



Ways Ahead

Towards Sustainable Actions

Space & Sustainability

EPFL

5th May 2025

SUMMARY

01

WHAT ?

02

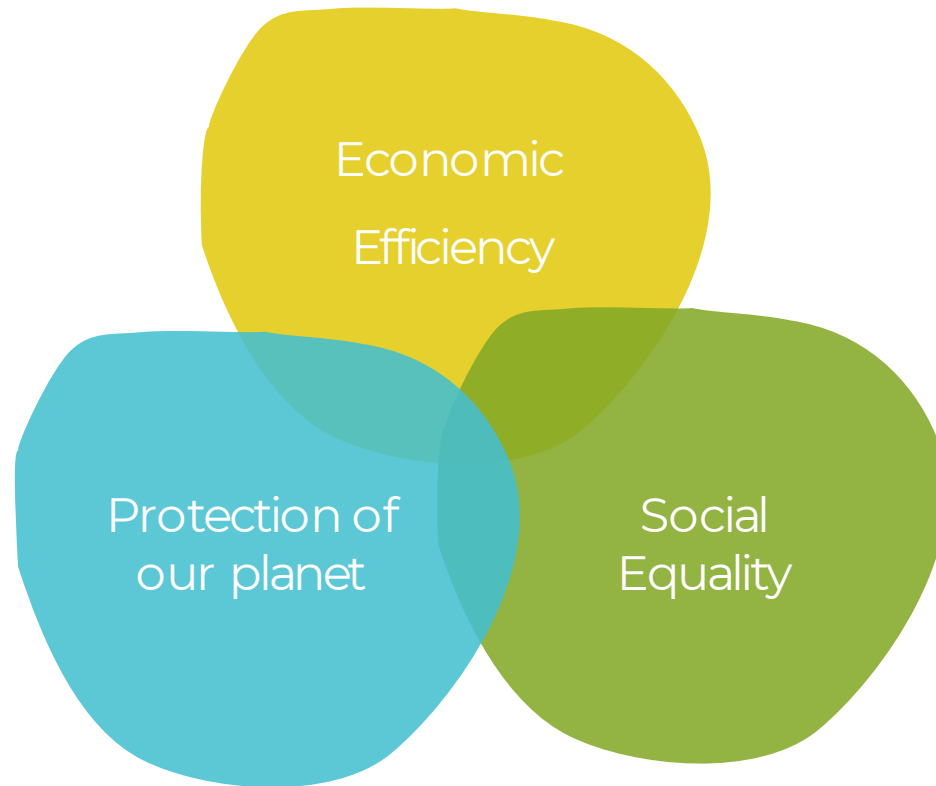
WHY & HOW ?

A close-up photograph of two dandelion seed heads, one in the foreground and one slightly behind it, both with their white, feathery seeds fully extended. The background is a solid, vibrant teal color.

1

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.**



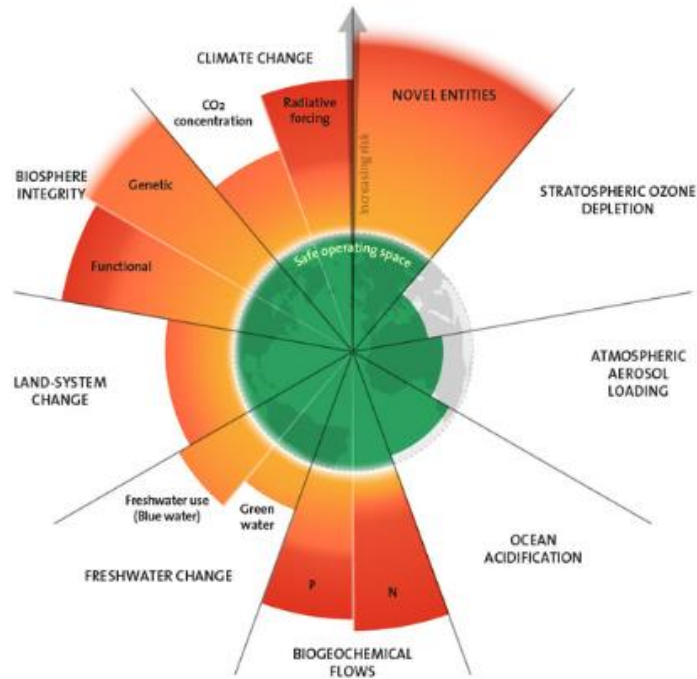
A close-up photograph of two dandelion seed heads, one in the foreground and one slightly behind it, both with their white, feathery seeds fully extended. The background is a solid, muted teal color.

