

Ways Ehead

Towards Sustainable Actions

Space & Sustainability

EPFL

5th May 2025

SUMMARY

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WHAT ?

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WHY & HOW ?

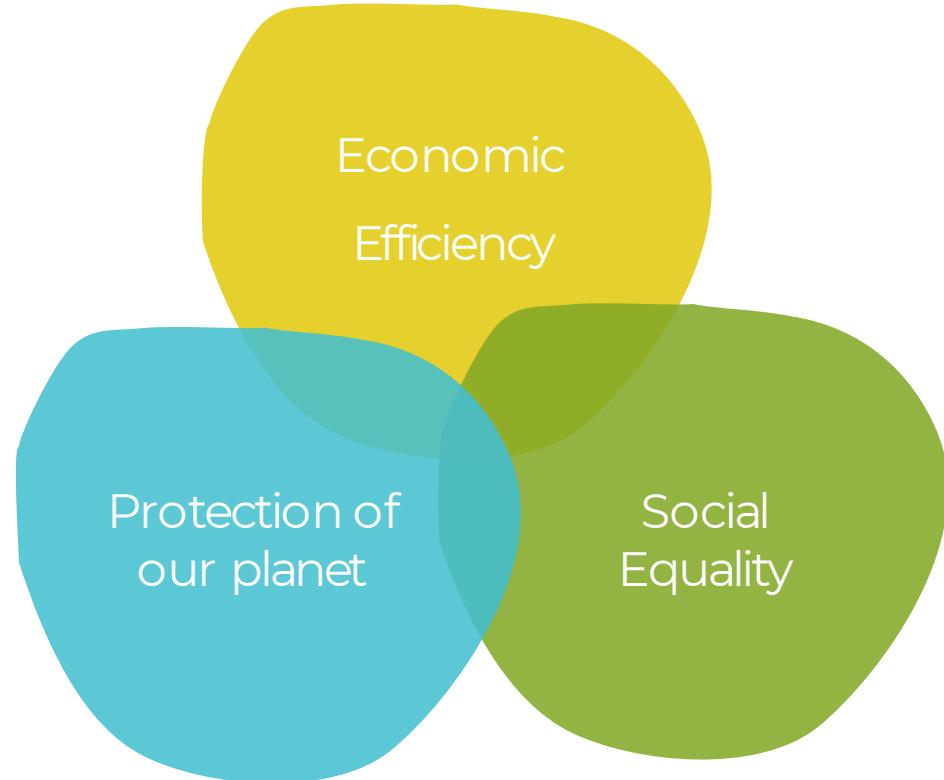
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WHAT ?

SUSTAINABLE DEVELOPMENT: A HOLISTIC APPROACH



« A mode of development that **meets the needs of the present** without compromising the ability of **future generations** to meet their own **needs** »

CORPORATE SOCIAL RESPONSIBILITY (CSR)

Or the integration of sustainability into business

Integration by companies of **Social, Environmental, Economic and Governance objectives** into their operational management, **in coordination with their stakeholders**.

The overhaul objective is to **reduce negative impacts and risks, multiply the positive impacts** while meeting the **objectives of Sustainable Development**.



