African Mining Trends report 2025

Shaping the Mining Leader of the Future

dss+

Protect. Transform. Sustain.

Executive summary

Africa remains one of the most strategically important mining regions in the world, with a deep reserve of critical minerals central to global industrial, energy, and technology systems.[1] Demand for these minerals – sourced responsibly – continues to grow exponentially: global demand for critical minerals such as cobalt, lithium, and graphite is expected to grow by up to 500% by 2050, driven by clean energy transitions and battery technologies.[2]

However, shifting trade regimes, resource nationalism, and increased scrutiny from governments, investors, and communities are creating a more complex operating environment for mining companies across the continent. At the same time, companies are contending with rising input costs, degrading ore grades, ageing infrastructure, persistent safety challenges, and growing pressure to demonstrate environmental and social impact.[3] The confluence of external and internal pressures is redefining what it takes to remain competitive and credible.

Risk is no longer a background consideration in African mining – it is the primary lens through which strategy, investment, and leadership are being tested. From geopolitics to ESG to supply chain resilience, the ability to anticipate, absorb, and respond to risk is now central to value creation.

In this context, the future of mining leadership must evolve. Navigating Africa's mining landscape now demands a new generation of leaders equipped not only with technical and commercial expertise, but also with the agility, foresight, and values-driven mindset to thrive in high-risk, high-opportunity environments. This report explores how current trends are reshaping leadership expectations — and what it will take to shape the future leader of tomorrow.

1 International Energy Agency. The Role of Critical Minerals in Clean Energy Transitions. May 2021. https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions

2 Ibid

3 S&P Global Market Intelligence. Mine Economics: Cost Inflation Trends and Ore Grade Decline. March 2023. https://www.spglobal.com/marketintelligence/en/news-insights/research/mining-costs-ore-grades-inflation-2023-outlook

The dss+ African Mining Trends 2025 report examines six macro forces shaping mining across the continent.

These trends are accelerating risk exposure and influencing where capital flows, how companies secure their licence to operate, and what leadership looks like in practice. In this landscape, strong technical performance is no longer enough. Leaders are being challenged to demonstrate agility in how they manage risk, clarity in how they deliver results, and accountability in how they earn long-term trust.

Drawing on the operational and transformation experience of dss+ across Africa, this report highlights where mining leaders can focus to navigate complexity, respond to emerging expectations, and drive measurable value. This report aims to highlight where focused action can build resilience, unlock value, and strengthen long-term licence to operate.

Reading the Trends.

What to watch for.

The African mining industry has always operated under pressure shaped by commodity cycles, government expectations, and social demands. What's different in 2025 is the convergence of these forces, and the growing speed and complexity with which they affect performance on the ground.

Across the **six trends** explored in this report, mining leaders will see a common thread: success now depends on the ability to respond to risk and opportunity in real time – by aligning decision-making, strengthening operational control, and building the capabilities that enable consistent execution under changing conditions.

This is where many mining organisations struggle. Complex transformations stall when strategy is disconnected from operations, or when pressure to act outpaces the organisation's ability to deliver change safely and sustainably.[4] At dss+, we work with mining clients to close that gap – helping them turn broad imperatives into focused action at every level of the business.

Our perspective in this report reflects that experience. We draw on our work with mining companies across Africa to highlight where risk is intensifying, what capabilities are most needed, and how leadership can respond with clarity and impact.

4 Harvard Business School Working Knowledge. Why Strategies Fail: Execution is the Missing Link. October 2019. https://hbswk.hbs.edu/item/why-strategies-fail-execution-is-the-missing-link

Trend

1

Geopolitical realignment and the strategic imperative for operational agility

Key Insight

As trade regimes shift and governments compete for critical minerals, mining companies in Africa face sharper regulatory exposure and operational risk. Staying competitive now depends on how well companies align delivery with evolving national priorities, while remaining agile enough to shift plans when the context changes.

Navigating the evolving landscape of mineral supply chains

In 2025, the global mining sector is being reshaped by the realignment of trade alliances, resource strategies, and development priorities. For African nations and the companies operating within them, this transformation brings both opportunity and complexity.

