Sustainable Application of **Transformative Technologies**

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Being a director can involve tough decisions. Critical choices are increasingly stark and difficult to resolve. Some board members may have concerns about the positions taken by others. Such differences and how to proceed or react can create dilemmas for directors who want to do what they feel is right. At the same time, they may not want to appear disloyal or create unnecessary divisions. There might be other issues on which they agree with the apparent board consensus. When external views also diverge and a particular position has strong government support, directors may feel further pressure not to express a contrary opinion. As well as being respectful of others and good listeners, they are also expected to think for themselves and exercise independent judgement. There may be wider issues to consider.

A global UN stocktake of efforts by countries to reduce global-warming emissions following the 2015 Paris Agreement has concluded that radical decarbonisation with a fast phase-out of fossil fuel use without carbon capture is now required and deforestation needs to be stopped and reversed by 2030. The stocktake will form the basis for discussions at COP 28. It calls for widespread system transformation that will impact many aspects of contemporary activities, operations, and lifestyles. Radical and decisive collective action is now required if we are to avoid the triggering of tipping points, after which further global warming will be unstoppable. The IPCC has put the case

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for bringing net-zero targets forward by a decade to 2040, and the UN Secretary-General has called for "dramatic, immediate climate action".

When providing strategic direction, boards need to both address current crises and look ahead. Over the next ten years, many challenges facing boards are likely to continue to be

climate-related. The top three ranked in terms of severity of impact in the World Economic Forum's 2023 global risk report are failure to mitigate climate change, failure of climate-change adaptation, and natural disasters and extreme weather events. Given the scope they have to change direction and review purposes and priorities, what should corporate boards do differently in response to existential threats? Many technology investments have supported a switch from personal engagement with the natural world to immersion in social media, the metaverse, and virtual worlds. Will transformative technologies boost or reverse this trend?

Impacts of Human Activities

Our collective business activities and contemporary lifestyles using a range of technologies are having a transformative impact on natural ecosystems and the environment. They are degrading habitats, spreading monocultures, reducing biodiversity, eliminating other species, using up scarce natural capital, increasing pollution, and contributing to global warming at an alarming rate. Despite overwhelming scientific evidence of the dangers, and risks, and increasingly dire warnings that such transformational changes may soon become irreversible as tipping points are reached, there appears to be little appetite among business, community, and political leaders to modify behaviours while negative externalities are born by others and the environment. The widespread desire for more exacerbates the risk of unsustainable growth.

Warnings, discussions, and debates are likely to continue as extreme weather events multiply, excess deaths from higher temperatures and pollution increase, and more locations become uninhabitable. After years of ignoring negative externalities, many directors are well prepared for their companies to continue to have a damaging and transformational impact on natural ecosystems. They are practiced in the art of not noticing or concealing the negative consequences of corporate activities and avoiding difficult decisions. They observe a perceived prevailing consensus in favour of doing just enough to show some concern but not enough to risk being at a short-term competitive disadvantage, while leaving the heavy lifting to their successors.

Others are concerned. Many current corporate activities are damaging and unsustainable. End-to-end processes convert scarce natural capital that will be needed by future generations into pollution, rubbish, and waste. Supplies of certain resources required by much-promoted technologies are at risk of running out before new mines can come on stream and recovery operations ramp up. Whether or not these technologies will continue to be available is problematic. Their adoption might or might not be desirable, depending on the purposes for which they are used. Should our priorities be applications that increase resilience, are responsible, sustainable, and enhance our diminishing chances of survival before it is too late?

Incompatible Expectations and Requirements

Worldwide public expectations seem incompatible with the reductions in greenhouse gas emissions required to prevent increases in global temperatures from becoming unstoppable. This can be frustrating, given India's low per-head levels of emissions and those of developing countries, and the much higher per-head levels of emissions from developed countries. People generally appear reluctant to cut emissions to create some headroom for those with the lowest per head emissions. Past greenhouse gas accumulations before the scientific consensus that human activities are the cause of global warming are now history. Given the risk of triggering tipping points, our collective survival now requires a focus on future incremental changes.

Given its population and growth ambitions, Indian responses are critical. The scientific consensus on the causes of global warming is now clear. Loss and damages claims may now be more likely to succeed. Democratic Governments wishing to be re-elected are likely to be reluctant to advocate the real reductions in living standards that may be required to slow and perhaps manage further changes in global temperatures. Boards of commercial companies might have much more freedom to act, starting with a review of corporate purpose and priorities. These could be sustainable and inclusive development, reducing negative impacts, climate change mitigation and adaptation, and survival in the face of existential threats.

