The Governance of Earth Incorporation

Introduction to the special edition

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1.0 incorporation [noun]

- *The action of incorporating two or more things, or one thing with another; the process or condition of being so incorporated; union in or into one body.*

- *The action or process of forming into a community or corporation; especially the formation of a legal corporation or body politic.*

Oxford English Dictionary, 2025 [1]

Over the past few centuries, private citizens have incorporated millions of companies: 45 million limited liability firms existed at the end of 2022.[2] Of these, 44 000 were publicly listed by the end of 2024.[3] These numbers underscore how human collaboration has been reorganised into businesses, which have gradually absorbed society[4] via the process of incorporation, the legal meaning of the noun.

However, while corporation after corporation was incorporated, the relationship between organisations and the natural environment became more elusive. Embedding nature considerations into every decision, a standard practice in agricultural societies, became less common in countries dominated by industry and service sectors. Specific characteristics of modern businesses, such as the separations between ownership and control and between the firm's assets and those of its owners, have likely contributed to the disconnect. Certainly, organisational routines and processes systematically embed natural sciences into their operations. For instance, building an aeroplane depends on knowledge of physics, while making soft drinks requires an understanding of chemistry and biology.

1 Oxford English Dictionary, definition available at https://www.oed.com/dictionary/incorporation_n?tab=meaning_and_use#629921.
2 World Bank Group, Entrepreneurship Database, available at https://www.worldbank.org/en/programs/entrepreneurship
3 OECD, OECD Corporate Governance Factbook 2025, OECD Corporate Governance Factbook (OECD Publishing, 2025), https://doi.org/10.1787/f4f43735-en.
4 Charles Perrow, 'A Society of Organizations', Theory and Society 20, no. 6 (1991): 725–62, https://doi.org/10.1007/BF00678095.

Still, how frequently do the board of directors (board) of companies, whether in aviation, beverages, or other sectors, consider how much their organisations rely on and impact the natural environment?

Following the 2015 Paris Agreement, listed firms on both sides of the Atlantic made structural changes within their boards. Notably, the introduction of dedicated sustainability board committees represents the most visible adjustment. Other prominent novelties included the dependency of a portion of executive remuneration on Environmental, Social, and Governance (ESG) metrics and the prioritisation of environmental expertise at the board level. These innovations aimed at mitigating a potential pre-existing governance gap, where most firms' board of directors have long treated firms as not grounded in the natural environment.

Yet, it is crucial to recognise that any gaps in oversight are not solely attributable to the practitioners. Governance and management scholars, on their side, have also relied heavily on theories and constructs that ignore the natural environment. For instance, both agency theory[5] and the stakeholder approach[6] do not consider where business activities occur. These reductionist theoretical lenses, far from acknowledging that firms operate in complex systems, ignore the natural environment. Making things worse, business schools have continued to circulate these theories and frameworks for decades. Only recently have virtuous universities begun reviewing academic curricula to address the many systemic challenges we seem unable to address.[7]

Fast forward to today, in a state of planetary health emergency, our species faces an increasingly fragile and unstable natural environment. Organisational awareness of the need to transform business operations to be more environmentally sustainable is high.

Boards of directors are presented with the opportunity to incorporate nature into decision-making through what we label Governance of Earth Incorporation. Will board dynamics prioritise planetary health and advance processes to ensure that decision-making incorporates firms' dependence and impact on nature?

We are optimistic and enthusiastic that they can. That is why, among many other crises and topics worth a dedicated edition, we decided to focus on the planetary health challenge. The objective of this first-ever special edition of the NICG booklet «Board Dynamics» is to address and stress the urgency of Governance of Earth Incorporation. Our goal is to facilitate transdisciplinary exchange by providing our readers with vocabulary, key resources, and practical insights on how corporations and the natural environment interweave and influence one another. This is achieved by giving voice to the leading academics and practitioners, whom you will meet in the following pages.

5 Milton Friedman, 'The Social Responsibility Of Business Is to Increase Its Profits', The New York Times, 1970; Michael C. Jensen and William H. Meckling, 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure', Journal of Financial Economics 3, no. 4 (1976): 305–60.

