Before I get into the substance of my presentation, I want to firstly say a sincere thank you to the conference organisers of Life of Mine 2021 for inviting me to give this keynote. I welcome the opportunity to take a reflective look at what is happening in our sector. So thank you for the invitation – and hopefully you won’t regret it. The first quarter coincides with the Big four publishing their analyses of risks or trends facing the mining industry. Most of the issues they cover are relevant to the responsible production of metals and minerals, but how can mining companies think through the implications for their business? One approach is to look at these risks or trends not in isolation, but to consider how they manifest themselves through 10 forces shaping the future of the mining industry.

Before discussing the different categories of forces, my choice of words is not accidental. I use the term ‘forces shaping the future’ rather than risks or trends as I think the latter can sound quite ephemeral, whereas the forces I describe are more enduring, and typically span several years. I separate these forces into proximate and remote categories.

I also use the term ‘forces’ in the physical sense — where forces represent a push or pull upon an object (or body) resulting from its interaction with another object. In this analogy, mining companies represent the object or body that is common across all forces, whereas the objects or bodies in question for the forces vary. However, as in Newtonian physics, wherever there is an interaction between two objects or bodies, they exert forces upon each other. So, the forces I will be referring to in this presentation arise from the interactions between mining companies and external bodies – broadly defined.

But what distinguishes proximate from remote forces? The distinction is not solely based on physical separation or distance – although many of the remote forces often manifest themselves or play out remotely from the point where mining takes place, at national or global scales, whereas the proximate forces play out closer to the point of mining. However, the distinction has more to do with agency and influence. It’s based upon a combination of the capacity of companies to act...
Independently and to make their own free choices, coupled with their ability to influence how the forces involved in their interactions with other bodies play out.

This slide gives an overview of the forces. For the proximate forces, companies enjoy a much higher level of agency and influence, relative to the remote forces – which is not to say that effectively managing proximate forces is straightforward. However, it does mean that companies can proactively develop strategies to address them and make choices that materially influence how these forces play out. For example, companies can track, engage with, actively support, and determine how best to respond to technological forces such as automation or the availability of low carbon technologies. In contrast, the level of agency and influence companies enjoy when it comes to most of the more remote forces is considerably lower. This doesn’t mean that companies must fall back on being reactive. For most of them, there is still some capacity for companies to be proactive – but it may require different mindsets and approaches.

I offer two important caveats: firstly, to acknowledge that my articulation of the distinct forces and grouping them into proximate and remote categories is somewhat arbitrary. There are different ways of cutting this. Secondly, while I have presented 10 distinct forces in two categories, in practice, they don’t exist in isolation. The nexus and interplay between different proximate or remote forces is often what is most important – and I will return to this later on. For this reason, adopting effective strategies to navigate the forces that play out between mining companies and other bodies is as much an art as it is a science.

Starting with the proximate forces, the first set of forces are transactional – grounded in economic relationships based on exchanges of goods and services. The three transactional forces I want to briefly touch on involve customers, investors and contractors & service providers.

When I started working at ICMM in 2007, the mantra that ‘mining companies are price takers rather than price makers’ was prevalent. In other words, the competitive nature of the commodity markets is such that producers have no ability to influence market price. While that still holds true today, what is radically changing in the transactional relationships between mining companies and customers is the ability to influence market access. Customers are no longer solely concerned with price and quality – increasingly, they are also concerned about the provenance and means of production of mined materials.

The industry has responded by developing a range of initiatives that establish performance requirements for the responsible production of metals and minerals. Supply chain integrity concerns have been a significant driver, especially from consumer-facing companies in the automotive and electronic sectors. The ability to convincingly communicate to customers that you responsibly produce metals and minerals will be a differentiating factor for successful mining companies.

