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Board Strategy for Securing the Future:
Risk and Resilience in Nature and Climate Governance

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The relationship of business with the natural world continues to be an issue for responsible business leaders (Palmer and Lehman, 2026). Environment management and climate change in the face of multiple challenges have become global risks requiring corporate and collective attention (UNEP, 2026b; WEF, 2026). Worldwide temperatures continue to rise, and global warming is accelerating (Forster et al, 2025; Kacperczyk, 2025). Given where we are, the cost of continuing inadequate responses is likely to rise exponentially. Without appropriate and urgent action, we face a turbulent future (Snell, 2026). Despite the challenges, it may still be possible to undertake a transformation that delivers needed climate action and achieves economic prosperity (Stern, 2025). Innovation for sustainable living is not new and has been pursued for many centuries (Kehnel, 2025). However, it is not a panacea as AI and recent technological developments could make matters worse (WEF and Oliver Wyman, 2025). Governing risk and resilience should now be a high priority for boards and governments.

Most global risks and existential threats are the result of human activities, many aspects of which are not sustainable, as our planet struggles to cope with an increasing human population and unsustainable growth ambitions (UNEP, 2025b; WEF, 2026). Over a ten-year period, World Economic Forum (WEF) survey participants expect the three top global risks in terms of severity of impact to be extreme weather events, biodiversity loss and ecosystem collapse, and critical change to earth systems (WEF, 2026). With many of the earth's critical ecosystems heading towards collapse and global biodiversity loss, resulting security concerns add to economic, geopolitical, technological and other uncertainties (DEFRA, 2026). Yet many directors remain complacent and/or distracted. Accumulating evidence of longer-term threats are ignored while they focus on immediate issues. Sustainability needs to become a core strategy for more corporate boards in an era of uncertainty, insecurity and volatility.

The world has become a dangerous place. The open use of hard power by UN Security Council members, hot and hybrid warfare, open rivalry among great powers and pervading insecurity resulted in global defence expenditure rising to $2.63 trillion in 2025 (IISS, 2026). Resources required to address multiple existential threats are increasingly devoted to national defence. Wars add to environmental damage. Both developed and poorer countries are at risk. The outlook for most environmental trends is concerning and poses major risks to Europe's economic prosperity, security and quality of life (EEA, 2025). Comprehensive reports on the state of the environment are sobering. Despite some progress in reducing greenhouse gas emissions and air pollution, the overall state of Europe's environment is not good, especially its nature which continues to face degradation, overexploitation and biodiversity loss, while the impacts of accelerating climate change are also an urgent challenge (EEA, 2025).

Potential risks may be concealed. Responsible boards ensure that their decisions are based upon accurate information and reflect negative environmental and other externalities. For example, in recent years estimates of growth for India may have been overstated, especially for the informal economy (Anand et al, 2026). Foresight, looking ahead and preparation are essential. As global temperatures move beyond 1.5 °C, recovering from this overshoot is likely to be demanding (Palmer, 2026). Offering hope without supporting evidence and opportunities for people to become involved in activities such as those to restore, rewild, repair or recycle may not be enough to engage and motivate them. Given accumulating bad news about the environment and climate change, boards that would prefer association with positive messages could learn from activists taking positive steps (Losada, 2025).

Directors and senior executive teams need to be both risk aware and resilient in the face of issues, challenges and threats (Coulson-Thomas, 2025)? Future governance arrangements should assist and enable organisations to become more resilient when coping with changing pressures and requirements. The various factors that lead to organisational resilience can also deliver other benefits. For example, reading the road ahead to spot emerging issues may also identify opportunities. Corporate communication networks and relationships within a company and its value chain that share information of both potential opportunities and threats before they are missed or become critical respectively, and quick and collective responses can be especially helpful. It has long been recognised that responsive organisations can be resilient and successful from multiple perspectives (Brown and Coulson-Thomas, 1989).

Responsible boards assess resilience to climate and other changes. A study of 270 major cities across China suggests their climate resilience could be evaluated using an indicator system focused on exposure, vulnerability and resilience, and the influence of financial investments on urban climate resilience, with the rate of urbanisation as a moderating factor (Li et al, 2025). Resilient leaders accept where they are rather than wish they were elsewhere. They engage with situations and act in the circumstances and contexts in which they find themselves. They are flexible, accept realities such as ambiguity, complexity and uncertainty, and endeavour to handle volatility with tolerance and adaptability. Environmental volatility such as extreme weather events results from inadequate collective human effort to contain greenhouse gas emissions in response to global warming (UNEP, 2025a).

Resilience requires more than defensive thinking. Proactive and responsible innovation and the many opportunities it can create for enterprise and entrepreneurship could play an important role in addressing climate change. The priority given to this arena and confronting other existential threats could be an indicator of institutional excellence, corporate responsibility and resilience. Global warming represents a severe threat to many species, including iconic ones whose prospects could be used to raise public awareness and concern. For example, thinning Antarctic ice sheets reduces areas which Emperor Penguins can use during their annual moults while their feathers re-grow to prevent them dying from drowning in large numbers (Fretwell, 2026). Such examples that people may relate to might engender wider support of environmental action. Boards could inspire and catalyse societal resilience.