6 R. Edward Freeman, Strategic Management: A Stakeholder Approach, Pitman Series in Business and Public Policy (Pitman, 1984).

7 Andrew J. Hoffman, Business School and the Noble Purpose of the Market: Correcting the Systemic Failures of Shareholder Capitalism (Stanford University Press, 2025), https://doi.org/10.1515/9781503642478.

2.0 Two interconnected perspectives

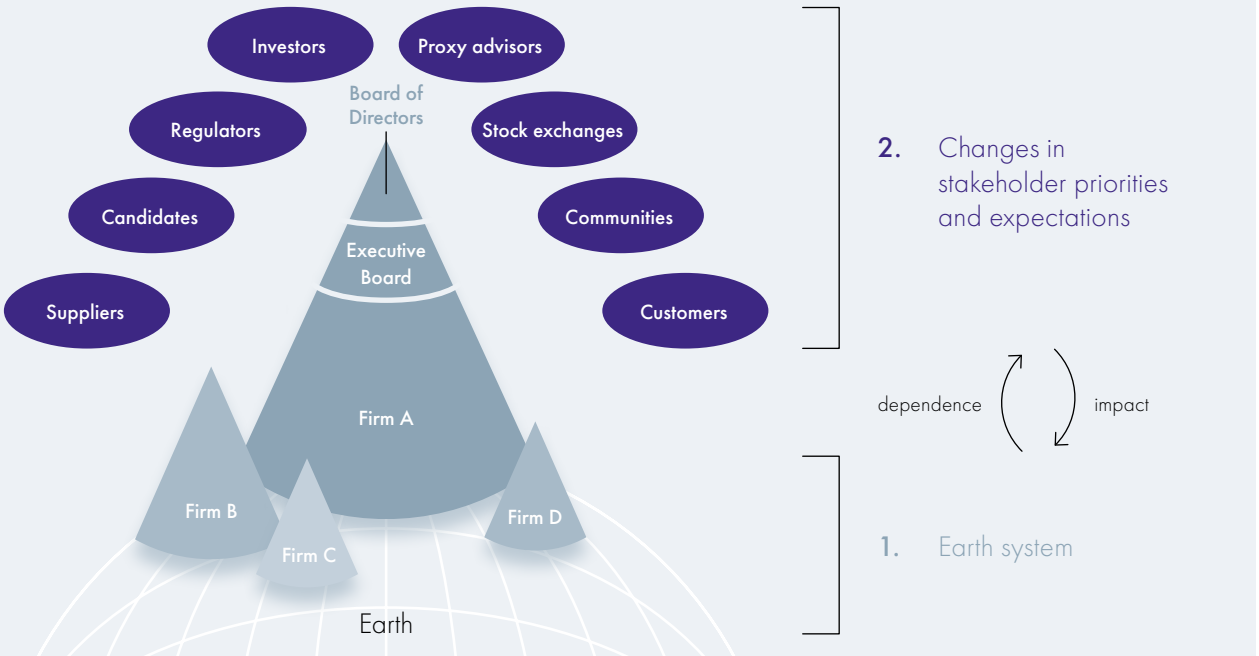
The progressive degradation of Earth's health hinders the survival of living species. Companies – and, by extension, their boards – are also directly affected by agenda items such as the approval of net-zero emission plans or the review of business continuity plans in the event of a natural catastrophe. Next, we explore how the increasingly fragile state of our planet is adding pressure to the Board of Directors through two complementary perspectives summarised in Figure 1. On the one hand, we look directly at Earth system sciences to understand how changes in the natural environment will influence firms. We examine this viewpoint through the Planetary Boundaries framework[8] and the contributions of natural scientists. On the other hand, we track changes in stakeholders' priorities and behaviours in response to the other dimension, and evaluate how their expectations evolve.

2.1 Earth system sciences

First, we turn to Earth system sciences[9] to appreciate our planet's behaviour. As a system, Earth has the intrinsic capacity to balance itself despite disturbances and shocks. Indeed, over the past 11 700 years – the Holocene epoch – a stable and warm climate provided the favourable conditions that enabled the first agricultural revolution and a sequence of technological enhancements. Jumping ahead to the last century, the pace and scale of human development were – and still are – so extraordinary that the period from around 1950 onwards was labelled the «Great Acceleration».[10] In this phase, the growth of key socio-economic indicators led to a direct and measurable «imprint of the human enterprise on the Earth System».