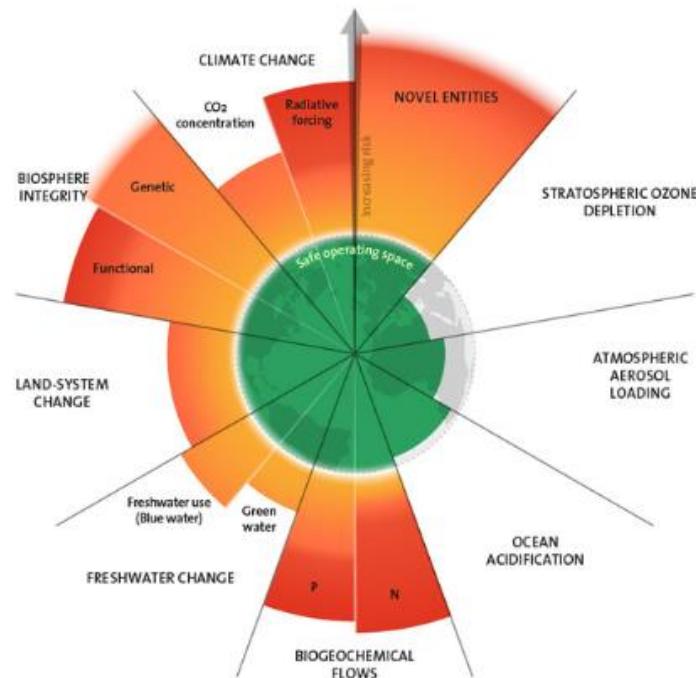


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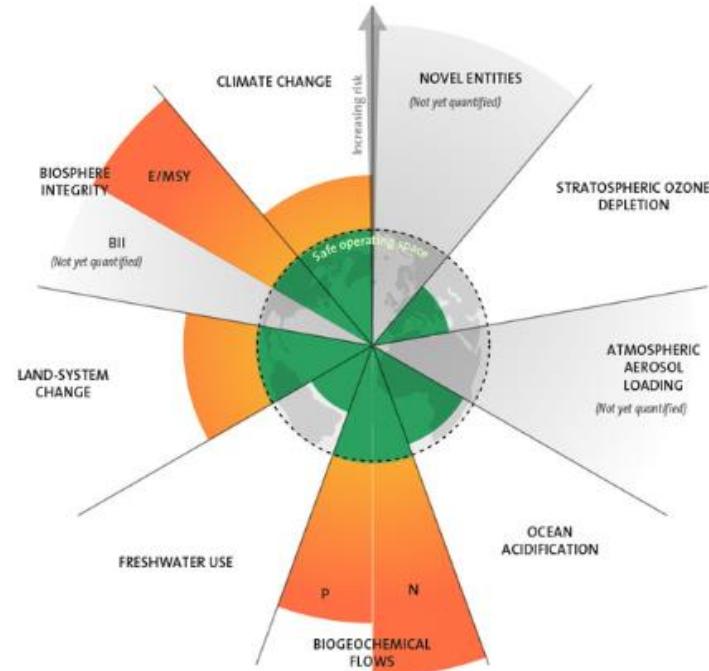
WHY ?