The transactional relationship with investors is also being transformed through the growing role of ESG factors in investment decision-making. Historically, company valuations were based on the core metrics of expected production volumes, costs, commodity prices, currency exchange rates, size of reserves and quality of management. Increasingly, the still evolutionary practice area of ESG is a material consideration. Mining
companies need to be able to engage their investors about ESG in a thoughtful manner. Otherwise the risk is that rating agencies define how potential investors regard their ESG risks - often in widely/wildly differing ways.

In part the changing transactional relationships with customers and investors motivated the development of ICMM’s Mining Principles – our strengthened membership requirements launched last year. They represent a credible benchmark of responsible mining that provide an effective response to these demands and enable members to legitimately reclaim ICMM’s position as a leadership organisation.

For contractors and service providers, the long-term trend is towards outsourcing many skills or services traditionally kept in-house as mining companies protect themselves from cycles of recruitment and retrenchment depending upon market conditions. But as companies rely more heavily on contractors and service providers, what impact does this have on company culture? And if culture is a function of shared goals, values and practices, how can companies retain a distinct culture when so much of the work of the business is being outsourced? And does this even matter? I believe it matters profoundly. I would argue that incidents like Juukan Gorge arise not just because of the loss of capacity or institutional memory, but from a lack of cultural continuity: company culture matters profoundly.

The second set of proximate forces are relational – my primary focus is on the interactions between mining companies and host communities, including indigenous peoples, as well as local and national government. Simply stated, companies should strive for constructive relationships in their interactions with these stakeholders. A few years ago, ICMM did some work to unpack what makes for supportive relationships with host communities, but the findings are just as applicable to governments. Rather than use ‘social license to operate’ as a starting point, our focus was on understanding the levels of community support that different stakeholders have for a project or operation at a given point in time. I prefer this dynamic concept of community support as something which may change over time, as opposed to the more static concept of a licence.

Community support is determined by four factors that reflect the quality of relationships between a company and its host community. These are: respect, transactional legitimacy, compatibility of interests and trust. These factors overlap and influence one another. To go a little deeper on just one - for a community or government to have a sense of transactional legitimacy, it must believe that the success of mining operations will benefit them in a way that is greater than the costs of a project’s development.

Increasingly, ICMM embraces the concept of social performance to reflect these relational forces: social performance is the outcome of a company’s engagement, activities and commitments that can directly and indirectly impact stakeholders or affect the quality of its relationships with them. Achieving excellence in social performance requires strong leadership, integrated management systems, and the capability and culture to identify, address and report social risks and impacts.

For mining companies, successfully managing social performance in a way that avoids harm, ensures respect for human rights, and contributes to thriving and resilient host communities is key to establishing and maintaining relationships of trust between companies and stakeholders for mutual benefit.
The third set of proximate forces concern employment. My primary focus here is on the evolving relationship between mining companies and their workforces. For some time, these have been characterised by challenges such as increasing diversity and inclusion, an ageing workforce – both evident from the image on this slide - debates over right-sizing the workforce and direct employment versus contracting, as well as the impacts of automation and technology on the future of work – which I will also return to under the separate proximate category of technological forces.

All these changes and challenges remain important. But they have been accelerated or exacerbated by the COVID-19 crisis – bringing with it changes to how we work and where, how workplaces and workforces are organised, and the employee-employer relationship. As of mid-2020, the ILO reported that 93 per cent of the world’s workforce were subject to some form of workplace closure measures to prevent the spread of coronavirus. Many older workers in the mining industry have had to shield, the cost to the global economy is still rising, and the pandemic has highlighted and exacerbated structural inequalities based on race, ethnicity, gender and wealth.

The World Economic Forum’s Future of Jobs Report 2020 states that over 80 per cent of global businesses are accelerating the digitization of work processes and providing more opportunities to work remotely, 50 per cent of global businesses have accelerated the automation of tasks – and 35 per cent are accelerating the implementation of reskilling and upskilling programmes. The automation and remote operation of haul trucks that Rio Tinto pioneered in the Pilbara in Western Australia is being adopted in locations as diverse as Freeport’s underground operations in Indonesia, where women without prior field-experience have successfully taken on operational roles – in an example of technology enabling greater diversity in the workplace.

