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Tracking the trends 2024

Navigating global challenges and opportunities in mining and metals

Introduction

Navigating global challenges and opportunities in mining and metals

As we enter 2024, the mining and metals industry finds itself at the center of a complex matrix of challenges and opportunities, expectations, and demands.

With supply shortages looming in metals that are critical, not just to the energy transition but to global urbanization and industrialization, stakeholders are acting strategically to secure their supply chains (copper, for instance, is expected to see a supply deficit of 9.9Mt by 2035¹). With supply source alternatives such as urban mining still in their infancy, downstream companies and even governments are striking deals with miners and metals providers in a reshuffle that has seen some traditional value chains realign over the past 12 months.

Organizations also remain under pressure to improve the efficiency of existing assets and operations by embracing generative artificial intelligence (gen AI), leveraging third party delivery models with specialized back office capabilities and to unlock new value in assets. Additionally, the need for mining and metals companies to collaborate with industry peers, suppliers, and competitors to tackle productivity and environmental issues, all while upholding environmental, social, and governance (ESG) expectations in day-to-day operations remains a priority.

With strong business strategies in place and 2050 sustainability targets as its North Star, now is the time for the mining and metals industry to accelerate growth. However, with heightened uncertainty in the global geopolitical sphere and volatility in commodity markets, to do so may not be easy. Companies that navigate uncertainty, work with governments to address permitting issues for new projects, rethink the strategic value of exploration, work with regional players to address skills shortages, and drive toward becoming more purpose-led organizations are most likely to prevail.

In this, the 16th edition of Deloitte Global's *Tracking the trends*, a team of professionals from around the world provides insights and examples as well as practical ideas to help mining and metals companies rise to the challenges that lie ahead and capitalize on new opportunities. We're looking forward to discussing these trends with you in more depth and helping your organization to continue forging its own pathway to success. Thank you for your ongoing support.

Endnotes

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Trend 7

Addressing workforce challenges through a skills-based approach:

Equipping mining and metals companies for the future

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Skills shortages have dominated the headlines over the past 12 months, causing one research group to declare the issue “persistent”, rather than “transitory”.¹ At the same time, organizations face the reality of an aging workforce. The United States is just one example—more than half of the country’s mining and metals workforce is set to retire by 2029 (some 221,000 workers),² and with it could go knowledge that’s critical to future ways of operating.

Diversity, equity, and inclusion (DEI) also remains a priority. While there’s a clear business case for a more diverse workforce,³ many organizations continue to grapple with creating workplaces that are physically, psychologically, and culturally safe.

These matters are indicative of the need for broader change in the way the industry values and treats talent to become a more desirable industry to work in. By coming together to tackle workforce challenges, mining and metals companies, educational institutions, and governments might have a better chance of success.

Speaking to younger generations

Recent research from Mining Journal⁴ cited general labor scarcity as a significant factor globally; in July 2023, Australia and the United States had respective unemployment rates of 3.6% and 3.7%, and Canada 5.2%.

Mining and metals faces the difficulty in appealing to talent, particularly younger generations.⁵ A December 2020 survey of 3,000 young Canadians by the Mining Industry Human Resources Council (MiHR) and Abacus Data found that 11% would definitely, or probably, consider working in mining and metals.⁶

In a 2023 article for Euractiv, Rohitesh Dhawan, president and CEO of the International Council of Mining and Metals (ICMM), wrote, “Just when we need the best and brightest talent to build the responsible mining industry of the future, graduates and potential future employees appear to be turning away from mining or being encouraged by their universities to do so.”⁷

Dhawan attributed this partly to a lack of trust in the sector. He acknowledged that, despite considerable progress in environmental and social commitments, the industry still has a ways to go to appeal to the next generation of workers. Gen Zs and millennials for example, are values-driven and concerned about the environment⁸ so sustained positive performance over time could be critical in changing the industry’s image and in linking the mining and metals to clean energy, global food security, and development.⁹

Realigning education with industry

A shift of this magnitude also demands a step-change in the way that that mining and metals industry is taught and talked about. This requires government investment aligned with critical minerals strategies, as well as collaboration between industry players and universities to produce courses, curricula, and credentials as well as vocational education and training that better match current and future objectives.