THE WHY: 6 PLANET BOUNDARIES OUT OF 9 CROSSED

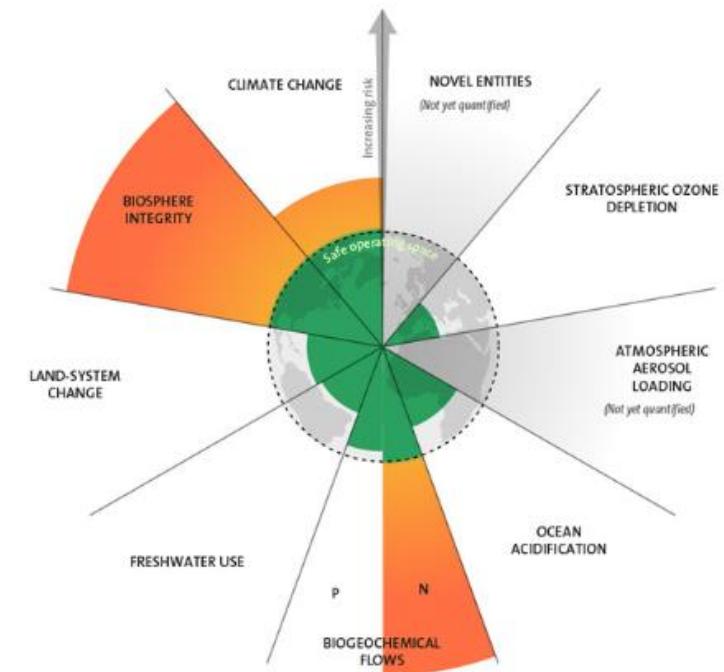
2023



2015

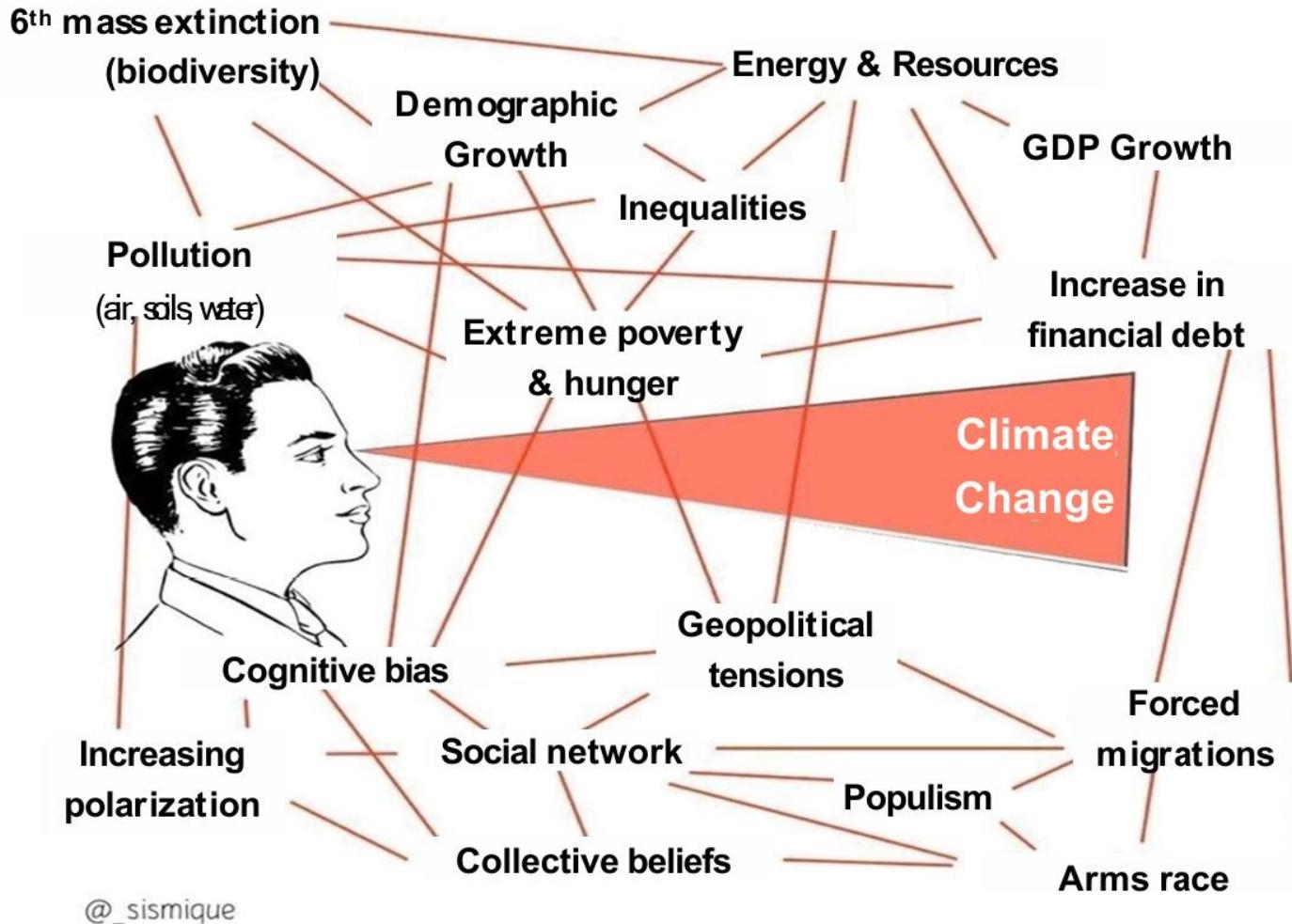


2009



Source : Stockholm Institute, 2023

THE PROBLEM IS NOT ONLY ABOUT CLIMATE ...



CLIMATE CHANGE IMPACTS A NUMBER OF INDUSTRIES

Automobile	Food	Financial
 Porsche (2024)  Floods caused an interruption in production 7% one-off fall in the stock market index linked to a loss of income	 Mowi Scotland (2023)  Warmer seawater encourages the onset of disease Reduced salmon harvests and operational loss of -1.1MM€	 Absa Group (2022)  Severe floods damaged many assets 3392 insurance claims received worth -12MM€
 Paccar (2021)  A winter storm damaged a manufacturing plant Costs of reduced production and repairs of -10MM€	 General Motors (2021)  A tornado damaged an assembly plant for Chevrolet Corvettes Production stoppage for one week	 Woolf Farming (2021)  Water-related stress led to the loss of some farms Uprooting of almond trees on 150 hectares of land
 Mazda (2018)  Record rainfall impacted production plant capacity Reduced production of -44K vehicles	 Nissan (2016)  Cyclone Vardah heavily damaged the fleet of vehicles 1100 cars were damaged, provoking a loss of -14MM€	 Tereos (2020)  Heat stress encourages the development of disease Loss of 1/3 of French Production in 2020
		 JP Morgan Chase & Co. (2016)  Hurricane Irma impacted bank loan repayments -15% of bank repayments the week of the hurricane

