EgonZehnder | Mining & Metals

From Compliance to Commitment

What it takes to embed sustainability at your company's core

By Heloise Nel, Sameera Sandhu
and Christian Schmidt

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Foreword

When we published our first report on environmental, social and governance (ESG) in the mining and metals industry in January of 2020, **From Risk to Reward – How a focus on ESG is transforming the mining industry**, we suggested that mining companies were "under the spotlight and public scrutiny [with regards to their ESG performance] like never before." At the time, we also argued that companies needed to pivot away from focusing on ESG risk mitigation and compliance toward truly embedding ESG practices into their organization to meet expectations of investors, communities, regulators, the public as well as current and future employees.

Today, almost two years after the publication of our first report, expectations and scrutiny have only intensified due to a variety of factors, including high-profile environmental and indigenous community incidents within the industry, the urgent need to address climate change, and the opportunity for the industry to play a critical role in the energy transition. In our discussions with thought partners for this paper, all acknowledged that the "pressure is coming from everywhere" and that mining companies need to evolve and adapt accordingly to deliver strong ESG performance. Put differently, mining companies have tremendous opportunities for real impact, and it will take wise and creative leadership to realize them fully.

Following the publication of our initial paper, we discussed our findings and insights with numerous mining executives, boards, and other industry players. While some did not fully agree with all our arguments, we were encouraged by their thoughtfulness and the positive headways and contributions numerous companies have made since then. Many mining companies have been leading other sectors when it comes to some areas of ESG performance due to the nature of the industry, which inevitably has an impact on land, water, biodiversity, communities, and the climate. All too often, however, there has been a disconnect between strong ESG performance and how it is portrayed externally – not least due to the absence of universally agreed performance measures. Yet, despite showcasing some impressive examples of leading ESG performance, a central argument of this paper is that "what got you here won't get you there" – mining companies will need to become ever more innovative and sophisticated in how they view and structure themselves, adjust their cultures, collaborate externally, and interact with stakeholders. Only then will mining companies be equipped to successfully respond to the challenges and opportunities they face regarding ESG.

A key question raised in many of our conversations, and the subject of this paper, is how companies should go about embedding ESG practices into the fabric of their organizations. While our first paper, *From Risk to Reward*, touched on some of these aspects – especially regarding the board and some C-suite positions (CEO, CFO and CSO) – the purpose of this paper is to particularly shine the spotlight on "how" companies can make ESG an integral part of *who* they are and *how* they act.

To provide some answers to this question, our paper examines the following topics:

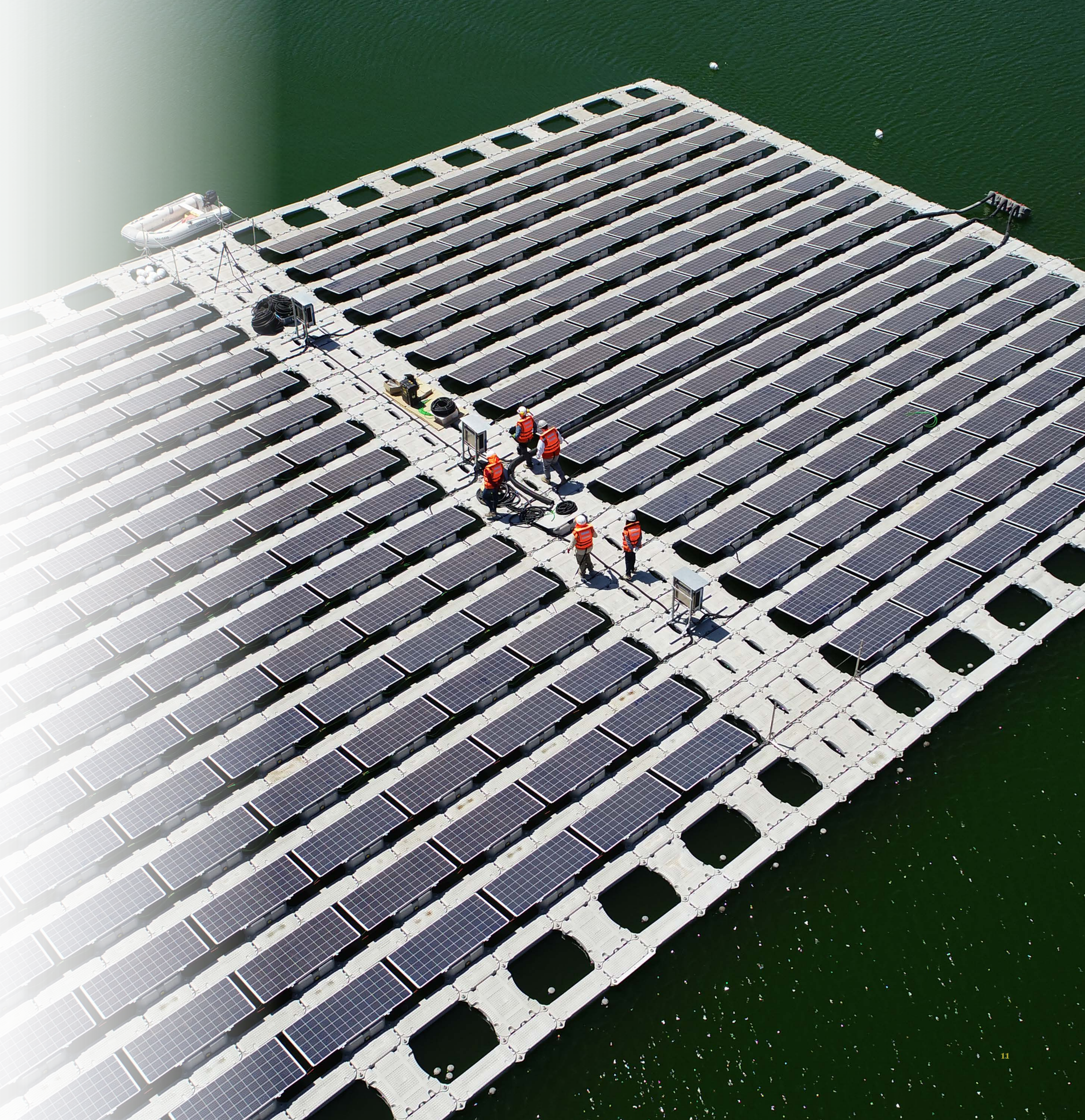
In the chapter "The Evolving ESG Landscape," we look more closely at significant ESG developments since our last publication, with the pandemic, popular movements, and climate change playing a dominant role. Given the enormity of these challenges, we argue that companies need to move beyond a largely internal focus and connect more intimately with the end consumer and broader public. Additionally, we suggest that companies build an even greater awareness of externalities and discuss how these will ultimately have a profound impact on the context and constraints within which they operate.

In "Market System," we argue that the world's sustainability challenges cannot be solved by any one company (sector or country) alone – nor will "going it alone" provide a company with competitive advantage. More importantly, we assert that many mining companies would benefit from adopting a broader view with a deeper appreciation of the interdependencies that exist beyond the industry. Given both the complexities as well as the challenges to achieve positive ESG outcomes (most aptly expressed in the UN's Sustainable Development Goals), we argue that companies need to influence, engage, and collaborate externally with diverse actors across the broader market system in which they operate. This will be critical for companies to truly create shared value for all stakeholders.

In the chapter "Board of Directors," we shift our focus internally and explore how board compositions have changed over the past years (and very positively so with regard to ESG expertise) as well as how the full board can and should continue to provide leadership and oversight of the ESG agenda going forward.

We proceed with the overarching topic of company leadership in the subsequent chapter, where we discuss in depth the role of the CEO. Here, we make reference to a recent survey that Egon Zehnder conducted amongst nearly 1,000 CEOs globally across numerous industries, where ESG was also covered. The CEO "archetype" is also explored in this chapter. More than many other industries, the mining industry has had its fair share of swashbuckling "superhero" CEOs, whose larger-than-life personalities and intellectual horsepower have allowed them to build and lead highly successful companies. However, we argue that given the complexities and challenges of the years to come, this type of personalized leadership is no longer a recipe for or even conducive to success – it will become increasingly critical for CEOs to grow even more self-aware, and become more relational in their leadership style, as well as adaptive in their approach.

We conclude the paper by shedding light on how purpose and culture must align to create a powerful setting for truly embedding best-in-class sustainability practices into a company's DNA. The "right" culture is critical, yet it remains an elusive and highly complex concept. Our report focuses on what ultimately matters to achieve it: behaviors at scale, bolstered by proper congruence within the company's operating system. The right culture will arguably have the most profound impact on a company's ESG performance, and mining executives will be well advised to focus particular attention on this important topic.



The Evolving ESG Landscape

COVID-19 Propels ESG Into the Mainstream

Globalization has undoubtedly enabled a more interconnected, interrelated, and interdependent world, among many other benefits. But at the same time, the COVID-19 pandemic has deepened economic and social inequalities on a global scale. Battered markets curtailed trade and travel, disrupting global supply chains, and nations went into varying degrees of lockdown. All while millions lost their jobs, and small- to medium-scale businesses that survived did so in turbulent circumstances. Additionally, the crisis not only forced companies to pivot to virtual workspaces, but many fundamentally changed their entire operating models. These massive disruptions to the world as we knew it created a renewed sense of urgency to find a new modus operandi to tackle the challenges of tomorrow today.

We witnessed a historical crisis that permeated society as a whole. The pandemic forced the world into a gloomy season. Yet, it also shed light on the strong business case for environmental, social and governance (ESG) commitment as a pathway for increased resilience and positive impact. For the mining industry, this is an unprecedented opportunity to create a long-lasting, positive footprint.

Because of their nature, mining companies have always been under scrutiny from a multitude of forces, including communities, advocacy groups, governments, NGOs and the media. However, the industry entered 2020 with uniquely positioned balance sheets to lean on compared to other sectors.[1] Many mining companies also leveraged their manpower, facilities, supply chain and resources to buttress their entire communities during these unprecedented times. Ultimately, as we examine later in this report, the disruptions caused by the pandemic only accelerated the imperative for companies to embed ESG into their DNA.

Numerous studies demonstrate that COVID-19 also served as a catalyst for ESG adoption and investment rather than reversing this trend as many skeptics had believed. For example, Fidelity International examined the performance of 2,660 companies from January to September 2020 and found that those with high sustainability ratings performed better than their peers as markets fell.[2] The logic is compelling: Companies with the most resilient and sustainable business models are bound to fare better in highly challenging circumstances. When companies embed ESG at the core of their purpose, culture, and strategy, not only are they more resilient, but they are also more attractive from an investor's standpoint.

1 *Mining & metals in the COVID-19 world: Underlying resilience masks ESG concerns*, White Case, July 2020.
2 *Putting sustainability to the test: ESG outperformance amid volatility*, Fidelity International, November 2020.

Another study also supports this premise. S&P Global Market Intelligence found that 73 percent of the ESG exchange-traded and mutual funds analyzed outperformed the broader market in the first year of the pandemic, rising by as much as 55 percent over that period, while the S&P 500 rose by 27.1 percent.[3] Not surprisingly, investors are increasingly shifting their money into ESG funds: ESG and value-focused exchange-traded funds recorded net inflows of US$89 billion in 2020, almost three times higher than 2019 levels and ten times higher than the levels seen in 2018.[4]

> "It is telling that the top 20 percent of ESG performers in the mining and metals industry consistently outperformed the bottom ESG performers on a market cap-weighted basis during the COVID crisis—an indication of the power of purpose in helping companies ride out disruptions."
>
> **Jörgen Sandström**
>
> *Head of Energy, Materials, Infrastructure Program - Industrial Transformation, World Economic Forum*

Climate Change Demands Immediate Attention

With limited time for action, regulators, investors, and broader society are recognizing the urgency for a swift response to mitigate global warming. Top asset managers BlackRock and Vanguard recently became signatories to the "Net Zero Asset Managers Initiative," joining 71 other members with combined assets of US$32 trillion under management. This international group of investors commits to pushing companies in their portfolios to target net zero emissions by 2050 or sooner.[5]

Rising sea levels, cyclones, hurricanes, forest fires, droughts, disease and disrupted food chains are only some of the dire consequences of climate change that pose a threat to human health and safety, infrastructure and transportation systems, as well as energy, food and water supplies. Although some may argue that this focus limits itself to the "E" of ESG, the ramifications of climate change can already be seen on broader business and society.

In May 2020, Russia saw one of its worst environmental disasters to date: Over 20,000 tons of diesel leaked in the Ambarnaya River from a storage tank owned by LSE-listed Norilsk Nickel, contaminating a vast stretch of sub-soil and turning its surface crimson red. Investigators believe that the storage tank sank because its supports were compromised by melting permafrost due to global warming. The company not only paid a record US$2 billion fine over the vast oil spill, but its profits dropped by 39 percent because of the fine.[6]

3 *ESG funds beat out S&P 500 in 1st year of COVID-19; how 1 fund shot to the top*, S&P Global Market Intelligence, 6 April 2021.
4 "ESG ETF Net Inflows Tripled In 2020," Bloomberg Intelligence, 18 February 2021
5 "Investors BlackRock, Vanguard join net zero effort," Reuters, 29 March 2021.
6 "Norilsk Nickel: Mining firm pays record $2bn fine over Arctic oil spill," BBC News, 10 March 2021.

Additionally, Norilsk fell out of favor with surrounding communities that were negatively impacted. Such a catastrophe underscores the critical need for companies to understand and anticipate major climate risks.

"How well does your company understand what the models say, and what the estimates are, about the impacts of changing climate and weather on your operations and surrounding communities? What are the projections over the next couple of decades for rainfall or storm intensity, or the ability for supply chains to remain open? How are you thinking about that so that you add resilience to your operations, as well as help the communities in the developing world to be more resilient as well?"

Elaine Dorward-King

Non-Executive Director, Sibanye-Stillwater

Increasing Investor Scrutiny on Carbon Emissions

Major corporations around the globe have been under pressure from investors to publicly disclose and explain their climate action plans in line with the goals of the Paris Agreement to limit global warming, ideally to 1.5 degrees Celsius above pre-industrial levels.

Representing major investors globally, with US$54 trillion in assets under management, Climate Action 100+ published a December 2020 progress report that examined actions taken by 159 companies deemed to be the world's biggest carbon emitters (accounting for about 80 percent of global industrial emissions) and assessed them on nine measures related to the Paris Agreement. One metric looked at whether these companies were on track to achieve "net zero" greenhouse gas emissions by 2050, and whether they had allocated enough capital to achieve their goals. The report uncovered that only 31 percent of the mining and metals companies assessed had set targets for net zero emissions by 2050, of which only four percent had included scope 3 targets (related to the emissions intensity of suppliers and customers).[7]

Among the miners, the report highlighted BHP as a case study of positive progress on pollinating information and best practices through networks, industry associations and their engagement with institutional investors as part of Climate Action 100+. Additionally, the company's own 2020 Climate Action Report outlines a clear path to achieve the goal of net zero operational emissions by 2050, including a scope 3 goal focused on value chain partnerships and the development of new technologies by 2030. Furthermore, BHP was one of the only companies to link a portion of bonus payments for its CEO and other key leaders to lowering emissions at both its own operations (scope 1 & 2) and those of its customers (scope 3). These actions set strong examples of how proactive and collaborative leadership can drive change holistically across the entire company value chain and industry supply chain while assuring investors that the company is committed to delivering on its promises.

"There are very practical ways that we as investors can work with company boards and leadership to help them. We don't need to be presented to or showed off to. We are people you've really got to work with, engage with and take with you on your corporate journey."

Adam Matthews

Chief Responsible Investment Officer, Church of England Pensions Board

Necessity (and a Vision) Is the Mother of All Invention

In a year when oil prices nose-dived to all-time lows (spring 2020), businesses around the world proudly announced ambitious plans to invest in fossil-free energy. For an industry prone to short-termism, this marks a notable shift in company priorities toward long-term interests, not least given the collective pressure from investors, government, and consumers to achieve carbon neutrality. We are beginning to see many examples of proactive leadership and collaboration, including among industry competitors that have also partnered with service providers, government, consumers and academia, to make fundamental change.

Take, for instance, the Green Hydrogen consortium formed by Anglo American, BHP, Fortescue Metals Group and Hatch, an engineering consultancy, to "de-risk and accelerate" renewable hydrogen production using solar or wind power.[8] Renewable hydrogen has future potential to replace the electricity grid. It also holds the promise of fuel cell technology to power fixed and mobile plants, mining vehicles and production, as well as microgrids. Although hydrogen technologies are in the early stages of development, they seek to utilize the most abundant element in the universe to produce emission-free energy.

In another example, a Swedish joint venture between state-owned LKAB (Europe's largest iron ore miner), steel producer SSAB and Vattenfall (state-owned power company) is close to making zero carbon steel a reality.[9] The JV has reinvented an age-old process for Direct Reduction of Iron (DRI). The new process uses

7 *Climate Action 100+ 2020 Progress Report*, Climate Action 100+, 17 December 2020.

8 "Mining companies form green hydrogen research consortium," S&P Global Market Intelligence, 19 March 2021.

9 "HYBRIT: SSAB, LKAB and Vattenfall first in the world with hydrogen-reduced sponge iron", SSAB Press Release, 21 June 2021

hydrogen instead of coal as the reducing agent to remove oxygen from iron ore, which is the most carbon-intensive step of steelmaking. Given that the steel industry is one of the world's largest industrial emitters of CO2, accounting for approximately eight percent of global emissions,[10] this new process will also contribute significantly to reducing the scope 3 emissions of both mining suppliers and end-users of steel.

"We're seeing terrific levels of ambition from actors right across the steel value chain who have recognized the potential of ambition and collaboration in reducing the industry's carbon footprint."

Joan MacNaughton

Chair of the Climate Group and Non-Executive Director, En+ Group

All these developments are potential game-changers that can disrupt their respective industries and beyond. Not only are these companies pioneers; their leaders have dared to transcend boundaries for the greater social good. With a can-do approach, they have seen opportunity where most others have struggled. And they have engaged with atypical partners to leverage collective resources and know-how in the pursuit of shared outcomes.

Recognizing this opportunity is key to transition to a lower carbon world, Sibanye-Stillwater Non-Executive Director Elaine Dorward-King explains, *"We're going to need a lot more of these metals and minerals that have not been on the forefront of the industry's minds. The earlier you get there, the more likely it is that you'll get better ore bodies, for a lower price, in better jurisdictions. That's what really matters."*

How Broad Is Your World View?

Despite the rise of ESG, many mining companies (and executives) continue to have a conventional view of the sector and the environment in which they operate. As such, some companies remain relatively isolated from end consumers and, in some cases, even the communities where they operate. This insularity is also reflected by the limited networks they tend to have beyond their obvious ecosystem. We have observed several companies that continue to state their purpose is to be the "best producer" in their commodity segment(s). This statement of purpose is now being updated to include a declaration of their intent to do so sustainably.

However, purpose is not what you "do" but "why." Purpose provides the reason for a company's existence and serves as the rallying call for the culture it espouses. A business with a higher purpose is one that aims to make a positive contribution to people and the planet through creating shared value. Boards and CEOs are recognizing their responsibility for infusing shared value throughout their organizations – from purpose statements to culture transformation (as discussed in our final chapter) to their impact on the communities they operate in.

10 *Decarbonization challenge for steel*, McKinsey, 3 June 2020

Purpose in Practice

For an industry that is often vilified, the pandemic earned several mining companies considerable public goodwill for their support of employees and communities through the crisis. These companies not only safeguarded employee health, thanks to strong and ingrained safety practices, but also liaised with host governments to boost local healthcare and essential supplies. Many were quick to offer testing to their employees and subsequently vaccinations to the entire workforce and surrounding communities. To do so, they proactively leveraged their manpower, facilities and supply chain networks, as well as allocated funds to strengthen the measures taken by employees, communities and government. Such cross-collaboration and initiative provides a blueprint for how companies can truly make an impact.

The ultimate goal for companies, Dorward-King analyzes, is *"being a partner of choice."* She explains why: *"I think a lot of mining companies will say that they would like to be seen by both communities and governments as a partner of choice. The way to do that is not by what you say, but by what you do."*

Yet, there remains a lot of work to do, especially as mining companies continue to fall short of society expectations. According to the Responsible Mining Foundation's RMI report 2020, results for "Community Wellbeing" show the largest number of low-scoring companies relative to other thematic areas. Although formal commitments to issues, such as human rights, are on the rise, the report notes that few companies have established adequate governance mechanisms to manage these social issues.[11]

Fair and Inclusive Governance of Social Issues

A case in point is the Juukan Gorge rock shelters disaster that occurred in May 2020 in Western Australia. The 46,000-year-old aboriginal heritage site was blasted away by Rio Tinto's Iron Ore division due to production pressures in what resulted in an immensurable cultural loss. The incident sparked tremendous outrage among Juukan's traditional owners, the investor community, the global press and subsequently the public. Although the company's legal team had ensured that this was well within the law, Juukan Gorge came at a big price for the company's executive leadership in particular, with the Group CEO, Divisional CEO of Iron Ore and the Group Head of Corporate Relations eventually exiting the business as a direct result.

We believe that several mining companies are similarly exposed to such risks for three interdependent reasons:

- Structural conflicts of interest: for instance, companies where sustainability oversight is not sufficiently independent of operations. In other words, the portion of the company that owns the risk must be separate from the function or department responsible for managing that risk.

11 Responsible Mining Foundation (RMF), "RMI Report 2020".

- Inadequate governance mechanisms: this includes (1.) governance at the board level – our chapter on "Board of Directors" talks in detail about integrating sustainability into the charter of the full board and that of all board committees; we also discuss why sufficient diversity and breadth of Board skills is key *(disclosure of the board skills matrix is not simply a box-ticking exercise)*; furthermore, 20% of the mining Top 50 boards still lack a sustainability committee or its equivalent; (2.) lines of defense in the organization – independent assurance being absolutely key; and (3.) clear functional lines to escalate material issues and risks from mine site to both the Executive Committee and board.
- Departmental siloes: although this tendency is harder to pinpoint, we find that it greatly stems from the prevailing company culture. Moreover, any corporate culture that is not embedded in purpose will remain oblivious to the sentiments of the broader market system to which it belongs.

Mining companies are inextricably related to their host communities and should be an ally, not a liability. VanEck's Active Gold Portfolio Manager Joe Foster highlights the critical role community engagement plays from an investor standpoint: *"We do a lot of site visits. That's when we look to see how you're interacting with the community from all the way up at the national level, down to the local level. We also look at what type of environmental practices and reclamation are in place. If we identify that a company does not have a good ESG record, we are going to avoid that company and it won't be in our investment universe."*

Systems Approach to Deliver Impact

Unfortunately, many companies still fail to recognize the extent of their inter-dependence with the broader market system they operate in. Many only focus on managing the downside risks of ESG impacts from their business. However, *"risk is both a threat and an opportunity,"* Dorward-King points out. This implies taking a long-term strategic view of the opportunities associated with business risks, which can be leveraged by cultivating a harmonious and mutually beneficial market system. Furthermore, companies that limit themselves to ESG reporting and disclosure risk being caught unaware of disruptions or missing new avenues of growth, arising from market system change.