If environmental and other crises and catastrophic events occur together leaders can play a role in encouraging a focus on realities, addressing multiple issues simultaneously, and the comparative assessment of the costs of inaction. Preoccupation with pressures of the moment can result in the cumulative cost of a category or sequence of disasters being overlooked. The results of a University of Chicago led statistical model suggest a greater than 90% chance that total U.S. only weather and climate disaster damages from 2026 to 2030 will exceed $500 billion, and a 54% chance they will exceed $1 trillion (Cael, 2025). Directors require a holistic perspective. They must ensure that they and management join up the dots. Their challenge is

to encourage and support holistic thinking that embraces the short, medium and longer-term, both within boards and across executive and management team silos.

This Theme Paper explores areas on the agenda of the 27th International Conference on Environment Management and Climate Change. It suggests issues and questions that directors, speakers, and other participants might wish to consider ahead of the event and discuss with their peers, and it highlights contemporary issues and developments since last year's conference. The paper includes references to recent investigations, reports and studies related to the event's agenda. The relevance of works cited can depend upon their purpose, context, any methodology used and study participants. Investigators sometimes explore aspects of problems from the perspectives of their own discipline, function and concerns rather than consider relevant questions that directors might ask in different settings, and/or explore the more holistic solutions that may be sought by responsible boards.

Board's Leadership in Integrating Climate and Environmental Risks into Corporate Strategy

The board's mandate for responding to environmental and other challenges, risks and existential threats could derive from necessity and defensive reactions to changing realities, or it could encompass positive action in pursuit of resilience and perceived opportunities. Consequences for boards of current realities may range from legal claims to exposure to accumulating economic risks (Palmer, 2026). Sustaining commitment and attracting and motivating younger talent might require more than dealing with legacy consequences. A page may have to be turned. Is a revolution in thinking underway that is challenging attitudes towards capitalism and its drivers and leading to a new relationship between humanity and the natural world (Solnit, 2026)? Political debates and government action can lag the pace of environmental change (Palmer, 2026). Should boards give a lead and encourage thinking?

How might climate and environmental risks best be incorporated into corporate strategy? In uncertain and unpredictable contexts, situations and circumstances can rapidly change, and current activities are often not sustainable. There may be insufficient time to pursue past policies of maximisation, and the ever more that is strived for might turn out to be a temporary requirement. Stranded assets from needed transitions are a growing issue. Would a strategy of sufficiency be a better option than an obsession with growth, make more responsible use of scarce resources, increase flexibility and involve less environmental damage (Dhir, 2025)? Fundamental shifts have happened before. Given that the Paris Agreement target for global warming has already been overshot, what can we learn from previous occasions when overshoots have occurred (Tavoni et al, 2026)?

Inviting challenge, encouraging questioning, exploring options and different approaches, committing to alternative possibilities, and/or doing things differently is one thing, but making them happen is another. How should climate and environmental risks be addressed, and with what resources? Are stakeholders and investors open to change and supportive? What needs to be done to translate strategic commitments into measurable, board-approved priorities and action frameworks? Where in the sequence of steps from strategy to outcomes are hold-ups most likely to occur? What can be done to address them? Certain stakeholders may be more supportive than a board might imagine. Impact investors seek to achieve beneficial and measurable environmental and/or social outcomes as well as acceptable and competitive financial returns (Cohen, 2020). How might they best be engaged?

Climate change is becoming more important in financial decision making, can affect market returns, and may increasingly influence investor expectations and represent a new form of systemic risk (Thampanya and Wu, 2026). A board's position on climate and the environment

and the part it plays in corporate strategy needs to be communicated. Disclosures and reporting should recognise the requirements of investors and other stakeholders for balanced information on a board's assessment of the risks of climate inaction and steps it is taking. Are boards aware of public concerns relating to climate and the environment and tracking them? How might oversight of climate disclosures be strengthened in line with evolving regulatory and investor expectations? Who is monitoring their responses and feedback?

Responsible investors may seek and pay attention to corporate disclosures and claims relating to Environment, Social and Governance (ESG) criteria. These may need review and updating in a world in which climate change is exacerbating tensions and hot wars can and do occur. How can boards ensure that investor and other stakeholder concerns, corporate activities, and compliance and reporting are aligned? Concerns about the credibility and ethics of climate and environment reporting remain, with widespread inconsistencies across Scope 1 to Scope 3 reporting (Thomas, 2026). Are ESG metrics critiqued to ensure meaningful performance evaluation and executive accountability and by whom? Do boards use them when assessing performance and does management feel accountable for them? How might they be improved?

Despite disruptors such as climate change denying US President Donald Trump the environmental and other results of a changing climate are apparent (UNEP, 2025a & b). Boards need to understand the consequences of environmental trends, global warming and climate change. Their impacts, including extreme weather events, can be severe and contribute to morbidity and mortality (WMO, 2026b). Whole communities were made aware of the importance of water for life and the fragility and vulnerability of gulf states when these were subject to Iranian desalination plant and other attacks (Magrini, 2026). Are water stress, extreme heat, and resource scarcity recognised as material financial and operational risks? Do stakeholders understand their importance? Is enough being done to mitigate them?

Many companies do not systematically assess their resilience in the face of challenges such as climate change or identify indicators to track their resilience and factors affecting it in the contexts within which they operate. Are boards aware of how resilient they, the organisations they are responsible for, and their people are? Among Chinese entrepreneurs a social mindset has been found to have a positive impact on enterprise resilience (Bai, 2025). How might a social mindset be encouraged within companies, communities and societies, to build cohesion, mutual support and resilience? Environment and climate related risks are expected to remain high impact long-term risks (WEF, 2026). How might organisational resilience best be built to manage climate-related disruptions and long-term uncertainty? Which activities are most vulnerable? What should the priorities be for increasing resilience?

