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Tracking the trends 2023
The indispensable role of
mining and metals



Introduction

The indispensable role of mining and metals

The world is at a critical point in time, socially, environmentally, and economically. The latest projections by the United Nations suggest that the global population could hit 8.5 billion in 2030 and 9.7 billion in 2050.¹ With a growing population comes a growing demand for the metals and minerals that underpin societal progress. From civil infrastructure to transportation, and technology to agriculture, the products that the mining and metals sector produces, support and enable virtually every sector globally.

The paradox is that, while the need for mined products has never been greater, public opposition to mining activities has never been higher. The green energy transition is expected to be a mineral-intensive one—the International Energy Agency estimates that the demand for minerals used for electric vehicles and battery storage will grow tenfold by 2040.² Yet, at the same time, approvals for projects that could become important providers of critical minerals, such as lithium (see Rio Tinto's Jadar project in Serbia³), are being hampered due to protests. The juxtaposition between need and want is stark, and the gulf between them creates a very real threat to global climate change mitigation.

For too long, the stories told about the mining and metals industry have centered on the negatives. However, the opportunities

that mining and metals companies can offer to provide for and enhance the prospects of the population, as well as the environments they reside in, are vast. Mining underpins approximately half of the global economy⁴ and therefore, it has the greatest potential of any industry to positively influence social, environmental and economic development.

This year, Deloitte Global's Tracking the trends 2023 focuses on the indispensable value that mining and metals companies can deliver, with the emphasis on taking action now for a better tomorrow. In each of these 10 trends, our network of Mining & Metals sector professionals globally offer up expertise, insights, and examples to spark conversations about how mining and metals organizations can make a difference in the world.

Changing perceptions of the industry by putting people and natural capital front and center in strategies; designing organizations and products for circularity; creating safer, more respectful places of work; and innovating together to make the possibility of ultra-efficient mines a reality will be key to creating a healthy, regenerative ecosystem inclusive of people, planet and industry.

We're excited to discuss these trends with you and explore how they will shape your company's future. Thank you for your ongoing support.

Endnotes

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Trend 5

Building resilient supply chains

Securing future metals and minerals supplies

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In today's interconnected world, mining and metals organizations depend on their supply chains for many things—from the parts and supplies that enable their production and processing infrastructure, to the services they require to run their day-to-day operations. Without these, they cannot provide the minerals and metals needed to build, power and tech-enable the modern world or feed the growing population. This critical interdependence makes supply chain security an imperative for these globally connected businesses.

Today, concerns including high transportation and logistical costs, labor/material shortages and increased prices that were triggered by the COVID-19 pandemic are being compounded by the Russia-Ukraine conflict. Metal provenance is now a key concern—China is the world's largest producer of rare earth metals, dominating 80% of supply¹; a realization that has prompted governments, including the US, to declare their supply a matter of national security².

As the energy crisis unfolds, metals manufacturing companies that rely on gas and electricity have also announced belt-tightening measures, with some furloughing workers and cutting production.³ For example, half of Europe's aluminum and zinc production was taken offline during 2022.⁴ In other cases, manufacturing facilities are switching from natural gas to diesel to maintain production—a difficult decision given global net-zero ambitions.⁵

While the challenges are many, by taking a fresh look at risk and fortifying their own supply chains, mining and metals companies can do their part to help safeguard global raw material and metals supplies that support other important industrial and consumer manufacturing industries and enable continued decarbonization and societal progress.

The positive power of mining and metals

Blockchain technology will be useful in driving transparency in transactions across global metals and minerals supply chains. Today, these are still largely paper-based or handled through point solutions leaving them open to duplication and fraudulency.

In December 2021, MineHub Technologies Inc. announced that its Hyperledger Fabric-based platform had been used by BHP and China Minmetals in the first cross-border copper concentrate trial shipment processed on blockchain technology. This followed BHP's 2020 pilot transaction in iron ore with China Baowu.⁶ BHP now has a subscription to the MineHub platform, which will help it "gain improved visibility into [its] supply chains to proactively mitigate against disruptions," among other benefits.⁷

Assess, anticipate, and mitigate risk

This ambition has spurred mining and metals companies of all sizes to better understand their own risk exposures within their supply chains. Many are diversifying their supply networks wherever possible, using near- or offshoring tactics to help ensure the resiliency and longevity of their operations.

The degree of disruption that supply chains have experienced over the past three years is expected to continue, if not worsen. Therefore, the importance of effective third-party risk management (TPRM) evaluations is more critical now than ever. Considering the heightened complexities being introduced by changing societal expectations and global interconnectivity, truly effective TPRM evaluations will need to factor in broader strategic risk factors associated with doing business with third parties, such as potential impacts to their company's brand / reputation, as well as cyber security exposures that could be introduced.