To make a lasting positive impact, companies must go beyond ESG, which is essentially a term coined by the financial sector for the measurement of non-financial risks at companies they may invest in or lend to. We believe that the UN's overarching framework of the Sustainable Development Goals (SDGs) is better suited for companies that genuinely commit to creating shared value.

> "It's time to change the frame of reference from ESG to SDG, which is a different three-letter acronym. The SDGs are a much better way to measure contribution, both positive and negative. There are 17 SDGs, and you can break them down to another 169 targets. Once you've done that, let's have a conversation about which of those 169 do you have a positive impact on, and which do you impact negatively."

Rohitesh Dhawan

CEO, International Council on Mining & Metals (ICMM)

Companies must internalize that they form part of a bigger whole, comprising a complex and interrelated system of industry, regulators, investors, customers, suppliers, communities, not-for-profits and academia. Looking at one's business from the "outside in" is essential to gain the perspective of all stakeholders, rather than focusing only on the company's view.

Moreover, it is important to establish a continuous feedback loop from all relevant avenues in the external world for companies to remain true to their purpose. An external view also allows leaders to identify opportunities for joining forces with others to achieve common goals. These may be atypical partnerships that have the potential to generate pioneering solutions with wide-reaching impact.

Having an acute awareness of external forces is a business advantage to leaders who recognize that a company is heavily shaped from the outside in, Dhawan argues. *"In reality, the forces that are shaping the industry today are outside of mining. It is not a difference in ore bodies or a different extraction method that will be the fundamental disruptor to your business model,"* he says. *"The fundamental disruptor to your business model is what your investors, civil society and governments are thinking about the role of mining. So, if that's true, then the answers can't only lie within you, because many of the people shaping it are on the outside."*

This is a job for enlightened and inclusive leaders who foster collaboration, question the status quo, are determined to break down silos and find inventive ways to encourage social and technological innovation. They are highly strategic in their thinking, with strong emotional intelligence and adept at engaging others. It is our hope that organizational competency and behavioral frameworks will be refreshed to reflect these imperatives and allow companies to recruit and develop future leaders who see the bigger picture and can apply a systems approach to deliver real impact.

Market System: Business Is Part of the Solution

Back to Basics: Creating Shared Value

In 2006, Michael E. Porter and Mark R. Kramer introduced the concept of “Shared Value’” – creating a meaningful benefit for society that also adds to the company bottom line. At the time, corporate social responsibility (CSR) had emerged as a business priority in response to public outcry against companies for externalities ranging from forced labor in supply chains to global warming. This took companies by surprise – these were issues that they had not previously considered part of their business responsibilities.

Unfortunately, the CSR efforts of many companies to uphold their reputations proved to be counterproductive for several reasons.

Firstly, because CSR approaches “pit business against society” based on the belief that companies must moderate their economic success to provide societal benefits. Secondly, they focus on tensions between business and society, rather than on their interdependence, creating a generic rationale that is neither tied to a company’s strategy and operations, nor specific to the places in which it operates. Instead, Porter and Kramer suggested that companies analyze their prospects for social responsibility using the same frameworks that guide core business decisions.

By doing so, CSR could become much more than a cost, constraint, marketing tool or charitable deed – it could be a source of opportunity, innovation, and competitive advantage.[12]

By 2011, Porter and Kramer’s concept of shared value had significantly evolved beyond CSR, with clear distinctions between the two. They defined shared value as “corporate policies and practices that enhance the competitiveness of a company, while simultaneously advancing social and economic conditions in the communities in which it operates.”[13]

12 “Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility,” Harvard Business Review, December 2006

13 “Creating Shared Value: How to reinvent capitalism – and unleash a wave of innovation and growth,” Harvard Business Review, January-February 2011

Corporate Social Responsibility	VS	Creating Shared Value
Values: doing good		**Values:** economic and societal benefits relative to cost
Citizenship, philanthropy, sustainability		Joint company and community value creation
Discretionary or in response to external pressure		Integral to competing
Separate from profit maximization		Integral to profit maximization
Agenda is determined by external reporting and personal preferences		Agenda is company specific and internally generated
Impact limited by corporate footprint and CSR budget		Realigns the entire company budget

Source: *“Creating Shared Value: How to reinvent capitalism – and unleash a wave of innovation and growth,” Harvard Business Review, January-February 2011*

3 ways companies can create shared value opportunities

Reconceive

Reconceive needs, products, and customers

- Think in terms of improving lives, and not just meeting customer needs
- Rethink the business around unsolved customer needs and societal problems, and not just traditional product definitions
- Ongoing exploration of societal needs to discover new opportunities for differentiation and repositioning in traditional markets
- Identify potential new markets as technology evolves, economies develop, and societal priorities shift

Redefine

Redefine productivity in the value chain

- Improve energy, water and resource efficiency across the value chain
- Improve employee health, safety and wellness
- Enhance employees' productivity, wages, and benefits
- Reflect local diversity in the workforce where the company operates
- Responsible sourcing and enduring relationships via procurement that enhances supplier capabilities, efficiency and accountability
- Innovate to extract value from waste for greater resource productivity

Improve

Improve the local and regional business environment

- Improve transparency in social areas affected by the company
- Improve skills, infrastructure, the supplier base, the regulatory environment, and the supporting institutions that affect the company
- Strengthen the ecosystem (academic programs, trade associations, standards organizations, and broader public assets in the surrounding community)
- Build industrial capabilities broadly for greater community resilience and independence

Source: *Egon Zehnder analysis; Adapted from "Creating Shared Value: How to reinvent capitalism – and unleash a wave of innovation and growth," Harvard Business Review, January-February 2011*

The maturity of sustainability practices in the mining and metals industry today greatly varies—from companies with traditional business models that still largely focus on CSR to those with renewed business models aiming to create shared value.

Companies on the leading end of this maturity curve continue to evolve in their approach to sustainability, as they strive to truly create shared value for all stakeholders.

Unlike CSR approaches that tend to be disconnected from business and strategy, the greatest opportunities for companies to create shared value are directly related to their business, and in the areas most important to the business. This way a company benefits economically and is able to sustain its commitment over the long term. This rationale is more likely to gain executive attention and company-wide buy-in to dedicate adequate resources and skills. It is also where the company's scale and market presence equip it to have meaningful impact on a societal problem.

The concept of shared value recognizes that community harm or weakness creates internal costs for the company. Addressing these through innovation, business frameworks, and management approaches can increase a company's productivity and expand its market. However, managers without a strategic understanding of shared value will invariably sideline these efforts. This can lead to far greater costs when the company is later found in violation of ESG obligations. It is essential to engage all levels of management in processes that identify and prioritize sustainability issues based on their salience to business operations.

"In the mining industry, safety, sustainability and ethical compliance, and risk management are foundational – there is no room for complacency. At the same time, we must acknowledge that we are big footprint players, so in addition to effectively managing ESG risks, we have a role in creating shared value for host communities and countries. So, you've got to be doing both—value protection and value creation—and the two are not mutually exclusive, they are often reinforcing."

Jane Nelson

Independent Director, Newmont and founding Director of the Corporate Responsibility Initiative, Harvard Kennedy School

To create shared value, it is equally important to recognize the powerful role of the broader systems within which companies operate. Management must understand the importance of outside-in perspectives. However, this may be easier said than done. Many organizations have developed an "us-versus-them" mindset that is ingrained as a cultural norm, resulting from years of command-and-control leadership and legacy business models. This mindset not only perpetuates workplace bias, but also responds defensively to any dialogue about sustainability issues. For many companies, this has become an organizational blind spot that must be addressed through culture change.

BHP CEO Mike Henry recognizes this: *"People in BHP need to be demonstrating not just a willingness but a genuine 'desire' to hear the perspectives of others. Sometimes those others are from within the company, but our people must also engage with communities, NGOs, business partners and standard setters. Firstly, because we are mature enough to know that we aren't always going to get it right; and even in the areas that we've thought deeply and logically about, there is always a different take. So, we need to listen to how others see things from their vantage point if we're going to come up with solutions that create the greatest possible value for the greatest possible number of stakeholders."*

Creating shared value provides the business case for building resilient systems to deliver on stakeholder expectations while helping to address global sustainability challenges. This means embracing interdependencies between the company value chain, the supply chain it belongs to, and the market system it operates within. This chapter delves further into the multilevel approach companies must take to create shared value across these "systems within systems".

The Value Chain Is a 'System of Systems'

Many mining companies operate multinational asset portfolios across different host countries. These companies deal with a wide variety of economic, political, legal, social, cultural, and technological factors unique to each of their geographically dispersed assets. Company assets are governed by the parent company structure, standardized systems and processes, common practices and organization culture. However, each asset exists within the operating environment of the host country – governed by its rules and regulations, and interdependent on the local communities, infrastructure, institutions and network of organizations in that country.

Value chain analysis of a mining company's activities at the site or asset level can be a useful tool for local managers to systematically identify the material impacts of company operations in each location. Value chains exhibit the sequence of physically and technologically distinct value activities that must be performed for the creation of a product or service. Every value activity within the mining value chain operates as a sub-system, with specialized teams that focus on delivering specific outcomes. Each of these sub-systems interacts with surrounding communities and the broader operating environment, creating either positive or negative impacts. These impacts can be more subtle and dynamic than most managers realize, changing over time as sustainability and social standards evolve and science advances.

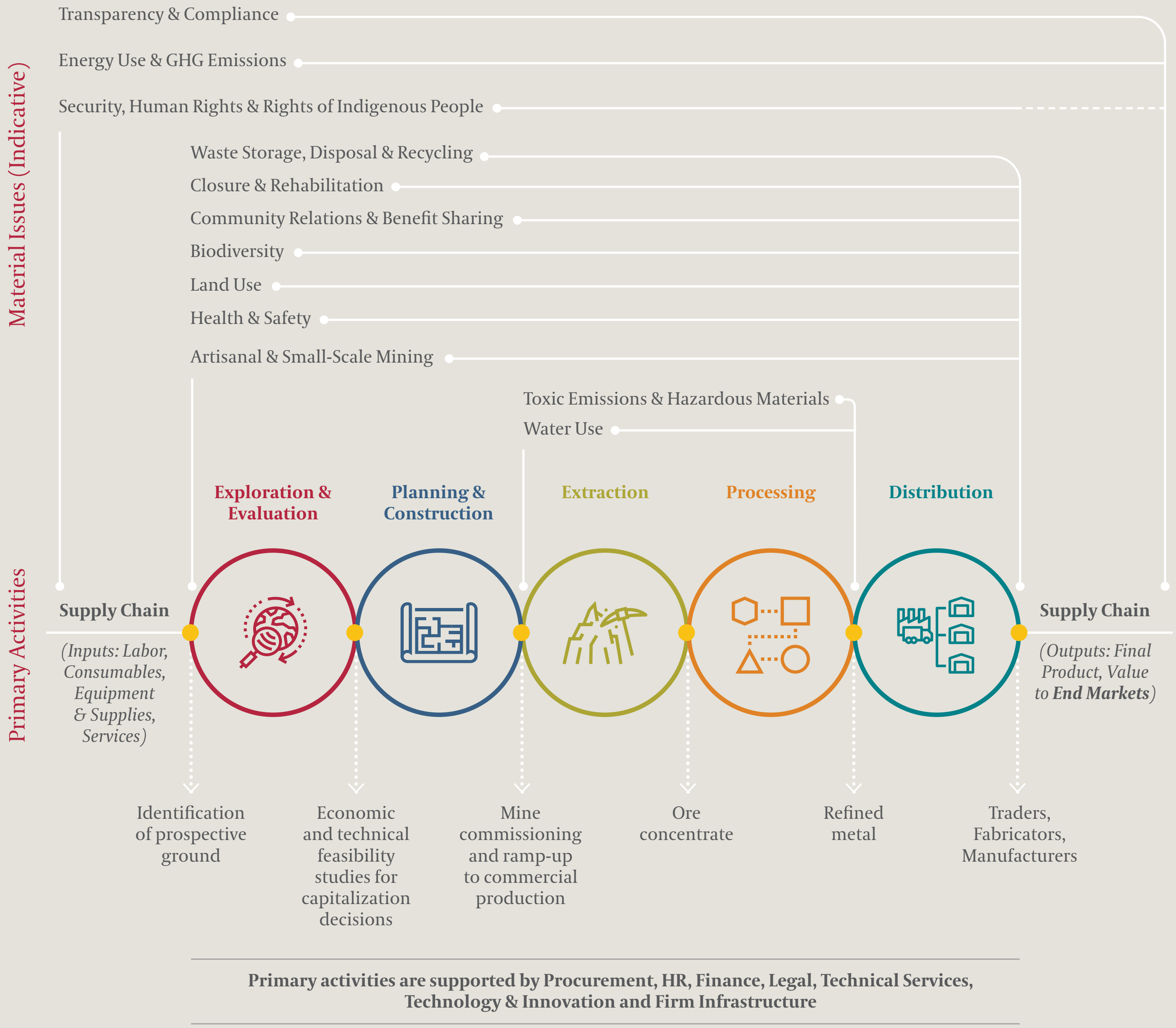
> "We have an outsized impact on the communities and the local environments where we operate. We are wholly dependent upon the support of the countries and the communities where we operate. We rely on their goodwill for the resources we need to run our businesses. Companies that perform better on ESG – those who contribute to local development and minimize harm to the environment – are the ones that in the long-run will gain preferential access to resources."
>
> **Mike Henry**
> *CEO, BHP*

Continuously identifying, monitoring and managing impacts from value activities requires systems thinking – a holistic approach that focuses on the way a system's constituent parts interrelate and how they work over a period of time and within the context of larger systems. This requires various departments to be involved from the outset, bringing together key stakeholders from each department to compile a list of material impacts, and distinguish between the ones that are common for the entire company and those that relate to one department. With this list, start to discuss how these impacts intersect both internally and with the external environment to leverage the interconnected nature of systems thinking improvements. This paves the way for the development of integrated solutions through joint efforts, leveraging powerful methodologies to solve complex problems, such as open innovation and design thinking. Moreover, beginning on the same page makes room for company-wide buy-in and leads to better adoption and implementation of integrated solutions.

"The mining industry has done a good job in identifying material issues directly relevant to their value chain and adapting these in response to evolving challenges and stakeholder expectations. Tailings management, for example, wasn't really seen as a material challenge some years ago, but today it is high on the list of material issues. In addition to undertaking regular materiality analysis, more companies are also doing salience analysis to better understand their impact on people and not just the impact of ESG issues on the company. So, to me, it's a case of identifying your most material and salient ESG issues, and then—in addition to saying, what must we do internally, what must we do at our operating sites and in our own value chains—also thinking about what should we do in partnership with others to address industry-wide or systemic challenges, and what are the mechanisms we need for working with others at that broader system level," Nelson says.

She adds that, *"The industry has demonstrated that it can work systemically and collectively when there's a crisis. They have done it very effectively around COVID-19 and tailings management. In the latter case, for example, through the ICMM, the*

The mining value chain is a "system of systems," with significant impacts on the external environment



Cut-off points between interlinked systems

(Simplified diagrammatic view of an upstream mining value chain)

Source: Egon Zehnder analysis (with references from: "Metals & Mining Industry Standard Version 2018-10," The SASB Foundation; "Financial reporting in the mining industry (IFRS) 6th Edition," PwC, 2012.)

industry came together very quickly and worked with the United Nations Environment Programme and the Principles for Responsible Investment to develop The Global Industry Standard on Tailings Management within 18 months. When it comes to crisis management, I think that individual companies usually manage well and there are good examples of collaboration."

However, Nelson points out, *"when it's about proactively strengthening systems or addressing complex, long-term systemic challenges, that's where we need to spend more executive attention, resources and time. We are seeing that now with climate change, for example, where companies are having to drive change both within their own operations as well as collaborating more broadly along their value chains. They are having to collaborate on the technical, operational and business model aspects of mitigation and reducing carbon emissions, as well as on the adaptation issues that they and their communities are facing, such as changing livelihoods, water issues and using nature-based solutions, biodiversity and landholdings to do offsets. And, for all these different priorities to come together for any company making a net zero commitment, they're realizing they will have to take a systems approach and work in partnership with others."*

Sustainability issues stemming from primary activities along the mining value chain have wide-reaching impact and contribute to cross-cutting challenges. Companies must go beyond addressing narrow, firm-based issues to tackling the broader underlying constraints that require systemic change.

Source: *Egon Zehnder analysis (with references from:* **"Responsible Mining Map,"** *Initiative for Responsible Mining Assurance (IRMA) website accessed in August 2021;* **"The nine planetary boundaries,"** *Stockholm Resilience Centre website accessed in August 2021)*

Supply Chain or the 'Value System'

The company value chain is embedded in a broader stream of activities that create a larger system called the supply chain. COVID-19 force majeures, blind spots in information flows through supply lines and lawsuits against end-consumers for complicity in unethically sourced mine supply have all underscored the importance of resilient, sustainable, legally compliant and ethical supply chains.

Dorward-King agrees. *"The supply chain is key, and I think a lot of people take it for granted. For example, have mining companies done a risk assessment on what their vulnerabilities are going to be to climate change over the next number of years? The #1 risk is going to be interruptions to their supply chain—either impacting their ability to get inputs into their operations because roads have been washed out or the power is out; or may be ships can't come in; or impacting their ability to ship product. The #1 risk will be from catastrophic weather events and changes in long-term weather patterns. It is critically important for companies to think through that and understand its implications for the supply chain,"* she points out.

Meanwhile, consumers and investors are demanding greater transparency on human rights, labor conditions, biodiversity, waste, water and energy impacts in company supply chains, including visibility on these matters across first tier and lower-tier suppliers.

End-use companies, such as Apple and Tesla, are becoming more discerning about the provenance of raw material supply, entering long-term agreements directly with miners for clean and ethically sourced metals and minerals. Investors are also doubling down on companies to ensure full disclosure of human rights issues in both home and host countries, as required by the UN Guiding Principles on Business and Human Rights (UNGPs).

Through responsible sourcing, leading companies are not only fostering ethical supply chains, but also forming long-term supplier partnerships to jointly tackle complex challenges. Engaging with suppliers and buyers drives integration and builds trust, leading to improved capabilities and innovative solutions. A network instills confidence when it offers visibility – not only into input availability, pricing and lead times – but also on whether the values, standards and practices of your trading partners align with those of your company.

"There is a clear view today that we need to partner with our suppliers and contractors for the long term by aligning our principles and sharing practices in line with a purpose that we all believe in. The fact is that there can be no change if you don't change the supply chain because the supply chain is even bigger than you."

Eduardo Bartolomeo
CEO, Vale

Interconnected value chains within a supply chain deal with many of the same cross-cutting sustainability challenges. We are seeing collaboration along the ferrous supply chain to help address climate change for example. BHP recently signed a memorandum of understanding (MOU) with Japan's JFE Steel to jointly develop technologies and pathways for reducing GHG emissions from the steel making process.[14] Similarly, Rio Tinto has entered MOUs with the world's largest steelmaker, China Baowu Steel Group[15], and Korean steel maker POSCO[16]. Vale is the other major iron ore producer to have partnered with Japan's Kobe Steel and Mitsui.[17]

Professor of Business & Public Policy at Oxford University Karthik Ramanna additionally sheds light on how mining companies can benefit from thinking vertically along the supply chain. This starts with how your company sees itself – for instance, identifying as an energy transition company rather than a commodity producer. He explains, *"There is no such thing as a truly B2B player. Everybody is eventually producing for either public consumption or for individual consumers. The real breakthrough companies are the ones that don't think of themselves as sectorally bound. And the way to be breakthrough from a strategic perspective is to think of yourselves as more than just a mining company, and not just as a supplier to your immediate customer. It's about having a sense of what the end-product is and where value can be created for the end-consumer along the entire supply chain. It's that kind of vertical thinking that really helps companies not only gain a competitive advantage, but also address sustainability (and indeed any kind of strategic) gridlocks rather than flat horizontal thinking."*

Elysis illustrates how thinking vertically along the supply chain can result in truly innovative collaboration. Elysis is set to "revolutionize" the energy-intensive aluminum industry, having developed a way to make carbon-free aluminum. It is a JV that was formed in 2018 by Alcoa and Rio Tinto Aluminum with investments from Canada's national and local governments, as well as multinational technology company and end-consumer, Apple.[18]

The supply chain carries many risks but also offers tremendous opportunities to make positive societal impact, particularly for industries that depend on the social license to operate. Local procurement enables companies to empower surrounding communities and contribute to the SDGs connected with people's lives, livelihoods, and learning. Local procurement generates income and employment opportunities through the establishment of local businesses that supply mining operations.

Mining companies play a key role in building the capacity of their local supplier base by conducting trainings, facilitating finance, and helping with technical know-how. Building industrial capabilities in remote jurisdictions is beneficial for mining companies because the greater capacity that can be built, the cheaper it is for them to operate. It also enables the community to be less dependent on any one business by creating a more resilient, adaptable and robust layer of technology, skills and capabilities, which can be applied to other businesses, making that economy an attractive investment destination.

14 "BHP partners with JFE to address decarbonisation in the steel industry," BHP Press Release, 10 February 2021

15 "Rio Tinto advances climate partnership with China Baowu Steel with US$10 million investment," Rio Tinto Press Release, 16 December 2020

16 "Rio Tinto and POSCO sign climate MOU," Rio Tinto Press Release, 8 July 2021

17 "Vale informs on non-binding heads of agreement with Kobe Steel and Mitsui & Co.," Vale Press Release, 13 July 2020

18 "With a Push From Apple, Rival Aluminum Makers Team Up Against CO2," Bloomberg Businessweek, 21 April 2021.

Value chains exist within market systems, comprising several actors across multiple levels. Market systems provide an enabling environment that can be harnessed to systemically address sustainability challenges.

Source: *Egon Zehnder analysis*

'Market System' as an Enabling Environment

The 2030 Agenda for the UN's 17 SDGs requires collective action from public and private actors across geographies, sectors and disciplines. At the same time, governments have committed to "leave no one behind," providing everyone the opportunity to participate in the formulation of the policies and programs that affect their lives.[19]

International donors and multilateral organizations play a key role at the global level of the sustainable development system. They support countries with their national implementation of the 2030 Agenda for Sustainable Development. This includes financial and technical assistance, as well as policy support on development issues, recognizing the strong, complex and crucial links between social, trade, financial, economic and environmental policies. They also bring about a more coordinated system by joining forces with various partners at global, regional and country levels.

Many international donors and multilateral organizations endorse an inclusive market system development approach for achieving sustainable impact at scale. This approach focuses on building the capacity and resilience of local systems, leveraging the incentives and resources of the private sector, and ensuring the beneficial inclusion of the underprivileged.

The United States Agency for International Development (USAID) defines a market system as "a dynamic space – incorporating resources, roles, relationships, rules and results – in which private and public actors collaborate, coordinate and compete for the production, distribution and consumption of goods and services. The behavior and performance of these actors are influenced by other actors' decisions, and by rules, incentives and the physical environment. Market systems are composed of vertically and horizontally linked firms and the relationships embedded in these linkages; end markets, input and support service markets; and the environment in which they operate, which may include socio-cultural, geographic and political factors, infrastructure and institutions."[20]

Market systems also include households and communities. Individuals belong to households, which are nested within communities that fall under sub-national and national governing systems. Ultimately, households and communities are the owners of resources – supplied to firms in the factor market – and the buyers of goods and services – demanded from firms in the product market. Therefore, understanding household and community systems, and how they interact with other systems, is essential to achieve development objectives.