Governments in the United States, the European Union, and China are taking assertive steps to secure access to critical minerals – including lithium, cobalt, rare earths, and copper – through policy reforms, strategic partnerships, and investment protection measures. China's Belt and Road Initiative continues to deepen its presence in African mining, leveraging infrastructure deals to secure long-term mineral supply. Indeed, under this initiative, China's economic engagement is calculated at USD 21.7 billion, with estimates of up to half of this being focused on critical mineral projects.[5]

While China is reliant on African critical minerals, African countries are equally reliant on China for processing - China accounts for 85-90% of global rare earth element mine-to-metal processing, and is also the largest importer of cobalt, graphite and manganese, among other minerals.[6]

Within this context, African governments are increasingly trying to assert more control over their resources — tightening export regulations, mandating local beneficiation, and demanding greater alignment with national development goals. For example, Guinea – the world's largest bauxite producer – cancelled 46 mining licenses as part of sector reforms seeking to increase local beneficiation, strengthen regulatory oversight and boost state revenues.[7] Countries such as the DRC, Zambia, and Zimbabwe are also expanding domestic processing requirements and strengthening local content policies.

One visible example is the Lobito Corridor – a proposed yet unfunded rail link connecting the Copperbelt in Zambia and the DRC to Angola's Atlantic coast. Backed by Western governments, the project is intended to diversify export routes, reduce dependency on routes through southern Africa, and enhance regional integration. If realised, it could help producer countries capture more value by lowering transport costs, enabling domestic processing hubs, and strengthening negotiating power in mineral offtake arrangements. For mining companies, the implications are significant: such infrastructure investments may shift trade flows, introduce new geopolitical dynamics, and increase the importance of aligning with locally defined development priorities. Navigating this effectively will require geopolitical awareness, scenario-based planning, and readiness to engage with a broader range of public and private stakeholders.

5 Stimson. Competing for Africa's Resources: How the US and China Invest in Critical Minerals. February 2025. https://www.stimson.org/2025/competing-for-africas-resources-how-the-us-and-china-invest-in-critical-minerals/
6 Ibid.
7 Business Insider Africa. Africa's largest bauxite producer cancels 46 mining licenses amid sector reform. May 2025. https://africa.businessinsider.com/local/markets/africas-largest-bauxite-producer-cancels-46-mining-licenses-amid-sector-reform/c3tdngm

These dynamics are not theoretical or long-term – they are already reshaping day-to-day operations and decision-making. For mining companies, it is already altering how permits are awarded, how partnerships are evaluated, and how quickly projects must demonstrate local value. Scrutiny is increasing – not only from regulators, but also from investors and host communities. When one considers the average lead time of 15.7 years between discovery and production for mining projects[8], and around 80% of mining projects globally experience delays and exceed budgets by an average of 43%[9], the ability for companies to be agile and respond to geopolitical and regulatory risks in real-time will be crucial to ensure project viability, stakeholder confidence, and consistent delivery in increasingly volatile operating environments.

> **Project sequencing, supply chain design, and stakeholder engagement strategies are all being shaped by regulatory volatility and shifting policy signals.**

Implications for mining companies

These dynamics are accelerating the complexity of operational planning and capital deployment. Project sequencing, supply chain design, and stakeholder engagement strategies are all being shaped by regulatory volatility and shifting policy signals.

Companies can no longer rely on static governance or one-size-fits-all risk frameworks. To stay ahead, they must embed geopolitical awareness into enterprise risk management, build execution flexibility into their capital plans, and align operational delivery with evolving expectations — from governments, investors, and communities alike.

This requires a fundamental shift: not just adjusting to change, but designing for it – with the leadership, systems, and frontline capabilities to maintain performance as context evolves.

8 S&P Global. 7 May 2024. https://www.spglobal.com/market-intelligence/en/news-insights/research/discovery-to-production-averages-15-7-years-for-127-mines
9 NES Fircroft. 22 March 2024. https://www.nesfircroft.com/resources/blog/is-your-mining-project-delayed-flexible-workforce

dss+ Perspective

Connecting risk, readiness, and results

Emerging complexities and risks

- **Regulatory volatility**

  Sudden changes to royalties, ownership rules or export policies can undermine business cases, delay execution, and reduce investor confidence if not actively monitored and planned for.

- **Supply chain realignment**

  As global trade fragments and local processing mandates grow, mining operations must adapt sourcing, logistics, and export strategies to preserve flow continuity and margin.

- **Execution under uncertainty**

  Project risk has increased, not because of poor fundamentals, but because shifting context demands faster decision cycles, tighter governance, and more agile planning than many systems allow.

- **Stakeholder expectations**

  The licence to operate increasingly depends on visible local benefit. This includes delivery on ESG commitments, economic contribution, and trust-building with governments and communities.

At dss+, we see the current geopolitical At dss+, we see the current geopolitical environment not only as a test of resilience but as a catalyst for building stronger, more adaptive mining operations. Our work in enterprise and operational risk management helps mining companies anticipate disruption, manage uncertainty, and embed risk-based decision-making across functions.

