Collaborations: Collective Action For Sustainability

Insurers can forge partnerships with sustainability-focused organizations, such as renewable energy providers or environmental non-profits, to leverage data sharing and joint initiatives. These collaborations can expand the reach and impact of sustainability initiatives, offering exclusive benefits or discounts to customers who support relevant causes.

By embracing data-driven solutions, gamification, and partnerships, the insurance industry can transform sustainability into a powerful lever for customer engagement, risk mitigation, and environmental responsibility. By fostering a culture of sustainability within their operations, insurers can contribute to a more resilient and environmentally conscious society.

Chapter 5. Climate Risk Assessment

Climate change is a major threat to the insurance industry, as it is expected to lead to an increase in the frequency and severity of extreme weather events, such as floods, hurricanes, and wildfires. These events can cause significant damage to property and infrastructure, leading to large insurance claims.

To manage these risks, insurers need to conduct regular climate risk assessments. These assessments should identify the potential risks that climate change poses to the company's portfolio, as well as the financial impact of these risks.

Climate risk assessment is a complex and evolving process, but it is essential for insurers to effectively manage climate-related risks. By conducting regular assessments, insurers can:

- Underwrite climate-related risks more accurately: By understanding the potential impacts of climate change on their policyholders, insurers can charge premiums that reflect the true risk of those exposures.
- Develop more effective risk management strategies: Climate risk assessment can help insurers identify and prioritize Adaptive measures, such as investing in climate-resilient infrastructure, adjusting underwriting guidelines, or developing new products and services that address climate-related risks.
- Enhance customer engagement and satisfaction: By communicating effectively with policyholders about climate risks and how the insurer is addressing them, insurers can build trust and loyalty.

The World Economic Forum's Global Risk Report 2024[4] identifies extreme weather events as the second most important risk for the next two years. This is a clear indication that climate change is a growing threat to the insurance industry.

Insurers that are proactive in managing climate-related risks will be better positioned to withstand the challenges of a changing climate. By conducting regular climate risk assessments, insurers can identify and mitigate these risks, protect their businesses, and serve their customers.

Some specific examples of how insurers are using climate risk assessment include:

- Using scenario analysis to assess the potential impact of climate change on different regions and industries.
- Using data analytics to identify areas of vulnerability to climate change.
- Developing new products and services that address climate-related risks, such as climate-resilient infrastructure insurance or disaster response solutions.

As climate change continues to accelerate, the need for climate risk assessment will only grow. Insurers that embrace this critical tool will be well-positioned to succeed in a changing climate.

Companies in the sustainability and green technology sector have a unique opportunity to provide compelling offerings to the insurance sector through Climate Risk Assessment. By understanding the specific needs of insurers and leveraging cutting-edge technologies, these companies can play a pivotal role in enhancing the industry's resilience to climate-related risks. There are many use cases that can be explored that will be addressing climate risks, from disaster relief and lead discovery to business optimization in agriculture and renewable energy. For example, companies can develop:

- Data platforms that aggregate and analyze climate data to help insurers assess risk and make informed decisions.
- Monitoring systems that use IoT sensors and satellite imagery to track and predict the impact of climate change.

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[4] https://www.weforum.org/publications/global-risks-report-2024/

- Risk mitigation products and services that help policyholders reduce their exposure to climate-related risks.

By working together, insurers and companies in the sustainability and green technology sector can create a more resilient and sustainable insurance industry that can better serve the needs of customers in a changing world.

Chapter 6. Sustainable Claims

Sustainable Claims Management: A Loss-Making Business for Insurers?

The Net-Zero Insurance Alliance (NZIA) brings together leading global insurers and reinsurers committed to transitioning their underwriting portfolios to net-zero greenhouse gas emissions by 2050. Specifically, some German insurers have committed to making their business processes climate-neutral by 2025, showcasing a clear stance on the importance of sustainability and setting an ambitious timeline for action.

In particular, the insurance industry is observing the current impacts of climate change on its various lines of business. The increasing number of natural hazards and severe weather events poses a threat to the industry's principle of collective risk assumption through a rise in accumulation events or stronger impacts thereof. However, when examining the business models of various lines of business, the question often arises as to how sustainability can be implemented in a way that generates not only ecological value but also maintains the insurer's profitability.

Implementation Of Sustainability In Claims Management
While currently CO_2 emissions are often offset through the purchase of certificates, motor vehicle insurers also can proactively reduce or even avoid CO_2 emissions generated during or because of claims processing. Within the claims management, not only for motor vehicle insurers, but it also appears that the existing process steps, which have been designed to be economically efficient and customer-oriented, are partially counteracting sustainability.

Considering the entire claims value chain, a proper implementation of sustainability criteria in the different steps (e.g., FNOL, assistance, ...) can lead economical and ethical benefits (e.g., cost reduction, improved reputation, increased customer loyalty, contribution to environmental and social protection)

Notification Of Loss
A claims process goes through various steps on the insurance company's side. It starts with the first notification of Loss (FNOL) from the policyholder. Once this is received by the insurer, the customer is assisted by service employees. These employees clarify with the policyholder whether assistance services such as a tow truck or replacement car must or can be used, or if driving the damaged vehicle to the nearest (partner) workshop is possible. The actual repair of the damage in the workshop marks a further step; whereby partner workshops are preferred by insurers. Alternatively, cash settlements or fictitious invoicing to the policyholder are also possible.