Corporate aspirations should be transitioned and transformed to more sustainable and inclusive activities, operations, communities, and lifestyles that are less stressful, healthier, and more fulfilling. Living in harmony with the natural world would also be an ambition aligned with Indian ancient wisdom. Could applications of transformative technologies be prioritised to support such traditional teachings, for example, speeding up decarbonisation and progressing to net-zero? Where there are challenges, existential threats, and strategic risks, there may be opportunities for businesses to provide solutions and more sustainable & inclusive alternatives. How might transformative technologies enable these to be pursued?

Unity Challenges, Prioritisation and Reconciliation

There are fundamental differences in the responses of corporate boards as well as those of Governments. Some boards incur financial penalties by withdrawing from lucrative markets to comply with sanctions which they believe are ethically and legally justified, while others rush to take advantage of an opportunity that this creates for them. When

considering issues before a board, as well as thinking for themselves and exercising independent judgement, directors should act in the best and long-term interests of a company and its stakeholders. They should question assumptions, challenge groupthink, address contending requirements, and balance immediate imperatives, slow-burn risks, and longer-term threats.

Many directors and executives are overloaded. As well as risks and threats, they are confronted with a plethora of initiatives, strategies, frameworks, and codes, and the challenge of ensuring they are consistent, aligned, and mutually supportive. They also often face expectations and pressures for more growth. Expansion is often unquestioningly pursued with little consideration of its negative externalities or whether it and its resource and natural capital requirements are responsible and sustainable. There may be limited awareness of the scarcity of minerals required by new technologies, who owns and/or controls them, and the relatively long lead-times to bring a new source of supply, such as a mine on-stream.

Given that many companies, communities, and societies face common, similar, and/or shared challenges, risks, and threats, there should be more scope for collaboration in better understanding them, prioritising them and providing aligned and collective responses. Individual corporate initiatives may lack the scale to achieve the impact needed within the time available. Collaborating organisations and supply and value chain partners may have multiple similar relationships. Their interests and priorities may overlap without being fully compatible or sufficiently in sync. Greater focus on survival, shared and interdependent strategic risks, collective responses to existential threats, addressing negative externalities, and responsible sustainability might be unifying factors.

Providing Alternative and More Sustainable Responses

Longer-term, contextual, existential, and strategic risks often spur innovations that may open up alternative, more responsible, and sustainable growth opportunities that are more in tune with cultural heritage and ancient wisdom. Decarbonisation is vital for sustainability and a necessary but often daunting challenge for those directly involved in it. Energy and its generation and use have been critical enablers of current operations and lifestyles. The challenge of changing the current system and phasing out the use of fossil fuels before it is too late to stop further global warming needs to be understood by multiple parties if it is to be successfully addressed. How might the responsible use of transformative technologies help?

Modelling the impacts of threats such as climate change on supply and value chains might identify points of vulnerability, such as risks to the availability of natural resources, raw materials, and capacity. AI applications might enable data required by multiple parties to be analysed and shared. Being forewarned may enable backup arrangements and contingencies to be put in place and alternatives explored. While not necessarily understanding the details of rapidly evolving digital, enabling, and disruptive technologies, directors and boards should be aware of areas to consider and questions to ask that might increase the chances of their beneficial application and address risks associated with them, such as cyber security concerns.

Unexpected risks and negative influences are often not foreseen. Technology vendors may do little to acknowledge them. The risks of some widely championed and potentially beneficial technologies and the threats they pose could be existential. For example, could AI and AGI applications examining scientific evidence of human impacts upon the environment and inadequate responses to date conclude that the survival of the planet's eco-systems depends upon taking people out? The adoption and use of new technologies may require careful thought. They can sometimes result in unintended consequences and negative externalities. How might these be better anticipated, monitored, reported, managed, and controlled?

Ensuring Responsible Use of Potentially Transformative Technologies

Directors and boards are ultimately responsible for applications of AI and other technologies. They should understand ethical and other risks and make sure they are addressed. They may need to take active steps to ensure that the benefits of future waves of transformative technologies are not enjoyed by a few at the expense of the environment, many others and future generations. Limited roll outs have often happened in the past. Wherever possible, products should also be recyclable and reused. From a sustainability perspective, boards should consider natural capital, energy, and skill requirements. Their own use of technology should be consistent with the policies and guidelines others are expected to follow.