We support leaders in identifying and managing strategic risks – such as regulatory change, stakeholder opposition, and geopolitical volatility – through structured frameworks, scenario planning, and integrated governance. We also help clients strengthen capital project governance and execution discipline, ensuring investment decisions remain aligned with dynamic risks and stakeholder expectations.

At the operational level, we work directly with sites and business units to embed resilience into the fabric of daily execution. This includes improving critical control management, reinforcing frontline ownership of risk, reducing variability in high-risk tasks, and building the cultural alignment needed to sustain performance in volatile conditions.

We also help companies build operational flexibility into delivery plans – so that teams can adjust quickly to changes in trade terms, permitting delays, input availability, or community dynamics.

By linking boardroom intent with frontline execution, dss+ enables mining organisations to move beyond reactive risk management – towards a proactive, systems-based approach that builds confidence with investors, regulators, and communities. This not only protects timelines and licence to operate, but positions companies to lead through complexity rather than simply survive it.

Trend

2

Reinvigorating safety – a strategic priority for resilient operations

Source: Illustration developed during the dss+ Health & Safety workshop "Pragmatic Pathways to Achieving Zero Harm," Mining Indaba 2025

Key Insight

Stagnating safety performance and increasing risks for serious injuries and fatalities point to a need for a deeper culture, stronger leadership, and integrated contractor and change management – especially in high-pressure environments.

Safety progress is stalling — and the risk is rising

In mining, safety isn't a peripheral issue — it's foundational to trust, performance, and licence to operate. While the sector has made real progress in reducing recordable injuries over the last two decades, that progress has plateaued. Indeed, the ICMM member companies reported 36 fatalities in 2023, up from 33 in 2022, and slightly below 45 in 2021.[10] In 2025, serious incidents are continuing to occur with unacceptable regularity, particularly among contractors and during periods of change. Indeed, the US mining sector experienced a record number of 11 fatalities in the 1st quarter[11], while Pakistan, South Africa and Guinea also reported fatalities.[12] [13]

Behind the numbers lies a deeper challenge: how to lead safety in a new era of complexity – one defined by digital tools, evolving workforces, and constant operational change. It's not enough to rely on legacy systems or past improvements. To improve from here, safety must evolve from compliance to culture, and from procedures to shared responsibility.

10 ICMM. 2024. https://www.icmm.com/en-gb/news/2024/2023-safety-performance.
11 Pit & Quarry. 1 April 2025. https://www.pitandquarry.com/eleventh-2025-mining-fatality-reported-as-first-quarter-nears-end/#:~:text=The%20mining%20industry%20closed%20the,the%20accident%20involved%20powered%20haulage.
12 Mining.com.au. Deadly start to 2025: Global mining fatalities surge. 21 January 2025. https://mining.com.au/deadly-start-to-2025-global-mining-fatalities-surge/
13 Mining Weekly. 12 March 2025. Accidents at giant Rio Tinto project kill more than a dozen workers, prompting inquiry. https://www.miningweekly.com/article/accidents-at-giant-rio-tinto-project-kill-more-than-a-dozen-workers-prompting-inquiry-2025-03-12#:~:text=Accidents%20at%20giant%20Rio%20Tinto,a%20dozen%20workers%2C%20prompting%20inquiry

Why safety still breaks down

High-potential incidents and fatality risks often persist not because companies lack systems — but because those systems are unevenly understood, inconsistently applied, or poorly integrated across different parts of the workforce. Key stress points include:

- **Contractor risk exposure** – many contractors perform high-risk tasks but remain under-integrated into core safety governance and culture.
- **Leadership disconnects**– when managers are unclear on expectations or inconsistently present, safety discipline deteriorates.
- **Change fatigue** – during restructures, M&A, or digital deployments, safety attention is easily diluted.
- **Technology trust gaps** – new safety tools, like wearables or digital permits, only work when people trust and understand them.

These aren't just cultural gaps — they are operational risks. And they require leadership, systems alignment, and frontline capability to close.

> **In mining, safety isn't a peripheral issue – it's foundational to trust, performance, and licence to operate.**

Implications for mining companies

- **Make SIF prevention the central focus** – not just improving TRIFR, but reducing serious risk exposure through critical control effectiveness.
- **Ensure contractors are held to the same safety expectations** – and are meaningfully engaged in reporting, culture, and capability-building.
- **Lead safety through change** – whether integrating a new asset or rolling out AI-driven controls, leadership consistency is non-negotiable.
- **Link new technology to human behaviour** – safety tools only reduce risk when they're supported by clear processes and trusted by the people using them.

> High-potential incidents and fatality risks often persist not because companies lack systems – but because those systems are unevenly understood

dss+ Perspective

Strengthening safety from the inside out

At dss+, we help mining organisations improve safety by transforming how risk is led, understood, and owned — across all levels and all workforces.