A lean and efficient claim reporting process not only benefits the insurance company economically but can also benefit insurers in terms of sustainability. Many companies are already implementing this with digital customer care and a multi- to omnichannel offering to their policyholders.

Assistance Services
Further CO_2 savings can be achieved through the sustainable use of assistance services. If towing services are controlled by the insurer, for example, the company can ensure that routes are as sustainable as possible, that vehicles with environmentally friendly propulsion are used, or even that environmentally conscious driving styles are adopted. A comprehensive infrastructure and an extensive network of partner workshops also help minimize the distances between the damaged vehicle and the nearest workshop, thereby reducing CO_2 emissions. If the customer

cannot continue driving their damaged vehicle and uses assistance services, insurers can provide electric or hybrid vehicles as replacement to the customer.

Damage Assessment

CO2 emissions can also be reduced during damage assessment. Experts can assess the damaged vehicle at central locations instead of traveling to the respective accident location, in cases where the damage does not affect roadworthiness. Minor damages can account for up to 70 percent of motor vehicle insurance claims, offering a high potential for reducing or avoiding CO2 emissions. Insurers also save both monetarily and in terms of CO2 emissions by involving their policyholders in the claims process. AI solutions already exist in the market that guide policyholders through the process of capturing images of the damage via an app, allowing automatic triage decisions to be made by the insurer based on the images. This touchless claim approach— a holistic digital claims processing—can automate the handling of minor damages and create a new end-to-end digital customer experience.

Repair In The Workshop

Considerations for sustainability should not only focus on the geographic proximity of the insurer's partner workshops, but also on the sustainable design of their offerings. Insurers can consider incentives for customers to encourage them to use sustainable workshops and workshop services. Motor vehicle insurers should also engage in direct communication with their motor vehicle partner workshops and raise awareness about their individual sustainability goals. Especially in the motor vehicle sector, where the actual damage processing does not take place directly within the insurer's company but in workshops, a consistent and holistic sustainable service portfolio is essential to avoid appearing inconsistent or even being accused of greenwashing publicly.

 The process of directly replacing a damaged vehicle part instead of repairing it has historically been a cost-effective process in Europe, primarily due to relatively high labor rates. However, from a sustainability perspective, repairing damaged vehicle parts can be more sustainable than replacing them. A joint study by Allianz SE and the Allianz Center for Technology (AZT Automotive GmbH) in January 2023 confirmed this. Damaged vehicle parts were selected for analysis to compare the CO2 emissions associated with replacement versus repair. Although the study acknowledges that these are only preliminary findings, it indicates that for various types of motor vehicle damage, repairing the vehicle parts resulted in lower CO2 emissions compared to replacement.

"Our analysis clearly shows how crucial the choice of repair method is for the carbon footprint. In the case of collision damage, vehicle exterior parts are always affected, for which proper repairs are generally possible. These parts are still too often replaced with new parts. Repairing is significantly more resource-efficient," said Dr. Christoph Lauterwasser, Managing Director of the Allianz Center for Technology.

Cash Settlement (Fictious Invoicing)

In the context of policyholder claims processing, fictitious invoicing often occurs. It should be examined whether fictitious invoicing for minor accidents might be more sustainable than repairs; often, policyholders themselves carry out minor repairs or even tolerate small cosmetic blemishes without addressing them at a workshop, thereby reducing CO2 emissions. However, this is only possible for non-safety-critical minor damages to the vehicle.

Damage Prevention

To prevent damage and consequent CO2 emissions in the claims processing phase, predictive analytics using accumulated big data through telematics tariffs offer a way to proactively counteract damages. By incorporating comprehensive data sets, not only can driving behavior be analyzed, rewarded, and communicated to the insurer or vehicle owner, but also specific types and probabilities of damage events can be predicted. A particularly cautious

driving behavior is often parallel to an environmentally friendly driving behavior. When additional damage is avoided, it benefits not only the driver's safety but also reduces further CO_2 emissions due to non-performed repairs. Telemetry data generated through telematics tariffs, or as data directly from the vehicle through built-in sensors, as well as the increasing number of connected cars, can also increase the inclusion of end-to-end automatic processing. The increasing efficiency within claims processing also leads to a decrease in CO_2 emissions.

The presented approaches for greater integration of sustainability into insurers' claims processes can be understood under the term "Sustainable Claims." The study also underscores consumer interest in sustainable products and the challenges insurers face in reconciling consumer desires with lack of willingness to pay for sustainability. Despite this discrepancy, most companies believe that integrating sustainability into their processes can enhance customer loyalty.

There is a need for insurers to authentically incorporate sustainability to align with evolving consumer preferences and to address environmental concerns. While there may be challenges in achieving immediate financial gains, the potential for long-term customer satisfaction and loyalty, combined with reduced environmental impact, suggests that integrating sustainability into claims management is a strategic imperative.

What About Economic Success?