2

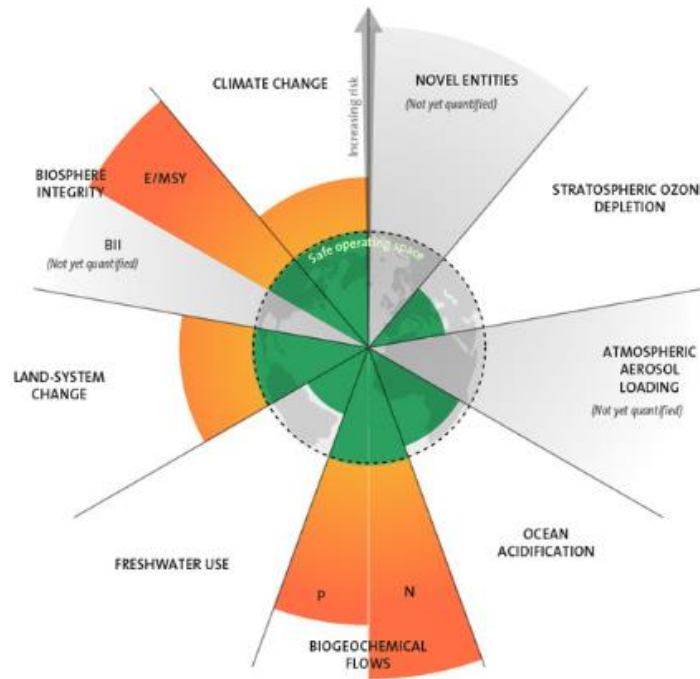
WHY ?