Our work focuses on embedding safety into the operational fabric of the business – especially during periods of growth, transition, or uncertainty.

We support clients by:

- Building leadership capability at every level, especially among supervisors and mid-level managers, to drive safe performance under pressure.
- Enhancing serious risk management, improving critical control frameworks, assurance processes, and real-time risk awareness.
- Integrating contractors into the full safety system, from culture to controls to reporting – without creating parallel tracks.
- Embedding safety in change management, ensuring that M&A, digital rollouts, and organisational transitions reinforce, not weaken, safety behaviours.
- Improving psychological safety and mental wellbeing, creating environments where workers feel safe to speak up, raise concerns, and stop unsafe work.

We've helped clients reduce SIF exposure, strengthen frontline safety ownership, and rebuild trust in complex environments. Because safety performance doesn't improve through systems alone – it takes leadership, culture, and capability.

Trend

3

People and capability – unlocking performance through culture, leadership and inclusion

Key Insight

Talent shortages, contractor dependence, and culture gaps are constraining performance. Future-fit mining companies will be those that build inclusive, engaged, and adaptable workforces from the inside out.

The talent imperative for sustainable mining

In 2025, workforce challenges are becoming a defining constraint on mining performance. While skills shortages, rising labour costs, and an ageing workforce present clear risks, the underlying challenge within the mining sector is more complex: building workplaces where people want to work, can grow, and are empowered to contribute meaningfully to safety, performance, and innovation.[14]

The connection between leadership and workforce stability in African mining has been evident for years. In Ghana, a 2015 study found that turnover within the country's mining sector was rising and strongly linked to perceptions of poor safety leadership and working conditions.[15] This underscores a fundamental reality: leadership quality directly impacts workforce retention and engagement.

Attracting a new generation of mining talent is critical, particularly as the industry transitions towards digitalisation, automation, and more socially responsible models of growth. But this shift cannot be addressed through recruitment alone. It requires cultural transformation – creating environments where people feel safe, respected, and connected to a shared purpose.

Capability gaps and cultural disconnects

While workforce issues are often viewed through the lens of recruitment or retention, the more persistent challenge lies in misaligned systems, uneven capability, and cultural fragmentation across sites, roles, and employment types.

High turnover in critical frontline roles – especially in remote or high-pressure environments – undermines continuity and raises safety risk. Contractors, who often perform the most hazardous tasks, are frequently excluded from leadership routines and cultural initiatives, weakening shared accountability. Contractors were found to be twice as likely to experience accidents or injuries in African mines.[16] Meanwhile, many organisations struggle to translate strategic intent into operational behaviours. As automation, AI, and new tools are introduced, digital literacy gaps and change fatigue can slow adoption and compound disengagement.

Underrepresentation of women and marginalised groups further narrows the talent pipeline, but also reflects deeper issues in culture, leadership, and inclusion that affect how decisions are made and who feels empowered to lead or speak up.
The result is a growing disconnect between workforce expectations and organisational culture – a gap that shows up in safety performance, productivity variability, and resistance to change. Without clear leadership, inclusive systems, and behavioural reinforcement, even the best strategies struggle to deliver sustained impact.

14 Journal of Contemporary Management. Millennial engineers: talent management expectations and needs in an African mining corporation. 2016. https://www.scielo.org.za/scielo.php?pid=S1815-74402016000100018&script=sci_arttext
15 Gyekye, S.A. & Salminen, S. (2015). Safety Management and Turnover Intention in the Ghanaian Mining Sector. International Journal of Occupational Safety and Ergonomics (JOSE). https://pmc.ncbi.nlm.nih.gov/articles/PMC4792912/
16 Debela, M.B. et al. "Prevalence of Occupational Injury among Workers in the Contruction, Manufacturing and Mining Industries in Africa: A Systematic Review and Meta-analysis". Journal of Occupational Health and Epidemiology. April 2021.

Implications for mining companies

- **Workforce Readiness:** As automation, AI, and data tools become central to mining operations, companies need to upskill their workforce — not only technically, but behaviourally — to engage with new tools and processes effectively.

- **Psychological Safety and Leadership:** Operational excellence is built on trust, consistency, and accountability. This starts with leaders who create psychologically safe environments where all workers — including contractors — feel empowered to speak up and act safely.

- **Diversity, Equity & Inclusion (DEI):** As expectations around representation and equity grow, DEI is no longer a reputational issue – it's a performance driver. Inclusive workplaces attract broader talent pools and improve collaboration, decision-making, and adaptability.

dss+ Perspective

Embedding culture and capability for sustainable performance

At dss+, we help mining companies turn workforce complexity into competitive advantage — by strengthening the leadership, culture, and capability needed to deliver consistent, safe, and high-performance operations.