Numerous studies confirm that consumers are interested in sustainable products and solutions, and they desire fully sustainable companies in the market. Already, 60 percent of customers consider sustainability an important criterion for purchasing products or services; willingness to pay for the inclusion of sustainable aspects has increased by 25 percent (2) on the consumer side over the past two years; the need for sustainable products therefore exists. The greatest challenge for insurers now lies in the discrepancy between consumer desire and the lack of willingness to pay for sustainable solutions. Although over 80 percent (3) of consumers see a need for a shift toward more sustainability, simultaneously, 73 percent (4) are hesitant to pay higher prices for sustainable products and services.

Therefore, motor vehicle insurers should convince their customers through a strong, particularly authentic, and holistic sustainable approach to focus on sustainability within claims management. On the other hand, motor vehicle insurers have many opportunities to incorporate sustainable aspects into claims processing. Whether and to what extent sustainability can contribute to profitability in the motor vehicle insurer's claims process remains to be seen. However, it is clear that insurers are wise to consider sustainability now. Even if the entire customer base is not willing to pay more for the inclusion of sustainable aspects, over 70 percent of companies agree that they can enhance customer loyalty through sustainable business processes.

Thus, a loss resulting from incorporating sustainability into the claims management process is not certain. What is certain, however, is that without thinking about sustainability within the claims management process, insurers will have to reckon with a loss of customers and consequently experience direct impacts on their business and a decline in customer satisfaction.[5]

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[5] (1) Repair or Replace. Investigating the relative GHG emissions of repairing or replacing damaged vehicle parts; Allianz SE & AZT Automotive, 2023

(2) Versicherungsforen-Themendossier 10/2023

(3) First Insight, Inc. The State of Consumer Spending: Gen Z Shoppers Demand Sustainable Retail

(4) Kantar Nachhaltigkeitsstudie 2022

Chapter 7. The Environmental Impact of Cloud Services

Green Cloud

Cloud computing sustainability, or 'Green Cloud' refers to an environment-friendly cloud that reduces carbon emissions and promotes the use of renewable energy to reduce energy needs. All the major cloud providers have taken steps to convert their data centers into green cloud. AWS's sustainability pillar is one example of how Amazon promotes an environment-friendly cloud[6] and MS Cloud for sustainability [7] is how MS helps organizations to reduce the environmental impact. Also, Google Sustainability is encouraging organizations by using their products and solutions to adopt more sustainable practices. [8] Migrating on-premises workloads to the cloud enables economies of scale for energy and resource optimization, resulting in 3-4x higher energy efficiency for client workloads. This can reduce carbon emissions by more than 80%.

The Pillars Of Green Cloud Computing

Green cloud computing aims to take these benefits a step further. It incorporates sustainability into the design, implementation, and operation of cloud infrastructure. Here are some of its key pillars:

- Energy Efficiency: Green cloud computing prioritizes energy-efficient data centers and servers. These facilities are designed to optimize power usage and reduce waste, leading to significant energy savings.
- Renewable Energy: The integration of renewable energy sources, such as solar and wind, is central to green cloud computing. By harnessing clean energy, cloud providers can reduce their reliance on fossil fuels and minimize their carbon footprint.
- Data Center Location: The geographical location of data centers matters. Placing data centers in regions with access to renewable energy sources can further enhance sustainability.
- Virtualization: Virtualization technology enables multiple virtual machines to run on a single physical server. This approach minimizes hardware requirements and maximizes resource utilization, reducing energy consumption.
- Efficient Cooling Systems: Data centers often require extensive cooling systems to maintain optimal operating temperatures. Green cloud computing seeks to employ efficient cooling mechanisms, reducing the overall energy demand.
- E-Waste Reduction: Responsible disposal and recycling of electronic waste (e-waste) is a vital aspect of sustainability. Green cloud computing ensures that old equipment is recycled or disposed of in an environmentally friendly manner.

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[6] How to drive the discussions around carbon footprint reduction to support modernization and migration to the Cloud? | AWS Cloud Operations & Migrations Blog (amazon.com)