Source :BCG, 2025

Why Global Sustainability Efforts Will Continue Despite Trump

by John Mandyck

December 23, 2024



Illustration by Michela D'Urso

Source : Harvard Business Review, 2024, Corporate Knight 2025

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GLOBAL TREND

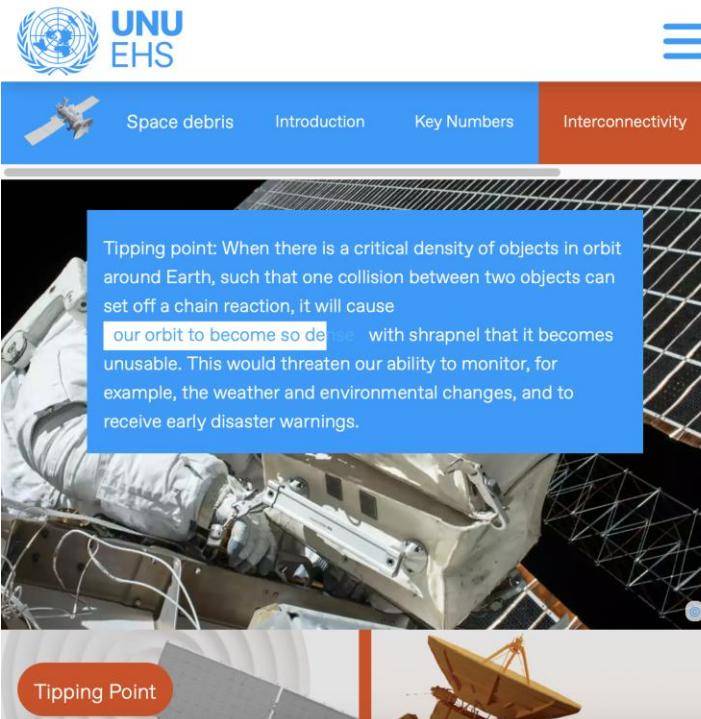
- > **China is ramping up investments** in renewables, reinforcing its key role in the energy transition.
- > **UAE became the first Middle Eastern country to adopt ambitious carbon reduction regulations.**
- > **The top 100 companies driving sustainable transformation continue investing despite economic uncertainty.** Their sustainable revenues are growing twice as fast as others, **reaching \$5 trillion**



CLIMATE & FINANCE

- > **77% of individual investors (Morgan Stanley) now prioritize environmental factors.**
- > **In Europe, banks offer an average 20-basis-point discount on loans to companies cutting emissions**

COMMITMENTS IN THE SECTOR INVOLVING ALL STAKEHOLDERS



UNU EHS logo

Space debris Introduction Key Numbers Interconnectivity

Tipping point: When there is a critical density of objects in orbit around Earth, such that one collision between two objects can set off a chain reaction, it will cause our orbit to become so dense with shrapnel that it becomes unusable. This would threaten our ability to monitor, for example, the weather and environmental changes, and to receive early disaster warnings.

Tipping Point



SCIENCES + SPACE

Do space activities threaten the upper atmosphere?

Over the past decade, space has become increasingly cluttered by the growing number of objects being sent into orbit. These objects, which eventually disintegrate upon falling back to Earth, risk damaging the upper atmosphere with their polluting emissions.

By Pierre Barthélémy
Published on November 25, 2024 at 6:00 p.m., modified on November 26, 2024 at 1:38 a.m. | ⏱ Lecture 8 min. - [Read in English](#)

“How to explore the Moon in a +4°C world”

In an era of climate change, the space sector is not immune to the necessary questioning of its trajectory and its decarbonization, explain Clarisse Angelier and Alban Guyomarc'h, members of the National Association for Research and Technology, in an article in "Le Monde".

Published on November 17, 2024 at 7:00 a.m., modified on November 17, 2024 at 10:25 a.m. | ⏱ 3 min read.