Our approach focuses on building trust, accountability, and risk awareness at every level of the organisation – from corporate leaders to site teams and contractors. We integrate behavioural change with operational execution to create workplaces where people are not only engaged but equipped to perform under pressure.

We support clients through:

- Leadership development that empowers managers to drive performance, accountability, and inclusive behaviours – even in high-risk, high-pressure environments.
- Scalable transformation, enabling consistent behaviours and cultural alignment across dispersed operations, new acquisitions, and multi-contractor environments.
- Frontline capability building, with coaching and targeted upskilling aligned to critical tasks, hazard awareness, and operational routines.
- Psychological safety initiatives that foster environments where workers – including contractors — feel safe to speak up, stop work, and act on behalf of their team's wellbeing.
- DEI integration, ensuring that diversity and inclusion aren't isolated HR efforts, but embedded in operational systems, site practices, and performance processes.

We've helped mining clients reduce SIF exposure, increase safety leadership visibility, and build cultural consistency across global and local teams. By aligning leadership, mindset, and systems, we enable safer, more adaptive, and more reliable operations – because when people are trusted, trained, and empowered, performance follows.

Trend 4

Enabling innovation – preparing people, systems and culture for technology transformation

Key Insight

Technology is not the hard part – integrating it safely and sustainably into day-to-day operations is. Scalable innovation depends on leadership, capability, and behavioural alignment.

The real challenge isn't the technology — it's making it work

Mining companies are investing heavily in digital tools: automation, AI, sensors, remote operations, and digital twins. These technologies hold immense promise — not only for efficiency and environmental gains, but for real progress in health, safety, and production performance.

But success depends less on the technology itself, and more on how well people, systems, and leadership are prepared to use it. In 2025, the true differentiator will be execution: safely integrating innovation at scale — without compromising performance, overwhelming frontline teams, or introducing new sources of risk.

When technology outpaces organisational readiness

Too often, digital transformation breaks down after the pilot stage. Tools are implemented, but behaviours don't change. Systems remain fragmented. Leadership alignment weakens. Safety protocols don't evolve to reflect new work realities.

Common failure points include:

- Poor integration between technology, safety, and operational governance
- A lack of a clear digital vision
- Leadership uncertainty around how to drive digital adoption in high-risk environments
- Insufficient investment in workforce upskilling and frontline change management
- Misalignment between digital and operational KPIs, which slows progress or erodes trust [17]

Without aligned leadership, robust risk management, and a culture of adaptability, even the best innovations can stall — or worse, increase exposure to operational failure or serious injuries.

17 Toma, Andreea-Ioana, et al. "A Systematic Literature Review of Critical Success Factors for Digital Transformation in the Mining Industry." Journal of Business Research, vol. 173, 2024.

Implications for mining companies

- **Technology is not just a capex investment** – it's a change management journey that touches every layer of the organisation.

- **Operational readiness is non-negotiable:** new tools require updated risk controls, clearly defined work processes, and frontline capabilities that can evolve with the technology.

- **The companies that succeed will scale innovation safely and consistently**, using it to enhance — not complicate — reliability, performance, and resilience.

> **Without aligned leadership, robust risk management, and a culture of adaptability, even the best innovations can increase exposure to operational failure or serious injuries.**

dss+ Perspective

Making innovation work — safely, systematically, and at scale

At dss+, we help mining companies close the gap between digital ambition and operational reality. Our approach goes beyond implementation — we embed the leadership, systems, and behaviours needed to deliver results safely and sustainably.

We support clients in:

- Aligning leadership and cross-functional teams around a shared transformation roadmap – so operations, IT, and HSE speak the same language from day one.
- Integrating new technologies into risk and control frameworks, ensuring critical tasks remain safe as automation, sensors, or AI are deployed.
- Redesigning work processes and decision points to reflect the way technology changes how work gets done.
- Building workforce capability at scale, from frontline operators to supervisors and support teams – with a focus on adaptability, data literacy, and safe performance under change.
- Accelerating adoption through field-tested behavioural change strategies, coaching, and KPI alignment that reinforces both innovation and performance discipline.

We've helped clients safely integrate autonomous systems, reduce digital resistance on high-risk tasks, and strengthen frontline ownership of innovation. Because technology alone doesn't transform operations – people do. We make sure your people, systems, and culture are ready to lead that transformation.

Trend 5

Strategic supply chains – operational agility in an age of disruption

Key Insight

Systemic supply chain disruptions and climate volatility are exposing gaps in infrastructure, sourcing strategies, and operational continuity – turning supply chain resilience into a core performance driver.