Over the last 75 years, scientists have observed a significant transformation in the relationship between humans and nature: our species is shaping the natural environment. We shape the atmosphere by releasing unprecedented amounts of potent greenhouse gases such as carbon dioxide and methane.

Figure 1: The pressure for directors is building up from multiple fronts

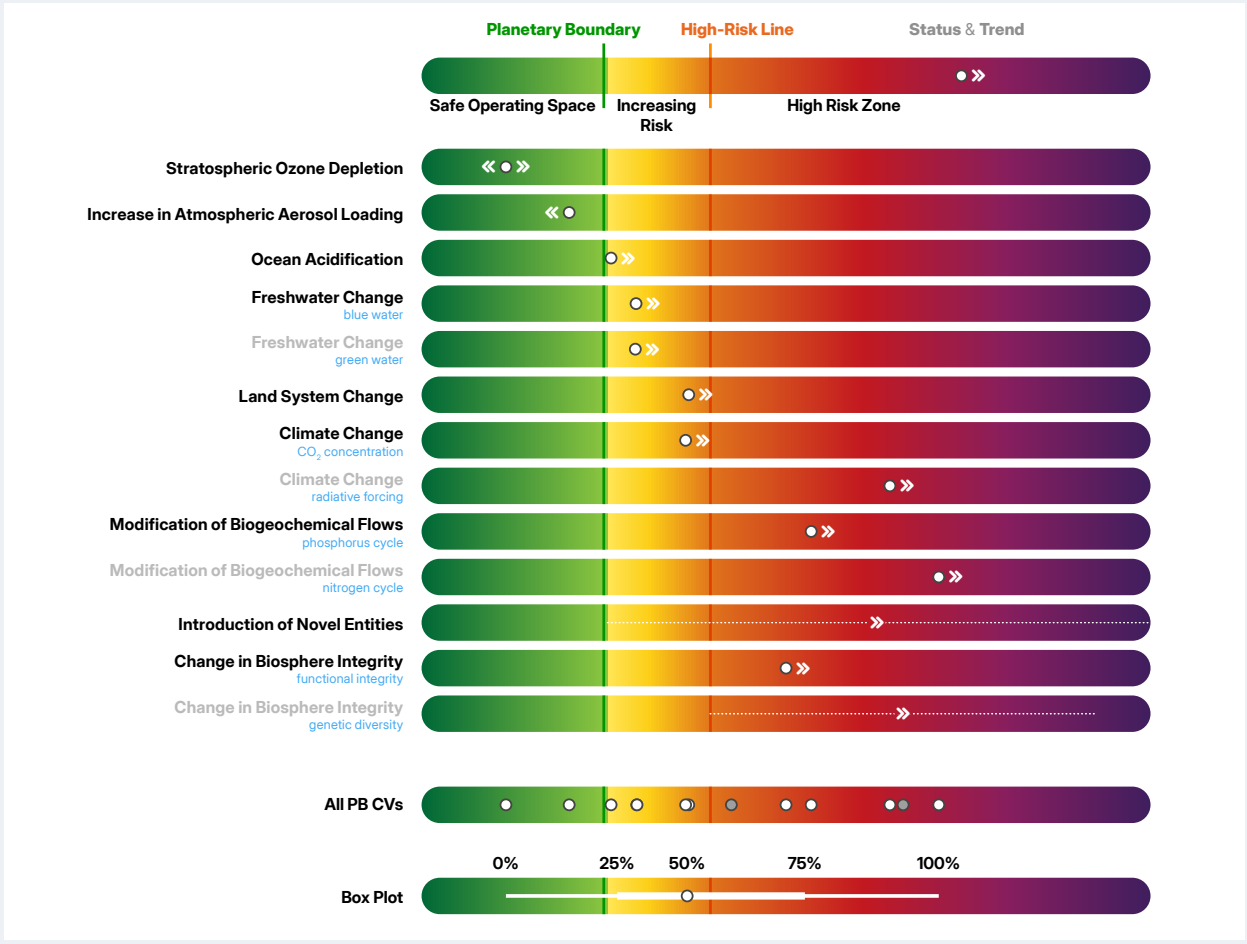


8 Johan Rockström et al., 'Planetary Boundaries: Exploring the Safe Operating Space for Humanity', Ecology and Society 14, no. 2 (2009); Boris Sakschewski et al., 'Planetary Health Check 2025: A Scientific Assessment of the State of the Planet', in Planetary Boundaries Science (PBScience) https://doi.org/10.48485/PIK.2025.017.