Developing Credible Transition Plans and Driving Decarbonization

Increasing resilience by reducing dependency can require considerable effort, especially when confronted by vested interests. Decarbonisation is not occurring quickly enough (UNEP (2025a), Climate risks are underestimated and transition plans may need a rethink. A survey of 148 global companies suggests financial institutions, corporate executives and investors are operating with climate risk models that systematically underestimate exposure by a factor of two to four times (Holloway et al, 2026). Decarbonisation and efforts to build resilience in the face of increasing climate disasters need to be accelerated (Thomas, 2024). However, the election of Donald Trump as US President has emboldened fossil fuel special interests and reigned back environmental regulation. Will more boards change direction or stay the course?

Even where there is policy chaos due to climate change denying political leadership, many companies and investors have pursued clean energy objectives (Victor, 2026). Much of the corporate sector has taken up the challenge. Clean energy generation is exceeding expectations

to the extent of being perceived as driving global resilience (Lubber, 2026). Yet fossil fuel subsidies remain. Current international responses are insufficient to achieve net zero by 2050 and credible action is now required (UN Climate Action, 2026). What changes to governance arrangements might help to get decarbonisation action back on track? How might boards better govern net-zero commitments through clear accountability structures and board supervision? Where do responses to environmental and climate related issues feature in board and governance reviews? Are measurement and oversight sufficient and effective?

Inconsistences in the measurement and reporting of emissions and allegations of 'greenwashing' remain (Thomas, 2026). How can boards ensure the comprehensive measurement and oversight of Scope 1, Scope 2, and value chain (Scope 3) emissions? What improvements in oversight and measurement are required? Are assessments independently audited or reviewed? Who should undertake these? Are boards losing focus and being distracted? Is there a will to recapture and sustain transition momentum? Faster decarbonisation and transition to a low carbon future remains problematic as in recent Conferences of the Parties (COPs) certain countries have reigned back their commitments.

Transition risks such as carbon pricing, technology disruption and stranded assets have been estimated to exceed physical risks in magnitude and urgency yet receive minimal analytical attention (Holloway et al, 2026). What might speed up transition and how could obstacles be removed? The funding of energy transition is still an issue for some countries. Climate or green bonds remain a significant source of transition finance which together with planning could become the norm (Climate Bonds Initiative, 2026a & b). What alternatives are available? Learning from experience and events, related processes of adaptation, transition and transformation, and a willingness to review and alter policies, priorities, strategies and corporate capabilities can be generally advantageous as well as enhancing resilience.

The scale of the changes required and available timescales for action suggests that needed transitions will need to be more systematically planned and implemented than past transitions such as intended phasing out of fossil fuel vehicles in favour of electrically powered ones (Larsson, 2024). Project and programme management skills are likely to be in demand. Have boards approved credible, time-bound transition roadmaps aligned with national and sectoral climate pathways? When were these last reviewed? Are steps taken to ensure they and timescales remain current as further tipping points are reached? Transition plans can also be driven by a desire for greater resilience. Where are more action and intervention required? Diversification and avoiding dependence or over-reliance on a few key customers and suppliers can prevent domino like cascades of failure, increase flexibility and improve the chances of potential challenges being picked up and new business possibilities being spotted.

Consumer responses to changing relative availability, costs and prices can speed up or slow down transition. Higher oil and gas prices should make electric vehicles and renewables more attractive. Electrification could be said to be the other side of the coin to decarbonisation when it is generated without the use of fossil fuels. Could nuclear power and/or small modular reactors be the answer (Gregory, 2025)? If so, action needs to be taken now in view of the lead times involved. Given the pressing requirement from consumers who worry about being left behind, how should defined milestones be tracked to monitor progress and maintain implementation discipline? Milestones need to reflect which of the wide range of indicators used to track progress the activities of an entity are most likely to impact.

Currently a wave of international capital investment is underway on the mega data centres needed to enable large language models required by certain high-tech company approaches to AI. Other climate related investments are being crowded out, projects are being resisted by

local communities, and demand from data centres is increasing energy costs (Bowring, 2026). Meeting AI and other energy requirements may result in older and higher emitting generating plants remaining in operation and new capacity and transmission lines coming on stream. Without this sudden increase in demand, global decarbonisation objectives were already unlikely to be achieved (UNEP 2025a; UN Climate Action, 2026). How might capital allocation and technology investments be aligned with long-term decarbonization objectives?

The priority certain governments are giving to investment of finance and resources to growing the mega data centre capability required to remain globally competitive in AI, increases environmental and climate change challenges. Responsible regulation that might inhibit the adoption of AI is not introduced, while that to protect the environment is removed. Confidence and trust should not be assumed given a widespread decline in expectations and optimism and the growing gap in trust between countries and richer and poorer elements of societies (Edelman, 2026). Remaining environmentally and socially responsible and communicating positive transition performance transparently can help to safeguard credibility and investor confidence. How might boards ensure this occurs? What role can the board itself play as a champion or guardian of accountability and transparency?