[7] Microsoft Cloud for Sustainability | Microsoft

[8] Sustainable Innovation & Technology - Google Sustainability

Cloud Transformation Process

[9]NTT DATA has described the framework as a form of a comprehensive toolkit designed to give simplified and structured access to capabilities, resources, and experience needed to help deliver a successful cloud transformation process. The framework is therefore designed to offer an end-to-end combined vision and engagement activity focused on delivering the smoothest, fastest, and most appropriate way of maximizing the potential of the cloud for the client and to ensure that continuous optimization is a way of life.
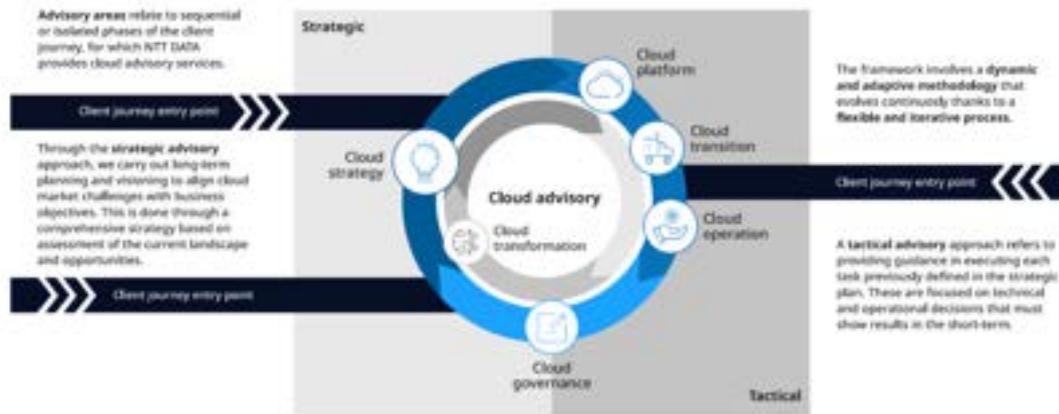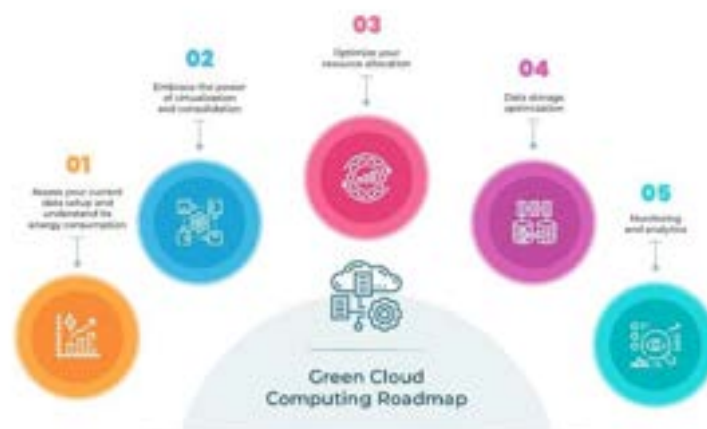

Source: Cloud advisory framework: Leverage success in cloud adoption, https://www.nttdata.com/global/en/-/media/nttdataglobal/1_files/services/cloud/whitepaper-cloud-advisory_v4.pdf?rev=6fea78700aa248219ac9bf7badafd18d

As NTT DATA becomes more used to the fact that climate change is real, the need to drive down emissions, energy use, and environmental impact (through recycling and onward use) will become extremely important, both in terms of regulation and for brand reputation. The Cloud makes it easier for enterprises to meet their environmental goals, and NTT DATA will help ensure that auditable proof of compliance is always available.

Sustainable Cloud Computing

Through the adoption of eco-friendly practices, optimization of resource utilization, and reduction of energy consumption, it paves the way for a future where environmental harm is minimized and the dream of achieving a net-zero reality becomes tangible. Studies have shown that migrating to the cloud can lead to savings of up to 87% in

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[9] https://www.nttdata.com/global/en/-/media/nttdataglobal/1_files/services/cloud/whitepaper-cloud-advisory_v4.pdf?rev=6fea78700aa248219ac9bf7badafd18d

IT energy consumption. This remarkable statistic highlights the tremendous opportunity to significantly reduce our energy footprint by embracing cloud-based solutions.

10

SOURCE: Datadynamicsinc, Accelerating the net-zero dream through green cloud computing , https://www.datadynamicsinc.com/quick-bytes-accelerating-the-net-zero-dream-5-ways-green-cloud-computing-empowers-enterprises/

Green Cloud Computing signifies a pivotal shift in the tech realm, harmonizing ingenuity with ecological responsibility. The cloud computing sector holds immense potential to wield a positive influence on the environment by weaving in renewable energy sources, optimizing resource utilization, and adopting energy-efficient methodologies. In the ongoing wave of digitization shaping our society, a unified effort from corporations, governments, and individuals is imperative to foster collaboration and prioritize eco-friendly initiatives. Together, we can forge a path towards a more sustainable future, ensuring that the benefits of technology are harnessed responsibly for the well-being of our planet.

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[10] https://www.datadynamicsinc.com/quick-bytes-accelerating-the-net-zero-dream-5-ways-green-cloud-computing-empowers-enterprises/

Chapter 8. Regulation

The profusion of regulation on financial sustainability and insurance topic is motivated by an awareness of the crucial role of insurance in achieving the ecological transition and fostering models of environmental, governance and social both as institutional investors and as placers of investment and protection products.

The European Green Deal

The European Green Deal came into force during **2020**. It promises to transform the EU into a modern, resource-efficient, and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

This means that products sold on the EU market will need to meet higher sustainability standards. One third of the €1.8 trillion investments from the Next Generation EU Recovery Plan, and the EU's seven-year budget will finance the European Green Deal.

The EU Taxonomy Regulation

The **EU taxonomy** came into force on the **12th of July 2020**. It is a cornerstone of the EU's sustainable finance framework and an important **market transparency tool**.

- The EU taxonomy allows **financial and non-financial companies** to share a common definition of economic activities that can be considered environmentally sustainable.
- In this way, it plays an important role in helping the **EU scale up sustainable investment**, by creating security for investors, protecting private investors from greenwashing, helping companies become more climate-friendly and mitigating market fragmentation.