9 Sakschewski et al., 'Planetary Health Check 2025'.

10 Will Steffen et al., 'The Trajectory of the Anthropocene: The Great Acceleration', The Anthropocene Review 2, no. 1 (2015): 81–98, https://doi.org/10.1177/2053019614564785.

Figure 2: Extract from the 2025 Planetary Health Check (p. 11)



We shape the oceans by increasing their hydrogen concentration and polluting them with plastic. We shape the land by extracting minerals and fossil fuels and cutting tropical forests to convert them to domesticated land.

These negative environmental externalities resulted from the admirable aim to accommodate an expanding population by providing food for more people and enhancing the quality of life for billions. Still, there are limits to the planet's resilience and capability to absorb human pressures so that it remains in a Holocene-like state. That is precisely what the Planetary Boundaries framework visualises and measures. Figure 2 provides a snapshot of the planetary health as of 2025, clearly showing which limits have already been surpassed.

The framework highlights nine key processes that regulate the stability, resilience, and life-support functions of our planet (in bold, on the left-hand side of the chart). For each process and its one or two control variables (in light blue, under the process), a planetary boundary is defined as a threshold that keeps life on Earth within a safe operating zone. Beyond the planetary boundaries, there are zones of increasing risk and a high-risk zone. As the control variables enter high-risk zones, the risk of suddenly hitting a tipping point increases. The science is clear on where we stand. Seven out of nine planetary boundaries have been breached, and for three of these, the planet is already in a high-risk zone.

Climate change is one of the seven processes that transgressed the planetary boundaries. Recent analysis from the EU's Earth observation service, Copernicus, shows that global surface air temperatures over the past three years were the hottest since the industrial era.[11]

11 Copernicus, 'Global Surface Air Temperature Anomalies for November', accessed 10 December 2025, https://datawrapper.dwcdn.net/vbcfT/3/.

Within the corporate setting, climate change is by far the most addressed process. With boards overseeing material mitigation efforts to improve the measurement of greenhouse gas emissions and, consequently, to develop net-zero plans to reduce emissions, ultimately becoming carbon neutral or negative. Adaptation plans complement these mitigation commitments, especially regarding transition risks (e.g., stranded assets arising from the energy transition or changes in customers' preferences). Thus, for boards to act decisively on climate, it is key to access the latest scientific evidence. In addition to the work of the Intergovernmental Panel on Climate Change (IPCC), countries are also assessing how global warming plays out in specific regions. Indeed, the first contribution of this special edition features the Executive Summary of the Climate CH25 Scientific Report, the latest science on climate, directly from leading Swiss research institutes.

MeteoSwiss & ETH Zurich

The Climate CH25 Scientific Report deep dives into the physical basis of climate change in Switzerland. Climate change, as one of the nine planetary boundaries, differs across regions. In a joint effort, leading scientists from Swiss institutions elaborated the national climate scenarios, which are considered crucial for the public and private sectors to plan and design adaptation and mitigation measures.

Meteorological events – which profoundly influence our daily lives – are also changing in frequency and intensity. The interaction of humans with planetary processes shapes what we experience as individuals and how meteorologists can predict the weather. The following two pieces explore these dimensions through a visual story of snowfall trends across the country and a reflection on the challenges and opportunities for weather forecasting.

Martin Wegmann

Switzerland's Snow During Anthropogenic Global Warming: A Visual Story is a chart-rich narrative, based on a recently published snow dataset, that describes how snowfall has changed over the last 60 years. Exploring the evolution of a meteorological phenomenon, that can evoke unique emotions and memories, makes more tangible how the transgression of planetary boundaries shapes both natural and socio-economic cycles.