While a mass extinction of species may be underway, appreciating the many ways in which nature may strive to survive could open organisations to potential responses that might be scaled up (Kyriacou, 2026). Human and planetary health are inter-related. Pollution of the environment, biodiversity loss, and climate change are important drivers of the emergence and spread of disease, and multidisciplinary collaboration between experts in human and veterinary medicine, developmental biology, environmental science and toxicology, and public policy would be beneficial (Fattorini, 2025). Climate action and green innovation must be responsible. For example, solar radiation modification by geoengineering is largely ungoverned by domestic or international law and can have unintended consequences and be weaponised (Chalecki et al, 2026). Should boards view issues through a sustainability lens?

Board's Role in Clean Energy Infrastructure and Sustainable Industrial Growth

Current collective human activities are unsustainable and corporate and collaborative climate action is insufficient to prevent global warming and climate change (UNEP, 2025a & b). Overall, decarbonisation efforts are stalling and suggest 2–3°C warming, with some regions facing extreme increases of 8–10°C, while voluntary pledges are unlikely to achieve climate objectives without coordinated collective action (Kacperczyk, 2025). Inaction is welcomed by some, including climate change deniers, fossil fuel lobbyists and those with vested interests, or who are complicit or content to leave challenges to their successors when they are likely to be much more difficult to tackle and may be too late to resolve. Does more need to be done, including by stakeholders, to clarify where boards stand on contemporary ambitions, practices, goals and objectives that are not sustainable? How aware are directors of environmental and climate related challenges and trends and related existential threats?

Public policies sometimes act against public concerns and contrary to market moves. Large sums continue to be spent on fossil fuel subsidies when the renewables needed for a green energy transition can have a cost advantage and their use has rapidly increased (IEA, 2025). A persistent finance for sustainable development funding gap remains in critical sectors such as clean energy, infrastructure, and social resilience, with developing countries alone requiring an additional USD 4 trillion annually to achieve the United Nations Sustainable Development Goals and other climate targets (Mills and Wardle, 2026). What is needed to accelerate the growth of green bonds, transition finance, blended finance, and ESG linked instruments?

Where in these areas is leadership and innovation most needed? Are there steps that governments, regulators or stock exchanges could take to facilitate financial flows?

Many governments have been slow to transition to clean energy and advance sustainability agendas. Sometimes this is due to limited bandwidth, annual budgetary cycles, competing demands for support and/or legislative time. Corporate boards can be more responsible than certain governments in their pursuit of clean energy objectives (Victor, 2026). The energy sector has experienced innovation and technological advance. The energy share of overall patents has increased with a focus on competitiveness and security (IEA, 2026). The sector is also having to cope with areas of high and mega data centre demand occurring in new and different locations and the emergence of energy infrastructure as a target of hybrid and hot warfare attack. The resilience of energy grids is a current concern and focus (IEA, 2026).

Growth ambitions increase energy dependency. Should nuclear power play a more significant role in the energy mix to address geopolitical disruption risks, growing demand from mega data centres required by AI and the requirements of emerging and energy poor countries (Bronson, 2026)? Green growth may still be possible (Stern, 2025). Is it likely? How green is nuclear power and especially end-of-life nuclear reactors and submarines, given the cost of their dismantling and the risks of them being abandoned and natural events such as earthquakes and tsunamis. If nuclear power is to be considered as an element of clean energy infrastructure its lead limes and capital requirements need urgent consideration (Gregory, 2025). The war on Iran has highlighted the risks incurred because of dependency upon fossil fuels when oil and natural gas supplies from the gulf are disrupted (Bronson, 2026).

Wars and conflicts also highlight the need for collective action to address shared challenges when common interests trump differences resulting from fragmentation and polarisation. Responsible and proactive boards could give a lead by putting the case for addressing geopolitical barriers to collective international responses to climate change at the level of a global system (Snell, 2026). This is complicated by state defensiveness towards sectors considered as national strengths and domestic reserves of fossil fuels. How might boards better steer renewable energy adoption as a strategic priority for long-term cost stability and resilience? Could they influence national and international positions? Are stocks of essential supplies and materials sufficient for corporate operations and national requirements?

Critics of fossil fuels on account of their negative environmental externalities often overlook the environmental damage caused by the mining of minerals required by electric vehicles and their batteries (Niarchos, 2026). Any continuing focus on increasing production of material goods and consumption invariably adds to pressure on limited resources likely to be required by future generations. Are humans destined to always push against limits rather than live within them? Can we ever live sustainably and in harmony with the natural world? Green technology may enhance sustainability and is considered fundamental to ensuring a circular economy (Bernykov et al, 2025). Could this help and enable ‘yes if’ rather the ‘no’ answers to requests for more? How should we evaluate clean technologies, including green hydrogen and energy storage, from a governance lens? Are directors able to make informed decisions?

Who can a board and companies access to obtain independent and objective advice? This can be especially difficult when several parties have varying requirements and perspectives. So many different interests may be involved in various aspects of infrastructure resilience in the face of multiple challenges, risks and threats that coordination and prioritisation can be a challenge. Boards may need to provide strategic direction and guidance on collaboration and partnering across local communities. What direction may be required to initiate, guide and support sustainable infrastructure development across industrial clusters and supply networks?

How might such collaborations and differing priorities best be managed and governed? Do boards always consider implications for funding and competitiveness?