As part of the **EU Green Deal**, the European Commission formulated regulations focused on sustainable finance, activities supporting the transition to a climate-neutral economy.
 Examples of these regulations include ESG Pillar 3 (EBA), Sustainable Finance Disclosure Regulation (SFDR), Corporate Sustainability Reporting Directive (CSRD). The bedrock of all these evolving regulations is the **EU Taxonomy.**

The Sustainable Financial Action Plan

The Sustainable financial action plan was approved on **8th March 2018**. The plan is part of a wider **Sustainable Finance Framework** which is backed by a broad set of new and enhanced regulations. These include a new Sustainable Finance Disclosure Regulation, which aims to better classify the **sustainability credentials of investment funds, and a new EU Taxonomy**, which aims to define what economic activities are '**green**' for the first time. The EU also plans to enhance the sustainability requirements of existing rules such as Mifid for financial disclosures and UCITs for fund registrations.

The SFAP has three main objectives:
- To reorient capital flows towards sustainable investment and away from sectors contributing to global warming such as fossil fuels

- To manage financial risks stemming from climate change, resource depletion, and environmental degradation
- To foster greater transparency and long-termism in financial and economic activity to achieve sustainable and inclusive growth.

3 Disclosure Tools: NFRD, CSRD, SFDR

|	**Non-financial reporting directive (NRFD)**	**Corporate Sustainability Reporting directive (CSRD)**	**Sustainable Finance Disclosure Regulation (SFDR)**
SCOPE	Applicable to large public-interest entities with more than 500 employees	Applicable to all large companies operating in the EU	Applicable to all financial market participants and advisors operating in the EU
DISCLOSURE REQUIREMEMTS	- Environmental, social, and employee matters - Respect for human rights - Anti-corruption and bribery matters - Diversity policy for boards of directors	- Climate change mitigation, and adaptation - Environmental, social, and employee matters - Respect for human rights - Anti-corruption and bribery matters - Board diversity and due diligence - Other sustainability matters	- Integration of sustainability risks in the investment decision-making process - Sustainability characteristics of investment products - Transparency on sustainability objectives and impacts - Adverse sustainability impacts and pre-contractual disclosures
GOALS	Increase transparency and comparability of sustainability reporting among companies	Improve quality and consistency of sustainability reporting among companies	Foster sustainability in the financial sector by requiring more transparency on sustainability issues
AIM	Corporate Sustainability Reporting Directive (CSRD), the EU Taxonomy will ensure that companies falling under the scope of the CSRD disclose their environmental performance information and their Taxonomy aligned economic activities	The SFDR requirements are linked with those under the EU Taxonomy by including environmentally sustainable economic activities as defined by the Taxonomy Regulation in the definition of 'sustainable investments' in the SFDR.	NFRD aims to deliver a comprehensive corporate reporting framework with qualitative and quantitative information to facilitate the assessment of companies' sustainability impacts and risks.

Chapter 9. Insurtech: Sustainable World

In the world of insurance, the revolution spurred on by technology is not just reshaping the industry's landscape, but also its impact on the planet. Insurtech companies are at the forefront of a sustainable revolution, steering the course toward a greener world. Through innovative practices and technological prowess, these firms are shaping a more responsible, environmentally conscious future, with impact investing at the heart of it.

Insurtech firms are developing innovative tools and technologies that help individuals and businesses assess, manage, and reduce their risks, thereby minimizing the environmental impact of insurance claims. For instance, Air Doctor's video consultation services help travelers identify and address health issues early on, preventing more serious and costly medical emergencies from occurring, as well as reducing the need for in-person medical visits and their associated carbon emissions.

Insurtech Working Towards Sustainable World

- **Descartes Underwriting** is an Insurtech company specializing in climate risk modelling and data-driven risk transfer. Descartes Underwriting is an MGA specializing in parametric insurance solutions to address climate and natural risks for over 200 corporate clients. This Insurtech develops its proprietary catastrophe models, by quickly incorporating new data sources and using them to inform their understanding of risk, which allows them to develop a new product within weeks, something that could take years for traditional insurers. Descartes leverages new data sources—including IoT, satellite imagery, stationary sensors, radar, and third-party data—combined with machine learning and advanced algorithms to unlock valuable underwriting insights. Descartes' models are applied across all trade sectors to provide insurance against floods, earthquakes, cyclones, hurricanes, hail, wildfires, etc. To have reliable and accurate data, Descartes has formed a partnership with two firms: ICEYE, a company that measures the footprint of floods precisely with its nanosatellites, and Reask, a risk analytics firm that models wind speed at any given location, which reduces basis risk for their clients. Descartes also collaborates with a network of brokers with the expertise and knowledge of their customers' needs.
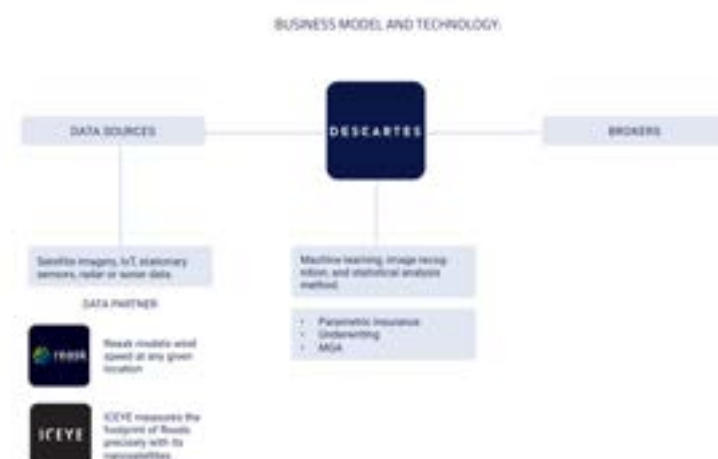
Source: NTT Data Insurtech Outlook Research, 2023, https://insurance.nttdata.com/insurtech-global-outlook-2023/