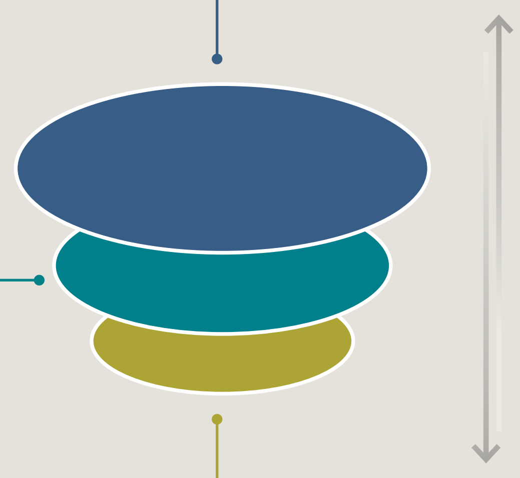
The market system approach provides a framework to "think locally and act systemically" for creating real change at scale. It seeks to understand systems of exchange and to guide practical interventions that can lead

19 "Leaving no one behind," United Nations Committee for Development Policy, 2018.
20 *Market Systems Resilience: A Framework For Measurement*, United States Agency for International Development (USAID), December 2018.

Sustainability strategies should be place-specific, participatory, and rooted in multilateral co-operation

Multilateral

The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted in September 2015 by the United Nations General Assembly, provide the road map for constructing a global consensus on the need for greater cooperation to correct asymmetries and set the foundations for an **open, sustainable and stable multilateral system**



Participatory

Participation champions a **whole-of-society** approach to sustainable development, involving both state and non-state actors, as well as **cross-sector collaboration**

- A key component is mutual learning as countries, sectors, and companies experiment with new strategies
- Significant overlap of roles among stakeholder groups offers opportunities for collaboration
- Includes four levels of participation with different degrees of engagement: Informative, Consultative, Empowering and Partnerships

Place-based

Reflects differences in the various locations where a company operates, targeting the **specific circumstances of a place** and engaging **local people as active participants** in development and implementation

- Localized initiatives that engage communities, pay attention to local needs and wants, and leverage the passion and expertise of local people
- Collaborative, long-term approaches to build thriving communities, delivered in a defined geographic location

Source: *Egon Zehnder analysis; Adapted from various sources [Perspectives on Global Development 2019: Rethinking Development Strategies, OECD, November 2018; The Whole of Society Approach, Partners for Review (P4R), October 2018]* to positive social, economic and environmental outcomes. It is analysis-led (how and why systems function); interventions are facilitated (not controlled or led); and it requires adaptive management (ongoing feedback, measurement, and learning). Furthermore, it involves all the actors and factors that interact to shape the outcomes of an exchange.[21]

Leading companies are realizing that complex sustainability problems can only be addressed by resolving underlying constraints in the market system. Dealing with the root cause of market failures is the only way they can truly achieve ambitious shared value strategies.[22] Understanding the market system and knowing its leverage points can help companies identify where to intervene such that a small shift in one thing produces big changes system wide. However, no one company can resolve systemic challenges alone.

Companies that take a market system approach can leverage this enabling environment to remove barriers and craft innovative solutions without having to bear all the costs. This is made possible by the participation of government, non-profits, different business sectors and others. However, participation by multiple actors can only emerge when there is genuine interest for engagement, space for collective work and the co-creation of knowledge.[23] The SDGs provide common ground and a strategic framework for companies to encourage wider participation in collective action efforts.

The Climate Group's global initiatives, such as SteelZero, EV100, RE100 and EP100, are good examples of the market system approach. Climate Group is a global not-for-profit that works with both governments and businesses to accelerate climate action. Climate Group Chair Joan MacNaughton shared with us how the organization works with different market actors to unlock the power of collective action.

Member companies of Climate Group's EV100 initiative commit to switching their fleets to electric vehicles and installing charging infrastructure for employees and customers by 2030. According to MacNaughton, *"One of the great things about EV100 is that we've made that connection with governments. This includes working with EV100 members in the U.S. to produce a position paper on how to drive key policies there. We were also instrumental in bringing forward the phase out of internal combustion engines from 2035 to 2030 in the UK. This was made possible by bringing together the business experience of what's feasible, communicating that to government, and then government listening, because government needs the expertise of business to make well-informed decisions."*

MacNaughton explains that, *"An individual company may feel that they don't really have the resources to make a big push on something unless it was very directly about their own company interests and bottom-line. And that's where the priority should be. But that's not necessarily what is most sought after by government. Government wants to understand: are we going far enough, could we go a bit farther, is this actually the right way to do it? And so, our business programs synthesize those views and those areas of expertise in a way that can be very influential with government."*

21 *Value Chain Development for Decent Work (Third Edition)*, International Labour Organization, January 2021

22 "The Ecosystem of Shared Value," Harvard Business Review, October 2016 Issue.

23 The Whole of Society Approach, Partners for Review (P4R), 2018

Citing the RE100 initiative as another example, MacNaughton says, *"It means you commit to procure 100 percent renewable electricity for your operations. When we started out some companies had difficulty finding sources of renewable power, but the intent was to send a signal to the market (and project developers) to create supply of renewable power. The annual demand from our RE100 members today is greater than the annual electricity usage of the UK. So, we're creating those demand signals, which I think are important."*

Launched in December 2020, Climate Group's SteelZero initiative also seeks to create demand signals for zero carbon steel. MacNaughton shares that, *"The concept is to have a feedback loop from companies with the purchasing power that goes back upstream into the steel industry."* Organizations that join SteelZero publicly commit to procure 100 percent "net zero" steel by 2050. With their collective purchasing power and influence, member companies seek to send a strong demand signal to shift global markets and policies towards responsible production and sourcing of steel. Although it is still early days for SteelZero, MacNaughton adds that *"we are beginning to see signs of partnerships between miners and steelmakers to reduce emissions linked to the materials needed for the steel making process."*

Think Locally, Act Systemically, Deliver Strategically

A holistic approach to sustainable development implies the engagement of diverse actors across international, national, and local levels to shape policy and ignite collective action. Pathways to sustainable development require international cooperation, national policy formulation and implementation down to local levels. Below are some key considerations for companies to keep in mind as they think about their role at every level within sustainable development pathways[24]:

Local/Place-based

- Local companies and actors are best placed to understand the root cause of systemic challenges. They have the legitimacy, convening power and capacity to mobilize resources locally. They can also provide the sustained efforts needed to see these long-term strategies through.
- Relationships with surrounding communities, NGOs and government officials at this level are of paramount importance for companies to maintain their social license to operate. *"People's lives, livelihoods and learning. Those three categories are directly important to mining companies from both a risk management and a value creation perspective, and they align with many SDGs from an impact perspective. However, beyond the company's own operations, there are also systems issues associated with these"* Nelson says.
- Often, mining operations are in remote jurisdictions where local content development has significant relevance, particularly if this is the largest economic activity and major source for job creation, local procurement and infrastructure

24 "Multiple Pathways to Sustainable Development roundtable", UNEP, July 2015

development. However, only focusing on local content development at the community level could mean opportunities to create shared value over the long term may be lost. Nelson feels that, "*Nationally, beyond the immediate community in mining jurisdictions, I don't see the mining sector collaborating enough with each other or other sectors. Companies need to be thinking about what they can do to move up the value chain nationally and mature from being project-focused, although that remains essential, to also taking a broader systems approach to job creation and sustainable development.*"

National/Sub-national

- The SDGs provide a global framework for goals and targets that each country commits to implement nationally. At the national level, efforts to address systemic challenges typically focus on the policies, financing and institutional support needed to scale up interventions.
- Subnational (state or provincial) authorities play an intermediary role between national and local governments in the implementation of development initiatives. This is where a lot of the regulatory decision-making power lies and also a substantial proportion of the government's procurement spend.
- However, if individual companies engage in influencing public and regulatory policy, this may be considered lobbying and anti-competitive. *"Collaboration is a must to solve collective action problems, but in most cases this should happen vertically. When companies think about collaboration, they usually get nervous because they think of it as horizontal or sectoral collaboration, and they worry about antitrust issues. There are some pragmatic decisions on which companies could collaborate sectorally, particularly those that involve sector-specific taxes or regulation, but they must tread very carefully here. Otherwise, collaboration is probably better done cross-sectorally through a chamber of commerce,"* Ramanna suggests.
- Cross-sector collaboration is key, as all national industries face similar systemic issues and constraints. National development strategies and sustainability efforts must be multisectoral to successfully respond to the multifaceted and cross-cutting challenges unique to that country. According to Dorward-King, *"One of the harder questions is how to create public-private partnerships that can really make a difference in a country or a region. If you are talking about energy production and transmission, or people's right to access water and have access to clean water – how do you help business and local government, national governments and even supra-international organizations participate in those kinds of partnerships that can make real large-scale difference? How do you get people to come to an agreement to share those resources? These are complex problems, but we ought to be able to tackle them, particularly in the mining industry, because where you have your assets, you're going to be there for a long time. So, you have time to act, build trust, make agreements, make investments, recover the capital investment, and have good impact."*

Global/International

- The dynamics and relationships between various types of actors that comprise an industry's global market system are highly complex. These connections can be viewed as a "chain of influence" that leads development efforts from intent to effect – from international donors and multilateral agencies, to intermediary NGOs and NPOs, to different layers of government, and the support local actors and companies receive in their local context.
- A global perspective is essential to understand the complex inter-linkages in the market system and potential barriers along the chain of influence. By doing so, companies can harness the global market system's capability to meet local company needs and create more enabling spaces for partnerships and collaboration to develop sustainable solutions. Moreover, taking a global view is much more important today, given rising global inequalities and increased geopolitical risks.
- Additionally, a pressing concern for the mining industry is the lack of convergence toward a clear set of global sustainability standards. This is key for the industry's competitiveness in the global market. For an industry that is viewed by many in poor light, there is a shared interest among mining companies to lift the standards of performance for the sector as whole. For this to happen, a set of global standards accepted by all the industry's diverse stakeholder groups is essential.
- According to Henry, *"One of the things that I've been speaking about publicly is the need for continued improvement in the way that markets function. For example, to meet the challenge of climate change, the world is going to need a lot more by way of mined commodities. And if the world's need for those commodities is to be met in a timely, cost efficient fashion without unintended bad sustainability outcomes – i.e., too much water use or emissions generated, biodiversity impact and so on – then it is going to be important that good companies are the ones who meet that increased demand, and those companies need to be operating to higher standards. Right now, markets are operating somewhat inefficiently in this regard. There is insufficient alignment on what good performance looks like. Companies at the extreme bad end of the spectrum do get hit with higher capital costs and so on, but I don't think there is an appropriate premium being reflected in the multiples of companies that operate to the very highest standards. Arguably there's a bit of premium, but probably not significant enough to drive what the world truly needs, which is for supply of commodities to be met by the best companies in terms of ESG performance. The markets continue to muddle through and will get there in the end, but it will take quite a while. The world doesn't have a long time to address climate change. So the quicker we can cut through market inefficiencies and build stronger alignment around common global standards – and the more performance against those standards gets better reflected in the cost of capital for different companies – the better it will be for the world."*
- However, without multi-stakeholder governance and participation in the development of globally accepted sustainability standards, the industry may remain relatively undervalued compared to other sectors. *"I don't necessarily believe that globally there is interest in environment, climate change and social inclusion with respect to standards set by the industry itself, through trade associations, for instance. I would rather propose to give this to a neutral party, preferably if: a) it was not regional but global, and b) it has to be an organization that truly understands the private sector,"* advises Anne Kabagambe, former World Bank Executive Director and Barrick Gold Non-Executive Director.

The Trust Paradox

Creating shared value has increasingly become a business imperative in recent years. But at the core of creating shared value, lies society's trust. The legitimacy of business has been called into question based on the premise that companies have prospered at the expense of broader society. At the same time, business may provide solutions to many of the world's sustainability challenges, given the expertise and scalable business models of the private sector.

"We face a challenge now when communities resistant to new industrial scale extraction ask, 'can you show me the well-run industrial scale mine?' Of course, this depends on how and who defines well-run or sustainable or responsible. From a community perspective, if we look at not only current employment but also value post life of mine, or clean drinking water, or water the community feels safe to use for livestock, or wells not drying, or blowing dust – there are few examples that could hold up to universal applause. And this will continue to feed the blockading of roads, fundamental conflicts and violence at the interface unless we step right into the heart of those issues. We need to be honest about the impacts that go with extracting mined materials that industrialized society uses every day, hold responsibility for improvement across the supply chain, and offer greater financial value to companies that better protect social and environmental issues," says IRMA Executive Director Aimee Boulanger.

The 2020 Edelman Trust Barometer revealed global distrust in all four societal institutions – business, government, NGOs and media. A strong signal that institutions must embrace new ways to effectively build trust by "balancing competence with ethical behavior." Respondents also identified collaboration as a big opportunity for institutions to advance society and build trust. However, partnership was the lowest scoring indicator for business, NGOs and government.[25] Looking ahead, greater transparency will be essential for rebuilding trust with society.

"Many mining companies need to do better homework regarding their ESG or SDG related reporting. Many claim that they are doing fantastic work, and they do. But as often reported by auditors, investors, banks, assurance frameworks and NGOs, the quality of data is not always that great. For instance, the Responsible Mining Foundation (RMF) publishes a report every second year wherein they scrutinize 50 of the largest mining companies for their Responsible Mining Index. The RMF only filters through publicly available information, and they report that much of the data is selective or simply missing. Many companies are not happy with the feedback from assurance frameworks or the RMF, but the industry needs to realize the necessity to disclose. The mining industry has a major role to play in contributing to the realisation of the SDGs and a responsibility to show how they are mainstreaming the SDG goals into the way they do business. Finally, the business case for action on the SDGs nowadays is both strong and well-recognised. Those companies that effectively embed the SDGs into their core operations and strategies will ultimately strengthen both trust and their ability to meet the challenges of the future," says Jörgen Sandström, Head of Energy, Materials, Infrastructure Program - Industrial Transformation, World Economic Forum.

Transparency is key to foster an organizational culture that is grounded in ethics. Ethics goes above and beyond compliance with legal requirements—it involves learning what is right and wrong, and then doing the right thing. This means transparent decisions and behavior guided by authenticity and compassion, taking into consideration the perspective of all stakeholders. Building trust with society is not only about making appropriate disclosures, but also being transparent about why business leaders make the decisions they make.

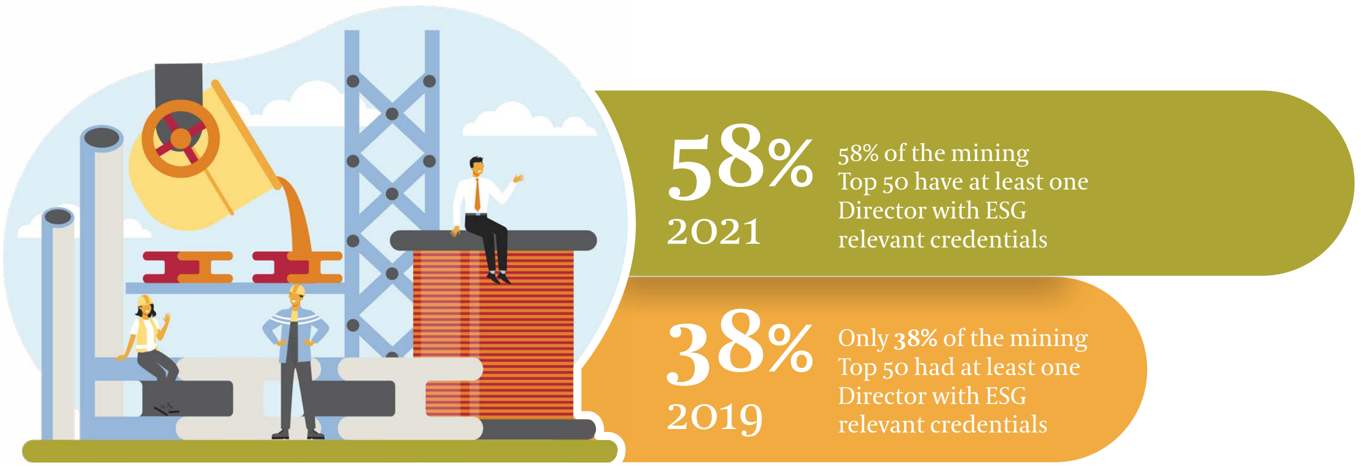
25 "2020 Edelman Trust Barometer", Edelman Data & Intelligence

Board of Directors: Leading the Sustainability Agenda

The Maturity of Board ESG Skills Is Evolving

In our inaugural report, **From Risk to Reward**, Egon Zehnder's Mining & Metals practice analyzed board composition data from 2019 on the Top 50 mining companies. We found that only 38 percent of boards had at least one member with ESG relevant credentials. Our refresh of this analysis in 2021 shows an encouraging 20 percentage point increase to 58 percent of the mining Top 50.

Furthermore, companies with at least one ESG director in 2019 have since added more board members with ESG relevant credentials, ensuring a more balanced representation at board level of the wide-ranging ESG landscape. This nuanced and evolved approach was observed among some of the industry's biggest companies including BHP, Rio Tinto, Fortescue and Newmont. It signals a departure from the narrow approach to ESG seen in our 2019 analysis of mining boards appointing directors who specialized in environmental issues alone.



Source: Egon Zehnder Analysis

With the overall increase in ESG credentials on mining Top 50 boards, our 2021 analysis took a deep dive into the range of skills and experience this talent pool brings. ESG board members were broadly grouped as either directors with industry experience in Health, Safety & Environment (HSE) roles, or those who bring an external perspective beyond HSE. Given that 65 percent of ESG directors belong to the latter category, we further classified this group into six sub-categories: Governance, Climate Action, Sustainable Development, Natural Resources Management, Human Rights and Business Leadership.

> "In my view and from experience, over the coming five years, climate change, environment and social responsibility cannot be put aside or ignored by any board in any sector, be it banking or mining."

Anne Kabagambe

Former World Bank Executive Director and Barrick Gold Non-Executive Director

Traditionally, ESG-relevant board skills have skewed toward HSE – one of the most prominent and well understood risk factors in the industry. Mining companies today are better placed than many other sectors to manage risks associated with HSE, and they have done so for many years. The quality of management and board oversight has significantly improved over the years on individual HSE issues that are closer to the company's internal locus of control.

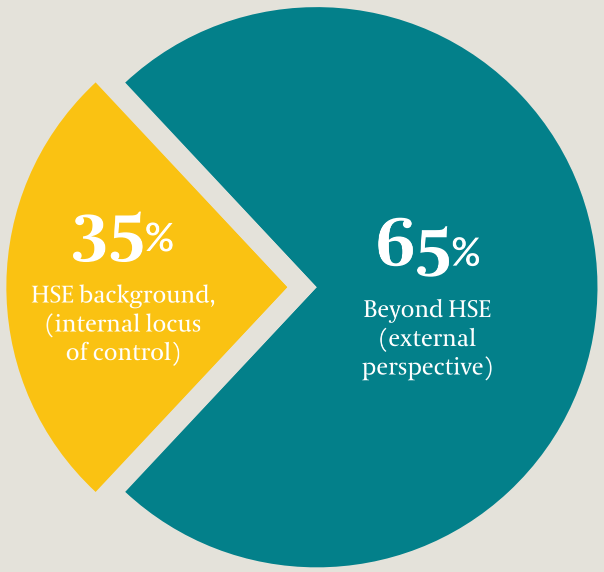
With the understanding of the interplay between companies and their external environments evolving, a more advanced model has emerged encompassing broader risks and opportunities. As a recent Egon Zehnder report notes, "Each letter in 'ESG' has become even more pertinent in recent years, and even more so in the past months, forcing boards to debate hard questions around a corporation's public stance and response, responsibility to both its employees and customers, how to effectively support their CEOs, and how much time to dedicate to these issues in the boardroom. We have observed the core director skills set broadening to more complex categories such as climate action and human rights."[26]

Balanced Approach to ESG at the Board Level

The shift to broader ESG skills depicted in the infographic "Directors with ESG credentials on Mining Top 50 Boards" (on page 40) indicates how boards are thinking about the future, ensuring that they keep up with both their organizational requirements and expectations of the wider stakeholder community. As boards hire more directors with ESG expertise, it is even more important that they think critically about the strategic imperatives the board is solving for. Moreover, board seats are valuable, and organizations should ensure that directors possess not only functional skills, but also broader business and industry leadership experience. Matters that are deemed non-core may be best addressed by technical advisors on an as-needed basis.

26 "The Corporate Governance Exchange" Egon Zehnder, 2021

Directors with ESG credentials on Mining Top 50 Boards (2021)



Beyond HSE: ESG relevant skills gained through specialization, business leadership, advocacy or policy development

(incl. backgrounds in Government, Non-profits, Multilateral Institutions, Academia, Services and Other Industries)

37%
Governance

Includes relevant knowledge of standards and reporting; public policy and development; regulatory and compliance structures; risk management

14%
Natural Resources Management

Includes relevant experience in forests and wilderness preservation; biodiversity and wildlife conservation; sustainable water and land use

21%
Climate Action

Includes relevant experience in climate action advocacy; renewable energy; GHG reduction

11%
Human Rights

Includes a strong focus on anti-slavery; child rights; indigenous rights and cultural heritage; social protection and labor rights

14%
Sustainable Development

Includes participation in inclusive and sustainable economic growth initiatives (incl. development of resilient infrastructure, health systems and people; creating economic linkages; empowering women, marginalized and vulnerable populations)

3%
Business Leadership

Demonstrated experience in putting sustainability at the center of business strategy; leading a sustainability transformation

Source: *Egon Zehnder analysis*

When it comes to the right mix of directors on a board, Dorward-King believes that boards should have a mix of diversity and skill sets, which includes a range of ESG expertise. *"You want at least one, and preferably more than one, person who has some kind of expertise across the ESG scope, but you also want all other board members to have some level of fluency around the issues and how important they are,"* she explains. *"You don't have to be an expert to be able to ask questions and make sure risks are being looked after."*

Rio Tinto Non-Executive Director, Ngaire Woods concurs: *"In this industry, you need people who understand the operations involved in mining, but increasingly you also need people who understand how actions today are likely to affect a community in a few years' time, how to build partnerships, and how to hear all the different voices that are coming up – whether it's in local communities, or NGOs sitting in London, New York or Washington DC, journalists, investors, governments, different professional groups, and business competitors within a country. It has always been a complex set of relations, but now they are more open for the public to see, and a higher standard is being set for how companies engage with, and think about the impact they have on, those communities."*

Solving for ESG skills should be part of rigorous board succession planning, to be reviewed by the Nominations committee at least once annually. *"It takes two to three years to get directors up to speed, so they really need to understand the business no matter where they come from,"* says former Newmont CEO and BHP Non-Executive Director Gary Goldberg. *"You've got to put a complete succession plan in place for the talent and skills you're looking for."*

As with other core board skills, the board should have a clear understanding of the ESG skills that are relevant to the strategic priorities and risks of the business. Each new director recruitment should be viewed as an opportunity to optimally solve for the organization's strategic and functional requirements in the long term. *"You've got to look at what else an individual brings to the board besides just subject-matter expertise,"* Goldberg affirms.