A good example comes from the Bradshaw Research Institute for Minerals and Mining (BRIMM) at the University of British Columbia (UBC), which works closely with mining companies and Original Equipment Manufacturers (OEMs) to determine its offerings. The team established an executive microcertificate in Economic Leadership for Mining program in 2020. This 13-course program allows candidates to mix and match seven or more courses to achieve a UBC microcertificate.¹⁰

“Micro-credentialing can accelerate the entry of talent into mining and metals and can prove valuable in creating pathways for underrepresented groups—for instance, Indigenous communities—where access to tertiary education may be limited.”

**Joanne Doyle, senior manager, Consulting,
Deloitte Canada**

While people naturally learn in different ways and it's important to tailor training accordingly, there's also a shift in the way that different generations learn. Research from Deloitte US has shown that members of Gen Z proactively seek out personalized learning opportunities to enhance skills and prefer to learn independently via online platforms.¹¹

Experiential learning tools, such as online games, could be used more widely to educate students about the role that the mining and metals industry plays in their lives, and to introduce organizations in this industry as a potential employer. For example, the Briefcase game, developed by the European Union and EIT Raw Materials, familiarizes students and teachers in three age groups with the minerals used to build everyday objects and where they come from.

Broadening the DEI lens

A 2018 survey from the Pew Research Center found that Gen Z is the most ethnically and racially diverse generation in history.¹² While the mining and metals workforce is slowly becoming more diverse, it's vital that companies move beyond numbers and targets and address the systems that sit around diverse talent.

At BHP's fly-in, fly-out South Flank iron ore mine in Western Australia, women comprise 40% of the more than 850-person strong frontline workforce, making it the first gender-balanced mining operation in Australia. Research has found that this is attributable to multiple factors, including strong engagement from senior leaders, strict gender equity targets, major technological investments to support inclusivity, and new onboarding procedures for new employees.¹³

Wiring organizations and their systems to support intersectional diversity is central to workforce well-being. For example, individuals can be racially, culturally, and gender diverse. This is essential, not only in attracting and retaining skilled talent, but also in creating organizations that can adapt to change.

“Some companies are challenging different processes, practices, and systems, and building DEI principles into wider projects, such as HR system implementations. This attitude should be applauded.”

Kristy Delaney, partner, Consulting, Deloitte Australia

Shifting from jobs to skills-based work

Prospecting for a future pipeline of talent is important, but so, too, is filling the vacancies that exist in the mining and metals workforce today. One way to broaden the talent pool and help ensure that individuals have the knowledge needed for the future, is to switch the focus throughout the industry from roles to skills.

Mining and metals organizations, like most others, are structured around jobs and hierarchies. However, with workplace agility and flexibility growing in importance, and with innovation and creativity increasing in value, separating some work from job descriptions, and workers from being seen as job holders, could allow organizations to tap into a wider range of workers' capabilities and to find new ways of working. That said, there are certain mining and metals jobs that are legislated, so there is a balance to be struck with a skills-based approach in this industry.

Deloitte US has developed an operating model called the “[the skills-based organization](#),” In this, skills can be technical abilities (hard skills), human capabilities (such as emotional intelligence), or potential skills (including latent qualities, abilities, or adjacent) that may be developed and lead to future success. Research has found that organizations that embed a skills-based approach are 107% more likely to place talent more effectively and 98% more likely to retain high performers.¹⁴

For example, Schneider Electric was able to improve employee retention by creating an internal gig economy, which allowed more than 2,300 people to move to areas within the business where their skills were of more value.¹⁵

The skills-based approach also applies at a macro-level. In Saskatchewan, Canada—a key region for future critical metals production—Deloitte Canada recently convened companies at a skills accelerator summit to address workforce challenges in the mining and minerals industry, so that Saskatchewan and its people can achieve their collective employment, empowerment, and economic ambitions for 2030.