Persistent global disruption in supply chains

In 2025, global supply chains remain in a state of prolonged volatility. From shipping bottlenecks in the Red Sea to export restrictions in Southeast Asia and regulatory shifts in Latin America, disruption is no longer episodic – it is systemic.

For mining companies, these disruptions are affecting every stage of operations: not only the movement of mined materials to market, but also the timely arrival of equipment, replacement parts, and critical inputs needed to maintain safe and productive operations. Notably, the United States' imposition of a 25% tariff on all steel and aluminum imports, effective March 12, 2025, has significantly increased the cost of mining equipment, as these metals are essential components in machinery and infrastructure. This policy change has led to higher operational expenses for mining companies, particularly those reliant on imported materials.[18]

Downstream supply chains are also affected. For example, China's April 2025 decision to impose licensing regulations on seven rare earth elements, including key inputs for electric vehicles and defence applications – a move that significantly disrupted downstream industries in the U.S. and Europe and reinforced the fragility of concentrated supply chains.[19]

The just-in-time model that prioritised cost efficiency is no longer fit for purpose in a world marked by geopolitical tensions, climate shocks, and infrastructure fragility. Mining leaders must now design supply chains for adaptability, redundancy, and resilience – not only to protect output, but to ensure operational continuity.

Geopolitics, protectionism, and strategic minerals

In response, governments across all major regions are asserting greater control over critical minerals and related supply chains:

- **In Indonesia, nickel exports are tightly controlled to support domestic processing mandates.**[20]
- **In Latin America, countries such as Mexico and Chile are introducing new restrictions on lithium concessions and renegotiating contracts with foreign miners.**[21 22]
- **In the EU, the Critical Raw Materials Act is driving efforts to secure reliable access through preferred partners and stricter sourcing standards.** [23]
- **In Africa, countries like Namibia and Zimbabwe are implementing export bans on unprocessed minerals to increase local value addition.** [24 25]

This growing fragmentation increases uncertainty across sourcing, project timelines, and investment decisions.

18 "U.S. Increases Tariffs on Imports of Iron and Steel, Aluminum Products and Their Derivatives." Holland & Knight, March 2025. https://www.hklaw.com/en/insights/publications/2025/03/eeuu-aumento-de-aranceles-a-las-importaciones-de-hierro-y-acero
19 Financial Times. "A Geopolitical Conflict over Minerals May Finally Be a Real Threat." Financial Times, 22 May 2025. https://www.ft.com/content/24187c18-9cfe-4b8c-8863-6f3bf09e2cd4.
20 https://www.reuters.com/markets/commodities/indonesia-extends-nickel-export-ban-2024-08-15
21 https://www.reuters.com/world/americas/mexico-sets-out-lithium-nationalisation-2023-02-19
22 https://www.bloomberg.com/news/articles/2023-04-20/chile-unveils-state-led-lithium-policy-shaking-up-mining-sector
23 https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661
24 https://www.mining-technology.com/news/namibia-critical-minerals-export-ban/
25 https://www.reuters.com/markets/commodities/zimbabwe-bans-export-raw-lithium-2022-12-20

Climate change and infrastructure volatility

Climate-related risks compound the challenge. Droughts in Southern Africa have disrupted hydroelectric power availability, while floods in Mozambique and Madagascar have damaged roads and rail networks, affecting the movement of goods and workers alike. Across the continent, infrastructure not originally designed for climate extremes is proving vulnerable, placing new stress on mining logistics and operations. These pressures demand a fundamental rethinking of how operations plan, procure, and maintain – with greater emphasis on agility, redundancy, and local partnerships.

> **The just-in-time model that prioritised cost efficiency is no longer fit for purpose in a world marked by geopolitical tensions, climate shocks, and infrastructure fragility.**

Implications for mining companies

- **Operational Exposure:** The ability to meet production targets increasingly depends on securing physical inputs—fuel, chemicals, tyres, components—and ensuring reliable power, water, and transport infrastructure.

- **Cost Volatility:** Disrupted supply lines often result in higher procurement costs, inflationary pressure on capital projects, and increased exposure to opportunistic pricing.

- **Strategic Planning Shifts:** Supply chain resilience has become a core enabler of business performance, requiring close integration with procurement, capital planning, and risk governance. Decisions around sourcing, inventory, and logistics must be revisited regularly to reflect changing global and regional dynamics

dss+ Perspective

Making supply chain disruption manageable, not destabilising

At dss+, we help mining companies move from reactive mitigation to proactive resilience – enabling operations to deliver consistently, even amid geopolitical volatility, infrastructure failure, and climate-driven shocks.