- **View** is a London-based Insurtech venture operating as a Managing General Agent. BirdsEyeView harnesses space data to structure innovative parametric solutions for climate-change risks.
- **Climate X** delivers climate risk-related ratings and asset-level financial impacts for extreme weather events linked to climate change.
- **Yokahu** offers parametric insurance for weather-related disasters, building resilience to climate change.
- **FloodFlash** is an insurance technology company that provides parametric flood insurance to the mass market.
- **FloodMapp** is a world-first predictive flood mapping technology, available as a suite of B2B SaaS products.
- **Betterview** provides actionable intelligence to Property and Casualty (P&C) insurance companies. It deploys aerial imagery, computer vision, and third-party data to help P&C insurers streamline underwriting and predict and prevent losses, as well as bring a better customer experience. It empowers insurers with insurance insight and workflow tools that improve every point in the policy lifecycle, including quoting, underwriting, loss control and risk engineering, policy renewal, and claims.

  In response to a dramatic increase in catastrophic weather events caused by climate change, Betterview continues to add new peril-specific insights to the Betterview Property Intelligence & Risk Management Platform, to help insurers and policyholders better gauge risk and protect against potential damage. Recently, it has added Wildfire Risk Insights and Hurricane Risk Insights to the platform.

Insurtech Mapping– Climate Change

By analyzing dozens of climates related Insurtech's' business models and technology applications, we group them into

4 clusters:

1. Data/tech providers. They have capabilities to collect satellite imagery data, IoT, stationary sensors, radar/sonar data, etc., and further analyse data by leveraging machine learning algorithms and data analytics.

2. Underwriters/MGA/MGU. Many Insurtechs prefer to play the role of the underwriter and apply the business model of MGA/MGU. They take advantage of third-party data, their own analytics capabilities, and knowledge of insurance to establish parametric insurance models or customize climate risk into current portfolios.

Behind these data providers and MGAs, we can see the backup of insurers, including Nationwide, AXA, Mundiventures, MS&AD Ventures, and Munich Re. Alma Mundi has backed both tech provider FloodMapp and parametric insurance MGA Descartes. Even a tech giant like Tencent has led the investment in Reask, which builds climate forecasting tools, hazard models, and event response applications using machine learning and high-performance computing.

3. Full-stack carriers. They provide insurance coverage against climate risk. For instance, Neptune Flood sells flood insurance on its website to protect property assets and offer the option of temporary living expenses. Wetterheld, a German Insurtech, offers weather insurance to help against damages—from heat and cold, snow and lack of snow, etc.—for businesses like vineyards, orchards, energy, construction, ski resorts and logistics.

4. Reinsurers. Using the accurate results of Kettle's wildfire simulation model to develop a pricing model and a portfolio optimization algorithm, Kettle provides reinsurance solutions for insurers.

Chapter 10. Sustainable Solutions

ESG Strategy and Data Management Services

Clients across industries are increasingly grappling with complex ESG issues across a fragmented and highly fluid global regulatory landscape. As a trusted global innovator, NTT DATA's robust and innovative service portfolio and extensive ESG capabilities meets you wherever you are on the journey toward future proofing operations and value chains, from reporting compliance to executing a net-zero vision. [11]

We help clients realize benefits such as:

• Streamlined emissions management and reporting, including Scope 3, and

• Effective sustainability Organizational Change Management (OCM).

We support these client outcomes with a wide range of end-to-end services including:

•GHG Protocol-aligned platform implementation and data integrations,

•Tailored employee and value chain partner engagement,

•ESG risk assessment and mitigation strategy, and

•ESG gap and opportunity assessment and goal road mapping.

Sustainable Cloud

Sustainable Cloud Advisory Services

Advisory

At NTT DATA, we specialize in providing comprehensive cloud advisory services, helping organizations reduce their environmental footprint and enhance IT sustainability. They provide advice on the selection of cloud providers, considering sustainable capabilities within their offerings, and they also help by providing workshops that can help them discover the importance of sustainable cloud computing.

The pre-assessment helps achieve a general understanding of the mindset, operations, and technology within the organization's IT department to craft a tailor-made proposal and create a personalized roadmap.

GreenOps

Provide a set of practices and principles aimed at guaranteeing operations the lowest possible environmental impact while maintaining alignment with business goals. These practices can include the elimination of unused resources, data compression, and autoscaling. They have tools to help you make these things possible, like a Monitoring model, playbook for recommendations, and more.

Training

Through comprehensive training programs, they empower businesses to adapt and maintain sustainable cloud practices effectively. The program includes e-learning, labs, Ad-hoc workshops, and best practices.

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[11] https://us.nttdata.com/en/Services/Consulting-Services/Manufacturing-Consulting/ESG

Sustainable Cloud Assets

Chapter 11. Key Takeaways

In conclusion, the evolution toward sustainable insurance represents a pivotal paradigm shift in the industry, aligning financial practices with broader environmental, social, and governance (ESG) considerations. As the global community grapples with the far-reaching impacts of climate change and other sustainability challenges, the insurance sector's commitment to responsible and ethical practices is increasingly crucial.