Opinions on how transformative technologies will impact the changing nature of work and organisations range from enthusiastically positive to warnings of potentially dire social consequences. How they might affect our ability to respond to environmental and contextual challenges, existential threats, and how should it be governed will be explored at this year's **London Global Convention** on Corporate Governance and Sustainability. Could they increase our flexibility, resilience, and ability to quickly scale up and down, collaborate, and re-locate in response to evolving environmental, social, and other challenges, risks, and existential threats? Their uses could include assessments of resilience in the face of global warming.

AI applications can be adopted to complement human intelligence. What can boards do to ensure that uses of AI change and enhance rather than destroy work, their benefits are widely experienced, and they contribute to addressing shared challenges and existential risks? When considering options, and building future boards, past experience and practices should not be allowed to become a straight jacket. Approaches, processes, and systems might need to be reviewed to ensure sustainable and beneficial uses of transformative technologies are not prevented. The governance of collaborative responses to challenges and existential threats involving public, commercial, and voluntary organisations may also need to be revisited.

Thinking through Implications and Consequences

Whether or not they accept the associated responsibility, many directors and boards are in a position to make a difference, particularly in initiating corporate and collective responses. Governments may require a mandate from an electorate, legislative changes, or a reallocation of budgets before they can act. A board might have more freedom of manoeuvre. They can initiate activities and enter into commitments that are in the best interests of a company and its stakeholders. Legal, regulatory, or other changes may happen infrequently. Governance challenges, developments, and changes affecting companies often occur more frequently than laws, regulations, listing, reporting, and other requirements can be updated.

A tendency to follow the herd or jump onto bandwagons can increase vulnerability and reduce resilience. Adopters of just-in-time practices may struggle to cope with unforeseen supply chain interruptions. The anxieties, dilemmas, and insecurities of individual directors can increase when their views are polarised and their own position diverges from the prevailing group view. Might career-motivated and financially stretched executive directors with family commitments feel more compelled to go with the flow and keep in with a CEO and/or board chair, whereas older independent directors with savings, multiple roles and not being reliant on a single source of income may be more willing to speak up, question, and challenge?

Growth and development may encourage and enable the use of transformative and other digital technologies that increase vulnerability and exposure to unforeseen risks and threats. Could many companies cope with the loss of GPS and other satellites in space if uncontrollable collisions with debris from space junk occurred? How might boards function and organisations operate if digital technologies that enable the internet and communications networks were taken out by a solar flare, or if supplies of certain rare minerals they require dry up? Would those in less developed communities who operate simply and with analogue rather than digital technologies be more resilient and have a greater chance of survival?

Remaining Grounded, Open and Responsible

Corporate boards need to be grounded and practical in their responses to contemporary challenges, strategic risks, and existential threats. They must recognise the fundamental differences in values, perspectives, and priorities, as well as what is considered acceptable, legal and moral that exists in today's fractured world. Their extent and the consequences of divisions have been highlighted by Russia's flagrant breach of the UN charter and their unprovoked and illegal invasion of Ukraine. Addressing multiple and interrelated strategic risks and existential threats, achieving sustainable and inclusive outcomes and our survival will require effective and responsible governance, innovation, and leadership.

Some directors may experience cognitive dissonance due to conflicts of values, priorities, and loyalties. Personal and corporate perspectives and concerns about responses to existential threats might differ and appear difficult to reconcile. Directors may believe not enough is being done to address climate change. How might they resist peer pressure and groupthink in favour of unsustainable growth, exercise independent judgement, and challenge policies and priorities? Given anticipated growth rates, could India's emissions alone be sufficient to trigger uncontrollable future global temperature increases? What strategies should boards pursue for dealing with the inevitable growing significance of India in a fracturing world?

In the face of growing inter-related existential threats, how might India become a solution rather than a leading cause and driver of a global warming problem that could dominate future board and public policy agendas? Might revisiting Indian ancient wisdom rekindle an interest in reconnecting with nature and living in harmony with the natural world? Could Indian boards provide and/or enable a transition to a desirable, responsible, and inclusive alternative to unsustainable materialism? Rather than emulate an industrial model that now threatens the continued existence of humanity, could drawing upon India's rich heritage of philosophy and thought enable if to become the world's first post-industrial society? ∎

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