When new technologies emerge, a similar problem can arise as boards scramble to assess and understand them and obtain counsel and guidance independent of those who sell them. Of particular importance is the efficiency of AI and whether an alternative trajectory could avoid the environmental and especially the energy, water and resource requirement impact of the mega data centres needed by US large language models. For example, China's approaches by necessity include development paths that can require less computing power (Chan, 2026). Energy costs higher than elsewhere, and especially those which are available to competitors, can lead to lost business and the export of jobs. Where and how should energy efficiency be positioned as a driver of competitiveness and operational excellence? What stance should a board take when a cheaper alternative fuel supply is more environmentally damaging?

How prepared are directors for the economic, environmental and social impacts of AI? Its rapid adoption is imposing unwelcome costs on many people and contributing to the emergence of affordability as an issue in various countries. The large energy demand of the mega data centres required by AI is resulting in a rapid hike in US energy prices (Bowring, 2026). This has a particularly large and negative impact on the competitive advantage and viability of high energy consuming firms and sectors. What can and should be done by governments and regulators to require date centres to cover the dramatic increases in electricity costs they impose on customers in general? How might other electricity users be reimbursed? Who should pay for the negative externalities of generating the additional energy required? Where will the minerals, including rare earths, needed for AI hardware requirements come from? What are the implications for self-sufficiency and sustainability?

Negative intervention from a consumer, energy security, and decarbonisation perspective such as the US Trump government's 'war on wind' can increase energy costs and prevent the availability of a fossil fuel free supply (Wamsted and Feaster, 2026). Many supply and value chains involve activities that may be located in other countries and at risk from tariff and geopolitical changes. Supply chains face many challenges, including purposeful disruptions and hybrid warfare and hot wars of choice (Bunde and Eisentraut, 2026; WEF, 2026). What can be done to strengthen supply chain sustainability and resilience amid evolving global trade and regulatory pressures? Where are the points of greatest vulnerability? Have back up plans been put in place? When were they last reviewed? Are corporate, local and national reserves sufficient? How quickly could they be replenished and/or increased? What might better enable collaborative public–private models to scale clean energy ecosystems?

Transition and change can open doors and create possibilities rather than restrict. There are opportunities in low-carbon mobility, renewable integration, smart grids, and data-driven urban systems. How aware are directors of such arenas of opportunity? Are they monitoring and learning from the rise of eco-cities, the emergence of green innovation districts, and developments relating to more climate-resilient infrastructures? Some directors just remain aware and interested. Others investigate. They actively look for opportunities for entities on whose boards they set. Subsidies and regulations can distort outcomes, and the means to achieve ends can sometimes complicate achieving them (Bowring, 2026; Mills and Wardle, 2026). What more should boards do, either alone or in collaboration with others when changes are proposed that they perceive to be harmful, unnecessary or restrictive?

Development of Circular Business Models and Responsible Resource Use

Circular economy practices and circular business models can help to mitigate climate change, protect the environment and enable more resilient and sustainable development (Singh et al,

2025). An assessment of 131 articles documenting the significant climate mitigation potential of the circular economy suggests that on average it could deliver a reduction in greenhouse gas (GHG) emissions of 33%, while those from the waste management sector could be reduced by an average of 52% (EEA, 2026). Could this be enough to cope with the headwinds of war, AI, population increases and unsustainable growth? How might such initiatives be extended across supply chains? Further work is needed to integrate circular economy measures into climate change scenarios and to develop modelling tools that support policymakers in assessing their potential benefits (EEA, 2026). From a corporate perspective why are more companies not actively developing or refining circular business models?

Collaboration among different stakeholders in circular ecosystems and across sectors can be important and helpful when establishing and operating circular initiatives (Piscitello et al, 2026). Exploring possibilities and different interactions may encourage systems thinking and enable other complementary initiatives and beneficial changes to be identified. Smaller living spaces, dietary shifts and shared mobility are commonly cited in modelling exercises examined by the European Environment Agency as individual measures with high greenhouse gas mitigation potential (EEA, 2026). How might boards learn from circular eco-systems to increase resilience and recovery from natural disasters? Understanding how nature and forest habitats regenerate can increase their resistance to fire and drought and encourage more responsible stewardship (Simard, 2026). Faster collective recoveries can reduce risk.

How might upside potential be realised? Could smart regulation sometimes be beneficial? Extended Producer Responsibility (EPR) frameworks provide both challenges and opportunities for companies, and they may increase pressure for circular economy collaboration (EY India, 2025). How are boards responding, and how should they oversee compliance and strategic responses under Extended Producer Responsibility (EPR) frameworks? What EPR liabilities are emerging and accumulating that boards may not be fully aware of? As early generation electric vehicles reach the end of their useful life, meeting recycling requirements and recovering lithium and other materials will become more of a challenge. What can or should be done within companies and across extended supply chains?

How might collective responses that share recycling and other costs be organised and managed? Is there more that boards should do to promote circular design, encourage lifecycle thinking, and enable waste minimisation across corporate and partner operations? What are the approaches and imperatives that might unlock new thinking? Collaborations and partnerships across business unit, departmental, functional, organisational and other boundaries are often needed for innovations to scale more rapidly (Hill et al, 2026). How should boards inspire, empower and support all stages of innovation from initial ideas to later adoption (Salopek, 2025)? Could more be done to recycle and recover? How might boards better support innovation in recycling systems, e-waste management, and material recovery?