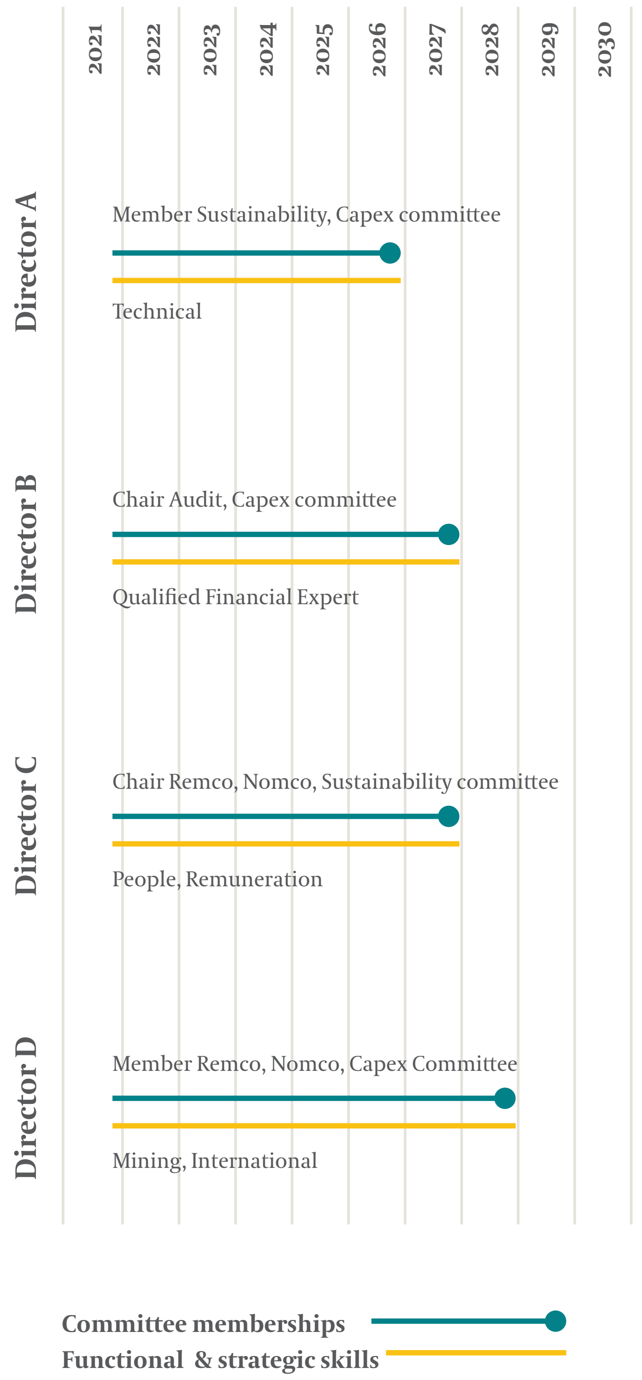
Our infographic titled "Considerations for Board Succession Planning" (on page 42) illustrates the types of questions the Nominations committee should be asking in preparation for director succession. This approach helps the Nominations committee think through optionality and solve for the optimal combination of board skills.

Ultimately, the board needs to focus on long-term strategies and risks – a core part of this is to acquire the right future-oriented skills, as well as identify directors who represent key stakeholder groups relevant to a company's sustainability impacts. Nominating committees should recruit directors who have experience in interacting with, or representing, stakeholder groups that offer insights into a company's material sustainability impacts. This provides the advantage of bringing both relevant expertise and background diversity to the boardroom.

As companies solve for challenges along their value chain and industry supply chain, they must also seek to understand what is on the radar of downstream customers. Bringing onboard expertise from the end consumer's industry could be an option. In addition, to safeguard product integrity and mitigate supply chain disruptions, leadership experience in logistics or blockchain expertise might become increasingly important. Furthermore, biodiversity expertise will become, and remain, critical for mining companies due to the scale of their surface activities.

Considerations for Board Succession Planning – illustrative

Board composition to reflect long term strategic needs



	Replace Functional Requirements	Strategic Considerations
Director A	• Should we beef up the sustainability committee with more ESG experience? • Do we bring on a potential Remco chair a year in advance?	• How important is the geography in the coming decade? • Do we use this opportunity to add digital/technology/supply chain/disruptor skills?
Director B	• Opportunity build Audit Co bench?	• How do we maintain our gender diversity? • Add digital/technology/innovation skills?
Director C	• Remco chair retiring – internal solution? • Do we bring on a potential Sustainability committee chair a year in advance?	• Opportunity to add biodiversity skills? • How do we maintain our gender diversity? • Should we consider specific geographical expertise, such as Africa?
Director D	• Do we bring onboard more technical/operational skills?	• Do we bring on more downstream commodity experience? • Opportunity to add battery minerals skills? • Do we require commercial/M&A skills?

Source: *Egon Zehnder analysis*

Making the Link to Sustainability in All Strategic Matters

As boards mature in their approach to sustainability, it's clear that appointing one or two individuals with the required expertise is not enough to address the complexities that sustainability issues bring. Although these directors play a key role in sensitizing and educating the full board on complex sustainability matters, boards should follow a more holistic and encompassing approach to ensure that sustainability is well understood and considered a core strategic imperative in all board decisions. *"If a company is just starting on the journey, then it may be that board members are recruited specifically for their expertise, to provide more detailed input and be more hands-on than might be expected if a company is relatively mature in that space so you can be further away,"* Dorward-King explains.

The entire board must take a longer-term view and understand how the sustainability agenda plays into the future of the business. Rather than being treated as an isolated topic, sustainability should be an integral part of board discussions and integrated into long-term decision making on strategy and risk. This implies that all directors should have a solid grounding in sustainability fundamentals and the specific implications for the company.

"If boards do not apply an understanding of the implications of both social vulnerabilities and environmental risks, company strategy may get derailed. This could come in the form of a company's inability to meet production targets or even missing financial objectives due to not achieving necessary permits and regulatory approvals," Dorward-King says.

An important step to mitigate this risk is to arrange board briefings by experts who specialize in specific sustainability issues that are material to the business. This can enable board members to make the connection between those issues and the possible risks to corporate strategy. Materiality analyses could prove useful in helping directors understand how certain sustainability issues are related to business strategy and how they may materially affect operations.

"It is important for the board to get external input in a very structured way," says Dhawan. *"If your management team is telling you that in our assessment of material risks biodiversity ranks #14 – this implies that it is not very material and that stakeholders don't consider it material. But if you had an expert panel on sustainability, they are likely to tell you something else. They are the ones looking outside the industry and seeing how quickly these things can change. So, it is the board's responsibility to challenge management assumptions around materiality."*

This also sends a positive message to the investor community. *"It's encouraging when you see a company acknowledging a particular challenge and seeking to bring in experts or critics to both inform its decisions and be challenged; or to actually work within the organization and be part of its governance,"* Matthews notes.

Newmont applied this approach by forming country advisory boards. *"When you have a global company with a presence in lots of different countries, it may not be possible to bring all country representatives onto your main board. So, this was a different way to get their expertise and to learn from them,"* Goldberg explains. *"I think for a bigger company, that's probably a better way to do it."*

Sustainability Education for the Full Board

We believe that all board directors should be educated on material sustainability issues to enable thoughtful deliberation at the board level. The full board must be aware of all material risks to both the company and its stakeholders. Fluency in sustainability matters should become a key performance indicator when hiring new board members and upskilling existing board members.

"You shouldn't be recruiting new board members in any mining company who can't answer some fundamental questions about their understanding of sustainability issues," Nelson says. *"In a board interview, a potential director should be able to answer the question: 'What do you think are the material sustainability issues for our industry?'"* For those looking to upskill and learn more, tertiary education and governance associations have formal training programs, and extensive educational material is available through a variety of online sources.

Boards should also find regular opportunities to engage with both internal and external stakeholders on sustainability issues. These interactions can help boards gain a holistic understanding of the key issues that affect a company, as well as mitigate adverse impacts on external shareholders and pinpoint opportunities for creating shared value for the long term. Standard practice is for all directors to visit operations on a rotational basis. To ensure adequate focus on sustainability matters, boards should not only view the visit as operational information gathering, but also maintain a specific focus on the surrounding communities, environmental issues and day-to-day non-operational challenges that are experienced by management on site.

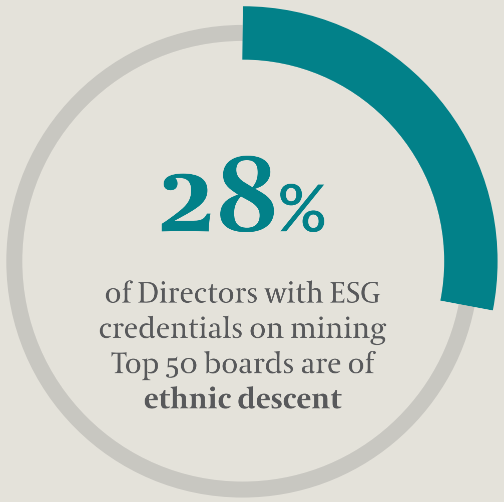
"It is absolutely essential that mining company boards go and visit the operating sites. Until you get out there, you don't really get to see how the communities are living," Dorward-King shares. *"I'm a strong advocate that boards need to visit their operations and not just the big shining ones, and easy to get to places, but they need to rotate through the different sites."*

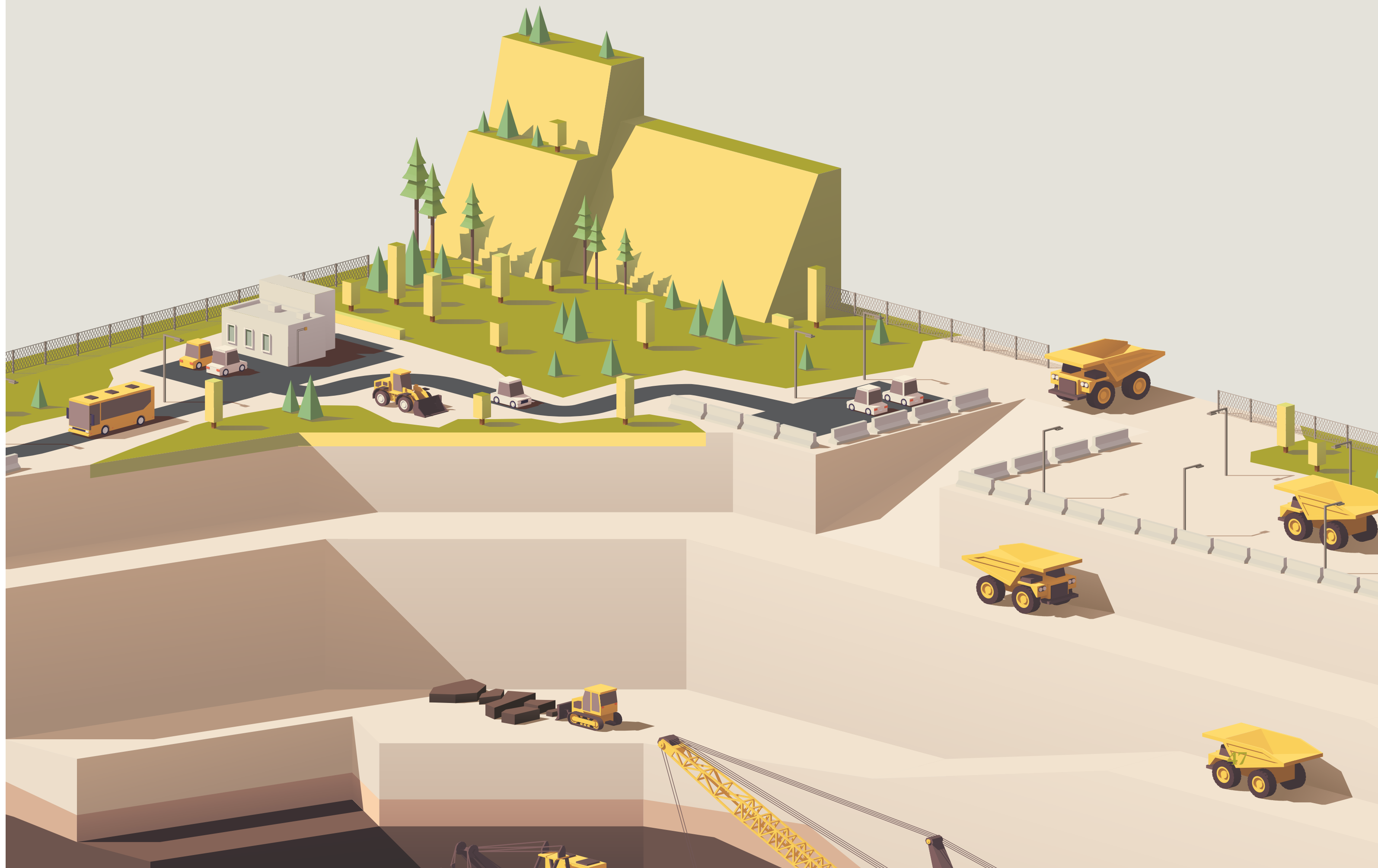
Goldberg adds, *"At Newmont and at BHP, we do deep dives into a particular operating asset, where we can get down and talk to people on the ground. To me, it's always that triangulation of what you're hearing from management and what you hear on the ground and do the two add up."*

Commitment to Diversity and Inclusion (D&I)

In Egon Zehnder's contribution to the **Sustainability Board Report**, consultants Karoline Vinsrygg and Cynthia Soledad state that the issues encompassed by sustainability are so broad and unpredictable—environmental risks, human rights issues, resource management and more –that it is critical for boards to have different perspectives around the table. A board that is not sufficiently diverse runs the risk of lacking credibility with investors, customers, employees and other stakeholders. This is because it will then only represent the views of a select few who typically come from similar backgrounds or have a similar mindset.

A board that embraces different backgrounds, viewpoints and perspectives includes both demographic and perceptive diversity. Although diversity and inclusion are inextricably linked, they are not the same thing. To unlock the benefits of diversity, a board culture that is truly inclusive provides equal opportunities for all members to contribute





valuable insights, ask tough questions and challenge proposals made by management and fellow directors. We believe that a focus on both diversity and inclusion at the Board level leads to more sustainable business practices.

D&I: The Antidote to Groupthink

Avoiding "group think" is one of the most important benefits of adding diversity to the board, and it is also key to ensure that companies prioritize sustainability by adopting a broader world view. Companies must consider the history and circumstances that have shaped the demographics and nature of talent available from underrepresented groups.

Nomination committees must not only understand the tradeoffs they may have to make, but also look beyond traditional director archetypes to explore the spectrum of skills and experience they can reasonably gain by making a diversity hire. As an example, Goldberg shares that "*Companies can benefit from getting younger people at the board level who are more tech savvy. We did that at Newmont by bringing in Sherry [Hickok] from General Motors on to our board. She is now with GE Renewables. At the time she was not even 40 years old, and she brought an entirely different perspective.*"

Avoiding the Tokenism Trap

We have seen examples of companies – under pressure from shareholders – seeking to hire an experienced director who is ideally female, preferably of ethnic descent, with ESG relevant skills, and even better if she has technical leadership or CEO experience.

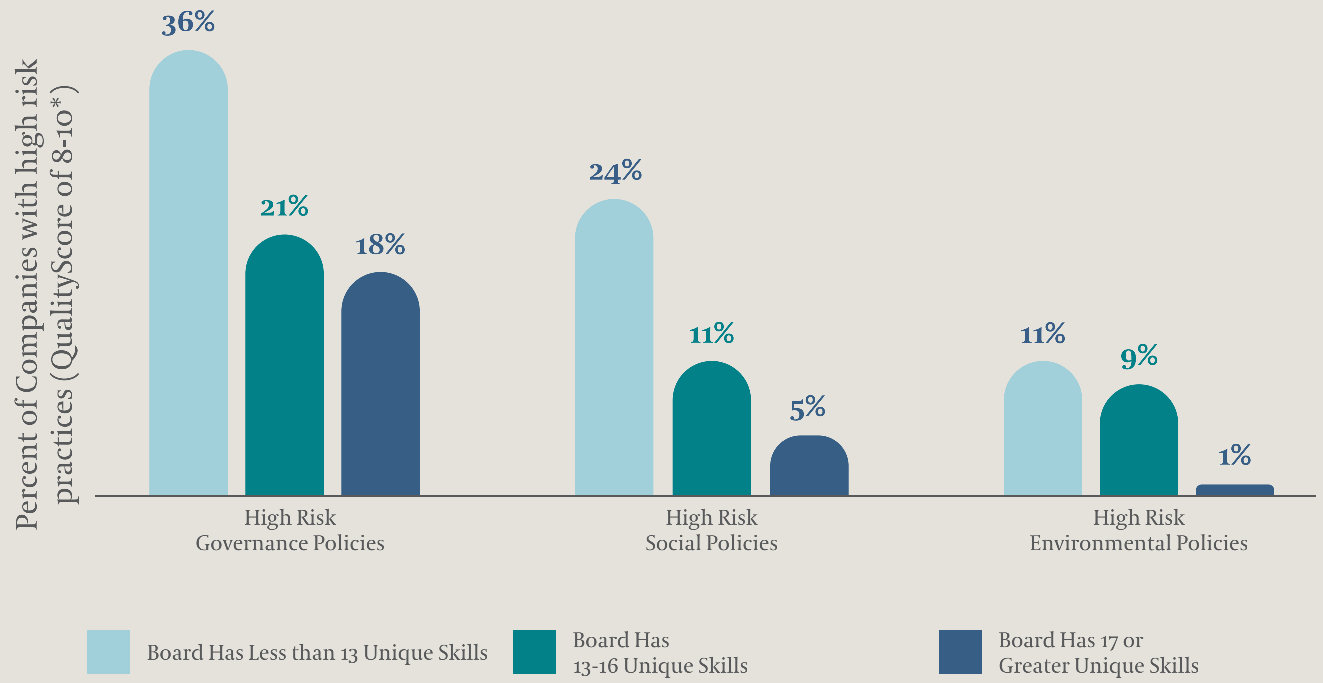
While this "four birds one stone" approach is an indication of companies taking a step in the right direction, such expectations often point to a lack of ongoing board succession planning and indicate that boards may only be interested in making a token or "all in one" hire. This places a large portion of the director recruitment focus on a small number of eligible directors.

This handful of board candidates who meet these criteria tend to be well entrenched in the prevailing corporate culture. They often have several board roles (current and former) under their belts, as companies resort to recycling this limited pool of talent. Such candidates tend to be overboarded and may even subscribe to, rather than challenge, the limiting tendency of "group think" on corporate boards. This can be avoided by strategically and purposefully looking at succession planning in an ongoing manner.

Boards are encouraged to be thoughtful on pipeline succession planning, with longer term board recruiting processes that ensure a strategic and diverse slate of candidates reflecting their employee, customer, and stakeholder base. We encourage companies to recruit from new talent pools and look beyond board members' own networks and historical recruitment practices to help identify diverse director candidates who can share new views and perspectives and different approaches to problem solving. This does not mean hire unqualified candidates or select a board member who brings surface level diversity to the board. It's about examining a talent pool that has yet to be tapped and is brimming with potential.

Companies with more diverse skills are more likely to disclose ESG and adhere to best practices

Russell 1000 Companies with high-risk practices across ESG Pillars



*Governance QualityScore is a decile ranking of a company's governance risk relative to their index or region, where 1 indicates best-practices and 10 indicates relatively high risk

**Unique skills include both traditional board skills (finance, industry, CEO experience) and non-traditional skills (such as Academia, Socially Responsible Investing/Corporate Social Responsibility, Human Resources, Legal and Risk Management)

Source: "*Director Skills: Diversity of Thought and Experience in the Boardroom*" *ISS Analytics, September 2018*

Board Governance and Committees

In terms of governance, sustainability oversight should be included across the board structure by firstly, incorporating this into the charter of each board committee, with clear reporting procedures, as well as an agreed scope and mandate. Secondly, disclosure on core sustainability metrics should be promoted based on widely accepted guidelines. Finally, compensation of key executives should be tied to core sustainability metrics. *"We need to constantly be thinking about whether sustainability or ESG and safety have the same prominence that operations, technology,* people*, growth priorities and finance have,"* says Nelson.

While the entire board should actively engage in discussions about the company's material sustainability issues, formalizing oversight in specific committees allows for key issues to be raised systematically and in-depth. For instance, the audit committee can play an important role in the identification and prioritization of sustainability risks, assigning these accordingly to specific board committees or to the whole board. All board committees should take accountability for diving more deeply into sustainability issues, allocating adequate time to consider longer-term strategic matters. Very importantly, report backs to the board by the committee chair should have sufficient detail and information in them for the full board to track progress in critical areas and gain a holistic understanding of the context.

Oversight of the company's sustainability strategy should be assigned to a sustainability committee, or its equivalent. Apart from governance oversight, the sustainability committee plays other important roles, as Woods describes: *"A sustainability committee that is functioning well will not just be overseeing policies, but also asking 'Is this really happening; do we know this is happening; are we sure that this is happening?', and 'Are we learning to do this better?'. The committee also plays a conduit role. As a board, you are there to represent not only the shareholders' short-term interests, but also their (and other stakeholders') long term interests in what the company is doing, how those expectations are changing, how to channel that to the senior management of the company and really push it forward."*

A sustainability committee covers a broad area of focus, and committee members should present a wide array of skills and experience. Where deep skills are lacking, the committee should consider bringing in experts who can advise on specific matters, giving the sustainability committee a baseline to work from. If those matters become more material, the sustainability committee has a trajectory to consider them at the full board.

Enforcing Executive Accountability

The rise of sustainability as a core strategic imperative underscores the importance of governance and the expectations from non-executive directors and management, as well as the interplay between the two parties. The board does not exist to run the business but should be asking enough of the hard questions to help management think deeply and creatively about critical matters such as sustainability. In addition, the board should not delegate these topics, but ensure that actions are being taken and that intermittent briefings continue on topics that are of critical importance. Conversely, management should not reduce the challenge, but hear the debate and take it onboard. *"My job as a director is to challenge where I see things that aren't going the way they should, or management hasn't thought about x or y, and also to support what they're doing well and encourage that,"* Goldberg notes.

"You need to have a board that's willing to ask enough questions and provide enough support and input to ensure that the ship is going in the direction you want to travel, without delving down and trying to do management's job by instructing on what needs to happen or being too specific about how things need to be done," Dorward-King explains.

Previously a highly debated topic, today it is widely accepted as standard practice for boards to tie executive remuneration to sustainability metrics. *"It's now got to the point where having KPIs tied to sustainability performance is just a hygiene factor, not a leading factor,"* says Dhawan.

An HBR article "The Board's role in Sustainability," states that, "The board is responsible for establishing the metrics that will be used to determine promotion and remuneration throughout the organization. Purpose, not simply profits, needs to be rewarded."[27]

Boards need to ensure that compensation and rewards are truly tied to those things that are material for the company's success, which would include delivery management of key social and environmental issues. Setting KPIs that are linked to compensation, having targets that the company talks about and reports publicly – whether it's in a sustainability report, the annual report or on the company's website – helps focus management's attention.