Irene Livia Kruse

When Weather Becomes Strategy: Forecasting, Uncertainty, and Everyday Decisions reflects on the critical role weather forecasting plays in our daily lives. As meteorologists continue improving their models for greater accuracy and develop national weather alert systems, three intertwined developments are playing out: climate change, artificial intelligence, and threats to observational data.

2.2. Changes in stakeholders' priorities and behaviours

Second, we turn to stakeholders. Considering that changes to the natural environment affect all individuals, implications for all stakeholders are legitimate to expect. Recent activities by three specific stakeholders clearly show that their priorities and behaviours have already shifted. The following sections examine recent actions taken by regulators, financial market participants, and standard setters, all of which significantly impact board activities. This analysis aims to illustrate the evolving expectations placed upon boards.

Regulators: In December 2024, the Swiss Financial Market Supervisory Authority FINMA published its Circular 2026/1 on Nature-related financial risks. Its provisions – applicable to the largest banks and insurers from January 2026 – target nature-related financial risks.

These risks are defined as «short-, medium- and long-term potential for direct or indirect negative financial effects on the institution resulting from its exposure to climate and other nature risks».[12] The circular highlights how nature risks can also manifest in existing risk types (e.g., credit risk, market risks, liquidity risk, operational risks, business risks, compliance, legal and reputational risks).

The regulator gets into the specifics, detailing the two categories of natural risks: physical and transition risks. Physical risks can be further categorised as acute (e.g., extreme events such as floods and wildfires), chronic (e.g., changing precipitation patterns and rising sea levels), or a combination of both.

Besides elucidating the terminology, FINMA's Circular sets forth general provisions on governance, risk identification, materiality assessment, scenario analysis, risk management, and stress testing. These expectations are differentiated for banks and insurers. Focusing on the common governance provisions, the document defines the tasks, competencies, and responsibilities needed to address nature-related financial risks. Remarkably, these responsibilities are not assigned exclusively to the executive board; they also apply to the board of directors. In fact, sufficient expertise and experience in nature-related risks are required for each of these bodies.

Interestingly, regulators are not limiting themselves to setting clear governance expectations. They have become more stringent on enforcement, too. In November 2025, the European Central Bank (ECB) imposed a fine on Spanish lender ABANCA Corporación Bancaria for failure to meet the ECB expectations on climate-related and environmental risks. More specifically, the bank was fined for failing to conduct a materiality assessment of its climate-related and environmental risks.[13] The fine of €187 650 – despite being immaterial relative to the EUR 1.2 billion in profits generated for the financial year 2024 – is described as a periodic penalty payment to compel banks to adhere to the supervisor's requirements.

Financial markets: Only five years ago, the direction of travel within the financial industry seemed set. The vision of banks and insurers as catalysts for faster adaptation and mitigation, through engagement with lending and underwriting portfolio companies, became more concrete with the establishment of the Net Zero Banking Alliance, the Net Zero Asset Owner Alliance, the Net Zero Asset Managers Initiative, and the Net Zero Insurance Alliance.

Fast forward to autumn 2025, except for the Net Zero Asset Owner Alliance, all others have either ceased operations or been relaunched. However, the leadership of the world's largest investors and re/insurers suggest a different perspective. On the investor side, the Norges Bank Investment Management, the investor manager of the world's largest sovereign wealth fund, recently released the 2030 climate action plan.[14] The document reiterates the 2022 ambition for its portfolio companies to achieve net-zero emissions by 2050. The investor, which emphasised essential learnings from its nearly 1 000 engagements with portfolio companies on climate-related topics, committed to targeting board-level interactions on climate. This indicates that, due to the urgency of the issue, it needs to be brought before the highest decision-making authority within organisations.

In Switzerland, the Ethos Foundation has followed a parallel path. The foundation, composed of more than 250 Swiss pension funds and institutions, aims to promote socially responsible investment and to foster a stable and prosperous socio-economic environment. In line with its mission, Ethos – which also issues voting recommendations – has a history of focusing on environmental issues in its proxy voting guidelines, demanding transparency in governance and setting ambitious targets to reduce greenhouse gas emissions. Most recently, as examined in the subsequent article, the emphasis shifted toward considerations pertaining to nature.