Circular business models should encourage the more considered and responsible use of scarce resources. Something should not be done just because it is possible, regardless of negative externalities. Whether innovation is desirable depends upon its purpose. A maximising profit motivation for innovation and an AI development pathway may not deliver the best outcome for the environment and/or society when harmful impacts result. What can be learned from community efforts to regenerate overlooked and forgotten places to create new opportunities in the face of challenges such as climate change (Sheffield, 2026)? Such initiatives often involve people from a variety of backgrounds working together for a shared purpose. What opportunities are being missed for community and environmental benefits from major projects such as the mega data centres required by large language model approaches to AI?

Could deriving environmental, lifestyle and health benefits from developments be a differentiator? In the current marketplace it has been suggested that customers increasingly seek transformative experiences to achieve their aspirations, including well-being and purpose (Pine, 2026). This could be encouraging for our collective survival if their search embraced living simpler, healthier, less stressful and more sustainable lives in harmony with the natural world. Innovation, enterprise and entrepreneurship that could bring this about are much needed, should be encouraged and obstacles to them addressed (Townsend, 2023; Salopek, 2025). Sustainable procurement can contribute to the achievement of UN sustainable development goals and increase resilience (Asante, 2025). What could be done to encourage and strengthen sustainable procurement and responsible sourcing standards?

Resource use and efficiency and trends over time can affect environmental impact and whether future growth is likely to be sustainable (West et al, 2026). What can and should boards do to encourage and drive resource efficiency across manufacturing and industrial processes? How might this be extended across supply and value chains? The circular economy has been identified by the WEF as a strategy for addressing the global risk of resource insecurity (WEF, 2026). How might this be reduced and trade-offs between resource use and value creation addressed through circular economy action? What would better link circular economy initiatives to long-term value creation and risk mitigation? Given the ESG risks of AI use, should companies indicate on their offerings whether they are AI free?

The people of organisations should be encouraged to ask questions, reflect and think. These activities should not be confined to the boardroom and C-suit. Grassroots circular economy innovations in the global south are enabling vulnerable communities lacking resources to make the most of what they have (Ashton, 2025). Considerations such as inclusion and access can be more than a desirable aspiration. They and disability could be a catalyst and drive innovation (Govindarajan et al, 2026). Responsible boards ensure innovation focus and priorities reflect public concerns about the environment and sustainability, ESG considerations and global risks (WEF, 2026). Innovation governance should ensure innovation activities are aligned with corporate purpose and vision, strategic goals and objectives, current priorities and global risks and existential threats.

Impact can be increased by working with other entities, complementing external innovations and learning from activities elsewhere. For example, companies can sign up to the UN Global Compact's Science Based Target Network's (SBTN) Step Up for Nature initiative, a global movement of companies signalling their ambition to take credible, science-based actions for nature (UN Global Compact, 2026). Holistic thinking can require joining up data from different locations and events. An analysis of four decades of data from the National Oceanic and Atmospheric Administration's (NOAA) database of U.S. billion-dollar weather and climate disasters suggests their economic toll is likely to grow even larger by the end of this decade, with roughly a 50–50 chance that U.S. disasters will cause more than $1 trillion in damages between 2026 and 2030 (Cael, 2025). Climate action could be a shared priority. Companies can achieve large returns from investments to reduce climate damage.

Board Strategy for Sustainable Investment and Climate-Aligned Capital

The Earth's climate is more out of balance than at any time in observed history (WMO, 2026a). Sustainable investment and climate-aligned capital have become urgent imperatives. With every indicator flashing red and our planet being pushed beyond its limits, UN Secretary General António Guterres has repeated his call for transition from fossil fuels to renewable energy to achieve climate security, energy security and national security (Guterres, 2026). Where some governments still incentivise fossil fuels, responsible companies and their boards

avoid short-term distractions that may be temporary and seek solutions that are economically viable without them (Victor, 2026). Strong boards resist short-term political bluster. They pursue the best long-term interests of companies and their stakeholders, which can include healthy eco-systems, living in harmony with nature and climate resilience.

Levels of three main greenhouse gases – carbon dioxide, methane and nitrous oxide – continued to increase in 2025 (WMO, 2026b). Some are affected more than others by current trends. Climate change is projected to cause ten times more people to die in poor countries than rich countries (Grover-Kopec et al, 2026). Rising temperatures, shifting rainfall patterns and changes in extremes are affecting where and when health risks emerge, how severe they become and who is most exposed to them (WMO, 2026b). What more can directors do to maintain a commitment to sustainability and climate action? They are both required and linked. Board strategy should focus on requirements for a green transformation (Stern, 2025).

Environmental improvement plans can deliver measurable environmental improvements and economic benefits (DEFRA, 2025). Some investors and other stakeholders may be cautious and sceptical, if not cynical. Environmental claims may face challenge from a variety of perspectives. How might board-level scrutiny be exercised over green finance instruments and sustainability-linked funding structures? What steps can boards take to ensure capital allocation decisions are aligned with long-term environmental and resilience objectives? When allocating resources and assessing risks should more attention be devoted to air quality and are annual changes in it monitored and related to the impacts of corporate activities and operations upon air quality in or near where they are located (IQAir, 2026)?

Responsible boards are mindful of the impacts of corporate activities and operations on local communities and host societies. They act to minimise harmful consequences and advance beneficial ones. Overall, technology and AI adoptions and developments are consuming scarce water, energy, metal and critical mineral resources and generating growing amounts of e-waste (WEF and Oliver Wyman, 2025). Urgent action by business leaders and governments is required to reduce negative externalities, innovate to reduce data centre and other technology water, energy and resource requirements, and seize related opportunities, before remaining tipping points are breached. Will this occur in time? Data analytics applications of AI could embrace areas and activities concerned with the analysis of data related to existential threats such as climate change (Kumar et al, 2025). Holistic assessment is needed.