THE WHY: 6 PLANET BOUNDARIES OUT OF 9 CROSSED

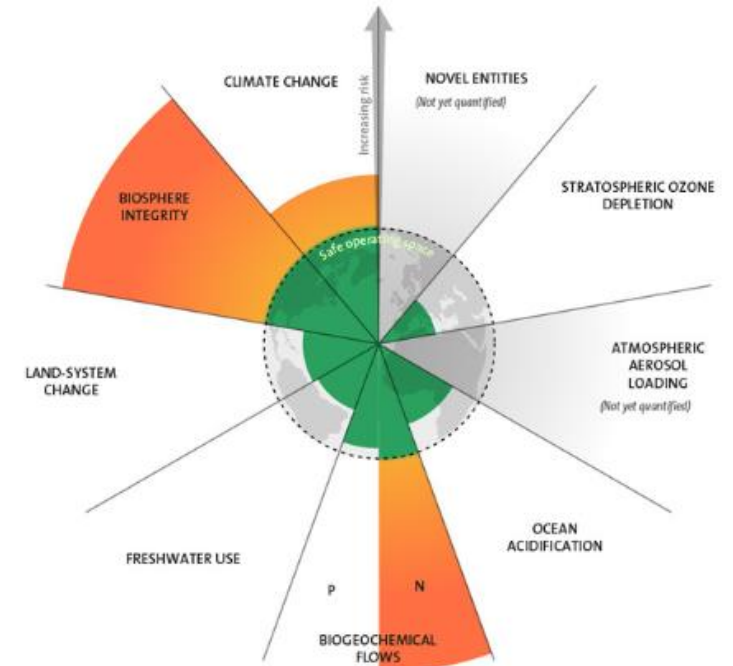
2023



2015

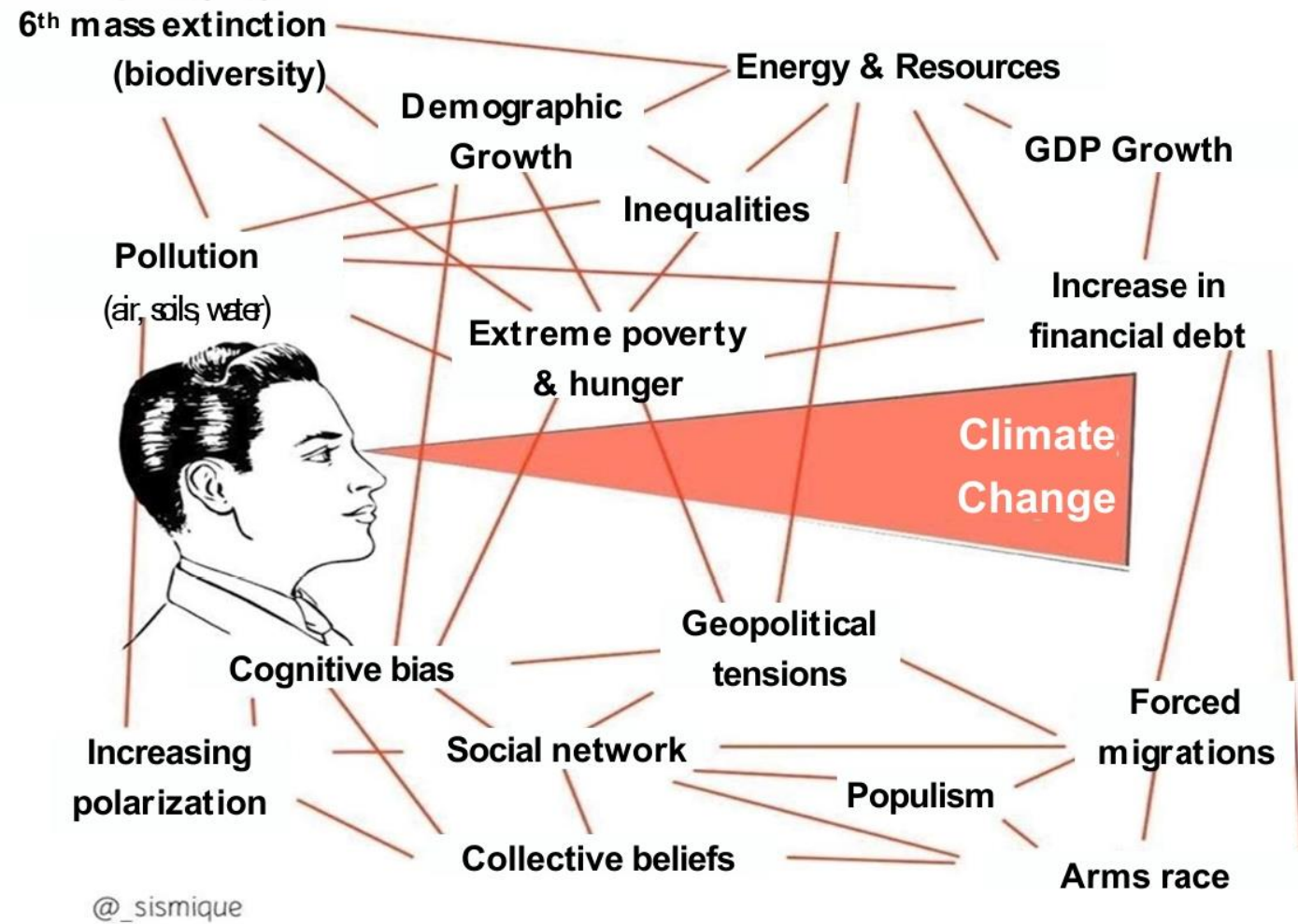


2009



























Source : Stockholm Institute, 2023

THE PROBLEM IS NOT ONLY ABOUT CLIMATE ...