HBR asserts that "Measuring, rewarding or penalizing management's performance gives useful insight to stakeholders. Companies should disclose the ESG issues that are linked to executive compensation, inform them of the proportion of pay at risk as it pertains to ESG issues, and state whether bonuses are linked to any short or long-term incentive structures."[28]

"Boards have to lead the charge and really push management," says Goldberg. *"If the board is not there, or they're not moving there, you may have to change people around. But your executive team also needs to be thinking that way and it starts with the CEO – do they have the right CEO to lead that transition? If they're not there today, can they get there?"*

A Conducive Board Culture

When it comes to transformation, changing systems and processes is generally easier to action, and much more visible and straightforward to measure outcomes. However, an organization's people and culture remain at the core of whether the transformation will be successful. And people and culture are hard to change, which is why we dedicate a section to look specifically at this topic at an organizational level.

Although organizational culture is shaped by the CEO and executive team, the board plays an indirect role by providing the best possible supervision, decision making support and

27 "The Board's Role in Sustainability," Harvard Business Review, September–October 2020 issue
28 Ibid

guidance to executive management. This is underpinned by an inclusive and constructive board culture. To successfully spearhead a company's journey toward corporate stewardship, we believe that an effective board culture is essential to set the right 'tone from the top.' *"What you're ultimately looking for is people that get along. They don't have to agree on everything because you don't want everyone pointing in just one direction,"* Goldberg shares, *"but you've got to have a certain culture at the board where people are comfortable challenging each other constructively and learning from each other. If the board isn't thinking that way, and if top management isn't, then you're going to have a lot more changes to make to set that right."*

Establishing a boardroom culture of respect and transparency fosters innovation by creating a space where honest opinions can be shared without hesitance. This welcomes conflicting views that, in turn, shape direction and produce a powerful shared vision and way forward. Board members should be willing to not only voice their own opinion, but also engage with the opinions of others in order to avoid common boardroom biases such as groupthink.

Board members should view diversity of thought as an opportunity to engage with new ideas and challenge the existing state of affairs, however uncomfortable this might make them feel. PwC's 2020 Annual Corporate Directors Survey noted that more than one-third of directors find it difficult to voice a dissenting opinion.[29] This highlights the importance of ensuring that boardroom dialogue is open and respectful if the board is to deliver best-in-class thinking.

Taking a stakeholder-centric approach to decision-making is key to building resilient board cultures that ultimately create positive impacts for society at large. *"Boards need to own this whole agenda, they need to have internal critics within the organization that are empowered to challenge the board, empowered to provide information to the board that is uncomfortable, empowered to have a line of communication that may come up through the CEO but also goes directly to the board. A sophisticated company with the maturity to do that well, will be the one that succeeds in this sector,"* notes Matthews.

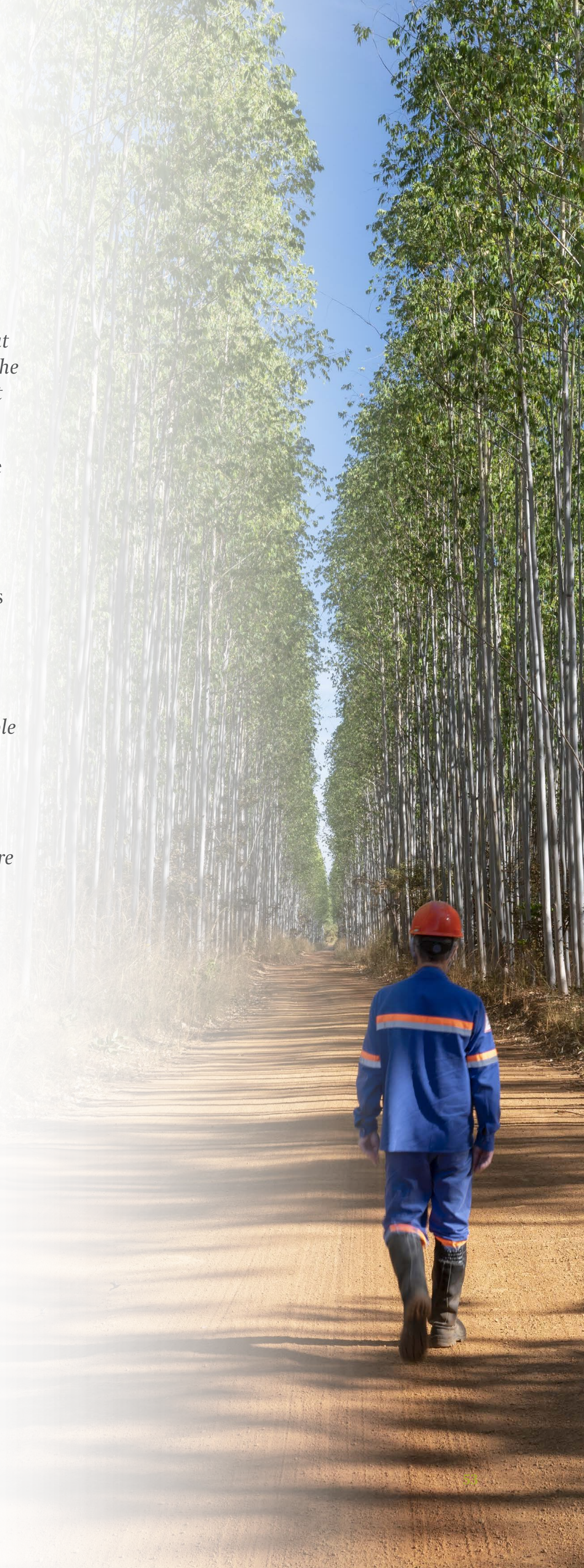
Organization's Purpose and Role in Society

Value creation is no longer the sole measure of effective governance, and the board's charter is expanding to include the company's societal impact and role in the communities where they operate. This is especially true for mining companies, which typically operate in a country or region for a minimum of 10 years, and more likely 30-40 years.

To create shared value, the board should identify at least three systemic challenges to intentionally think about solving during the company's long stay in host countries. In doing so, it is important to invite a broad stakeholder group to provide input. Stakeholder activism and a greater desire by key stakeholders, including consumers, employees and local communities to exercise more influence on major decisions is on the rise.

"We don't work in a vacuum," Kabagambe explains. *"We work in a global community, and almost every five years there are certain things that arise which we cannot ignore. You cannot ignore the COVID-19 pandemic nor the kind of attention that is out there on climate change."*

Once the board prioritizes the top three to five systemic challenges, the company can start building its business case and putting in place the structures, skills, and, depending on the issue, the required culture to address them. *"It starts with the company strategy and values,"* says Goldberg. *"When you become a CEO, you reflect with the board and with your leadership team on what your strategy should be and what your purpose should be. Newmont's purpose is to 'Create value and improve lives through responsible and sustainable mining.' We spent a lot of time with the board and senior management to devise this, and then tested it with our Top 100 leaders. But getting alignment was critical, and it sent a strong message to the organization on what we're about and what it means. How we went through that process and the inclusiveness of that process was important for the board, for the executive team and for the organization."*



29 "PwC's 2020 Annual Corporate Directors Survey," PwC, October 2020.

Leadership for a Sustainable Future

Mining companies now face accelerated decision-making and change against a background of greater economic uncertainty. The disruptions of the past year have only accelerated this shift, highlighting the critical need for sound leadership. At the same time, the CEO has moved into the center of louder, more diverse, and diverging voices – there has never been as much focus, scrutiny and reliance on CEOs as leaders. They are expected to be visionaries and nurturers, leading their companies during complex and rapid change. While leaders may do more and move even faster in these conditions, such a response is unlikely to be sustainable or the route to the wisest solutions. To succeed in this challenging landscape, CEOs will need to embrace change—in the world and in themselves—and rethink tried-and-tested approaches to leadership.

In this context, mining companies today have a unique opportunity to revise and reset their transformation agenda. With the world's green energy transition gaining momentum, more minerals and metals will be needed to make this possible. There is now a new type of growth agenda firmly on the table, especially as many mining companies emerge from a decade of productivity improvements, cost control and limited investments. Looking ahead, many companies find themselves with less than 10-15 years of mineable reserves. Meanwhile, some traditional commodities may soon become obsolete (e.g., thermal coal), and others may need 'reinventing' as traditional applications no longer deliver viable growth prospects.

However, making a business case for large capital investments will be even more challenged as companies venture into "commodities of the future" (and uncharted territory) to capture the fast growth that decarbonization promises, whilst also grappling with the threat of substitution as breakthrough technologies rapidly emerge and advance. In addition, demand for future commodities, such as battery minerals, is becoming increasingly contingent on sustainably produced and responsibly sourced supply. This has led to a growing sense of urgency around determining future leadership skills, competencies and the potential needed to embrace foreseeable (and unforeseen) disruptions in the industry.

As companies start to rewire in promising ways for the future, reaching a "next normal" for an entire organization will require a unique blend of bold decisions and collective dynamics. CEOs will need to fundamentally evolve in order to lead, and that will require work beyond core leadership skills, such as strategic acumen and results-driven strategies. As a result, the focus is shifting to a new set of competencies required for transformation:

- Ability to envision the "next normal"
- Adaptive leadership skills, determination, and openness to learn
- Consistency between values and action

Envisioning the Next Normal

CEOs are increasingly realizing that they must transform themselves in order to transform their organizations. For their businesses to grow and evolve, *they* must grow and evolve as leaders. We call this the dual journey. From a recent report published by Egon Zehnder, **It Starts with the CEO**, it is clear that this need has intensified over the past year. We find it remarkable, and highly encouraging, that nearly 100 percent of our 972 CEO respondents agree that they need the capacity to transform themselves, as well as their organizations.

In CEO decision-making, financial metrics rank first

1st **Financial**
(e.g., profitability, TSR, share price, sales)

2nd **Growth**
(e.g., market share, M&A, geographic expansion)

3rd **Talent management**
(e.g., considerations linked to diversity, leadership capability)

4th **Innovation**
(e.g., new technologies, % profit from new products, R&D budget)

5th **Health and Safety**
(e.g., incident rates, % improvement, stress-related absence)

6th **Environmental, Social and Governance**
(e.g., carbon footprint, diversity & inclusion, human rights concerns, social activism)

Many CEOs and boards have yet to achieve clarity on the new destination they say they are trying to reach. Our *It Starts with the CEO* study revealed that CEOs still rank financial performance and shareholder value as their predominant decision-drivers, even though many of them do recognize the increasing urgency of addressing sustainability challenges. This perhaps lies in the original purpose of ESG as a tool or mechanism to measure non-financial risk, which is inherently hard to define and quantify. At the same time, CEOs are recognizing their moral authority and evolving their thinking about the role their company plays in creating shared value.

CEOs are increasingly shifting their mindset from "managing ESG" to "embracing sustainability" as a more encompassing, balanced, and purpose-led strategic vision. While an obvious reaction is that this will compromise financial performance (at least in the short term), it does not necessarily have to be a trade-off with financial performance. CEOs should think holistically and creatively about opportunities that emerge from managing risks well, adding resilience to operations and helping communities thrive.

This means being aware of the various perspectives surrounding your company. *"Because of the different vantage points on certain issues, or information asymmetry, people's beliefs around what is the right outcome can be very different,"* Henry reflects, adding that it is paramount to solicit these diverging opinions in order to *"come up with solutions that create the greatest possible value for the greatest possible number of stakeholders. Through holding this tension, you actually create something that you couldn't have created if you saw it as being a trade-off."*

As our colleagues stated in the 2018 article, **Architects of Prosperity**, “A CEO must recognize the interconnectedness of seemingly conflicting objectives: Performance requires transformation, and value for the many is value for the business. Integrating broad prosperity into the business model presents novel situations beyond traditional stakeholder management. Maintaining financial performance while serving as a force for good requires not only growth and keeping an eye on the bottom line, but also sometimes elevating one’s sight toward the prospect of unexpected opportunities.”

Certain challenges in the mining sector cannot be solved by mining companies alone. The most effective CEOs, constantly seek to connect the dots, discovering patterns that tie together the challenges and opportunities facing the business, the industry, supply chains, and the broader market system. In doing so, they discern and create the most compelling choices for how the business can provide new sources of value—now and in the future.

For Nelson, CEOs add value by having a holistic outlook on the complexities they are faced with. *“In today’s world, I don’t see how any board in any industry can undertake a CEO succession process without recognizing that CEOs are being asked to address increasingly diverse stakeholder expectations and ESG issues in pretty much every country,” she says. “It’s no longer just a question of how equipped is your CEO to deal with investors, understand the business and the wider competitive and market context? Today, it’s also, how effective have they been, and will they continue to be, in addressing complex sustainability or ESG issues and a wide variety of stakeholders? These questions are material now, and no longer side-line questions or nice-to-haves.”*

CEOs do not require a “better plan” to operate amid the complexities that our new reality presents, but they do need a higher level of responsiveness, a “next normal” for the entire organization. They must possess the ability to embrace the journey toward a transformed organization and to integrate multiple factors of influence into a coherent, aligned and energizing mandate for the organization’s future. In other words, CEOs who want their organizations to succeed long-term need to move away from the status quo and change their approach to leading the inevitable transformation.

The End of the Superhero CEO

Against the backdrop of shifting geopolitical powers; technology transforming every industry; and individuals, groups and institutions becoming increasingly interconnected and interdependent, organizations are recognizing that while the experience and talents of a CEO are still essential, they are no longer enough to secure success. Why? Because most CEOs will have sharpened their skills in a previous era, modeling their leadership style on an earlier archetype, which was developed in different circumstances.

What we look for in a CEO has been changing:

Must-haves and Disqualifiers Today

Historical CEO profile: The “superhero”

- Sees the world through lens of strategy
- CEO as the singular force for change – dominant in every dimension
- Linear thinker within well-defined ecosystem
- Leads from “inside out” – shaping strong culture to define market space
- Zero-failure culture
- Well-defined beliefs
- Seeks alignment
- Ready for a particular context
- Confident of own capability to decide (everything)

Today’s CEO: “Amplifying others”

- Sees business in larger context
- Distributed leadership – understands and leverages leadership strengths of others
- Systems thinker – agility to cross industries
- Leads from “outside in” – defining success around creating value for others
- Experiential/flexible/ “fail fast” culture
- Nurtures and embraces diversity to drive creativity and holistic solutions
- Flexible and open mindset – leans into uncertainty
- Strong self-reflection and capability to transform oneself

Disqualifiers

- ANY ethical concerns (compliance, bullying, nepotism, discrimination, harassment …)
- Disruptive relationship with the board
- Command & control leadership approach, faked empowerment
- “Inner circle” management style
- Independence as a derailer
- Believes that no further personal development necessary
- Believes CEO role is the same just bigger
- Lack of internal followership
- Risk in external reputation

CEOs embody an uncommon marriage of leadership qualities

Relentless ***empathy***
Unwavering ***compassion***
Tireless ***attunement***
Driven to ***listen***

Boldly ***kind***
Resolutely ***adaptive***
Unapologetically ***human***
Profit-driven and ***people-centered***

This is the essential CEO

CEO leadership is, by its very nature, a collective and relational endeavor. There can be no CEO leaders without followers and vice versa. The tendency to focus on a "hero" figure, who stands alone as the head of a hierarchy rather than an ecosystem of leadership, is pivoting to a new style as the traditional management culture becomes obsolete. While essential experiences and sector expertise remain essential, they are less predictive of future success. CEOs need the humility to realize that they don't have all the answers and therefore can ask for advice. The leaders who can stop, listen and understand will solve problems quicker and more effectively.

"There are tensions and growing complexity at every level of the individual, the institution, as well as the broader ecosystem. In order to effectively manage at these different levels, you need individual leadership, institutional leadership and interactive leadership or partnerships, and all three of these levels of leadership need to be agile and adaptive to change," Nelson asserts.

To lead effectively in today's fast-shifting world, leaders need to be equipped with certain characteristics that can be developed. As Egon Zehnder's *It Starts with the CEO* report explains, "These CEOs will be those who summon the imagination, courage and resolve to work on the system, rather than in it. Visionary CEOs embrace the role of architect rather than operator; in doing so, they can inspire their organizations, drive value-creating change, and find meaning in their evolving role."

"If you believe that the future is one in which the industry works much more closely with its other partners, is much more open and much more collaborative, the rah-rah leader often *may not be very collaborative or open because they may just want to charge on with what they know to be their strength,"* says Dhawan.

CEO of the Future: Self-aware, Relational and Adaptive

In times of high uncertainty, the role of leadership is not simply about finding the right response. It is about upgrading the overall responsiveness of the entire organization to whatever might happen. CEOs are being called upon to step up as architects of this new era, designing businesses that are innovative, resilient and responsive to their environments. This requires leaders to be self-aware, relational, and adaptive – a set of qualities that are not independent but stand strongly together in mutual support. Below, we dive into how leaders can build self-awareness and relational orientation into a leadership style that can adapt to current and future demands.

Self-awareness

Our research indicates that the consciousness of **an organization's leadership determines its performance**. An organization cannot perform at a higher level than its leaders' self-awareness: a rigorous and disciplined commitment to being conscious of one's stage on the journey and committed to continued learning and personal growth. This involves constant attention to motives and behavior, as well as how it transforms teams and organizations. CEOs must maintain a balance between self-confidence and mindfulness, and always be aware of one's own limitations.

Relational Orientation

Building a **relational** orientation requires learning new ways of listening and communicating with curiosity, humility, empathy and authenticity. These traits allow a CEO to cultivate a "first among equals" relationship with their board and teams, expanding both their self- and organizational awareness by inviting inspiration and insights from diverse perspectives.

But it is also one of the most challenging aspects for CEOs to get right. When we asked 972 CEOs to reflect on the Achilles' heels their teams had alerted them to, by far the most common issue was their capacity to relate to others effectively and authentically.[30] Which in turn makes it harder for them to inspire their people and lift the collective ambition of their organizations. Admittedly, 80 percent of CEOs reported that they face challenges in pacing change, focusing their teams, and bringing people along with them.[31] Again, the key to unlocking this conundrum lies within: it requires honest self-examination of a CEO's approach to leadership.

A relational approach must extend beyond a company's conventional stakeholders. Mining CEOs should seek out new and uncommon alliances across organizations and sectors, seeing these entities as value creators and pillars of collective strength, offering new opportunities and unique points of view to enrich institutional judgement. Undeniably, commitment to a relational orientation is challenging. Relational CEOs must be perceptive enough to sense which relationships can benefit their business and broadly promote prosperity, and then astute enough to realize these advantages.

30 *It Starts with the CEO*, Egon Zehnder, September 2021
31 Ibid

Adaptive Capacities

In an era of rapid transitions, CEOs need to be **adaptive** to never-before levels of complexity and scrutiny and deal with all the divergent views out there. These challenges underscore the need for a CEO to approach solutions creatively and with great wisdom. In doing so, they discern and create the most compelling choices for how the business can provide new sources of value, now and in the future. Truly adaptive CEOs understand that they no longer can display behaviors that are harmful to their – and the company's – advancement. They take a stand to balance priorities that are skewed toward the short-term. They acknowledge the risk of fragmented focus, and they apply their energy into what matters most: building a future of prosperity for more of their stakeholders.

These CEOs, especially if relational and self-aware, will use their unique vantage, enriched by insight from their team and stakeholders, to grasp genuine opportunities, as well as to meet or bypass challenges. They will recognize that apparent polarities between people and profit, if synthesized creatively, can be engines of value instead of problems to be solved. And they will travel the tricky adaptive path from old to new models of operation, inspiring their organizations and navigating them through the transition.

Until now, most business leaders have invested too little attention and intention on this interlinked trio of capacities. Yet these capacities are fundamental elements of every human being's ability to function effectively in challenging environments. By tapping into their self-aware, relational and adaptive capacities, CEOs unlock a higher level of leadership. They open the aperture to new possibilities, create new clarity of purpose and generate energy for change and renewal. In essence, these capacities buttress leaders to transform themselves to transform the business.

Distributing Leadership: Everyone's a CEO

CEOs are navigating a tempestuous terrain with added layers of complexity, challenges, uncertainty and information influx. Solely relying on their own experience and the facts and analyses presented to them is no longer sufficient when it comes to being assertive. To build opinions and make sound decisions, today's CEOs need new skills, including those that require them to come out from behind their desks.

We propose that CEOs to lean into a more distributed way of leadership to better operate in this state of ambiguity. One that demands less leading from the front, and more trust and relationship-building across hierarchical levels. Through distributing leadership, CEOs not only encourage adaptable, lateral relationships between people and teams, but also foster development among their teams.

To build a distributed leadership approach, CEOs should choose members of their executive team to create an ecosystem of leaders. These top executives, in turn, can tap into their unique strengths and skills to untangle complex problems, anticipate risk and innovate collectively, creating a much stronger, diverse and capable force. In this realm, appointing a Chief Sustainability Officer (CSO) will help focus the leadership team, but each executive committee member must nonetheless be accountable to the CEO for integrating the company's sustainability strategy into the core business areas they respectively lead.

In our previous report released in 2020, **From Risk to Reward**, we discussed the merits of hiring a CSO and some of the broad responsibilities of the role to move organizations beyond compliance, focusing on performance, risk management and social acceptance. Since then, we have witnessed encouraging actions taken by mining companies to appoint a CSO, or an equivalent. Unfortunately, we have also noticed that many of these individuals are brought in with no clear mandate from the CEO, which could ultimately set them up for failure. In our experience, the CSOs that are most successful in their roles have the following elements in place:

- **A clear mandate set by the CEO and board** on driving sustainability across all dimensions with clarity on how this role interfaces with operations, investor relations, and external communications and reporting.
- **Greater emphasis on doing good –** A recent article by INSEAD Knowledge highlights a study on the importance of appointing a CSO to monitor and identify areas of concern and action. However, it also points out that "the CSO and other top executives as well as members of sustainability board committees (in our study) betrayed a negativity bias, that all-too-human tendency to fixate on negative experiences or factors rather than positive ones."[32]
- **Support and buy-in from the entire executive leadership team**, whose KPIs are linked to key sustainability measures for their area. The responsibility remains with each executive committee member to integrate and implement the sustainability strategy within their respective business areas.
- **Buy-in from the wider organization**, which has committed emotionally to become more sustainable and is driving this transformation through the most effective actions at all levels.