Successfully navigating these diverse and challenging employment forces will not only ensure that companies attract the best pool of talent, but it will also enhance their resilience in times of crisis, such as the COVID-19 pandemic.

The fourth set of proximate forces relate to sustainability. This may seem counterintuitive as arguably all 10 forces link to sustainability. But the evolving nature of the issues that we traditionally view as linked to sustainability is also something that companies need to understand and be able to respond to. Two decades ago, companies mainly defined their issue boundaries as within their fence-line, in some cases with a degree of community paternalism. But companies typically self-identified as being apart from society. Today, companies regard themselves as a part of society and the boundaries of the issues they deal with have extended to embrace human rights, socio-economic development, climate adaptation and resilience, etc.

Two decades ago, governance was synonymous with corporate governance and generally related to board composition or efforts to combat corruption. For mining companies today, it also embraces matters related to executive remuneration, transparency of payments to governments, contract disclosure, beneficial ownership, and illicit financial flows.

Two decades ago, investor interest in issues relating to corporate responsibility was limited. Some niche ethical funds excluded mining stocks, but most analysts were not interested in ESG issues. Even with the
establishment of the UN-backed Principles for Responsible Investment in 2006, the initial focus was primarily on corporate governance. More recently, we see environmental factors playing a central role in the engagements between investors and mining companies. Climate has been the issue where investors have found their voice on environmental concerns – and come together as coalitions to effect meaningful change.

Not only do the issues under the umbrella of sustainability represent significant risks to companies if improperly managed, but they also often represent significant opportunities. They are the subject of increasing demands for information – which I will return to later. The key message here is for companies to have effective systems in place to understand, articulate and manage their sustainability risks and opportunities.

The fifth set of proximate forces are technological, with advances in digitisation and automation already progressing, coupled with advances in low carbon technology and in other areas. For example, EY and the Minerals Council of Australia did a piece of work last year that anticipates an overall improvement in mine productivity of 9–23 per cent as a result of digitisation and other technological innovations – if the digital technologies identified were implemented by 2030.

Technology and innovation will enable safer mining with an overall smaller environmental footprint and greater energy efficiency, leading to reduced GHG emissions. According to McKinsey’s MineLens Productivity Index, between 2004 and 2014 the industry experienced a seemingly inexorable decline in productivity of up to 10 per cent per annum - which was only reversed as a result of a sustained focus on reducing headcount and boosting labour productivity. In a future of declining ore grades, the application of technology and innovation is essential if we are to sustain productivity gains rather than losses.

Some of the key challenges relate to the employment prospects of local communities. As IGF’s thoughtful review of Technology Impacts from 2019 highlights, some jobs are more at risk than others – repetitive and manual work which falls to lower-paid, lower-skilled, and less-educated workers—are at risk of obsolescence, while higher-skilled jobs such as those linked to the analysis of data or remote centre operations will be created. There is a gender dimension to this. The IGF report concluded that men were more at risk than women – because men are primarily involved in physical and manual jobs, so that overall women will benefit from technology and innovation.

For companies, it’s not just important to stay abreast of and adopt technological innovation, it’s also about being mindful of and responsive to the unintended consequences of these changes. If respect, transactional legitimacy, compatibility of interests and trust are the threads that weave the fabric of community support for mining developments, advances in technology and innovation risk fraying that fabric.

As I mentioned earlier, the nexus and interplay between different proximate or remote forces is often what is most important. This holds true for technological and employment forces, whereby a singular focus on technology optimisation without consideration of the employment impacts or opportunities could result in very poor decision-making. Similarly, if the outcome of those decisions was to render a large number of local employees redundant, the impact on relational forces and the degree of community support that a company enjoys could be profoundly damaging. I also recognise that the boundary between transactional as opposed to
relational forces between companies and their investors, customers, and contractors and service providers are becoming blurred.