CLIMATE CHANGE IMPACTS A NUMBER OF INDUSTRIES

Automobile			Food			Financial					
	Porsche (2024)			Volkswagen (2023)			Mowi Scotland (2023)			Absa Group (2022)	
Floods caused an interruption in production 7% one-off fall in the stock market index linked to a loss of income			Floods leading to halted production Deficit estimated at 40K vehicles for a Portuguese factory in 2023			Warmer seawater encourages the onset of disease Reduced salmon harvests and operational loss of -1.1MM€			Severe floods damaged many assets 3392 insurance claims received worth -12MM€		
	Paccar (2021)			General Motors (2021)			Woolf Farming (2021)			DB Insurance Co. (2022)	
A winter storm damaged a manufacturing plant Costs of reduced production and repairs of -10MM€			A tornado damaged an assembly plant for Chevrolet Corvettes Production stoppage for one week			Water-related stress led to the loss of some farms Uprooting of almond trees on 150 hectares of land			Torrential rains caused flooding 1247 insurance claims received worth -11MM€		
	Mazda (2018)			Nissan (2016)			Tereos (2020)			JP Morgan Chase & Co. (2016)	
Record rainfall impacted production plant capacity Reduced production of -44K vehicles			Cyclone Vardah heavily damaged the fleet of vehicles 1100 cars were damaged, provoking a loss of -14MM€			Heat stress encourages the development of disease Loss of 1/3 of French Production in 2020			Hurricane Irma impacted bank loan repayments -15% of bank repayments the week of the hurricane		

Source :BCG, 2025

SUSTAINABILITY IS CHALLENGED BUT WILL NOT DIE !

Why Global Sustainability Efforts Will Continue Despite Trump

by John Mandyck

December 23, 2024



Illustration by Michalla D'Urbano

Source : Harvard Business Review, 2024, Corporate Knight 2025



GLOBAL TREND

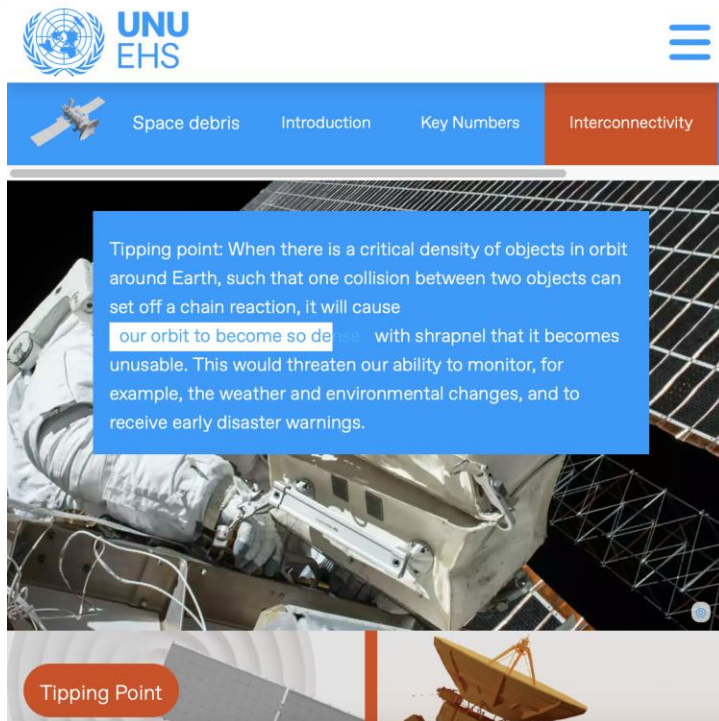
- > **China is ramping up investments** in renewables, reinforcing its key role in the energy transition.
- > **UAE became the first Middle Eastern country to adopt ambitious carbon reduction regulations.**
- > **The top 100 companies driving sustainable transformation continue investing despite economic 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



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".