Sustainable insurance goes beyond mere regulatory compliance; it signifies a proactive approach by insurers to integrate environmental consciousness, social responsibility, and robust governance into their core operations. From embracing carbon-neutral commitments to incorporating climate risk assessments and promoting green insurance products, the sector is becoming a driving force in fostering a more sustainable and resilient future.

The regulatory landscape plays a significant role in shaping the trajectory of sustainable insurance. Governments and international bodies are recognizing the importance of aligning insurance practices with sustainability goals, resulting in the formulation of guidelines, disclosure requirements, and incentives that encourage insurers to contribute to global efforts to combat climate change and promote social well-being.

As insurance companies navigate this transformative journey, the collaboration between regulators, industry stakeholders, and consumers becomes paramount. By fostering a culture of transparency, innovation, and shared responsibility, the insurance sector can not only mitigate risks associated with environmental and social challenges but also contribute positively to the communities it serves.

In essence, sustainable insurance is not just a strategic imperative for insurers; it is a moral obligation and a forward-looking investment in a more secure and sustainable world. The integration of sustainability principles into the very fabric of insurance operations not only enhances resilience against emerging risks but also positions the industry as a key partner in achieving global sustainability goals. Through continued collaboration, innovation, and a steadfast commitment to ethical practices, the path towards a more sustainable and responsible insurance industry becomes not only a strategic necessity but a beacon of hope for a better, more resilient future.

Climate Change - Proactivity And Flexibility Of Insurance Companies

Human activities, principally through emissions of gases with a greenhouse effect to the atmosphere, have unequivocally caused global warming, with a global surface temperature reaching 1.1°C above 1850's average in 2020.

Human-caused climate change is a consequence of more than a century of net GHG emissions from energy use, land use change (deforestation), lifestyle and patterns of consumption, and production. Emissions reductions in CO_2 from fossil fuels and industrial processes, due to improvements in energy intensity of GDP and carbon intensity of energy, have been less than emissions increase from rising global activity levels in industry, energy supply, transport, agriculture, and buildings.

Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts on food and water security, human health and on economies and society and related losses and damage to nature and people.

Evidence of observed changes on frequency and intensity of extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and particularly their attribution to human influence, has strengthened since 2015. For example, the frequency and intensity of heavy precipitation events have increased since the 1950s over most land areas for which observational data are sufficient for a high-confidence trend analysis, and human-caused climate change is likely the main driver.[12]

According to the World Economic Forum, failure to mitigate climate change, failure to climate-change adaptation, natural disasters and extreme weather events, and biodiversity loss and ecosystem collapse, are the top 4 major risk we face in the long term (over the next decade) – and the risks for which we are seen to be the least prepared.[13]

Climate Change has a potential to drastically affect the insurance sector. As climate continues to change, insurers should adapt their business to increased financial risks from payouts and claims for incidents related to weather.

There is already an effect of retreat by insurers from some areas of natural catastrophe coverage, with the gap in insurance (global catastrophe protection) estimated to have grown from $117 billion in 2020 to $161 billion in 2021. Only 7% of economic losses from flood events in emerging markets – and 31% in advanced economies – have been covered by insurance in the last 20 years. [14]

The question is if climate change effects are a threat or an opportunity to the insurance industry. We believe it is both and recommend the decisions makers in the field to switch quickly to the light (opportunity) side. The call to action is clearly to maintain insurability among climate risk and join the global efforts to reduce emissions.

Here are 5 key areas to implement action:

- Adjust Premiums And Policies According To Climate Change Scenarios.

High-risk geographies may be subject to higher premiums as insurers need to offset increased potential losses and insurance payouts from future weather events. Improving risk identification and foresight is crucial for a proper adjustment of premiums. Modeling needs to consider present-day risk realities rather than rely purely on historical loss information. This means to include climate scenarios and update regularly.

These changing conditions are putting rising pressure on insurance companies, and policies also must be adapted accordingly to mitigate future financial risks associated with climate change. For example, insurers must review traditional coverage areas and determine if they need to adjust premiums or policy stipulations to protect themselves from financial losses. It is also essential to consider the long-term effects of climate change, such as rising sea levels, that may reduce property values or render them uninsurable. [15]

A strong recommendation is to include certain flexibility in premiums and distinguish those clients who have included adaptation actions or have evidence of a vulnerability reduction, this could support insurability in risk geographies.

- Proactivity In Management Strategies

Climate change also has the potential to affect claims and asset management for insurance companies. Companies must allocate resources more efficiently to respond quickly and effectively to extreme weather events. To best manage these new risks, many companies are updating their CLAIMS SOFTWARE, which needs to better track information related to natural disasters, which also helps to adjust coverage accordingly. Likewise, companies must be proactive with their management strategies, such as enforcing higher safety standards or strengthening infrastructure around their properties to withstand the effects of torrential weather.