Following an economic assessment, the summit identified the occupations needed by various industries, including mining and metals, and then deconstructed the roles, examining the skills needed to complete the work. It then looked at how rearchitecting work could help to increase each role's capacity as well as adjacent industries where talent with the requisite skills might be found. Research showed that this approach could cut the talent gap in half, by almost 2,400 workers.¹⁶

Upskilling for future challenges

As the work involved in mining and metals operations evolves, so too will the type and range of skills required to execute on it. Access to critical skills and knowledge—for instance, surrounding climate adaptability and decarbonization—and, in sufficient volumes, could become a point of increasing differentiation for companies in the future.

“Not all educational establishments are turning out job-ready mining candidates today. In certain countries, there’s a lack of educational courses altogether and, where courses are available, curricula don’t always align with the industry’s needs. This means that new entrants often require a period of upskilling before they are fully job-ready.”

Kristy Delaney, partner, Consulting, Deloitte Australia

Upskilling and reskilling of the current workforce, both at the individual level and in mass (ICMM states that 48% of mining employees will require upskilling or reskilling in the next four years)¹⁷ pose a challenge and an opportunity. However, the industry already has some experience and capability in this area. For example, some organizations have established digital academies to help transition their workforces to new ways of working.

In March 2020, Antofagasta Minerals opened a digital academy in Chile to speed up and deepen the implementation of its digital road map.¹⁸ The academy provides courses that increase the company's productivity and competitiveness, and improve the skill sets and employability of its workers. In its first year, more than 1,500 employees completed nine courses on the basics of design thinking, agile project management, big data, Internet of Things, cybersecurity, and digital technologies such as collaborative tools and robotic process automation.

Replicating operations and programs such as these for systems thinking, climate-based skilling, and more could prove critical in organizational change and help companies respond quickly to future opportunities and anticipate which skills might be required in time.

Artificial intelligence (AI) can also play an important role in reskilling or upskilling the workforce; for example, AI algorithms can help to personalize training programs that build on workers' existing skill sets to prepare them for future opportunities that leverage technology. For example, the EdCast platform by Cornerstone combines an assessment of workers' skills with analysis of future labor market needs, allowing users to identify potential future jobs and gain the skills and qualifications they need to secure them.¹⁹

Laying the foundations for modern work

In summary, by investing time and resources now to create systems that increase and accelerate the entry of young talent into mining and metals, widen the search for skilled candidates at organizational and regional levels, and improve the well-being of current workers, companies could not only improve their productivity but help ensure they have the capacity and know-how required to deliver on their future ambitions.

From ideas to actions

- **Think long term:** By using strategic workforce planning to assess the business's long-term strategy, organizations could become better equipped to identify potential future skills shortfalls, that is, in areas such as climate resilience and digital disruptions. This will inform workforce strategy choices, and prioritize and accelerate investments in training, such as the development of a skills academy or the creation of a regional labor force ecosystem. This will also allow organizations to implement strategies to attract talent locally and regionally.
- **Map out the organization's needs:** By defining a skills taxonomy or framework and a common way of validating skills, organizations can lay the groundwork for making decisions about work and workers based on skills rather than jobs. They can expand from there, transforming one talent practice at a time, or experiment with new ways of organizing work so that workers can flexibly flow to the work based on their skills.
- **Put a DEI lens over every implementation:** A standard part of the evaluation process for new projects, processes, or technology implementations throughout organizations should be consideration through an intersectional DEI lens. Making this a standard metric or procedure, regardless of the nature of the project, will help embed DEI thinking into company culture.
- **Prioritize skills-based changes:** When transforming companies to a skills-based model, start with practices that have clear connections to skills—for example, learning and development, internal mobility, and talent acquisition. Prioritizing these areas makes sense, as organizations may be able to use mature, off-the-shelf technologies as readily available upgrades to existing HR information systems, such as talent marketplaces.
- **Explore skills ecosystems:** Companies could start by exploring the regional and local skills ecosystems surrounding each operation and identifying groups or sources of talent, such as adjacent industries or communities, who are underrepresented in their current workforces. From there, barriers to entry can be determined and programs developed to support talent transfer, and educational and upskilling opportunities can be created.

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