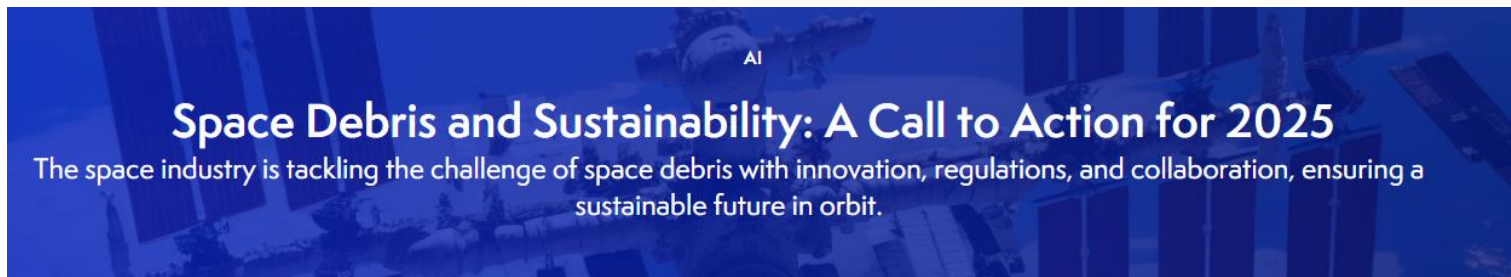
Published on November 17, 2024 at 7:00 a.m., modified on November 17, 2024 at 10:25 a.m. | 3 min read.



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

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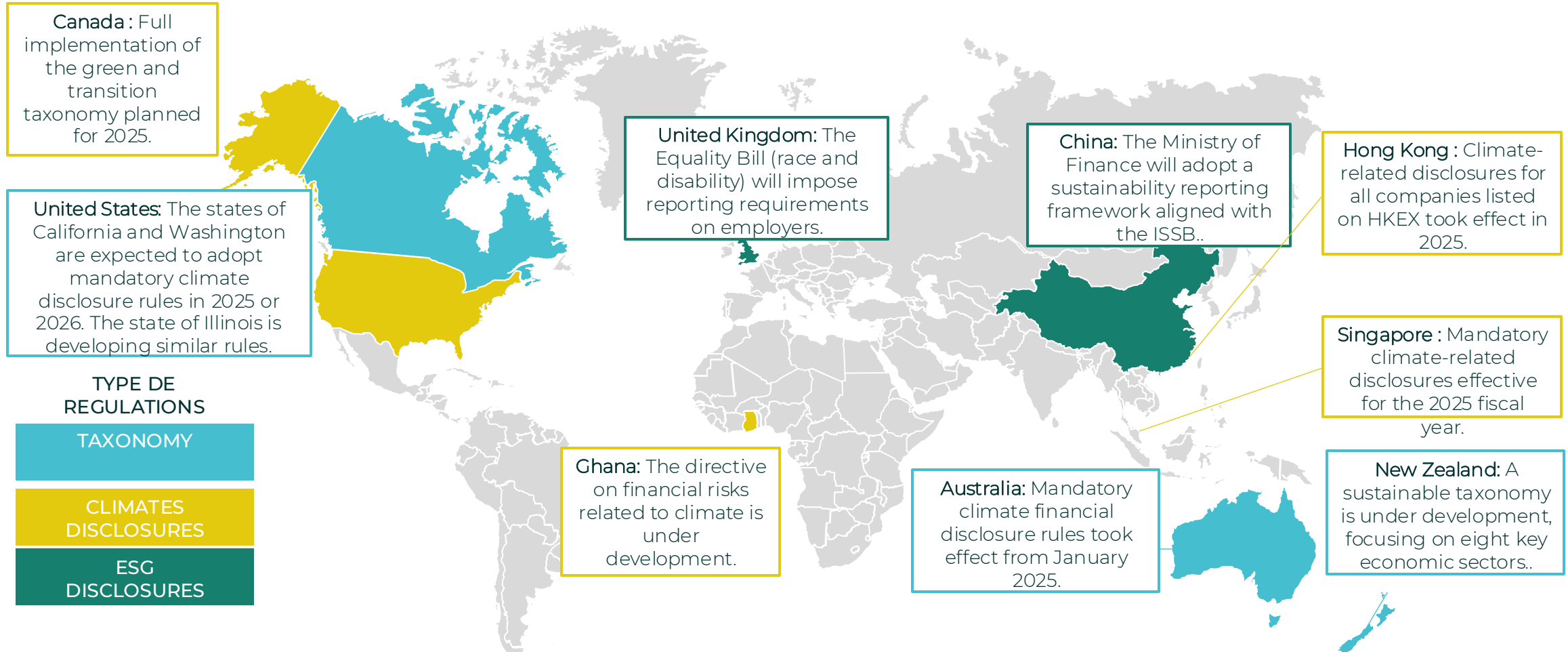


