



## Strategies for Climate Proofing Businesses: A CEO Perspective

How data-centricity and digital twins can help businesses make informed decisions about sustainability

Recently, CEOs have made a significant effort to advocate for policies to achieve net-zero emissions. A notable example is the Alliance of CEO Climate Leaders, a group facilitated by the World Economic Forum that [represents USD 4 trillion in revenues and 12 million employees around the world](#). These members have been vocal in encouraging both businesses and governments to become meaningfully involved in the effort to get to net zero.

In October 2023, more than 100 CEOs and senior executives issued an [open letter](#) to world leaders urging them to support green policies before the COP28 Climate Summit. As their letter states, winning the race to net zero hinges on the ability to act on those policies. To accomplish that goal, CEOs are asking for support and collaboration from governments, policymakers, and a wide range of stakeholders to accelerate the development of renewable energy projects and address obstacles such as a lack of interoperability that hinders green solutions.

Climate change requires adjustments in the ways organizations respond to stakeholders, as well as managing regulations and compliance, leading to a stronger emphasis on [incorporating sustainability at the core of their business strategy](#). Enterprise today must align two goals: be more resilient to climate change effects and leverage future market opportunities in the process.

These goals are not merely ideological, but also tangible, as companies must pivot to address climate impacts that are already occurring. For instance, the Volkswagen factory in Portugal was [forced to suspend production for more than two months in 2023 due to a flood in Slovenia](#), which impacted their supply chain and resulted in mass layoffs. Not only did Volkswagen's stock value plummet, but the overall GDP of Portugal (for which Volkswagen represented 4% of its exports) took a massive hit.

When Texas was hit by winter storm Uri in 2021, the destruction of computer chip facilities, power grids, and other infrastructure resulted in an estimated [economic toll of USD 80 billion to USD 130 billion in both damages and lost economic opportunities](#). The 2019-2020 Australian bushfires, also known as the “Black Summer,” [burned over 19 million hectares, destroyed thousands of homes, caused 33 deaths](#), and resulted in an estimated economic loss of AUD 2.8 billion. Almost 7,300 jobs disappeared [nationwide](#).

## A DIRE NEED FOR DATA

CEOs make decisions based on numbers. They need not only data, but also the right technology and people to generate insights.

This need is particularly pressing where decision-making around climate change and sustainability are concerned. Business leaders want to be well-prepared to address climate events. However, they need access to data that identifies the most probable future scenarios and their impact on companies’ own business models. Only then can they strategize properly, make informed, data-centric decisions around sustainability, and ultimately climate-proof their

businesses. Without these details and insights, CEOs may be unable to pivot toward more sustainable operations.

While it is common for organizations to conduct data-driven business analysis, prior analyses were not often performed with sustainability in mind. Today, for many organizations, this has changed. Within the oil and gas industry, which has long been dependent on regulations and constant shifts in industry and market demands, climate risk analysis is now a matter of survival.

## QUANTIFYING UNCERTAINTY

Energy organizations have recently begun investing assets in renewable energies to reduce risks. Heavy industries, or those working with infrastructure involving hard-to-abate sectors like steel, cement, and aviation, are also exposed to significant risks that are directly or indirectly associated with climate change. In many cases, infrastructure assets and their supply chains may also be highly exposed, and simply reinvesting in more sustainable assets is not always possible.

These hard-to-abate sectors can benefit from scenario analysis supported by digital twins or data-driven solutions. By engaging in effective simulations, businesses can identify the most critical uncertainties and assign more accurate probabilities to each of the scenarios. In addition to obvious potential pitfalls linked to the progressive impact of climate change, the most frequent sources of uncertainty are associated with regulations, consumer or stakeholder behaviors and preferences, and technological availability and pricing.

In these analyses, high or low probability may be assigned to different scenarios. For instance, in the energy industry, uncertainties may be connected to changes in carbon regulation and the profitability of renewables remaining competitive with conventional fossil fuels. Uncertainty analyses can help CEOs determine how best to allocate resources, point to potential areas for exploration of new ways of competing, and spot likely financial impacts. By identifying and quantifying the most probable scenarios with the use of digital twins and data-driven solutions, these scenario analyses can surface hidden risks and opportunities.

## LEVERAGING TALENT AND INFORMATION

For climate risk analyses to be accurately generated in support of CEOs’ strategic decisions, a combination of technology, data, and expertise is needed.

Today, CEOs must tap experts who are knowledgeable about the business and environment. They must be capable of curating and interpreting the data, as well as highlighting valuable and valid insights. These experts should combine business experience with scientific knowledge to navigate multiple areas and disciplines. Rather than specialists, generalists are required. Environmental professionals are now in such high demand globally that there [are simply not enough of them to fill all the roles](#) that require their expertise.

While more data is available than ever before, this data is often siloed in different formats, repositories, and disciplines across supply chains. Using digital twins built on open platforms to [simulate, federate, visualize, and analyze the data](#) can facilitate data-centric approaches and mitigate siloed challenges. One good example of this approach is [ClimaTwin](#), built on Bentley’s open iTwin® Platform. This startup connects complex climate models and infrastructure digital twins to provide risk intelligence and assess adaptation actions, such as for [electric utilities](#). Technology that will enable companies to not just gather diverse pools of data, but also integrate them meaningfully, will help drive strategic decision-making even as climate change creates more complex problems to solve.

## GETTING TO NET ZERO

To get closer to net zero, CEOs around the world need help resolving regulatory inefficiencies, consolidating disparate forms of data, managing projects, and determining the best way to operate given the dynamic state of play.

Digital twins offer a powerful tool for facing these challenges. These solutions allow company leaders to leverage infrastructure intelligence in scenario analyses, break down communication and information barriers, and access expertise and data from anywhere around the world—all within an open, interoperable, and collaborative platform.

More than ever, business leaders and CEOs must rely on data and technologies that provide these capabilities to make the necessary pivots and strategic transformations to climate-proof their businesses and maintain a true competitive advantage.