[12] ¹synthesis Report Of The Ipcc Sixth Assessment Report (Ar6). Ipcc.
[13] The Global Risks Report 2023. 18th Edition. World Economic Forum
[14] Bevere, Lucia And Federica Remondi, Sigma: Natural Catastrophes In 2021: The Floodgates Are Open, Swiss Re Institute, 30 March 2022.
[15] https://www.ventivtech.com/blog/5-ways-climate-change-can-impact-insurance-companies

- Build Capacity For Climate Change-Related Decisions.

Insurers must understand different effects of environmental changes to make the best business decisions, that could include changing policy limits, developing risk transfer solutions, or adjusting risk appetite of products and services. Some topics to be construct:

1. New risk management protocols
2. Make risk assessment more rigorous, through a Risk Management Information Systems which include a comprehensive view of a company's exposure to climate-related hazards so they can better gauge their readiness for potential losses associated with climate change.
3. Revaluation of catastrophe modeling techniques and expand probabilistic models for the different type of climate risks and markets.
4. Increase risk awareness and update the underwriting process to ensure financial protection from potential losses.
5. Predictive and geospatial analytics - a technology that can help insurers better assess the potential risks and impacts of climate change.
6. Claims Management Solutions with automation help insurers maximize efficiency and collect data - allowing them to understand their operational performances better and remain profitable.

- Support and invest to increase resilience.

Adaptation finance is finance for actions to reduce vulnerability and exposure to climate hazards. It pays for things like stronger housing, more drought-tolerant crops, social safety nets, or improved decision-making around climate-related risks.[16] Even though it is very hard to track and differentiate from development finance, several studies estimate there is still a big gap to reach the current adaptation finance needs. The world today spent is around $50 billion annually.[17] Adaptation finance has come predominantly from public sources, largely through grants, concessional and non-concessional instruments.

There are two key roles for insurers in this matter. **The first one is to take the opportunity to provide services and (differentiated) better prices to "adapted" companies, and properties. For this, financial instruments, such as labeled bonds, sustainable taxonomies, among other certifications could be used as evidence of "adapted" business.**

Adapted communities or companies, means including a range of adaptation options, such as disaster risk management, early warning systems, climate risk spreading and sharing approaches, inclusive of different users and providers, improve agricultural practices, water efficiency, contingency plans & funds, and resilient infrastructure planning, have broad applicability across sectors and provide greater risk reduction benefits when combined.

The second key role for insurers: is to help close the financial gap as long-term investors in sustainable infrastructure, here too re/insurers can make a significant contribution to making communities more resilient. Indeed, with due attention on different fronts, re/insurers will remain primary agents of economic and social resilience against the ubiquitous risk that is climate change.

The financial sector, including institutional investors, are working on innovative solutions focused on adaptation, such as fit-for-purpose financial products, including weather-based index insurance, climate-related loan products, guaranteed credit lines, and well-managed risk-based exits from extreme-event-prone geographies.[18]

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[16] Adaptation Gap Report 2023, UN Environmental Programme
[17] CPI & https://www.wri.org/insights/adaptation-finance-explained#:~:text=Adaptation%20finance%20is%20finance%20for,making%20around%20climate%2Drelated%20risks.
[18] Jack, Kelsey and Nick Wilkinson, Risk, and resilience: Agricultural adaptation to climate change in developing countries, International Growth Centre (IGC), 2022.

Other innovations in adaptation and resilience finance are forecast based/anticipatory financing systems and regional risk insurance pools, which have been piloted and are growing in scale.

The industry needs to redesign affordable and practical insurance products to transfer the financial risks of climatic events away from businesses and homeowners: adapting insurance covers and aligned to national pool schemes.

- Join the climate change mitigation action (decarbonization)

15 key players of the insurance sector publicly announce their commitment towards decarbonization, through the Net-Zero Insurance Alliance (NZIA), which is convened by the UN Environment Program (UNEP), launched two years ago. The commitment goes beyond reducing emissions from their own operations to the decarbonization of their complete insurance and reinsurance underwriting portfolios. This initiative includes the NZIA statement of commitment, the NZIA white paper on net-zero insurance, the PCAF Insurance-Associated Emissions Standard, and the NZIA Target-Setting Protocol.

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David Costa - Chief Sustainability Business Officer at NTT DATA Inc.

Vicky Bullivant - Head of Corporate Sustainability at NTT DATA Inc.

Leticia Lastra – Director – Consumer & Travel Sector at NTT DATA UK

Natalia Solé - Head of Cloud + IM + Security at NTT DATA Insurance EMEAL

Firas Larbi - Lead of P&C Insurance Solutions at NTT DATA Deutschland

Daniel Hevia – Director at NTT DATA Insurance Mexico

Carlos Ortega – Director at NTT DATA Insurance Mexico

Mariana Silva – Expert Associate Strategic Value at NTT DATA Mexico

Maria Vittoria Trussoni - Head of Sustainability & Green Tech at NTT DATA Italy

Noemi Pagliuca – Sustainability & Green Tech Lead at NTT DATA Italy

Andrea Pazienza - Sustainability & Green Tech – Expert Machine Learning Engineer at NTT DATA Italy

Dario Mongiat - Manager at NTT DATA Insurance Italy

Andrea Decuzzi – Business & Digital Associate Manager at NTT DATA Insurance Italy

Giulia Zoppi – Business Analysis Consultant at NTT DATA Insurance Italy

Daniel Williamson – Sustainability Consultant – NTT DATA Services