As awareness of the consequences of inadequate climate action and insufficient green innovation grows, might sustainability and acting responsibility attract investment and talent, and become not just desirable, but a strategic advantage? Could it enhance appeal, reputation, trust and value? Through a sustainability lens, are there applications of AI that could deliver net ESG benefits? For example, how are AI-powered climate analytics enhancing operational efficiency, emissions tracking, and predictive sustainability planning? How might technology-led insights be embedded into board-level capital allocation and transition strategies? Do governance arrangements cover these areas (De Smet and Koller, 2023; Tayler, 2025)? How supportive are they of finance for climate action and green innovation?

Overall, are boards asking the right questions? What more could they do to assess the financial risks and opportunities emerging from a low-carbon transition or continuing along a current path? Are they aware of longer-term consequences of delays and different rates of transition, and the risks of disruption and unexpected events? Rising sea levels because of global warming represent an existential threat to historic, cultural and artistic centres and entire countries as well as modern and mega cities (Walton, 2025). Is value creation for some reducing value for others? Are the costs of their replacements and relocation, new infrastructures, and the failures

of some communities and governments to cope sufficiently acknowledged as financial risks? How might oversight of climate-related financial disclosures and investor communications be strengthened? Do they reflect reality?

Intervention should encourage rather than inhibit responsible innovation, enterprise and entrepreneurship. Some calls for action are self-serving or protective. Requirements and regulations can be influenced by those whose activities they are designed to curb, or whose behaviours they were initiated to change (Santner, 2025). How are disclosure frameworks evolving? What are the implications of changes and proposals for governance, transparency, competitive advantage, and investor and public confidence? In what sectors is strategic advantage being gained or lost? How should governance impacts of carbon border taxes and climate-linked trade rules be assessed? Are they helpful or harmful? What could be done if a company and/or sector feels disadvantaged or adversely affected? How might net-zero commitments and the circular economy be used as a competitive lever? When boards support or oppose actions and/or requirements, what are the environmental and social implications?

Those who vote for political and other leaders often do so in the hope of advancing their own interests. This may be especially so for those also providing significant financial support. Boards should be alert to conflicts of interest, and directors should take the interests and concerns of stakeholders into account, including ESG investors, and ensure compliance with applicable laws, rules, regulations, guidance and codes. Responsible boards ensure companies they are responsible for do not offshore negative impacts because of requirements introduced to reduce them. Directors should question rather than assume. For example, do carbon taxes do more harm than good (Broadwith, 2026)? Much depends upon circumstances and the nature and scale of measures. A model suggests that whether emissions are reduced can depend upon where Carbon Border Adjustment Mechanism costs are in relation to a certain threshold (Chang et al, 2026). Are boards alert to possible impacts of proposed changes?

Boards can face difficult trade-offs when balancing contending interests. At what point might they have done enough? As climate related impacts accumulate and stranded assets affect balance sheets, financing needed transitions at a bearable cost may become more challenging. Progress towards sustainability and greater resilience may lower risk and reduce the cost of finance. How might sustainability performance be beneficially linked to financing terms and aligned with executive incentives. The impact of managerial incentives can depend upon factors such as the nature and extent of delegation and whether sustainability agreements among competitors are in place (Sharma and Shahi, 2026). Expenditure on environmental and climate action may yield financial and reputational returns. How might CSR and/or ESG expenditure be integrated into a broader, strategy-led sustainability investment framework?

Implications for Corporate Boards of Environmental and Climate Responsibility

As more people become aware of environmental issues, directors should not assume the continuation of current patterns of materialist consumerism. Might more people feel they have sufficient material possessions? Boards need to be awake, aware and alert to changing public attitudes towards consumption, encourage awareness of hopeful signs, and appeal to those who are eager to follow them (Pearce, 2026). Tipping points and paradigm shifts can and do occur. Many people also overlook some of the consequences of combinations of changes occurring around them. For example, climate change, migration, conflicts, pressures of nationalism, and other developments are leading to a mass extinction of languages, with a half of the world's 7,000 languages possibly disappearing before the end of the century (Galor, 2026). How might the wisdom of indigenous people best be preserved and harnessed?

How self-aware, open and transparent are boards about their own positions and motivations? Are they aligned with changing public opinion? Who is questioning blather and calling out hypocrisy? Directors should think for themselves rather than follow the crowd. They should have the courage to challenge. Are some governments deliberately concealing environmental risks and threats (Santarsiero, 2026)? Is this contributing to inadequate efforts to address them? Could a lack of visibility result in leaders and potential innovators giving sustainability champions less attention and priority than they deserve? Are some concealers and avoiders almost as dangerous as climate change deniers (Santarsiero, 2026)? The US Environmental Protection Agency (EPA) has formalized its repeal of the so-called endangerment finding, a federal rule from 2009 that found greenhouse gas emissions can endanger public health and welfare and upon which most US regulations to address climate change were based (Bittle, 2026). Climate change can have multiple and negative impacts on public health, but if recognised these can be mitigated by appropriate strategies (Bahrami et al, 2026).