12 FINMA, Circular 2026/1 Nature-Related Financial Risks (FINMA, 2024), 4, https://www.finma.ch/en/~/media/finma/dokumente/dokumentencenter/myfinma/rundschreiben/finma-rs-2026-01.pdf?sc_lang=en&hash=8D72D84C2DF2489DA571190B3C760C90.

13 European Central Bank, ECB Imposes Periodic Penalty Payments on ABANCA for Failing to Sufficiently Identify Climate Risks (2025), https://www.bankingsupervision.europa.eu/press/pr/date/2025/html/ssm.pr251110~3e0b6f579e.en.html.

14 NBIM, 2030 Climate Action Plan (Norges Bank Investment Management, 2025), https://www.nbim.no/en/responsible-investment/2030-climate-action-plan/.

Matthias Narr
Damien Wimmer

Embedding nature in corporate strategy sets clear expectations for listed firms on nature. The essay, which builds on a recently published Engagement Paper on Nature, underscores how climate warming and nature are deeply intertwined. It continues by focusing on risks and opportunities, and outlining clear expectations on reporting and engagement activities for boards.

On the insurance side, Swiss insurer the Zurich Insurance Group and reinsurer Swiss Re lead on climate and nature-related fronts. Zurich clearly embedded its climate transition into the three-year management plan to achieve sustainable growth. This is achieved by focusing on supporting the transition to net zero – through engagement with corporate insurance customers – as well as providing individuals and organisations with protection against evolving risks. Similarly, in 2025, Swiss Re published its Climate Transition Plan. Also in this case, the same two ambitions are central: advancing the net-zero transition and building societal resilience. In particular, the reinsurer can count on the wealth of knowledge developed by the Swiss Re Institute over the years through leading data-driven research on economic and re/insurance market trends. This includes research on natural catastrophes, the topic investigated by Dr. Jerome Jean Haegeli and Lucia Bevere.

Jerome Jean Haegeli
Lucia Bevere

Unpacking the drivers of rising natural catastrophe losses aggregates decades of leading scientific research by the Swiss Re Institute on economic and re/insurance market trends. More specifically, the growth in global natural catastrophe insured losses is explored, with a focus on its drivers and on the increased uncertainty linked to climate change, which is altering hazard behaviours. Moreover, the analysis includes deep dives into two major recent events in the United States of America.

Besides insurance losses, insurance gaps matter as well. Lack of access to insurance, which tends to affect the Global South more, ultimately leads to uninsured losses and makes it very difficult for affected citizens and businesses to recover. Peter A. Fanconi and Michael Wehrle from BlueOrchard summarise a promising case study on parametric insurance for small and medium-sized farmers in Brazil.

Peter A. Fanconi
Michael Wehrle

Addressing the absence of crop insurance in the world's largest food exporting country is a case study on parametric insurance. The story, set in Brazil, emphasises how this type of innovative insurance policy can help narrow the crop insurance gap typical of low- and middle-income countries. Educational efforts and benefits for the local communities are explored, together with partnerships with the public sector.

Standards setters: When it comes to sustainability, non-financial reporting has long been the crux for boards and their committees. Countless hours spent on identifying which voluntary frameworks to adopt, many data streams to collect datapoints, long hours preparing and reviewing non-financial reports. That phase, which is ongoing and could be described as a catch-up moment for sustainability reporting with financial reporting, will evolve to capture new expectations on nature. Still, there is one major positive news: clear convergence towards a single standard. In November 2025, the International Sustainability Standards Board (ISSB), the responsible body for setting high-quality International Financial Reporting Standards (IFRS) on sustainability, decided to take ownership and further advance the work done until now by the Taskforce on Nature-related Financial Disclosures (TNFD).[15] The TFND, launched in June 2021, developed a non-siloed approach to nature built around the LEAP approach, where companies Locate, Evaluate, Assess, and Prepare their reliance and impact on nature. In October 2026, boards will get a better understanding of how such consolidation will play out as the ISSB targets an exposure draft on incremental disclosure requirements.