I will now shift from proximate to remote forces, with a brief reminder that for remote forces, the level of agency and influence companies enjoy is considerably lower than for proximate forces.

The sixth set of forces relate to the concept of planetary boundaries. First mooted by a group of scientists led by Johan Rockström at the Stockholm Resilience Centre in 2009, the concept identifies a set of nine earth system processes (or planetary boundaries) within which humanity can develop and thrive for generations to come. However, crossing these boundaries increases the risk of generating large-scale abrupt or irreversible changes.

On climate change, recent evidence suggests that now atmospheric CO2 levels have passed 390 ppm by volume, we have transgressed the planetary boundary. On biodiversity, the situation is arguably more acute. September saw the launch of two landmark reports on biodiversity which make for depressing reading and represent an urgent call to action. For example, the WWF’s Living Planet Report 2020 catalogues the continued decline of species globally, with an average 68 per cent decrease in population sizes of vertebrates between 1970 and 2016.

For mining companies, it is important to acknowledge that they will provide the metals and minerals to support the transition to a low carbon economy. However, the need for companies to be demonstrably responsive on climate change is already having a significant impact on businesses, especially as investors come together as coalitions to effect meaningful change. The Task Force on Climate Related Financial Disclosures and its final report in 2017 details how companies should transparently price climate-related risks in their allocation of capital and disclose this information to investors, lenders or insurance providers. That report marked a shift in investor concerns from an abstract sense of the impacts of climate change on companies they invest in, to the financial implications of climate risks for those companies, to the longer term impact on businesses of failing to fully address their own contribution to climate change. For mining companies, this is causing major shifts in strategy, policy and practice in terms of technology choices, pricing of climate risks, and being able to coherently articulate their preparedness for the transition to a low carbon economy.

The seventh set of forces arise from political instability – and how political instability can impact the demand for minerals and metals or your continued ability to supply them.

Demand for many metals and minerals is largely influenced by the health of the global economy, due to their widespread use in power generation and transmission, construction, equipment manufacturing and electronics. But in recent years, we have seen the intensity of export restrictions on metals and minerals increasing, which in turn affects the cost of products, introduces supply-chain uncertainties, and can lead to trade disputes. Notable examples include China’s successive restrictions on exports of rare earths, the USA’s import restrictions on steel and aluminium, as well as India’s recent import restrictions on copper and aluminium in September.

Supply challenges are often rooted in resource nationalism – an umbrella term that describes the
tendency of governments to exert increasing control over the natural resources that are found within their territories through fiscal or regulatory measures. This takes various forms – such as increasing taxes and royalties, mandating that government has equity participation, or an insistence on local level beneficiation (or value adding activities). There is often a cyclical and lagging dimension to this. As commodity prices increase, the host government can become increasingly disaffected about their share of the proceeds. But by the time they have put in place fiscal and regulatory measures to achieve a ‘fairer share’, commodity prices are often on a downward trend and the measures hurt inward investment.

For companies, some of the mitigation strategies to avoid being hostage to such forces are to ensure a clear understanding by all parties of the rights and obligations granted under concession agreements and associated licenses, engaging not just national but also local level government as well as local communities in the process – and approaching it with a view to striking deals that will be regarded as fair and more likely to endure.

The eighth set of forces relate to increasing demands for transparency and disclosure. Mining companies face a confusing set of demands for greater disclosure – driven by interest from investors, customers and a wider set of stakeholders. With investors, data demands may come directly or from research/ratings agencies (such as MSCI and Sustainalytics). The rating agencies collect ESG data across large numbers of sectors and companies, based on secondary research, supplemented by questionnaires targeting companies. It is acquired by investors to support their investment-decision-making process. However, this can result in large numbers of contradictory data requests to companies. Several of the listing exchanges have also introduced requirements for ESG disclosures. Just last week, an SEC sub-committee called for “a structured US response” on ESG disclosures, noting that investors now consider ESG information material regardless of whether their mandates include an ‘ESG-specific’ strategy.