For Newmont, appointing a CSO was the starting point for creating the business structures that allowed the company to fully develop its commitment to sustainability. Goldberg explains: "*When I became CEO, the sustainability function was not formally structured, and it lacked clarity in terms of who it should report to and how important it was. So, we brought in Elaine Dorward-King, whom I had previously worked with at Rio Tinto, to lead Sustainability and External Relations as part of Newmont's Executive Leadership Team. She was passionate and outspoken about sustainability, credibly representing Newmont externally, which was an essential piece of Newmont's transition.*"

Goldberg adds that training sessions to embed sustainability organization wide were led mostly by the executive team. *"It really goes a long way when employees hear from the senior leaders about what's important. And when you have the CEO or CFO talking about what sustainable development means, lightbulbs start to go off that this isn't just something you can hand off to somebody else to do – it's important for the business, and it's important for everyone."*

Leading by Example

During the past 18 months, we have seen mining companies take more deliberate steps to embed sustainability into the fabric of their organizations. Some leading practices include:

- **The leadership team believing in and visibly leading** by the company's sustainability values. At BHP, Henry explains, *"We are focused on understanding what are the opportunities for us to create more value in its broadest sense for our stakeholders. We are becoming more effective in how we incorporate that 'sensing of our environment' into the company's direction-setting and decision-making activities. This has meant (1.) making it a priority for leaders, (2.) encouraging leaders to create the time to be out there doing it, and (3.) creating internal forums and processes for coming together as a team and synthesizing what we're sensing and then building that into our key decisions."*
- **Broadening executive pay links** beyond health and safety performance to business sustainability objectives and measurable criteria, incorporating these into both short- and long-term incentives. To strengthen governance and increase accountability, Vale has adjusted Executive Board compensation to include a greater proportion of variable long-term compensation (~68%) and non-financial metrics (~55%). In this regard, Vale has also adopted clawback and malus clauses based on feedback from its engagement program with investors and society. Malus and clawback provisions allow the Board to reduce or cancel a senior executive's bonus or share award before it has been paid out, under certain conditions.[33]

32 "How to Make the Most of a Chief Sustainability Officer," INSEAD Knowledge, 18 August 2020

33 "Governance Webinar: AGM 2021", Vale, 26 March 2021

- **Working with Human Resources to determine the benchmark** competencies and behaviors needed to drive a sustainability-centric transformation organization wide and hiring and rewarding employees accordingly. *"During the past year, leaders for each of our assets have had to devise a social value plan as an integral part of BHP's annual planning process. This means engaging broadly and systematically with stakeholders, determining their interests, and the opportunities for us to be more effective in how we incorporate that into decision-making. This has meant creating internal forums and processes for coming together as a team and synthesizing what we're sensing in our environment and then building that into our key decisions,"* Henry shares.
- **Leadership teams stepping up as change agents,** driving cultural transformation that embeds sustainability values into the fabric of the organization. (More on culture in the next chapter.)

Leading by example is critical according to Sandström. *"I think it is absolutely essential to show that you are accelerating purpose – making sure everyone walks in the same direction and ensuring that your purpose visibly permeates just about everything that your leadership does. This will build trust among key stakeholders, create stability and support, as companies pivot to meet future challenges. In a fast-changing stakeholder landscape the industry must re-think and re-visit the way it operates and engages with for example, investors and regulators, and enhances decarbonization, responsible sourcing, circularity, workforce responsibility, local community impact and sustainable finance."*

Seeing this empowers employees to bring change within their own area, enabling the organization to identify, validate and implement truly innovative ideas for current and future sustainable business models.

Unlocking Sustainable Impact through Collaboration

There is no denying that mining companies are part of a much broader sphere of stakeholders and external forces. Linkages among these various market actors can impact the performance of the organization, requiring the CEO to fundamentally understand all the dynamics at play, such as the formality of relationships, market power and influence, as well as levels of trust within the community. *"You really need to challenge this through a multi-stakeholder prism and through collaboration and co-creating solutions with your key stakeholders, communities, policy makers and investors. Embracing stakeholder leadership is something that the industry must really do right away and in the right way. Looking ahead, you cannot afford to drive a transformation or transition strategy without, for example, applying a proper community perspective,"* Sandström argues.

CEOs are in the pilot's seat of their companies, and they need a bird's eye view on this multi-stakeholder terrain. To lead effectively toward their sustainability goals, they need to understand human-centered design and engage key stakeholders with empathy. They need to embrace an iterative process while also committing to granting the most-affected parties a seat at the table as co-creators. They must be able to address critical power dynamics, ensuring that all stakeholders engage with and buy into the co-designed solution.

Ultimately, achieving success demands a forward-looking mindset. Egon Zehnder's report *It Starts with the CEO* sheds light on this concept, explaining that these leaders are the ones "looking beyond traditional markers of performance and putting increasing focus on game-changing innovation, longer-term growth, and broader stakeholder interests." The CEOs who display curiosity and explore potential answers in creative places will be better equipped to succeed. Only leaders with an extraordinary appetite and capacity to keep learning and expanding their capabilities will keep pace with evolving demands.

Meaningful Participation to Scale Impact

So how can the participatory process be truly meaningful? It starts with transparency, commitment and accountability. Inclusiveness and representation are also paramount: Every voice must be equally represented in the room. A good example of multi-stakeholder governance is the Initiative for Responsible Mining Assurance (IRMA). The IRMA standard offers the only independent third-party certification of industrial-scale mine sites, covers all mined materials, and unlike trade associations it is not industry-owned. Boulanger explains, *"IRMA is the only voluntary initiative related to industrial-scale mining, which is equitably led by NGOs, labor unions, and mining-affected communities working alongside the mining industry and purchasers."* She adds that *"there will now be a sixth house – the first time a house of leadership has been added since IRMA's founding 14 years ago – for the finance and investment sector."*

Another important model is public-private partnerships. Mining companies are increasingly taking a more holistic approach to their role in fostering large-scale impact alongside other businesses, and local and national governments in less developed regions. Keeping alignment throughout the process requires a clear strategy and sustained action toward a joint vision. Achieving that sense of unity in these collaborations, which are not sectorally bound, warrants a high degree of agency and compassion. That means focusing on the needs of *others* with empathy and curiosity for fair plan of action that everyone agrees to. These cross-sector collaborations leverage differences (in resources, experience, demographics, industry, and sector) as an asset rather than a disadvantage. Diverse perspectives on key areas, such as risk assessment, time, and scale also add tremendous value to the process. CEOs must recognize that the most sustainable solutions will come from designing with (and not just for) the most affected communities.[34]

In short, cross-collaboration, multi-stakeholder participation and multilevel cooperation are invaluable tools for mining CEOs who recognize the strategic importance of convening all relevant actors that live beyond a company's gates. *"It takes that CEO leadership and involvement in some of these groups that aren't just focused internally. This has been helpful for me and for the businesses I've been involved in because you get connected with others,"* Goldberg says.

34 "Cross Sector Leadership: Approaches to Solve Problems at the Scale at Which They Exist," Stanford Social Innovation Review, Winter 2018

Connecting the Dots to Deliver Systemic Change

For effective and transformative collaboration, companies should develop contacts, connections and feelers outside of the organization and beyond its immediate network. Below, we outline four key actions that CEOs and their leadership teams can take to connect different sectors, organizations and people in a market system:

- **Be a connector**: Identify collaborative opportunities for creating shared value; bring the right actors and talent to those opportunities; and guide the process decisively without trying to overpower collective action efforts.
- **Engage the periphery:** Include different market actors and diversity representation for breadth of perspectives and to limit the concentration of power. This balances systemic biases – such as group loyalty, authority and cultural norms – that influence behavior by sending signals, which either reinforce or push back on certain actions.
- **Manage the politics:** Very often ideas may not get valued due to "turf wars"; decision-making may also be hampered by information asymmetries, creating or deepening the lack of trust between different entities and leading to a gridlock.
- **Show a strong hand:** Collaboration doesn't mean consensus on everything, which is detrimental to an innovative, collaborative process. As a leader, you must know when to step back and when to intervene. It is also essential that people are clear about their respective areas of focus and on who has the final decision-making rights.[35]

Collaborative leadership skills are essential for learning, trust-building and empowered action among stakeholders who share a common goal. This is essential to catalyze, enable and support the process of systemic change, particularly for CEOs who genuinely wish to tackle the multi-dimensional challenges underlying the SDGs.[36]

Take for instance, how swiftly the industry responded to COVID-19, Nelson says, *"Many parts of the system have actually come together really effectively. It's an interesting example of systems leadership in action right now because state and local governments, national governments, healthcare providers and mining companies have been working together to try and contain the pandemic."* Adding that, *"health systems are particularly weak in many countries where mining companies operate. And I've heard a lot of mining companies talking about how they can work with others to strengthen the local health system. This includes partnerships with local hospitals to provide medical supplies and community donation programs. Looking ahead, we also need to be thinking about what lessons can we learn from this public health crisis and what more could be done to strengthen health systems."*

35 "Leadership: Are you connecting and collaborating?" INSEAD Knowledge, 27 July 2011
36 *Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change*, Harvard Kennedy School, September 2019

Systems leadership is key to advancing SDG progress

Sustainable Development Goals

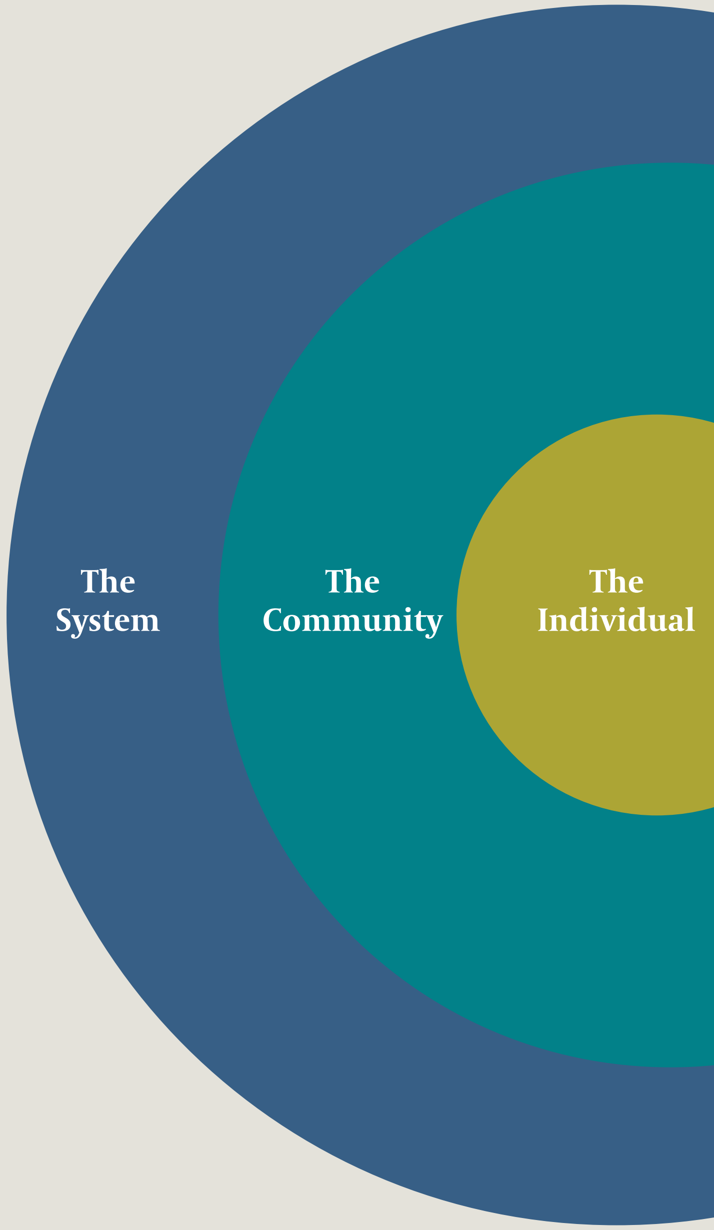
Sustainability challenges are large, complex and interconnected, affecting the whole-of-society: politics, economy, people, and culture. These challenges require a systemic approach that is multi-level and multi-faceted.

Collaboration, Engagement, Diversity & Inclusion

Systemic change requires an ambitious, holistic approach to leverage the power of networks toward shared goals. It encompasses coordination at the global, regional, national, and local levels; and between countries, sectors, organizations, and individuals. It also demands a relational focus to address inequalities and create collaborative, diverse spaces where everyone has a voice, facilitating dialogue and potentially leading to consensus.

Systems Leaders

These humble, attentive leaders can engage stakeholders with highly divergent priorities and views, ensuring people think systemically rather than individually. They create systemic transformation through subject expertise, strategy development, program management, and coalition-building rather than occupying the spotlight themselves.



Source: *Egon Zehnder analysis; Adapted from "Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change" Harvard Kennedy School, September 2019*

The Power of Listening and Uncompromising Transparency

With sustainability transformations happening now, CEOs are dealing with multilevel systems that are nonlinear, dynamic, interconnected and influence larger wholes. Building trust among investors, communities, NGOs, governments and competing businesses is challenging, but highly rewarding. While there are no formal, written rules to do so, CEOs and their leadership teams must engage with external actors in a frequent and structured manner to create an atmosphere of trust and coordinate mutual objectives. Constant communication, transparency to the greatest extent possible, and consistent follow-through on commitments can even overcome long-standing suspicions. Communication and transparency also foster legitimacy, momentum and learning.[37]

According to Boulanger, transparency will inevitably become the norm in the mining sector. *"Right now, mining companies can offer a more realistic assessment of impacts, rather than claiming that all mines are 5-star or AAA performers. It's time for more accurate communications with the world, acknowledging that these are materials much of the world uses every day; the extraction comes with significant impacts; and each of us using these materials is complicit. Mining companies can share their commitment to reduce harm and be transparent about impacts. They can set up systems to receive feedback from civil society and labor—and make it safe for honest input to be given—and reward innovation to better protect environmental and social values. They can be specific about the ways they will make improvements to protect regional communities, landscapes and actively plan for post mining use. They can address the range of critical issues that impact a climate-stressed world—because it's not only about carbon emissions or child labor, but also fragile water resources, long term impacts of mine waste, health and safety. The world already knows that mining comes with significant impacts—what they want to see is greater honesty about the types of impacts, and what a company is doing to reduce harm in legacy mines; prevent new harm in expansions and new construction; and better share value with workers and surrounding communities."*

From an investor standpoint, Foster adds, *"Mining companies are getting more and more information out to the public because they have to, but that's a good thing. The more they communicate publicly—not just inside our industry but more broadly—the better it will reflect on the industry and maybe start to change perceptions."*

Additionally, Woods believes that transparency is essential to ensure that the entire organization performs consistently around sustainability. *"Transparency is incredibly important not only for external stakeholders, but also for your company internally. People in companies should know about what is actually happening, because that's where a major blockage lies. Often people just simply don't know—and we forget that these are very large companies operating across many different jurisdictions. So, transparency isn't only about the outside world. By letting the outside world know, you make it more likely that someone in your own company, in a different jurisdiction, will find out. This highlights the importance of companies publishing—whether it's about how much water they're using, or their carbon emissions—things that the world can verify, because it helps their own people to do a better job."*

37 "The Ecosystem of Shared Value," Harvard Business Review, October 2016 Issue

Moreover, incorporating sustainability into the company's DNA requires change at scale, and there needs to be buy-in across the company. This is where organizations can rely on collaboration across traditional siloes to leverage systems thinking – understanding how interrelated parts of a system intersect can result in holistic solutions. These solutions can serve both the company and its broader external context. Internally, they can help meet both business-wide goals and department-specific needs. Externally, they can contribute to global SDGs and meet local, place-based needs.

In addition, because market forces are ever-changing, companies should adapt their course of action based on learnings from data and feedback collected both internally and externally.

Action That Truly Reflects Core Values

Investors, employees and customers have high expectations from mining companies to play a more visible role in addressing systemic sustainability challenges – and doing so with transparency, compassion and authenticity. *"The industry should be changing the narrative by showing that it is deeply committed to compliance and risk management, and to improving its impact on people and the planet, while also being really intentional about creating shared value and helping address broader systems challenges,"* Nelson outlines.

Correspondingly, CEOs are increasingly assuming the mantle of public leadership by driving purpose-led company strategies and taking overt stands on important, sometimes divisive social issues. This signals a decisive shift toward tying corporate strategy to social ends and, importantly, enhancing financial performance at the same time.[38] A change that is both humane and economically sound; profit and purpose are no longer believed to be at odds.

Purpose-driven leadership is the ability to connect the organization's direction, purpose and values to a long-term mandate of creating shared value. This implies recognizing common humanity and essential connectedness. CEOs who espouse these principles need to truly live up to this and back it with real and lasting actions.

From an investor standpoint, Matthews gives the example of Anglo American's approach to better understanding their local engagements. "*The CEO of Anglo American actively understands that they have a very important relationship with society and knows how to connect with this. There's still a long way to go, but they have a good perspective. For instance, recognizing that the communities they operate in have a presence of the church – be that Catholic, or be that Anglican – or other faiths. That lends them to an openness to dialogue, which is very different from their standard operation that we see in other* places."

Establishing a deep partnership with the broader community is similarly paramount for Goldberg. *"I look at it as a community member might by putting myself in their shoes and reflecting on whether they are being treated fairly – are we being sensitive to their needs? How you leave things at the end ultimately goes back to mine reclamation and rehabilitation– are we leaving people better than they were when we started? That is important."*

38 "New Captains of Consciousness: Infusing CEO Leadership with Social Responsibility and Accountability," Egon Zehnder, July 2019

Establish an external feedback loop to address complex, systemic challenges

Systems Leadership

Systems leadership is a set of skills and capacities that any individual or organization can use to catalyze, enable and support the process of systems-level change. It combines collaborative leadership, coalition-building and systems insight to mobilize innovation and action across a large, decentralized network.

Proactive Engagement

Employees; Contractors; Suppliers; Service Providers; Communities; Shareholders; Investors; Government; Regulators; Consumers; Rating Agencies; Nonprofits and other Civil Society Organizations

External Collaboration

JVs and Strategic Alliances; Industry Coalitions and Associations; Participation in multilateral initiatives for Sustainable Development; Supply Chain Partnerships; Cross-Sector and Cross-Border Collaboration; Public-Private Partnerships; Technology Partnerships with Scientific Institutions; Industry-Academia Tie-ups for Joint Research & Skills Development

Social Integration

Culturally sensitive, socially conscious and inclusive of diverse groups, including Gender; LGBTQ+; Ethnic; Nationality; Race; Age; and Cognitive diversity

Source: *Egon Zehnder analysis*

Community work is a critical piece of the sustainability puzzle and requires long-term commitment. Dorward-King underscores the importance of implementing it through a strategic lens. "*Let's go after it in the same way that we would go after building a new plant,*" *she says.* "*Let's be deliberate about what we intend to do here. Let's have a five-year plan – because you can't create change in a day* – but in three to five years you can create a strong *sustainability-led organization. You can start to report on material sustainability matters, measure related goals and objectives, adjust course if needed, and improve your transparency and reputation around that.*"

A Personal Journey – Self Growth for Effective Leadership

An organization cannot develop beyond its leader's stage of development. When CEOs ask for transformation toward sustainability, the work must begin with them. It is often necessary that they do transformative work on themselves, developing their own identity and purpose. Leading a transformation toward a sustainable future requires a strong personal conviction that it is the right thing to do.

This means that CEOs must leave their comfort zone, step out of the status quo and conditioning of many years, and understand that no one – not even the Chief Executive – has all the answers. This may entail working against old habits that fail to serve their new role and discovering the courage to embrace their vulnerability, look within, and ask for help.

According to Dhawan, "*The top behavior that determines whether a company will be a leader on sustainability is humility. The leaders who understand and recognize that they don't have all the answers—that others might have the answers, and we need to listen carefully and take issues on board—are the ones who are leading the thinking and practice in this area. And only through that can you start building trust with society and the investing public.*"

Many CEOs are highly focused on action – doing the right thing, at the right time, for the right people. But what comes first is their state of mind: of knowing how to be the CEO, not just doing the tasks expected of a CEO. From this strong foundation of self-awareness, self-assurance and personal conviction, a CEO can step forward to take his or her place as a meaning-maker and future-builder.

Goldberg shares his own personal journey, "*Growing up and living in the outdoors, I enjoyed camping, hunting, fishing and all those sorts of things. It really matters to me that we do what's right for the environment.*" He recalls, "*the term sustainable development first showed up on my radar back when I was working at Rio Tinto in the mid-to-late 90s. I didn't know what that meant, but I had an interesting position in London where I interacted externally with people in the UK who were just starting on this whole concept. This got me thinking about what it might mean for mining.*" He adds that "*Safety has always been the foundation for me personally. When you're out working on the front line, and someone gets injured in your work group, that's a very personal thing. Working to eliminate injuries is one of the things I've been involved in right from the start of my career. During my 40 years in the mining industry, I've seen the approach to safety change dramatically. It's great to see that mining is much safer now than it used to be, and this continues to improve.*"

Reflecting on community engagement, he shares, "*I've been involved with Mark Cutifani in the faith-based efforts, which was a different* *perspective for me personally. These are both people that we employ in operating regions and work with as part of our communities. They are also powerful investors. Faith-based groups have been very active and influential in terms of trying to raise the bar in mining. For instance, how the Church of England has weighed in on tailings issues. So, having that dialogue is important."*

Goldberg relates, *"after 30 years at Rio Tinto, a key decision criterion for me to join Newmont was their approach to safety and sustainability. Newmont had been involved with Rio Tinto in setting up the ICMM, so my predecessors at Newmont saw that this was the right direction to go. And the company already had a culture that was sensitive to safety and the environment."*

On becoming Newmont's CEO in March 2013, Goldberg recognized that he would need to 'set the tone' for prioritizing sustainability, so that others in the company could follow. *"It's about being clear on your purpose, mission and the strategy. I like to maintain a clear statement of what I am talking about. That makes a difference, and people pay attention to that."*

He acknowledges that tracking results and setting metrics assertively is a challenge, but this can be overcome with the right systems in place. *"As part of our corporate goal setting, we were conscious of the challenges around measuring sustainability efforts: some are easier and others harder to quantify, and that is always evolving. It is important to go down to what's actionable by individuals throughout the organization"* he states, adding that the company's culture was anchored by Newmont's commitment to sustainability, and accountability was instilled through annual performance assessments. *"We held ourselves accountable not just on the outcomes, but also on how we achieved them. And that was all part of the performance review process – are you living the values and how does what you're doing fit?"* By 2015, Newmont had emerged as the mining industry leader in overall sustainability according to the Dow Jones Sustainability World Index (DJSI).[39] Since then, Newmont has remained the top gold miner on the DJSI World Index for six consecutive years.[40]

39 "Newmont Ranked Mining Industry Leader by Dow Jones Sustainability World Index," Newmont Press Release, 10 September 2015

40 "Newmont Ranked as Top Gold Miner in the DJSI World Index for the Sixth Consecutive Year," Newmont Press Release, 19 November 2020

CEO Spotlight:
Mike Henry – BHP

How Mining Companies Can Create a Better World

When most people think about sustainability, they likely don't picture a mining site. But as the largest mining company in the world, BHP has a longstanding commitment to sustainability. The company focuses on environmental, social and governance (ESG) matters both internally and externally, enabling it to stand out as a company that wants to create value for all of the stakeholders it serves—from investors to local communities. We spoke with BHP CEO Mike Henry to learn how he's translated an internal focus on ESG into external value for BHP and what the future of ESG looks like in the mining industry.

Changing Perceptions: Mining's Impact Is Misunderstood

At first blush, many would write off the mining industry as bad for the environment and as an industry that doesn't care about ESG, but Henry says this is a misconception. *"I actually believe that mining companies have led many other sectors when it comes to ESG because of the nature of our industry,"* Henry says. *"I don't think there has been full recognition of that externally."*

While mining impacts land, water, biodiversity, communities and more, not every impact is negative, and some of the positive aspects go unnoticed. *"We can be doing some fantastic work in stimulating the wellbeing of communities that are located around our mine sites, but 99 percent of the world's population doesn't have the opportunity to see it or experience it,"* Henry explains.

A reason mining's positive contributions are often misunderstood is that there is not yet a set standard for objectively measuring ESG performance. Many mining companies strive to minimize their impact—reducing water usage or carbon emissions, and more. However, there are some that view any level of environmental disruption as harm. There are plenty of financial reporting metrics, but not yet an easily translatable method of tracking real impact.