Our work focuses on aligning supply chain strategy with operational risk, production performance, and safety-critical outcomes. This means reducing exposure to cost volatility, delivery failure, and unplanned downtime — not just mapping risk, but managing it where it matters most.

We support clients through:

- Integrated risk frameworks that connect sourcing decisions with operational risk, maintenance schedules, and continuity planning across business functions and regions.
- End-to-end vulnerability mapping, identifying where supply interruptions could trigger safety incidents, missed production targets, or permit compliance issues.
- Contingency and scenario planning that helps leaders anticipate disruption — from power loss to export restrictions — and make confident decisions under pressure.
- Trade-off analysis and design support, helping procurement, operations, and leadership teams evaluate cost, redundancy, and local value pressures in dynamic environments.
- Capability-building for frontline, supply chain, and planning teams, embedding resilience into day-to-day decision-making and sourcing strategies.
- Execution alignment, ensuring that cross-functional teams implement adaptive supply chain strategies under real-world conditions – not just in theory.

We work side-by-side with mining leaders to strengthen flexibility, shorten reaction times, and sustain performance – even when circumstances shift rapidly. Our clients have reduced logistics risk exposure, stabilised inventory reliability, and maintained production during multi-week disruptions.

By embedding agility into day-to-day planning and capital decision-making, we help mining companies not just survive disruption, but sustain safe operations, reduce cost volatility, and maintain delivery performance – even under pressure. In an era where uncertainty is constant, supply chain resilience is no longer a contingency plan – it's a core driver of operational credibility and long-term value.

Trend

6

Compliance to competitiveness – operationalising ESG to unlock growth

Key Insight

ESG performance is now essential for capital access, licence to operate, and long-term value. The gap is not ambition, but execution – and integration into core business systems.

ESG as a value lever, not a reporting obligation

In 2025, the business case for ESG in mining is clearer than ever. Investors favour companies that can demonstrate responsible growth, operational resilience, and credible decarbonisation. Indeed over 80% of institutional investors now say ESG performance is a deciding factor in long-term capital allocation.[26] Governments are tying access to permits and incentives to environmental and social outcomes. And communities are increasingly demanding transparency, inclusion, and long-term value sharing.

But the real opportunity is not just in meeting expectations — it's in creating advantage. When ESG is integrated into how companies plan, lead, and operate, it becomes a lever for cost control, project stability, supply chain resilience, and long-term asset value. The payoff is tangible: smoother capital access, faster permitting, lower risk exposure, and greater workforce and stakeholder trust.

Yet for many mining organisations, a gap remains between ambition and delivery. ESG initiatives often run in parallel to core business processes, with limited accountability or operational ownership. As a result, companies struggle to translate goals into outcomes — creating scepticism internally and raising questions externally about credibility and readiness.

Why ESG strategies struggle to deliver impact

Many mining companies continue to treat ESG as a parallel initiative—managed by sustainability teams but disconnected from operational planning, risk management, and leadership incentives. This siloed approach limits impact, leading to unclear accountability, implementation delays, and inconsistent results.

Progress requires a shift in mindset. Leaders must move beyond compliance thinking and take ownership of ESG as a strategic business lever. Equally, organisations must build cultures that embed sustainability into decision-making at every level—from boardroom governance to frontline behaviours.

Artisanal and small-scale mining (ASM): a rising priority

Artisanal and small-scale mining (ASM) is becoming a more material concern for large mining companies — particularly where informal activity intersects with formal concessions or presents safety, social, or reputational risks. Host governments and civil society are increasingly expecting companies to engage constructively, with some firms exploring formalisation partnerships, infrastructure sharing, or local development programs. In high-ASM regions, understanding and managing these dynamics is now a critical component of social licence strategy — not just to reduce conflict, but to support safer, more inclusive growth models.

26 Bloomberg. ESG Outlook 2024: Investor Expectations Shift from Reporting to Results. January 2024. https://www.bloomberg.com/news/articles/2024-01-15/esg-outlook-2024-investors-focus-on-performance-over-pledges

Implications for mining companies

- **Integrated Risk and Performance Systems:**
  ESG-related risks – such as carbon exposure, water use, supply chain ethics, and social licence—need to be integrated into enterprise risk frameworks and core performance KPIs, not tracked separately.

- **Leadership Commitment and Cultural Alignment:**
  Culture change is critical. ESG execution requires visible leadership, new capabilities, and employee engagement that supports behavioural change, not just technical compliance.

- **Investor-Ready Outcomes:**
  Demonstrating ESG maturity requires transparency, consistent delivery, and a clear link between sustainability progress and business outcomes – cost, productivity, capital efficiency, and resilience.

dss+ Perspective

Embedding ESG for business endurance

At dss+, we help mining companies move beyond ESG ambition by embedding sustainability into the systems, decisions, and behaviours that drive operational and financial outcomes.