Boards should discount exaggeration, fake news, false claims, misrepresentation, propaganda and spin, and distinguish between subjective opinion and scientific evidence. They should endeavour to recognise and address reality. Situations, circumstances and contexts can and do change, as may the expectations, requirements and pressures of those who might think very differently. Rather than facilitating cooperation, are international organisations becoming increasingly geopoliticised and arenas in which global conflicts are played out (Azzam and Dijkstra, 2026)? A challenge for fragmenting groups, including boards, is sometimes to find commonality in what really matters in order to discover opportunities for engagement and cooperation (Goldstein, 2026). Boards can draw some inspiration from the power of nature to adapt, restore itself and rebound, when offering hope and seeking to motivate positive action to buy time and respond to challenges such as climate change (Pearce, 2026).

Past assumptions, allegiances and loyalties might no longer apply as new centres of power emerge. Environmental and climate responsibility may even be discouraged as other objectives and priorities are pursued. High-tech economy neo-imperialism could be an attempt to escape asymmetric vulnerabilities and dependencies in relation to access to scarce resources required in the AI age (Stam, 2026). Do the requirements of AI, high-tech companies, and leadership of the digital and intelligence economy now take priority over existential threats facing humankind and our collective survival? Are they affecting geopolitical instability? For example, do the Trump administration's US foreign, domestic and trade policies represent a coherent strategic reorientation to avoid great-power war, or protect favoured interests at the cost of general disruption (Stam, 2026)? Are high tech companies now an even greater threat to the future of humanity than fossil fuels?

Resilience requires adaptation to new realities and pressures. Governance and priority changes may be required to adapt to and cope with inter-related environmental, geopolitical, technological and transformational challenges, and to remain relevant, resilient, secure and viable (Chen et al, 2026; Korobeynikov and Mokhor, 2026). Is the ascendancy of a climate change denying clique in the US a temporary phase or might dramatic swings between polarised factions become a permanent feature of public opinion, especially in some liberal democracies at risk? Will this prevent consistent collective action to protect eco-systems, safeguard other species and respond effectively to the reality of climate change? Boards may require dialogue with management as well as key stakeholders to better understand the current and desired state of their organization's culture and what leadership is and could do to align culture with strategic direction (Meyerson et al, 2026). Will consensus be possible?

Collaboration is increasingly needed to address common challenges (WEF, 2025; WEF and Schwab Foundation, 2025; McKinsey and WEF, 2026). It is difficult to achieve and being

replaced by confrontation and great power competition as governments lose faith in alliances and multilateral frameworks, and a multipolar landscape emerges (Jackson and Brenes, 2025; WEF, 2026). New arenas of rivalry and conflict are emerging, and the nature and location of global competition is changing (Laruelle and Radvanyi, 2026; Rosen, 2026). In a more transactional era in which disruptors exercise hard power, economic and trade dependences and vulnerabilities are weaponised (Fishman, 2025). Boards that have focused on competitive advantage are now having to give more attention to cooperation and collective responses at a time when these have rarely if ever been so difficult to achieve and sustain.

Across G7 countries there is disenchantment with the performance of democratic institutions and a pervasive loss of trust in meaningful reforms, with few believing their current government's policies will make future generations better off (Bunde and Eisentraut, 2026). If governments are struggling to provide services and support where, when and with whom might businesses step in? Would this require a rethink and a widening of the mandates of some boards? Are there solutions that certain or many businesses could provide (Townsend, 2023)? Is there a role for more politically activist companies and corporate diplomacy to work with social stakeholders and policy makers to work for the public benefit, collaborate to address challenges and enhance resilience, provide public services, shape regulation, and become more of a force for good (Mariotti, 2025)? How should adaptability, responses to disruption, and exploring such opportunities be embedded into board agendas?

The approach to leadership of many directors and boards may stem from a desire for the greater resilience required in an uncertain and insecure world (Coulson-Thomas, 2026a). Individuals, organisations, communities and societies must be resilient to confront, cope with and respond to a variety of contemporary challenges, risks and existential threats. Do public and stakeholder expectations of directors need to change (Coulson-Thomas, 2026b)? Are both resilience and strategic adaptation now a critical requirement (Malik and Terzidis, 2025)? As well as having the resilience to react to and recover from past and ongoing developments, at a time of unpredictability and insecurity there is an increasing imperative to be proactive and foresee and prepare for future ones. Should directors advocate and build an adaptive and forward-looking form of resilience? Could adaptive leadership and board, executive and corporate resilience become a strategic asset that gives competitive advantage?

The interplay of contemporary economics, domestic politics and geopolitics in a fractured and polarised multipolar world is contributing to a breakdown of order and stability, greater unpredictability and chaos, and hot and hybrid wars (Prasad, 2026)? Global risks and existential threats are often inter-related and usually the result of human activities, but concern for geopolitical or technological challenges should not lead to those which are environmental being overlooked (DEFRA, 2026; WEF; 2026). Our planet is experiencing increasing stress (UNEP, 2025b). Critical ecosystems are at risk of collapsing and biodiversity loss is a global threat that affects national security and challenges food security (DEFRA, 2026). Are new forms of leadership and governance now needed, and are different and wider contributions now required from businesses, directors and corporate boards?

Further information

Details of the 27th International Conference on Environment Management and Climate Change, including the agenda, can be obtained from the events section of the website of the organiser: India's Institute of Directors (www.iodglobal.com).

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