Without standards to measure ESG performance, it is difficult for an objective assessment.

Embedding ESG at the Core

BHP embeds social value in the DNA of the business, which informs all decision-making. Henry emphasizes that the key is mutually beneficial outcomes for all stakeholders. *"To create value for one stakeholder group, we shouldn't have to sacrifice value for another,"* he explains. *"That joint prioritization creates tension that gives rise to creative and higher order solutions, which allow us to grow value for a broader range of stakeholders in parallel."*

Purpose and values are important. About two years ago, BHP shifted its purpose to "bringing people and resources together to create a better world." In addition to purpose, BHP's charter also focuses on sustainability, integrity, respect, performance, simplicity and accountability. All six of these values are critical to how the company executes on ESG matters.

The company also relies on external perspectives. *"We have a group, established 20 years ago, called Forum on Corporate Responsibility, which advises and challenges management on the direction of the company and some of the key decisions that we take."* Henry explains. *"It's comprised of people who are independent pre-eminent experts in different fields be it ethics, water stewardship, climate, indigenous affairs."*

Having these external leaders is helpful in enabling BHP to be challenged on how it makes decisions or to consider different perspectives. *"Even if we're known to be thinking very deeply and logically about things, there is always a different take"* Henry shares. The other point Henry underscores is that there is often no single "right" way of doing things. *"Because of the different vantage points on certain issues, or information asymmetry, people's beliefs around what is the right outcome can be very different,"* he says. *"We have to be hearing how they see things if we're going to come up with solutions that create the greatest possible value for the greatest possible number of stakeholders."*

There is also responsibility for ESG across BHP. *"One of the big shifts that has occurred for us is that ESG in its broadest sense has gone from being the domain of experts and specialist departments to being the accountability of every single individual across the company,"* Henry shares. This goes from employees on site, to managers of our assets, all the way up to the boardroom, with BHP's board members playing a major role in sustainability. While management is developing and driving the processes to support ESG, the board helps to ensure BHP is being thoughtful about shifting stakeholders' expectations and that management is doing what needs to be done to ensure that the company mitigates risk and also seeks to create opportunities for long-term value growth.

Translating an Internal Focus Externally

BHP has excelled at internally embracing ESG, and Henry has strived to take this focus externally as well. *"When you're running a big business, it is very easy for leaders to become insular and inwardly focused,"* he says. *"It's more important than ever that we be able to sense what's going on around us and incorporate that into our direction setting and decision making in the company."*

This external orientation is especially important, as there is ESG-related pressure is being felt "everywhere"—banks and investors, local communities and governments, the media and activists. *"What we're seeing in the mining industry is reflective of what we see playing out with broader society, where an undercurrent or concern can quickly become a movement that mobilizes,"* he explains. *"We have seen that play through in the MeToo movement, the Black Lives Matter movement and recently on indigenous cultural heritage and climate change."* The pace and reach of social movements are creating more expectations on companies.

These pressures are being felt across companies in the mining industry and have led to some cross collaboration—even with competitors. *"You could be the best performing company, but if you're the best company in what is perceived to be a bad bunch, because of the underperformance of a few, that's going to hold you back,"* Henry says. *"We have a shared interest in lifting standards of performance for the whole of the sector."*

CEO Spotlight:
Eduardo Bartolomeo – Vale

Out of Tragedy Springs a New ESG Focus

Eduardo Salles Bartolomeo became CEO of Vale S.A. in a tumultuous time. On the heels of the Brumadinho Dam collapse that killed 270 people, he stepped in as CEO. Two years later, Bartolomeo has been able to draw on lessons learned from that tragedy to redefine Vale's purpose and infuse leading environmental, social and governance (ESG) practices into the heart of the company. "Everything we do from here on out begins with the tragedy," Bartolomeo says. *"It forced us to look at things in a totally different way, inside and out. It was obvious that we had to do two resets—safety and sustainability."*

Safety was the immediate concern, and Vale created a new position—Safety & Operational Excellence Executive Officer—and introduced two new pillars into its strategy—Safety & Operational Excellence and Pact with Society. *"Our aim is to be the world-class benchmark for safety—we have measures of that that are not only in my long-term compensation but in my short-term compensation—to be safer, to be reliable, to be more people driven, and to be focused on the climate commitments we have,"* Bartolomeo says.

From here, company leaders had a candid discussion about what the vision should be for Vale. *"We asked ourselves, 'what do we want to achieve, what are the business imperatives, what do we need to change in our culture and behaviors and what should be the outcome,'"* Bartolomeo explains. This is how the vision for Vale was created, and Bartolomeo notes that it's a shared vision driven by a single key point: the legacy we want to leave. Bartolomeo says that it's about *"how safe we are, how predictable we are, how we treat our people, how we treat the environment and how we share value."*

Culture Change: Bringing the Vision to Life

To deliver on this vision, Vale was going to need a major culture shift. The company was hyper-focused on execution and didn't allow people to make mistakes. In addition, there was a company-wide sense that Vale was performing well (though the reality was there was room for improvement), which engendered a sense of egotism. *"That culture of arrogance, of not being able to fail, creates all these other problems, such as a culture of fear, you can't speak freely and you don't collaborate,"* Bartolomeo says.

To change the culture, the first issue to tackle was redefining performance, and this started with top leadership's compensation. An example that Bartolomeo shares is when Vale was working to comply with the Paris Agreement, an international treaty on climate change. To do that, the company needed to reduce 33 percent of scope 1 and 2 emissions. *"We created a Low Carbon Forum with everyone in the company and we said, 'We have no idea how* *we are going to do this,"* which made leadership a little humbler and more inspired to collaborate, Bartolomeo explains. And they were successful. *"We were the first company to tie our long-term compensation with our ESG goals,"* Bartolomeo says. *"Almost 60 percent of my remuneration is long-term, and 20 percent of that is related to ESG."*

Secondly, Vale needed to create an environment where people were willing to learn and collaborate. Bartolomeo stresses the importance of this, noting: *"We find that people don't want to understand that they are a part of the culture. That they were groomed there, and that I am part of the culture. If I don't transform myself, I won't transform Vale. So, we need to push people to change, and really make it possible to have a culture of learning together."*

The company also broke down some of the hierarchy internally to encourage more collaboration. *"We changed what we call ourselves – it used to be Executive Officers, now we call ourselves the Executive Committee,"* Bartolomeo shares. *"We changed our titles as part of becoming more approachable."*

Rebuilding Reputation

Mining companies, by the nature of their work, are often not held in high public regard when it comes to ESG, and the dam collapse further heightened negative perceptions about Vale. Bartolomeo contends that because of these negative views, it's even more critical for mining companies to focus on ESG. *"We are intrinsically an ESG company—we are not invited to go where we go, we go because that's where the ore is,"* he says. *"We are an extractive activity and we have to do that environmentally like an ace, be extremely involved in our communities and we have to have a high level of governance to not allow tragedies like Brumadinho to happen."*

He adds that Brumadinho made Vale even more conscious about its ESG impact. *"When you have loss of value, loss of faith, loss of trust, you know you have to be even better than the others because it's the only way out of Brumadinho,"* Bartolomeo says.

This has led to a greater effort to develop its territories, creating programs to foster local supply and local economic activities. *"We need to create independence in the surrounding communities by generating local capacity that can attract and be applied to other businesses as well,"* Bartolomeo notes.

COVID-19 also gave Vale an unexpected opportunity to help repair its reputation. Vale built numerous field hospitals and invested about R$500 million in COVID-related efforts across Brazil, Indonesia and Mozambique after asking the government how it could best help. *"This wouldn't have happened if Vale wasn't aware of the need to help, thanks to our New Pact With Society pillar,"* explains Bartolomeo.

Reshaping Vale's Future

Vale has made progress over the last few years as it embedded ESG into its culture and strategy, though there are likely still some challenges ahead. But the company's continued focus on collaboration, culture change and safety put it on the path to creating a better world. *"I really want to look at back five to six years from now and see this top-notch company that delivers and that protects people, it's well-respected and it's admired for the good reasons,"* Bartolomeo says.

Culture: Aligning Purpose, Strategy and Organizational Behavior

In our last paper on ESG in the mining industry, **From Risk to Reward**, we argued that "A culture of purpose should be core to the organization's strategy and effectively disseminated throughout the organization. Companies should create frameworks through which to navigate a clear purpose, which builds ESG directly into an organization's core strategy and business model."

In our section on "Leadership for a Sustainable Future", we illustrated how Vale and BHP embarked on their respective journeys of cultural transformation, and there are numerous other examples of mining companies that are seeking to effect culture change with a much greater emphasis on ESG. Not surprisingly, these changes are often initiated by a change in leadership. While Vale and BHP had different starting points, in both cases it was the respective CEO who commenced or re-invigorated this process of transformation and change, particularly with regard to driving an ESG and sustainability "consciousness" more assertively throughout the organization.

Developing a culture that is conducive to sustainable growth and prosperity demands a clear purpose as the underlying guidepost for employee behavior and a *raison d'être* for the company's existence more broadly.

While purpose provides the company with its core reason for being, culture are the **behaviors at scale** that will take it forward and give actual meaning to its purpose.

Christoph Lueneburger, our former Egon Zehnder colleague and leading thinker on cultures of purpose, defines purpose in the following way: "A purpose goes beyond profitable growth, shareholder value or any other measure of whether you are doing things right. A purpose, instead, is a pledge to do the right things. Audacious and bold, a purpose inspires a meaningful number of people to take action."[41]

If there is a misalignment between purpose and behaviors, then cynicism, mistrust and disengagement among employees and the broader public may result. On the other hand, when there is alignment, strong performance, employee retention and motivation are the most likely outcome.[42]

Although the concept of purpose has long been discussed among those passionate about sustainability, it entered the mainstream of management discourse only relatively recently. A critical moment in this regard was when Larry Fink, in his 2019 annual letter to CEOs, argued that "Purpose unifies management, employees, and communities. It drives ethical behavior and creates an essential check on actions that go against the best interests of stakeholders. Purpose guides culture, provides a framework for consistent decision-making, and, ultimately, helps sustain long-term financial returns for the shareholders of your company."[43]

41 "Interview: Christoph Lueneburger – How to develop a culture of purpose," Reuters Events, 10 June 2014

42 "Culture: 4 Keys to why it matters," McKinsey & Company, 2018; *Global Human Capital Trends*, Deloitte, 2019

Over the past years, we have seen numerous mining companies think deeply about and express eloquently their purpose. On BHP's purpose to "bring people and resources together to create a better world," Henry shares that *"part of this relates to the essential nature of the commodities we supply, for example, to the energy transition. And part of it is also about the way we operate, and through that, how we create more opportunity in local communities for small and medium sized businesses, make contributions to public revenues and so on."*

In 2017, Rio Tinto refreshed its purpose "to produce the materials essential to human progress". The same year, Anglo American reset its purpose to "re-imagining mining to improve people's lives." More recently, Vale stated its new purpose is "to improve life and transform the future – together. We believe mining is essential to the world's development. We only serve society when we generate prosperity for all and take care of the planet."

While not all mining companies demonstrate such bold ambitions in their purpose statements, the vast majority stress a deep appreciation of their responsibilities regarding society and the need to create a sustainable business that benefits all shareholders and stakeholders alike.

Aligning purpose with culture is perhaps the most critical and complex undertaking mining companies face to truly embed sustainability into their DNA and move ESG beyond compliance and risk mitigation – and create true commitment to sustainable business conduct. Yet it is also arguably the most critical challenge companies face in the next decade if they are to be successful. Research and experience have taught us that alignment of strategy, structure and culture—along with a clarity of purpose and values—are a powerful driver of company prosperity and success.

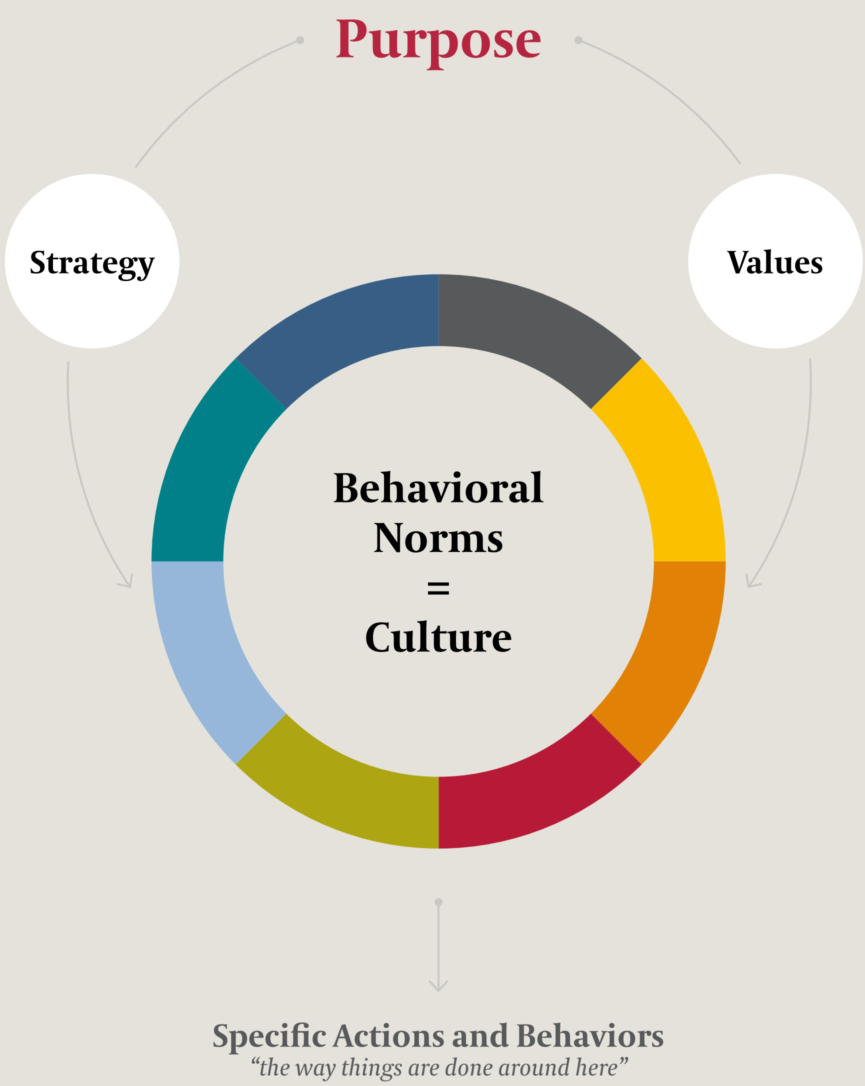
There is a clear correlation between organizational culture and a firm's performance. Therefore, understanding the organization's culture is a crucial starting point for any major company transformation—*what are the most characteristic behaviors currently?* This is followed by aligning and working towards a desired culture—*how desirable are the current behaviors for your ideal organization? Which behaviors should the organization focus on to drive greater alignment between strategy and culture?*

Bartolomeo strongly agrees that culture makes all the difference, and shares that this is a key area he and his team have been focusing on at Vale. *"We did a cultural diagnostic and this gave us hard evidence on what Vale's culture was, what is needed to change that culture, and which behaviors are either blocking or promoting that culture. Next, we started to measure our Environment, Social, and Governance gaps and began to see that we are far from everyone on each of those ESG pillars. But the most distance we had was in social."* Looking ahead, the aspired behaviors central to Vale's transformation include: obsession with safety and risk; open and transparent dialogue; empowerment with accountability; ownership for the whole; active listening and engaging with society.

43 "Larry Fink's 2019 Letter to CEOs: Profit & Purpose," BlackRock, 2019

How cultures relate to values, strategy, actions

Our stance on organizational culture



Demystifying Culture

We believe that organizational culture needs to move to the very top of CEOs' agendas if they are to be successful in truly embedding their companies' purpose and ESG practices deep into their employees' behaviors.

Yet to many, culture still feels like a "fluffy" and abstract concept. There is a need to make it more tangible, measurable and easy to understand. At Egon Zehnder, we have worked at the very heart of organizational culture over many years. There are numerous ways of describing organizational culture, but a simple definition is "the way things are done around here" or "behaviors at scale in an organization that are highly valued and widely held by employees."

Through our collaboration with Stanford Graduate School of Business Professor Charles O'Reilly, we have developed **Culture Profile**, a proven model that measures culture across eight behavioral norms, encompassing a total of 24 measurable behaviors. Our Culture Profile model makes it possible for companies to:

- Focus directly on a set of norms that are strategically important to the organization.
- Identify enablers and barriers to these norms.
- Understand the positive and negative implications ("polarities") of each cultural norm for the organization.
- Communicate desired behaviors in a more coherent and modern language using a common frame around culture.

Egon Zehnder Culture Profile – norms

Achieving
Results, performance, making the numbers

Thorough
Using analysis, details to drive decisions, manage day-to-day

Collaborative
Respecting each other, working together, wearing the 'company' hat

Principled
Focused on "doing the right thing"

Transparent
Information is shared freely, with open discussion across organization

Customer-centric
Actively seeking, internalizing, executing customer insights

Adaptable (innovative)
Creating new opportunities through exploration and adoption

Employee-oriented
People-orientation, fairness, respect for individuals and emphasis on personal growth

Source: Egon Zehnder Culture Profile

- Engage the senior team in how they are living or not living these.
- Diagnose and compare subcultures within the larger organization.
- Manage "patterns of behavior" as the company transforms its culture.

Culture Change and the Sustainability Agenda

Thinking of culture as behaviors allows companies to understand how much internal alignment exists on culture, as well as measure the current culture against the desired culture. This allows for a starting point to drive both culture change and culture alignment across the organization.

While it is beyond the scope of this paper to prescribe which type of culture is most conducive to embedding ESG practices within a mining company, or what type of culture should be espoused by organizations, it is important to highlight that there is no such a thing as a "right" or "wrong" culture—culture needs to align with the purpose of an organization, and when the purpose changes, companies need to ensure that culture is aligned accordingly. As a general rule, however, companies can "dial" up or down specific behaviors to achieve their purpose. These then need to be reinforced by relevant incentives and processes, such as performance measures, KPIs, recognition, trainings, communication, hiring practices, sanctions, etc.

Having supported numerous organizations with our Culture Profile, we have developed some core principles that we believe are critical for successful culture change:

1. **This is a leadership topic:** Leaders need to demystify culture and align on what they stand for before asking others to follow.
2. **There is no right or wrong culture:** Culture needs to align with the strategic intent of an organization. If your strategy changes, ask if your culture needs to evolve to achieve the new strategy.
3. **Role modelling becomes critical fuel:** Leaders are the biggest amplifiers!
4. **What you reward vs. what you don't is the biggest reinforcer of culture.**
5. **Who you hire, promote, or fire needs to be congruent with your desired cultur**e.
6. **Less is more**: Focus on the top two to three items that will be critical to achieving your vision culturally.
7. **Evolving core governance rituals can have the highest ROI:** But it is often the most overlooked.
8. **Working on a few "key symbols" builds momentum quickly** for transforming mindset and behavior.
9. **Change has to be agile – "sense and respond"** – intervene, see how system reacts, then refine.

Perhaps the most critical aspect to ensure that a particular culture is reinforced and has credibility is through creating "congruence" in the system (i.e., by creating consistency among behaviors and the various operating pillars within an organization). By "congruence" we describe the most important operational pillars of the desired operating system that support, reinforce and strengthen the desired behaviors/culture. This will ultimately become the nuts and bolts of the culture change initiative and the key enabler for success.

Hiring for sustainability is not enough – ESG board members, the CSO, sustainability experts – at best they will be champions who can role model desired behaviors, at worst the existing board and organization culture sets them up for failure. However, these leaders must uphold the idea that sustainability is important and inspire employees to want to actively be involved in caring for the planet.

Purpose
(why we exist)

↓

Values (what we stand for) — **Vision** (where we want to be) — **Strategy** (how do we achieve vision)

↓

Culture
(the way we do things in our organization to achieve purpose)

↓

Key operating 'pillars'

Leadership DNA, rolemodeling	Organizational hardware	Core rituals & processes	People capabilities	Key symbols & nudges
• Mindset & identity • Competencies • Sources of Energy	• Incentives & KPIs • Structure • Jobs/Roles	• Perf. mgmt • Budgeting & Strat. Planning • Talent reviews • Hiring	• Competency model • Learning and development	• Meaningful projects • Big initiatives

Stories:
Consistent internal and external narrative
(story on why we exist, how we operate)

Source: Egon Zehnder Culture Profile

Conclusion: Collectively Raising the Bar in ESG

For mining companies that want to chart a path of resilience, responsibility, financial success and positive impact, raising the bar on sustainability performance is an imperative. And doing so will take a strong vision and a collective effort, which some mining company leaders are already demonstrating—they can quickly and effectively come together to respond positively in critical turning points such as tailings management, COVID-19, and, most recently, the collective commitment to net zero GHG emissions by ICMM members.[44]

Now, with a renewed sense of urgency to act and lead the industry has an opportunity to leverage its collective strength to address sustainability challenges and deliver systemic change. This should be the industry's "North Star" and requires cross-sector collaboration, meaningful participation, and multi-level cooperation. These are the essential elements of a market system approach to scale impact and truly create shared value over the long term. Additionally, this approach can aid in reverting the historical negative perception of the industry, especially once mining companies begin to emerge as a "partner of choice" for governments and communities alike. In short, by harnessing its collective power and making a serious commitment to ESG, the entire mining industry and its stakeholders stand to benefit.

"The future of your industry is being shaped by forces on the outside. But companies should not think that they must find the solutions alone and keep everybody else out. The way of the future is to work with others and to be very open with others. It will solve problems quicker and it will build trust better," ICMM CEO Rohitesh Dhawan points out.

The mining industry is on the precipice of fundamental change, not least with the world's minerals-reliant energy transition gaining momentum. Adding to the challenge, times of great uncertainty, ambiguity and unprecedented business complexities call for CEOs who can chart a new path. As we examined in this report, industry leaders need to expand their capacity to be adaptive, relational and self-aware to lead effectively amid extenuating internal and external forces. Adopting a distributed leadership model is equally important for CEOs who strive to transform their companies into purpose-led businesses with a real commitment to ESG.

44 "ICMM makes landmark climate commitment to net zero by 2050 or sooner" ICMM Press Release, 5 October 2021

Because of its nature, the mining industry has its own set of challenges that play against an even more unpredictable landscape. But instead of focusing on managing *risk*, leaders should focus on the *opportunity*: the companies that will thrive in the future are those that genuinely commit to sustainable practices today. As Jörgen Sandström, Head of Energy - Industrial Transformation at the World Economic Forum, points out, embedding sustainability into the company's core is no longer optional: *"The SDGs are often referred to as the biggest purchasing order in the history of humankind. Step-by-step the world is phasing out hydrocarbons, greening all societies, industries and economies. We will thus need more minerals, metals, and materials than ever before for this transformation. As a result, sustainability as a strategy is moving from risk mitigation to an opportunity. Looking ahead, companies will need to transform their business models by making strong strategic links to sustainability. Companies must ensure that sustainability permeates everything they do, otherwise they risk being out of business in a few years' time. This hinges on the realization that your business depends on key stakeholder groups—including regulators, the financial sector, communities and end consumers—who increasingly want more responsibility and transparency."*

Another component that leaders should prioritize, as discussed in detail in this report, is a strong commitment to excellence in governance and transparency, which is essential for strengthening trust with society. In the 2021 Edelman Trust Barometer, business has (just barely) emerged as the only trusted institution globally underpinned by high expectations from society for companies to "focus on societal engagement with the same rigor, thoughtfulness, and energy used to deliver on profits." This expectation is evident, with 86 percent of respondents placing their hopes on CEOs to lead on societal issues, especially when government fails to act.[45]

In addition, the board plays a critical role in shaping how a company's sustainability agenda plays into the future of the business. Boards must build effective sustainability governance structures – a sustainability committee, much like an audit or risk committee, is important – but sustainability must be the responsibility of the full board. The mix of board skills and diversity is also expanding as mining companies realize the benefits of having different perspectives around the table. We are beginning to see a broader representation of skills from the wide-ranging ESG landscape; improvement in gender diversity; and greater representation of different stakeholder groups, including recent appointments of directors from mining-affected communities.