We work across leadership, operations, and frontline teams to ensure ESG execution is not a parallel track — but a core enabler of business performance, capital access, and stakeholder trust.

Our support includes:

- Aligning ESG with core governance, risk, and planning systems, ensuring that sustainability outcomes are reflected in enterprise KPIs, investment decisions, and operational routines — not just in reports.
- Embedding ESG into capital project design and delivery to reduce permitting delays, stakeholder friction, and cost overruns – while enhancing local value creation.
- Strengthening cross-functional accountability by supporting leadership teams, functional heads, and middle managers to take ownership of ESG performance in their domains.
- Building workforce capability and mindset, so that sustainability is embedded not only at the boardroom level but also in procurement, contractor management, and site-level execution.
- Turning ESG into a lever for cost control and resilience, helping clients reduce emissions, improve water and energy use, and simplify compliance – all while enhancing long-term asset performance.

We've helped mining organisations build ESG maturity into operational decision-making, mitigate reputational and regulatory risks, and earn investor confidence through clear, credible, and consistent delivery.

In a context where scrutiny is rising and the margin for error is shrinking, dss+ helps clients make ESG a competitive advantage – by making it work in practice.

What mining leaders should do now

The trends outlined in this report reveal a clear imperative: success in 2025 and beyond will hinge not only on sound strategy, but on the ability to execute under pressure, adapt quickly to shifting conditions, and lead with operational discipline. To build resilience and unlock value in this increasingly complex environment, mining leaders should focus on **five critical priorities:**

1.

Reassess your enterprise risk and operational exposure. This means conducting integrated, cross-functional reviews that factor in geopolitical developments, ESG obligations, and supply chain vulnerabilities. It also means elevating the prevention of serious injuries and fatalities, ensuring contractor safety is fully embedded in governance, and strengthening the consistency of critical control implementation across sites.

2.

Embed ESG into the core of your business. It should not be treated as a reporting requirement or external narrative. This involves aligning sustainability with investment criteria, operational KPIs, and workforce development strategies. Leaders should view ESG as a lever for securing capital, accelerating permitting, and building more resilient, responsible supply chains.

3.

Prepare for technology transformation by strengthening organisational readiness. The success of digital innovation depends less on tools and more on people. Companies must ensure that innovation efforts are matched by strong frontline capability, integrated risk governance, and a culture that is ready to adapt at pace. Safe, scalable implementation – not experimentation – should be the goal.

4.

Make leadership, culture, and workforce resilience strategic priorities. This includes reinforcing leadership accountability at every level – particularly among mid-level and contractor managers – and embedding psychological safety, inclusion, and continuous learning into everyday operations. These are not peripheral issues; they are core to performance, retention, and operational reliability.

5.

Ensure transformation efforts are systemic and embedded across the organisation. Safety, sustainability, operations, and supply chain performance are deeply interconnected – and must be led as such. Mining companies that move beyond functional silos and connect strategic goals with on-the-ground execution will be far better equipped to deliver measurable outcomes in volatile conditions.

From complexity to control

Strategic leadership for a new era

The mining industry of 2025 stands at a critical intersection. Leaders face growing volatility, rising stakeholder expectations, and intensifying pressure to decarbonise, digitalise, and deliver – all at once.

The companies that thrive won't be the ones with the most ambitious strategies, but those able to integrate them – embedding sustainability, safety, and innovation into the core of how they operate, lead, and create value.

This report has highlighted a common thread across every trend: resilience now depends on execution. That means aligning ESG with operations, embedding digital tools into safe workflows, managing contractor performance as rigorously as employee safety, and building leadership capability from the boardroom to the frontline.

We've seen firsthand how targeted changes – from improved critical control governance to new safety leadership models – can unlock meaningful gains in safety, reliability, and cost control.

The way forward is not about doing more, but about working differently: shifting from siloed risk and transformation efforts to interconnected systems that enable confident, adaptive decision-making.

At dss+, we help mining organisations lead through complexity by turning strategy into performance and risk into resilience – ensuring they're not only prepared for change, but positioned to lead it.

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About dss+

dss+ is the operational transformation partner for complex and high-hazard industries. Driven by our purpose, we help organisations achieve breakthroughs in safety, performance and sustainability that build business endurance and ensure long-term success.

We engage deeply within organisations to empower teams to shift mindsets, shape cultures, and establish the capabilities required at every level. We combine technical expertise and operational experience with a people-centred approach and data-driven insight.

Find out more at **www.consultdss.com**

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