AI

Space Debris and Sustainability: A Call to Action for 2025

The space industry is tackling the challenge of space debris with innovation, regulations, and collaboration, ensuring a sustainable future in orbit.



IAC 2022 : *There is a call for greener space activities to meet ESG criteria in turn influencing the ability to raise this type of capital. ESG finance is key but this is an area that the space sector has not yet explored ... A holistic approach to the global economy where there is an understanding of the true costs and risks of business activity is thus a must.*

Report of For an ecological awakening on the space sector

[Back to list](#)



INCREASING NUMBER OF REGULATIONS : SUSTAINABILITY BECOMES A NEW LICENSE TO OPERATE



AN INTERNATIONAL TREND

ESG Regulations to Watch

Canada: Full implementation of the green and transition taxonomy planned for 2025.

United States: The states of California and Washington are expected to adopt mandatory climate disclosure rules in 2025 or 2026. The state of Illinois is developing similar rules.

TYPE DE REGULATIONS

TAXONOMY

CLIMATES DISCLOSURES

ESG DISCLOSURES

United Kingdom: The Equality Bill (race and disability) will impose reporting requirements on employers.

China: The Ministry of Finance will adopt a sustainability reporting framework aligned with the ISSB..

Hong Kong: Climate-related disclosures for all companies listed on HKEX took effect in 2025.

Singapore: Mandatory climate-related disclosures effective for the 2025 fiscal year.

New Zealand: A sustainable taxonomy is under development, focusing on eight key economic sectors..

Ghana: The directive on financial risks related to climate is under development.

Australia: Mandatory climate financial disclosure rules took effect from January 2025.

Source: Monitoring of ESG regulations and reporting standards by Sustainable Fitch.

Note: The map represents the main regulatory changes that have occurred in recent months, but the list is not exhaustive.

