



Tracking the trends 2022

Redefining mining

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Introduction

Redefining mining

What will successful mining and metals companies look like in a low-carbon, low-waste, purpose-driven future?

The beauty of this question is that there is no definitive answer. While the core objective of the mining industry remains unchanged going forward: to extract and provide metals and minerals to downstream sectors, many of the factors that have influenced how mining companies should look, feel, and act in the past, have shifted in recent years.

The way in which companies fulfil this mission is now open to interpretation. And today, there is a rare opportunity for leaders to reorganize, generate new value, and forge partnerships to create a more responsible and attractive future for the industry.

While some early movers saw the need for change coming 10, 15, even 20 years ago and have been redefining their organizations and operations accordingly, for many firms, the necessity for fundamental change only really hit home in 2020-21. The convergence of factors including the ongoing effects of the COVID-19 pandemic on the world of work, continued drive towards digitization, the growing need to integrate ESG commitments with central business functions, and the need to pivot in response to fast-moving business and operating environments, has opened many choices for companies.

Of course, the biggest underlying driver and opportunity for transformation lies in the green energy transition. The 2021 United Nations Climate Change Conference (COP26) held in Glasgow in November, highlighted the mining industry's integral role in supplying the metals and materials critical for a low-carbon future¹. The way in which mining companies position themselves today in preparation for this change, will determine their sustainability, and could make or break their competitive advantage over the next decade.

Change on this scale is undoubtedly daunting, which is why in this, its 14th year, Tracking the trends has focused on effecting transformation. The following 10 trends provide a toolkit to help mining companies start thinking through, and moving towards, their vision of future success.

In them, our global team of experts share insights and case studies designed to get ideas flowing. We explore how to evolve traditional mining and metals businesses through new business models, capital allocation, agile work practices, and data-driven technologies to create organizations fit for the 21st century; ones that can not only survive but profit from whatever the future might throw at them and leave a positive social impact in their wake.

The next decade will be one of the most exciting and transformative in the mining industry's history. We look forward to discussing the trends with you and supporting your company on its journey. Thank you for your ongoing support.

Endnote:

1. Judith Magyar, "COP26 Takeaways: Renewables Replace Fossil Fuels As Metals Become A Major Force", published 28 November 2021 <https://www.forbes.com/sites/sap/2021/11/29/cop26-takeaways-renewables-replace-fossil-fuels-as-metals-become-a-major-force/?sh=948a2f626763>, accessed 3 December 2021.



Trend 8

Unlocking value through integrated operations

Using data to drive the long view

Eamonn Treacy, Director, Consulting, Deloitte Canada

Dominic Collins, Energy, Resources & Industrials Leader, Deloitte Chile

Mining and metals companies are on a journey, to drive understanding and efficiencies holistically throughout their organizations. Digital transformation has already contributed to this by providing real-time visibility from mine to market, but many mining companies have failed to see benefits from digitization.

The reason for this is that often too much focus is put on the technology and not enough on how the organization will interface with that technology and use it to drive effective integrated decision-making that optimizes the system versus an individual function.

The next steps in achieving company-wide efficiencies and unlocking value are to use those insights to change how decisions are made at every level. Actions that benefit the organization as a whole, rather than specific departments or functions, will enable companies to become more agile in their response to changes, both in the operational and business environments, and create greater value.

The current heightened focus on environmental, social, and governance (ESG) measures has placed additional pressure on companies to make sure that they're managing not only their operational environment but also social and regulatory challenges. The need to be responsive requires organizations to empower their workforces to make these decisions.

With traditional business structures, this is tricky for two reasons. First, because many roles lack the appropriate authority. For example, even if an operator who is running a process in real time can see that its product is having a negative impact on community sentiment further down the value chain, and it knows how to improve that, in many cases the authority to make that decision still sits three or four levels above within the organization. Second, there is a lack of focus; organizations don't generally include qualitative metrics as part of their operations decision-making.

In both cases, the business structure must be updated to support a decision that would benefit the organization more holistically.

Supporting different decisions

The types of decisions that operators need to make are also changing. Traditional operator-style decisions are usually either/or type decisions. However, when considering how mining organizations relate to local communities, for example, the decisions that need to be made become more ambiguous and complex.

For instance, a company might have four mines operating that feed through a single port. It is important that dust levels at the port are kept under control to avoid negatively affecting surrounding communities.

In a traditional mine environment, operators on site wouldn't think about how the level of dust their product generates adds to aggregate levels at the port; their job only requires them to deliver a certain tonnage at quality. Now, however, organizations are asking frontline workforces to think about the potential impact of their decisions on the downstream value chain and the company's long-term viability.