There is simply too much at stake for companies not to take action on ESG in the mining and metals industry. Companies and their entire ecosystems can no longer afford ESG-related incidents. They not only damage communities, company reputation and operating license, but also limit future career prospects of company leaders and diminish attractiveness to current and future employees. As such, it is of paramount importance for companies to challenge themselves relentlessly and continuously on their ESG performance. And while the work starts now, it should be an ongoing process.

45 "2021 Edelman Trust Barometer", Edelman Data & Intelligence

Adam Matthews, Chief Responsible Investment Officer at the Church of England Pensions Board argues that *"there is no end point on sustainability issues, it's a continuum. When a company thinks that they've got to that point where they completely understand an issue – we're the best, we've got this—you haven't. So, if you have that mindset, your company will demonstrate higher complacency, and consequently, higher risk of future ESG incidents."*

At the same time, companies can choose to use times of crisis as a catalyst for change, says Professor of Business and Public Policy at Oxford University, Karthik Ramanna. *"It usually takes an external event for culture change happen. Smart companies and leaders never let a crisis go wasted."* We are, for example, seeing this under Rio Tinto's new leadership post the Juukan Gorge cave blasts, and similarly under Vale's new leadership following the Brumadinho tragedy.

Our hope is that this report helps mining companies equip themselves with some essential principles and mechanisms for embedding sustainability at their core. It will take vision, commitment, and collaboration from leaders to put these concepts into action and define what works best for them. We suggest that companies embark on this journey in the spirit of actively listening to local communities, stakeholders and their own employees, while staying attuned to emerging technological trends and socio-economic upheavals. Without doubt it will be a challenging journey. However, if as an industry we continue to make consistent, courageous and collective progress on the ESG agenda, the way ahead may well lead to a prosperous and positive outcome for all: companies, people, and our planet.

Thought Partners' Bios

Eduardo Bartolomeo

Chief Executive Officer, Vale

Eduardo Bartolomeo has been Vale's CEO since 2019. A senior executive with solid experience in integrated bulk commodities operations, supply chain and business turnaround, Bartolomeo stands out for his ability to lead complex operations and establish a culture of operational excellence.

Before being appointed president of the company, Bartolomeo was executive director of Base Metals, in Canada, in 2018. His first tenure at Vale took place between 2004 and 2012, when he worked on the recognized executive board of Logistics Operations. Bartolomeo structured the logistics to support Vale's operations during the last super cycle and, in December 2010, led the creation of VLI, a general cargo transport company whose control was sold by Vale in 2014 for R$4.7 billion.

As Vale's CEO, Bartolomeo has prioritized people, safety and repair in Brumadinho. He introduced two new strategic pillars for the company (Safety and Operational Excellence and New Pact with Society) and began implementing a cultural transformation as part of a journey to make Vale one of the safest and most reliable mining companies in the world.

Aimee Boulanger

Executive Director, Initiative for Responsible Mining Assurance (IRMA)

Aimee Boulanger serves as executive director for the Initiative for Responsible Mining Assurance (IRMA). IRMA hosts the Standard for Responsible Mining, the shared definition of best practices in "responsible mining", developed over a decade by diverse stakeholders. The Standard is the globe's most comprehensive and rigorous definition of environmental and social responsibility in mining, and yet allows mines at any level of current performance to engage and show improvement over time. IRMA combines the Standard with an independent third party verification system measuring environmental and social performance of industrial scale mines against that Standard. IRMA is governed equitably by nonprofit NGOs, labor organizations, mining affected communities working alongside private sector mining companies and purchasers of mined materials.

Aimee has worked on mining issues for 25 years, with substantial experience in directly affected communities. In IRMA, her role is to guide an organization fully accountable to multistakeholder leadership – creating market value for more responsible business practices while ensuring credibility and accountability to all stakeholders. She has served IRMA's leadership since 2011.

Rohitesh Dhawan

Chief Executive Officer, International Council on Mining & Metals (ICMM)

Rohitesh Dhawan was appointed CEO of ICMM in April 2021. He is passionate about the transformative power of mining, particularly in emerging markets where he has spent two-thirds of his life. His career has been at the intersection of sustainability, resources and geopolitics and his prior roles have included managing director for Energy, Climate & Resources at Eurasia Group and Global Head of Sustainability for the Mining Sector at KPMG.

Ro is a fellow and faculty member of the Africa Leadership Initiative, a Raisina fellow at the Asian Forum on Global Governance, and a member of the advisory board of Concordia. He also serves on the expert panel on climate change for the UK government's Partnering for Accelerated Climate Transitions (PACT) programme and has been named one of South Africa's climate change leaders for his work with the country's mining industry. He is also chair of the board of trustees of the BecomingX Foundation, which strives to create a world in which all young people can realize their full potential.

He holds a Master of Science in Environmental Change & Management from the University of Oxford in the UK, and a Bachelor of Commerce in Economics from Rhodes University in South Africa.

Elaine Dorward-King

Non-Executive Director, Sibanye-Stillwater
Former Executive Vice President of ESG Strategy, Newmont Mining

Dr. Elaine Dorward-King has more than 25 years of leadership experience in creating and implementing sustainable development, safety, health, and environmental strategy and programs in the mining, chemical, and engineering consulting sectors. She is a non-executive director of Great Lakes Dredge and Dock (chair Safety, Environment and Sustainability Committee), Kenmare Resources plc (chair Sustainability Committee), NovaGold Resources, and Sibanye Stillwater Ltd. She is on the board of environmental economics non-profit Resources for the Future, on the advisory board for Digbee ESG, and is chair of the Dean's Leadership Council, College of Natural Sciences at Colorado State University. In 2020, she retired from Newmont Mining Corporation as the executive vice president of ESG Strategy. Prior to Newmont, she served as managing director of Richards Bay Minerals in South Africa, and global head of Health, Safety and Environment at Rio Tinto. She earned her Ph.D. in Analytical Chemistry from Colorado State University.

Joe Foster

Active Portfolio Manager, Gold Strategy, VanEck Securities

Joe Foster joined VanEck in 1996 as a precious metals mining analyst and has been portfolio manager for the VanEck Gold Strategy since 1998. He also serves as Strategist for the VanEck Global Resources Strategy. He covers gold mining equities ranging from small-cap exploration to senior producers. Mr. Foster also forecasts and monitors gold-related market conditions and models the asset bases of mining companies.

Mr. Foster is one of the most experienced investment managers in the field of gold and gold stocks portfolio management, with over 35 years of experience in the industry as a geologist and investment manager. He has over 14 years of dedicated experience in geology and mining. From 1992 to 1996, he was a senior geologist at Pinson Mining Company, where he managed an on-site geology department and conceived and implemented a comprehensive exploration program on a 35 square-mile land position. His primary responsibility was to find new gold reserves that could extend the life of the mine. In addition, Mr. Foster established an AutoCAD-based geologic information system that incorporated geological, geo-chemical, geophysical, topographic, and drilling data compiled over a 20-year period. From 1988 to 1992, as a mine exploration geologist, Mr. Foster planned and supervised up to 30,000 feet of exploration drilling per year. Prior to 1988, Mr. Foster was an exploration geologist with Lacana Gold Inc. in Reno, Nevada. Mr. Foster started his career in 1981 as a summer intern as a geologist for Atlas Mining, an underground uranium mine in Green River, Utah.

Mr. Foster received an MS in Geology from the Mackey School of Mines and an MBA from the University of Nevada-Reno. He graduated Magna Cum Laude with a BS in Geology from Tennessee Technological University. Mr. Foster has appeared in The Wall Street Journal, Financial Times, Barron's, The Wall Street Reporter, Reuters TV, CNBC, Fox News and Bloomberg TV. He has published articles in mining journals, including Mining Engineering, Society of Economic Geology, and Geological Society of Nevada.

Gary Goldberg

Non-Executive Director, BHP
Former CEO, Newmont Mining

Gary Goldberg has more than 40 years of global experience in the mining industry, including in executive, operational and strategic roles. He currently serves as a director for BHP, having most recently served as chief executive officer of Newmont, one of the world's largest gold producers. Prior to joining Newmont in 2011, Mr. Goldberg spent 30 years at Rio Tinto where he held senior executive roles, most recently as president and chief executive officer of Rio Tinto Minerals, and in leadership roles in Rio Tinto's coal, gold, copper and industrial minerals businesses. He also serves as a director for Project C.U.R.E. and a trustee for the Denver Area Council of the Boy Scouts of America.

Mike Henry

Chief Executive Officer, BHP

Mike Henry is chief executive officer of BHP, the world's largest diversified resources company. He has over 30 years of global experience in the global resources industry.

Mike is focused on creating exceptional value for shareholders and society through safely and sustainably meeting the world's growing needs for those commodities essential to improvement in the economic wellbeing of people globally and to enabling the world's decarbonization challenge.

Prior to being appointed CEO, Mike led BHP's Minerals business in Australia. He has been with BHP since 2003 and has held leadership roles spanning operational, commercial, and technical. He was President Coal from 2015-2016 and President HSE, Marketing and Technology from 2013-2014. Mike has been a member of the Executive Leadership Team since 2011. Prior to joining BHP, Mike worked in the resources industry in Canada, Japan and Australia.

Thought Partners' Bios

Anne Kabagambe

Non-Executive Director, Barrick Gold
Former Executive Director, The World Bank Group

Anne Kabagambe is a former executive director of the World Bank Group, where she served to represent the interests of 22 Sub-Saharan African countries*1. She currently sits on the board of Barrick Gold Corporation serving on the Audit & Risk Committee. While at the World Bank, Ms. Kabagambe was vice chair of the Development Effectiveness Committee, the Budget Committee and the Pension Benefits Committee. Ms. Kabagambe also co-chaired the World Bank Board's Gender Working Group and is a strong advocate for the advancement of women and a champion of diversity and inclusion. Ms. Kabagambe has served on the boards of the Africa American Institute (AAI) and the Junior Achievement (JA) Africa Group.

Joan MacNaughton, CB HonFEI (Lady Jeffrey)

Chair of the Climate Group
Non-Executive Director, En+ Group

Joan MacNaughton has played an influential part in global energy and climate policy for 20 years in government, business, the not-for-profit sector and academia. After working in government on strategic policy, regulation, parliamentary business, and managing large budgets (£bn's), she had a second career in business in the power sector.

She is currently the chair of the Climate Group; a non-executive director En+Group plc (chair, Health, Safety and Environment Committee); chair, International Advisory Board, New Energy Coalition of Europe; and a member of advisory boards for Engie UK plc, the Grantham Institute (at LSE/Imperial College), and the Joint Institute for Strategic Energy Analysis (at the National Renewable Energy Lab, USA).

Previous roles include founding board member, Powerful Women (initiative to enhance senior gender representation in energy companies), leading the mentoring programme on behalf of the board; chair of the World Energy Council annual assessment of countries' energy policies; (the 'Trilemma'); vice chair, UN High Level Panel on the Clean Development Mechanism of the Kyoto Protocol; chair of the International Energy Agency; and membership of several company, government and academic boards.

Adam Matthews

Chief Responsible Investment Officer, Church of England Pensions Board

Adam Matthews is the co-director of the Investment Team responsible for Ethics and Engagement for the Church of England Pensions Board; he is also the chair of the Transition Pathway Initiative (TPI) and a board member of the Institutional Investors Group on Climate Change, (IIGCC). He co-leads engagement with Royal Dutch Shell on behalf of the global investor engagement initiative, Climate Action 100+, that led to the 2018 joint statement on climate targets agreed between Shell and institutional investors and Shell's 2021 Net Zero Commitment.

Following the Brumadinho Tailings Dam disaster that killed 270 people in Brazil in January 2019, Adam set up and co-led the Mining and Tailings Safety Initiative with John Howchin, Secretary General of the Council on Ethics of the Swedish National Pension Funds. He also represents the UN backed Principles for Responsible Investment as a co–convenor of the Global Tailings Review that produced the first ever Global Tailings Standard. He is now working together with the UN and the Swedish Pension Funds to establish an independent global institute to implement the Standard and drive safety standards across the mining industry.

Adam founded the $24 trillion backed Transition Pathway Initiative (TPI) an asset owner-led and asset manager-supported global initiative which assess companies' preparedness for the transition to the low carbon economy (and publishes this through the London School of Economics). Adam is also the lead for the Church of England on the Mining and Faith Reflections Initiative (MFRI) a forum that convenes dialogues between mining company CEO's and Church leaders. Recently he set up and co-chairs with the Dutch fund APG the Paris Aligned Investing Initiative of the Institutional Investors Group on Climate Change (IIGCC) that produced the first global Net Zero Investment Framework for pension funds and investment managers.

Adam also served as a member of the Royal College of Physicians Investment advisory board and on the Pension and Lifetime Savings Association (PLSA) Stewardship Advisory Group.

Thought Partners' Bios

Jane Nelson

Independent Director, Newmont
Founding Director of the Corporate Responsibility Initiative, Harvard Kennedy School

Jane Nelson is the founding director of the Corporate Responsibility Initiative at the Kennedy School of Government at Harvard and a nonresident senior fellow in the Global Economy and Development program at Brookings. She serves on the boards of directors of Newmont and Chevron's Niger Delta Partnership Initiative, as an emeritus director of the World Environment Center, and on sustainability advisory councils for a variety of corporate, nonprofit and inter-governmental organizations. She is a commissioner on the Business Commission to Tackle Inequality and a member of the World Economic Forum's Stewardship Board for Shaping the Future of Food and the Forum's Global Future Council (GFC) on Transparency and Anti-Corruption. She was a director and senior advisor at The Prince of Wales International Business Leaders Forum from 1993 to 2013 and has been a senior associate with the Institute for Sustainability Leadership at Cambridge University. In 2001, she worked with the UN Global Compact in the office of the UN Secretary-General, Kofi Annan, preparing his report for the General Assembly on cooperation between the United Nations and the private sector. Prior to 1993, Nelson worked with the World Business Council for Sustainable Development in Africa, FUNDES in Latin America, and as a Vice President at Citibank for the bank's Financial Institutions Group in Asia, Europe and the Middle East. She has co-authored five books and over 100 publications on public-private partnerships and the role of business in sustainable development.

Karthik Ramanna

Professor of Business and Public Policy, Director of The Master of Public Policy, Blavatnik School of Government, University of Oxford

Karthik Ramanna is professor of Business and Public Policy at the Blavatnik School of Government, University of Oxford. An expert on business-government relations, sustainable capitalism, and corporate reporting and auditing, Professor Ramanna has studied how organizations build trust with stakeholders and the role of business in designing sensible and responsible "rules of the game." He has authored dozens of research articles and case studies on non-market strategies in Africa, China, the EU, India, and the US, and he has consulted with several leading business organizations worldwide, including Fidelity, KPMG, McKinsey, PwC, Sonae, and State Street. His scholarship has won numerous awards, including the Journal of Accounting & Economics Best Paper Prize and twice the international Case Centre's Outstanding Case-Writer prize, dubbed by the Financial Times "the business school Oscars."

Professor Ramanna is director of Oxford's Master of Public Policy programme, a flagship one-year degree for current and prospective leaders in government. He is faculty chair of the Transformational Leadership Fellowship, a bespoke, by-invitation, part-time programme for senior corporate executives considering a second career that can bring their strengths to address broader societal challenges. He also directs the Case Centre on Public Leadership at the Blavatnik School, and he is fellow and member of the finance and investment committees at St John's College.

Previously, Professor Ramanna taught leadership, corporate governance, and accounting at the Harvard Business School in both the MBA and senior executive-education programs. He has a doctorate from MIT's Sloan School of Management. He has served on the editorial boards of several scientific journals, including as co-editor of the interdisciplinary journal Accounting, Economics & Law.

He lives in Oxford with his husband, Jon, and they enjoy dinner parties and touring Caravaggios.

Jörgen Sandström

Head of Energy, Materials, Infrastructure Program - Industrial Transformation
World Economic Forum

Jörgen Sandström is head of Energy, Materials, Infrastructure Program - Industrial Transformation - at the World Economic Forum. He is the former head of Mining and Metals Industry community. The Forum's Mining & Metals Industry community consists of the world's leading mining and metals companies, representing a broad range of commodities and all regions. Jörgen has more than twenty years of experience working with energy and commodities as well as in diplomacy. From 2008 to 2016 he was executive officer of Addax Bioenergy SA leading a large bioenergy venture in Sierra Leone, West Africa. He was previously with the Swedish Ministry for Foreign Affairs with postings in Estonia, Russia, Switzerland, Kosovo and Afghanistan. He has degrees in economics, political science and international organizations from Uppsala University in Sweden and McGill University in Canada. He is married with two children and lives in Geneva.

Ngaire Woods

Non-Executive Director, Rio Tinto
Dean, Blavatnik School of Government, University of Oxford

Professor Ngaire Woods is the founding Dean of the Blavatnik School of Government and Professor of Global Economic Governance at Oxford University. Her research focuses on how to enhance the governance of organizations, the challenges of globalization, global development and the role of international institutions and global economic governance. She founded the Global Economic Governance Programme at Oxford University and co-founded (with Robert O. Keohane) the Oxford-Princeton Global Leaders Fellowship programme. She led the creation of the Blavatnik School of Government.

Ngaire Woods serves as a member of the Asian Infrastructure Investment Bank's International Advisory Panel and on the boards of the Mo Ibrahim Foundation and the Stephen A. Schwarzman Education Foundation. She is an Independent non-executive director at Rio Tinto. She sits on the advisory boards of the Centre for Global Development, the African Leadership Institute, the School of Management and Public Policy at Tsinghua University, and the Nelson Mandela School of Public Policy at Cape Town University. She is chair of the Harvard University Visiting Committee on International Engagement and a member of the Department for International Trade's Trade and Economy Panel. She is also an honorary governor of the Ditchley Foundation and is co-chair of the World Economic Forum Global Future Council on Frontier Risks.

How Egon Zehnder's Global Mining & Metals Network Can Help Your Business

Egon Zehnder's Mining & Metals Practice partners with all players in the industry — from leading public companies to global investors, industry associations and privately backed miners — to help them think through and successfully address their talent requirements and organizational makeup as the world around them continuously changes and poses new challenges and opportunities. What all our clients have in common are business challenges that require human answers. Because we are as global as the industry we serve, we naturally reach across borders and industries to find, assess and develop executives — who have the elusive mix of experience, competencies, and potential to excel and lead in this complex environment. The professional background and tenure of our cross-functional consulting and research team means that we know what it takes to be successful in this industry — and provides us with long-term relationships and invaluable access to candidates and industry intelligence.

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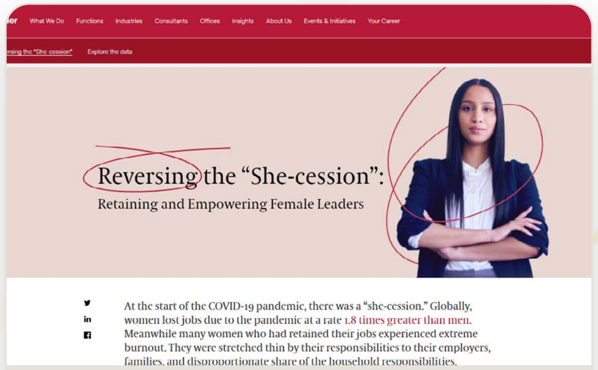
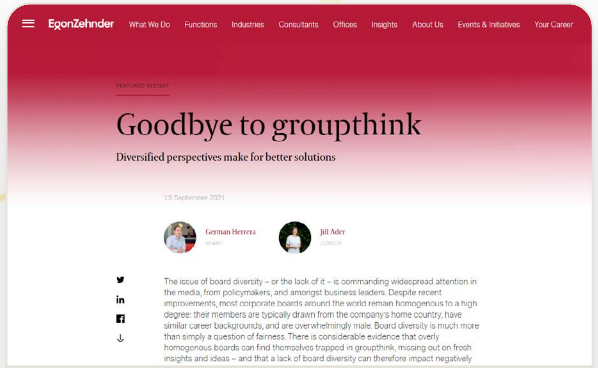
Explore our Leadership Insights

A Tale of Two Decades:
How Global Crises Have Changed CEO Succession in the Mining Industry

From Risk to Reward
How a focus on ESG is transforming the mining industry



Reversing the “She-cession”:
Retaining and Empowering Female Leaders



Goodbye to groupthink
Diversified perspectives make for better solutions

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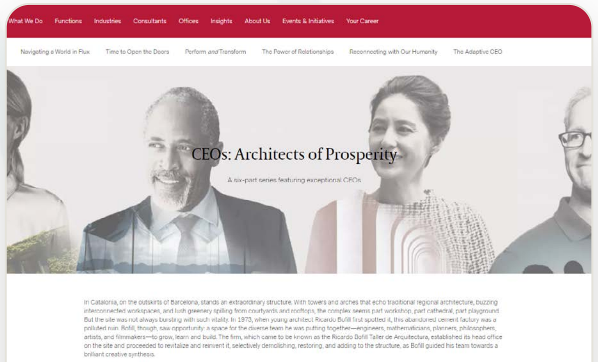

CEOs: Architects of Prosperity
A six-part series featuring exceptional CEOs

Who's Really on Board?
Diversity is finally front and center

Egon Zehnder Snapshot on a sustainability study of European Boards

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About Egon Zehnder

Egon Zehnder is the world's preeminent leadership advisory firm, inspiring leaders to navigate complex questions with human answers. We help organizations get to the heart of their leadership challenges and offer honest feedback and insights to help leaders realize their true being and purpose.

We are built on a foundation that supports partnership in the truest sense of the word and aligns our interests with the interests of our clients. Our 525 consultants across 63 offices and 37 countries are former industry and functional leaders who collaborate seamlessly across geographies, industries and functions to deliver the full power of the Firm to every client, every time.

We partner closely with public and private corporations, family-owned enterprises, and non-profit and government agencies to provide a comprehensive range of integrated services, including executive search, leadership solutions, CEO search and succession, board advisory and diversity, equity & inclusion. Our leadership solutions cover individual, team and organizational effectiveness, development and cultural transformation. We work with world-class partners including Mobius Executive Leadership, a transformational leadership development firm. In addition, we have partnered with Paradox Strategies, co-founded by Harvard University Professor Linda Hill, to develop the Innovation Quotient (IQ), a proprietary culture diagnostic.

We believe that together we can transform people, organizations and the world through leadership.

For more information visit **www.egonzehnder.com** and follow us on **LinkedIn**, **Twitter**, and **Instagram**.