15 IFRS – ISSB Welcomes TNFD's Support as It Advances Nature-Related Disclosures', accessed 11 December 2025, https://www.ifrs.org/news-and-events/news/2025/11/issb-welcomes-tnfd-support-nature-related-disclosure/.

3.0 Steps towards Earth incorporation

The prior section highlighted how Earth system sciences and evolving stakeholders' expectations are raising the bar for board of directors' engagement on nature-related topics. This leads to a critical question: what will change at board level? What structural and behavioural innovations will take place within boardrooms? Prof. Dr. Judith Stroehle and Prof. Dr. Judith Walls take up the challenge, synthesising concrete proposals for boards, their chairpersons, and all directors to evolve board governance so that nature becomes a central stakeholder.

Judith Stroehle
Judith Walls

The Role of Nature in the Boardroom sets out a rationale for why and how boards should treat nature as a stakeholder. The piece converts decades of academic research on organisations and the natural environment into a science-based operational governance, and advances six practical models for board oversight. The authors also visualise how structural integration and governance principles can help to overcome the challenges of integrating nature at the board-level and capture its potential.

We conclude with a reflection on three steps that can help boards engage more effectively.

First, our ongoing academic research indicates that directors' awareness of the interconnectedness between firms and nature is increasing. Still, awareness often does not automatically translate into bold action that prioritises the natural environment. Among the reasons for this gap is a potential lack of consciousness, defined by the historian Yuval Noah Harari as the capacity to suffer. Board members, typically individuals of high socioeconomic status, often hold positions of power with significant privileges and comfort. Such a combination risks directors becoming progressively detached from the natural environment.

Not just by spending less time in nature, but also by protecting themselves better from natural catastrophes. For the Governance of Earth Incorporation to progress, enhancing directors' consciousness towards nature is the first step to overcome any form of apathy towards climate change or any of the other Earth processes that breached the planetary boundaries.

Second, the directors' role is intertwined with that of board meetings. These periodic reunions – with varying frequency – are often run on very tight schedules, tend to involve large crowds (well beyond the actual board composition), and are prone to being routine-driven. For a board to define its roles and responsibilities within the Governance of Earth Incorporation, time must be set aside. An off-site meeting might, for instance, create the time and space for such effort. In practice, enhanced directors' consciousness, combined with dedicated time to elaborate with their colleagues, may allow new board dynamics to emerge. A practical example is the one from Romande Energie Group. In this case, a specific stakeholder – a CEO candidate – during the recruitment process put forward the idea of reviewing the decision-making framework for the entire organisation. As the article narrates, this spur action at the board level and lead to significant commitments and changes throughout the firm.

Third, ultimately, advancing the Governance of Earth Incorporation requires boards to redefine the business assumptions.

Stéphane Gard
Stéphanie Mielnik

Sustainability at Romande Energie Group – The Three Pillars Framework showcases how a business, with the mission of decarbonising the energy production in the French-speaking part of Switzerland, rewired its strategic decision-making framework. This powerful story highlights how changes in board dynamics result in pro-environmental outcomes, underscored also by formal changes to the articles of association approved by its shareholders.

Yvon Chouinard, the founder of Patagonia, described businesses as the potential institutions that could fill the void left by the «decline of many good institutions that used to guide our lives, such as social clubs, religions, athletic teams, neighbourhoods, and nuclear families, all of which had a unifying effect»[16]. If a firm is to take up this grandiose challenge, the board of directors will likely be confronted with the task of recalibrating its purpose and ambition. That can start within boards, with self-assessments and evaluations facilitated by external advisors. On this point, the next contribution provides concrete examples of how to complement assessments with ESG dimensions.

Jan Meyer
Sergi Montes-Messeguer
Abetare Zymeri

How Consideration of Sustainability Performance Improves Board Evaluations explores how Environmental, Social, and Governance (ESG) metrics can be used to enhance board's understanding of how to govern an organisation effectively for the long-term. This essay delves into the three ESG dimensions and then presents practical questions that boards could consider in their assessments. These are not seen as «add-ons» to current evaluations but rather a fundamental shift in the understanding of effective governance assessments.

16 Yvon Chouinard, Let My People Go Surfing: The Education of a Reluctant Businessman--Including 10 More Years of Business Unusual (Penguin, 2016), 230.