The challenge lies in not only empowering but also helping operators to make good decisions based on these highly ambiguous and complicated situations, some of which, on the surface, would appear to have nothing to do with their targets.

Eamonn Treacy—Director, Consulting, Deloitte Canada, explains, “The traditional mine value chain includes a number of steps and each of those has a series of metrics that teams need to make to hit performance targets. Sometimes, in the context of the organization, hitting those targets is actually the wrong thing to do, because it creates more waste or risk for the value chain as a whole.”

For example, before ore can be dug up and processed, it needs to be drilled and blasted. The drill and blast team wants to reduce costs through minimizing the use of explosives but, by making that improvement in isolation, costs might increase downstream if the material delivered isn't within the engineering specification of the processing plant. While a 5% cost saving might look like success to the drill and blast team, in reality the total cost to produce one unit of material might have increased by 8%.

In these cases, companies need to harness digital insights to shift their focus and that of their frontline operators from delivering against performance targets to delivering the best possible outcome for the organization, even if it goes against KPIs that a function has been set.

Clarifying roles and responsibilities

One way to do this is through implementing more structured rights and responsibilities. For example, traditionally, a general manager (GM) is accountable for all onsite decisions; because they are on the ground, they carry the responsibility from a regulatory perspective. What this creates is a situation where the GM is expected to handle anything and everything from short-term production targets to safety, costs, and long-term goals, rather than a focus on their role-specific targets.

However, with improved visibility and a better understanding of the system through digital technologies, other groups can look to become more of a 'business partner,' through providing trusted advice and taking the lead in developing, for example, five-year or life-of-asset plans. The GM will likely still have the final say, but, instead of being accountable for driving the result, their focus now lies in actioning the best advice, and driving shorter-term goals, like the mine's quarterly plan.

Dominic Collins—Energy, Resources & Industrials Leader, Deloitte Chile says: "With these changes, the GM role becomes much more adaptable and agile, with a narrower scope of focus but significant leeway in how the individual works. That agility is created through greater role clarity and allowing people to focus on areas where they can deliver the best value for the organization."

Relationship to the market

The way in which mining and metals organizations view and relate to the market is also maturing. While, conventionally, many organizations operated with a multi-asset strategy – where each asset group has differing strategic objectives and investment strategies – much of this decision-making remains relatively opaque to the individuals operating within each asset. Ultimately, most strategic communications occur at the corporate level, with, at best, some partial involvement from senior asset leaders. This often results in a poorly understood strategy at the operating level, where cost becomes the only focus for improvement opportunities which can start to impact value. A more nuanced and effectively integrated strategy enables a much broader consideration of all the ways to maximize asset effectiveness.

Fully communicating and integrating these different operational strategies could potentially be realized more effectively by individual assets to generate better value

for the organization as a whole. In turn, improvements in communication quality and timing also allow the organization to pivot faster when faced with changes in the market.

The power of integrated operations

Deloitte recently helped a global mining company implement an integrated operational structure at a mine site in South America. The scope of work included: program ideation, strategy development, implementation plan, and execution, including altering the organizational structure, operating philosophies, situational awareness, decision rights, rhythms and routines, and support for the design and build of an integrated remote operations center (iROC).

Substantial benefits were realized through operator behavioral changes and situational awareness, resulting in productivity improvements at key system interfaces. The program was so successful that the payback period was just six months, meaning that the integrated operation and iROC were paid back prior to their formal go-live date.

Making agile ambitions a reality

- **Lean on new and existing frameworks:** A system-based decision-making framework can help mining and metals companies transition teams from focusing on performance indicators to business indicators. This uses integrated decision-making to overcome the limitations associated with current key performance indicators (KPIs) when variability occurs in the mine environment.
- **Review and restructure rights and responsibilities across the value chain:** This is time-consuming, but the returns are worthwhile and will allow the full value of digital implementations to be realized. Rights and responsibilities should be reviewed when considering major operational changes to assess whether there are better ways that procedures can be handled.
- **Different targets need different people:** Historically, mining organizations have most valued people who can diagnose issues quickly and make immediate operational adjustments. However, the advancement of digital analytics and artificial intelligence (AI) is now de-emphasizing the need to understand what the problem is and emphasizing the need for ambiguous decision-making that can foresee problems and prevent them from becoming reality. Refocusing organizations on value-chain outcomes will require different types of personnel and will also affect how employees advance through the organization. Companies need to think now about their talent-sourcing models and how to foster these skills within their current workforce.

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