QUESTIONS TO BE RAISED AT ALL LEVELS

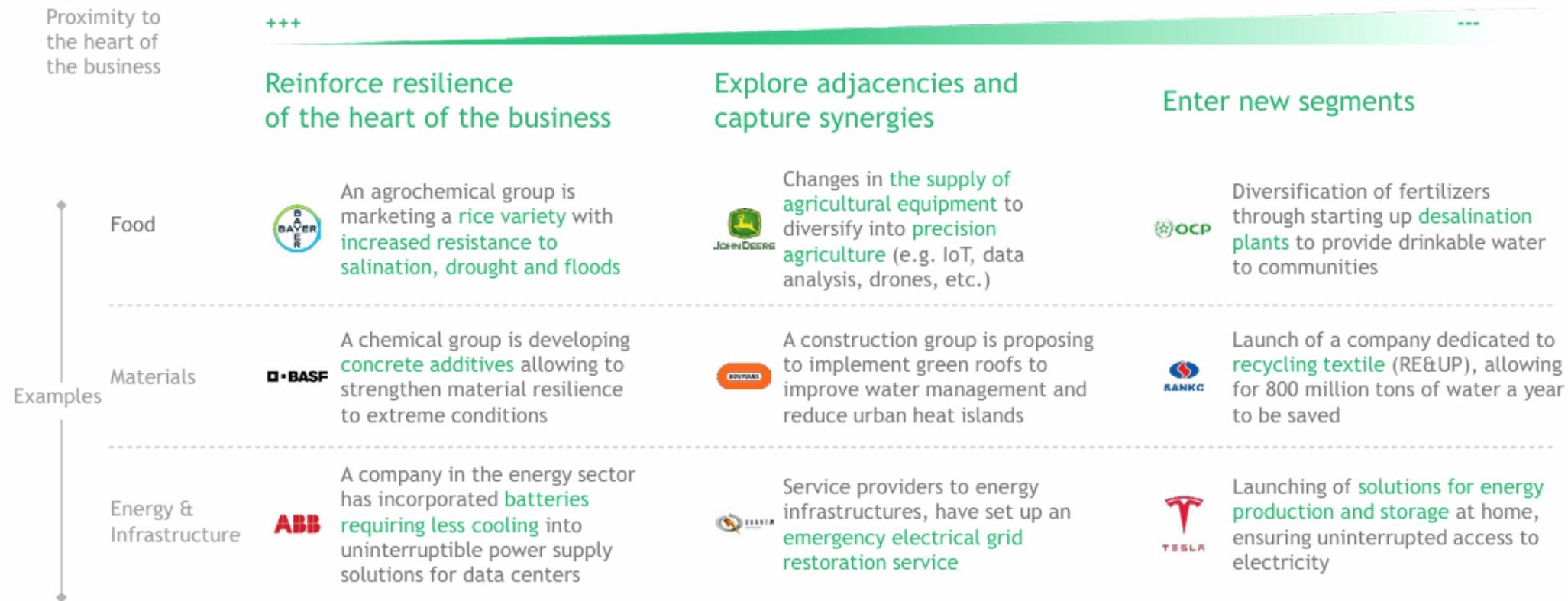


A SUSTAINABLE COMPANY : 10 PILLARS STEMMING FROM NORMS, REGULATIONS & BEST PRACTICES



ADAPTATION TO CLIMATE CHANGE : A SOURCE OF OPPORTUNITIES FOR BUSINESSES

More advanced stakeholders have seized adaptation as an opportunity to strengthen their competitive advantage



Source : BCG et Quantis, "Adaptation & Resilience of companies in the face of climate change", March 2025

- > **Global issues** (not just climate !) and interconnected **with business, social and societal impacts**
- > **Sustainability has to be** embedded into companies 'strategies and is to be declined in all functions
- > **Its is not about ticking the box** : actions must be defined with stakeholders and take into account the topics which are material to the business .
- > Business models must be **reinvented and transformed while generating revenues & opportunities**



"The **secret of change is to focus** all your energy not on fighting the old, but **on building the new.**"
Socrate

IMPLEMENTATION

Choose 1 of the 3 reports you have already reviewed. Start from your initial analysis and expand it based on the insights shared today.

Try to answer the following questions to guide your reflection :

▪ **Strategic Integration :**

- Does the company's CSR strategy appear aligned with its core business, or are the initiatives more peripheral and disconnected ?
- How stakeholders are involved ?

▪ **Measurable Objectives :**

- Has the company set measurable targets, and are these targets clearly contextualized ?
- Is the company's starting point (baseline) clearly explained for the reader ?

▪ **Risk & Opportunity Analysis :**

- Were these objectives defined based on a solid analysis of risks and opportunities, business context, transition context ?

▪ **Governance Integration :**

- Does the company integrate governance related to this topic at all levels of the organization ?
- Do you feel that the Management has a solid vision on how to integrate sustainability into business and the value of it ?



Ways Ehead

Towards Sustainable Actions

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- > Climate Inequality Report 2023 <https://wid.world/>
- > Future Risks Report, AXA, October 2024 <https://www.axa.com/en/news/2024-future-risks-report>
- > Harvard Business Review, 2024, Corporate Knight 2025 <https://hbr.org/2024/12/why-global-sustainability-efforts-will-continue-despite-trump>

HOW ?

- > European Green Deal : https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- > ESG Regulations and Reporting Standards Tracker <https://www.sustainablefitch.com/topics/esg-regulations>
- > Adaptation to climate change : report BCG and Quantis : <https://quantis.com/report/adaptation-resilience-climate-change/>

SPATIAL ENGAGEMENT AND CONTROVERSIES

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- > First fine for dumping debris in space, Le Monde, 2023 https://www.lemonde.fr/sciences/article/2023/10/03/espace-une-amende-infligee-pour-abandon-de-debris-une-premiere_6192227_1650684.html?utm
- > “How to explore the Moon in a +4°C world”, Le Monde, 2024 https://www.lemonde.fr/idees/article/2024/11/17/comment-explorer-la-lune-dans-un-monde-a-4-c_6398199_3232.html?utm
- > The proliferation of space debris in the Earth's orbit, Polytechnique Insights <https://www.polytechnique-insights.com/en/columns/space/the-proliferation-of-space-debris-in-theearths-orbit/>
- > Do space activities threaten the upper atmosphere?, Le Monde, 2024 https://www.lemonde.fr/sciences/article/2024/11/25/les-activites-spatiales-menacent-elles-la-haute-atmosphere_6413918_1650684.html?utm_source=chatgpt.com
- > Report of For an ecological awakening on the space sector <https://pour-un-reveil-ecologique.org/fr/rapports/rapport-secteur-spatial/>