INCREASING NUMBER OF REGULATIONS : SUSTAINABILITY BECOMES A NEW LICENSE TO OPERATE



AN INTERNATIONAL TREND

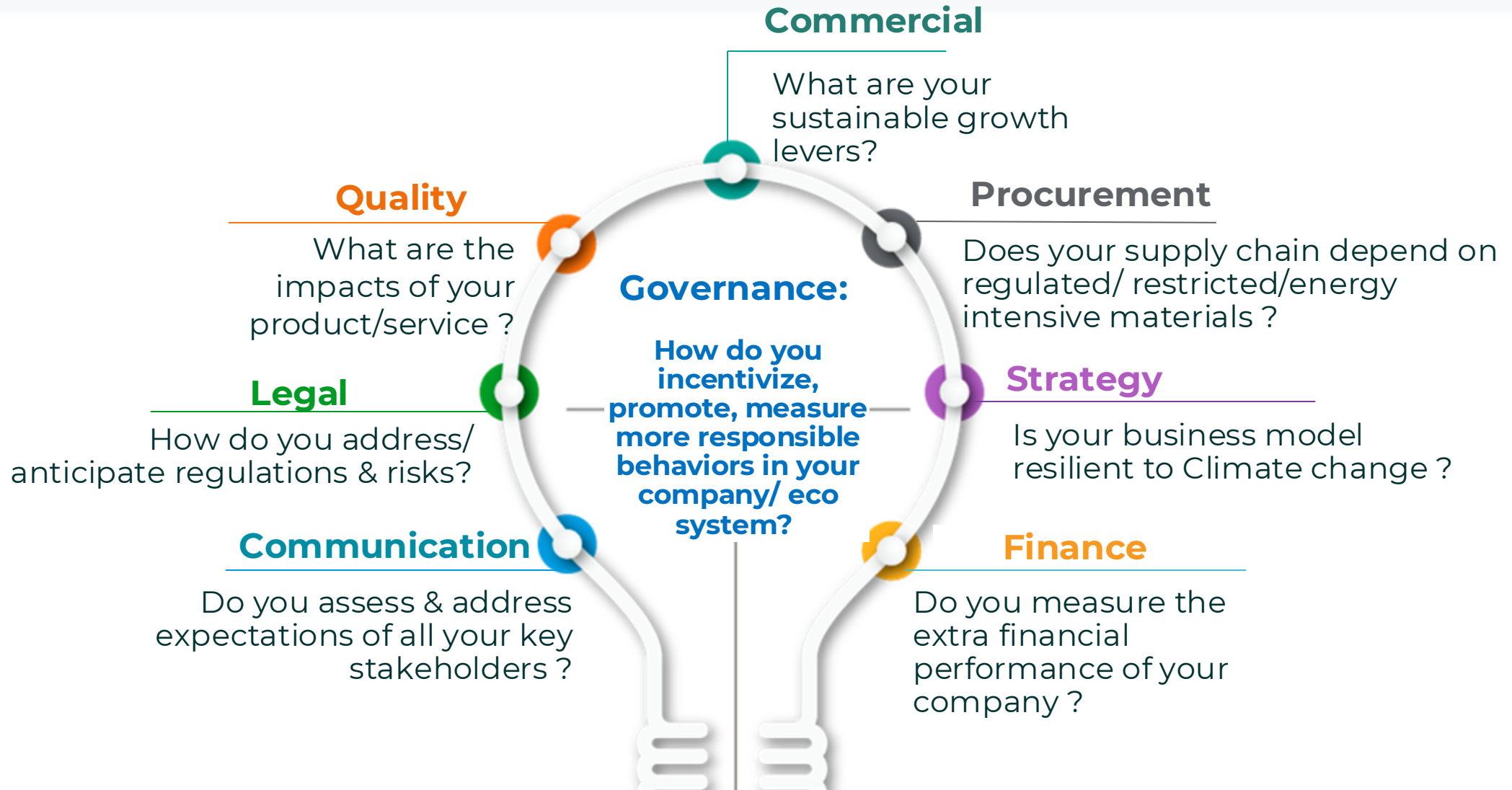
ESG Regulations to Watch



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

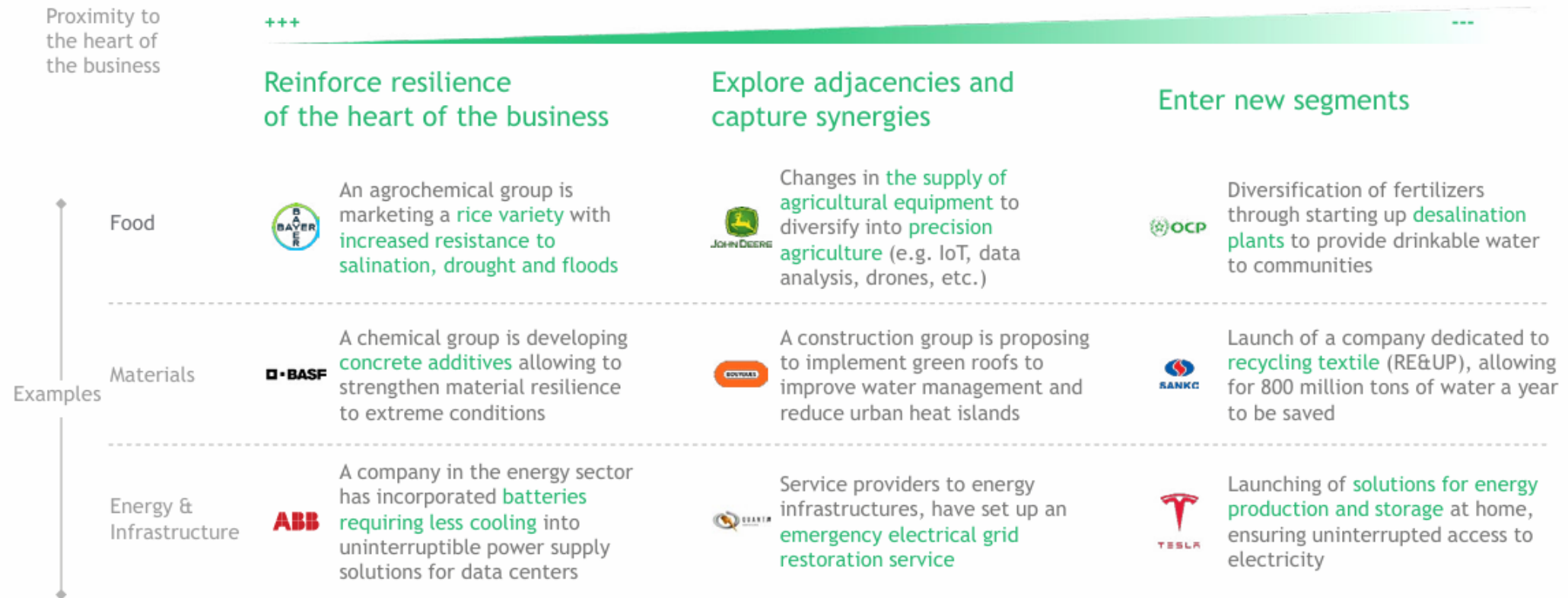


A SUSTAINABLE COMPANY : 10 PILLARS STEMMING FROM NORMS, REGULATIONS & BEST PRACTICES



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

KEY LEARNING PART 5

- > **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 ?

The background of the entire slide is a teal color. Scattered across it are several dandelion seed heads. Some are in sharp focus, showing the intricate details of the seeds and the brown, papery base. Others are blurred, creating a sense of depth and movement. The seed heads are mostly white and fluffy, with some showing the brown base. The overall composition is clean and modern.

Ways Ahead

Towards Sustainable Actions

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CONTACTS

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WHAT ?

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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

- > Space debris and sustainability : a call to action for 2025, Eventure https://trends.eventure.io/space-debris-and-sustainability-a-call-to-action-for-2025?utm_source=chatgpt.com
- > 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_source=chatgpt.com
- > “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_source=chatgpt.com
- > 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-the-earths-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/>