Customers are also demanding greater transparency – and even more prevalent are the demands from consumer-facing companies, especially in the automobile and electronic industries. There is also a dynamic relationship between the demands from consumer-facing companies and the pressure they face from wider network of stakeholders and initiatives with a focus on responsible mining or ethical supply chains. For example, the Business & Human Rights Resource Centre has launched a tracker tool that lets investors and other stakeholders trace allegations made against mining companies. The Corporate Human Rights Benchmark – a collaborative effort between NGOs and Investors – releases an annual benchmark of the human rights performance of companies from a number of sectors including extractives. And the Responsible Mining Foundation issues a biennial Responsible Mining Index that rates the disclosure practices of mining companies against a broad array of metrics.

Many mining companies feel buffeted by the successive waves of disclosure demands they face. Companies in the mining sector need to be able to clearly articulate their material ESG risks, how these risks connect to their core business, and outline strategies to mitigate them. In addition, we see companies providing detailed issue specific reports – on climate, water, tailings or human rights, where the primary audience is often investors. So as disclosure demands have become more sophisticated, mining companies have had to respond.
The ninth set of forces concern Governance and specifically the locus of decision making for mining projects. Whereas governments at various levels self-identify as the arbiters of whether development should proceed, citizens are increasingly demanding a voice. They are challenging the legitimacy of an often remote – and sometimes absent government – in deciding whether and how development should proceed in their back yard. And some governments are responding. In 2015, Mongolia held a referendum by text message asking whether their country should develop more of its mineral resources or resort to austerity to support the faltering economy. In March 2017, after a sustained campaign by NGOs and grassroots organisations, lawmakers in El Salvador voted to prohibit all metal mining, making the country the first in the world to impose a nationwide ban on mining. And in Colombia in 2018, the Constitutional Court (the Supreme Court) overturned an earlier 2016 ruling that granted municipalities the right to regulate mining activity within their borders, after a series of local referenda (or “consulta popular”) brought a halt to planned mining projects.

These examples of shifts in the locus of decision-making are very challenging for mining companies. As mining is capital intensive and the location of ore bodies are fixed, it undermines the desire of companies to have a predictable and stable investment climate. By asking citizens to take a view on whether development ought to proceed (either for individual projects or the sector as a whole), states are effectively enabling their citizenry to exercise collective ownership rights which the state normally assumes. This connects closely to the tenth and final set of forces which relate to ownership of mineral resources.

States in most countries declare ownership of subsurface resources in the interest of all citizens. They consider it their sovereign right to determine whether and how resources can be developed. Communities often feel a degree of ownership of the resources that lie beneath their lands and expect a role in determining whether or how these resources should be developed. In the case of indigenous communities, this sense of ownership is intensified by historical dispossession and disadvantage. And companies who have acquired the rights to develop natural resources from the state, understandably feel some degree of ownership. Beyond this trio who have a clear and direct sense of ownership, the examples of engaging citizens in decision-making about resources development I mentioned under the last set of forces have significantly blurred the boundaries of ownership and decision-making around mineral resources.

As I mentioned earlier, the nexus and interplay between forces is important. For example, in my experience conflicts around mining projects are often rooted in the nexus between contested perspectives regarding the ownership of mineral resources and the locus of decision-making. Where unresolved tensions remain about either of these factors, there is a risk of conflict. There are also multiple other points of connection between remote forces – and between proximate and remote forces that time doesn’t allow me to explore.
To conclude, what should companies do in the face of these proximate and remote forces which are becoming increasingly complex? Perhaps the most important thing is to recognise that none of these forces are entirely beyond the control or reach of companies capacity to engage or influence. Companies can choose to either passively observe and react - or actively track, respond and sometimes harness.

These are the challenges that professionals within the modern mining industry have to navigate. And to all you professionals with a long-term interest in the life of mine from exploration through to post-closure and relinquishment, I hope that they offer some food for thought.

Thank you for listening.