René Waslo, partner Global Risk Advisory & Cyber Energy, Resources & Industrials Leader, Deloitte Global explains: "Mining and metals companies should be looking to build AI-based predictive models that can enable them to look into the future and perform risk analysis on suppliers at different levels of the supply chain. This will allow them to strategically plan for and lower their own exposure to risks, such as human rights violations, failing of debt structures, or poor reputation in the media."

Building resilience across the board

A resilient supply chain is also a secure supply chain. Cyberattacks on third-party vendors are on the rise as criminals look for any weaknesses in a company's defenses, and there are complex economic, environmental, political and ethical dynamics at play.

These risks can impact the safety, integrity, availability, and/or reliability of a mining and metal company's supply chain – and therefore its ability to achieve production targets. These new complexities are compelling them to take a more integrated approach to security, which includes:

- **Addressing digital risks.** Supply chains accounted for 62% of system intrusion incidents in 2021.⁸ In response, some governments are proposing laws and regulations and declaring executive orders that call for increased vigilance in cybersecurity supply chain risk management (C-SCRM) for software and digital products.⁹
- **Evaluating third-party risks throughout the vendor life cycle.** While reliance on vendors is helpful for speed and competitive advantage in today's markets, it comes with risks. The 2021 edition of [Deloitte's Extended Enterprise Risk Management survey](#) by Deloitte & Touche LLP found that managing risks from increasingly digitized ways of working—including accelerated supply chain digitization has become a significant emerging risk in third-party management, with 71% of respondents identifying it as a top priority.¹⁰ The survey also revealed that 51% of organizations have faced one or more third-party risk incidents since COVID-19 officially became a global pandemic in March 2020.
- **Anticipating and preventing disruption.** The COVID-19 pandemic's squeeze on the global supply chain, the increase in attack surface from increased digitalization and associated cyberthreats, more frequent natural disasters and increasing geopolitical uncertainty have all contributed to recent supply chain disruptions. In fact, 85% of surveyed global supply chains have experienced at least one disruption.¹¹

- **Improving operational efficiency and effectiveness.** Traditional risk management frameworks are not designed to handle the complexity and volatility of the modern risk landscape, nor have the speed that is required help inform decision-making in today's competitive business environment. With ever-evolving logistical complexities, technologies, regulations, and consumer expectations, organizations need new ways to manage sources of third party and supply chain risk to keep their operations resilient.

The security imperative

Cyberattacks call into question an organization's ability to trust not only its cyber defenses, supply chains and partners, but also its ability to respond and/or recover effectively. While historical cybersecurity trends have led to an expanded focus on operational technology (OT), these third-party risks are now forcing mining and metals companies to further expand cybersecurity exposure evaluations to include the wider supply chain and vendors.

In addition to boosting supply chain resilience, real time monitoring of third-party suppliers' cyber stance can also speed up and improve compliance. There are also cost benefits that can't be overlooked; the expense of remediating a cyberattack far exceeds the cost and effort required to implement an effective cybersecurity-oriented TPRM program, and further, some damages—for example, to company reputation—cannot be recouped.

John Diasselliss, principal, US Mining Leader, Deloitte & Touche LLP, says: "A supply chain ecosystem that factors in appropriate cybersecurity considerations is critically important in our tech-enabled world. Mining and metals companies need to work with their vendors to implement coordinated and integrated methods to establish trust that the equipment, devices and other digital components being procured and deployed across the business are secure and reliable, therefore not further complicating what is already a complex cybersecurity risk landscape."

Make supply chain security a strategic matter

- **Transform third-party risk management evaluations:** TPRM is usually focused on evaluating vendors upon establishing new relationships and refreshing that evaluation infrequently—approximately every one to three years. Today, that's simply not enough to keep pace with the fast-moving threat landscape. Assessing suppliers' strategic brand and risk exposure, as well as their cyber posture, through improved vulnerability monitoring and analytics, on a real-time basis, may close that gap.
- **Optionality of suppliers:** Based on the risk management evaluations, strategic decisions can be made as to who your organization does business with. Also consider your options for near- and offshoring. There is often a trade-off around security and aspects such as sustainability (i.e., the carbon footprint associated with different options). Find a range of solutions for different products and services based on your organization's risk tolerance and priorities.
- **Secure supplier access:** Deploy and operate identity and access management (IAM) and zero trust capabilities that better enforce authorized and tightly control third-party access to systems and data (referred to as "least privilege access"). This will reduce the consequences of a compromised supplier or vendor.
- **Autonomous operations security:** Enable security for the autonomous, automated and other digital elements of the supply chain that play a critical role within the organization's operations by deploying security controls, such as stringent evaluations of enabling software, firmware updates, patches, etc.
- **Step up supply chain risk management:** For organizations that have a TPRM program in place, ensure its focus adequately considers cybersecurity exposures. For mature organizations, consider a more robust supply chain risk management (SCRM) program that is focused on establishing a holistic secure supply chain, inclusive of cybersecurity as well as broader exposure considerations around geopolitical, natural disasters and emerging regulations.

Endnotes

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