KPMG

2024 Global Metals and Mining Outlook

Strategies for decarbonization and operational excellence

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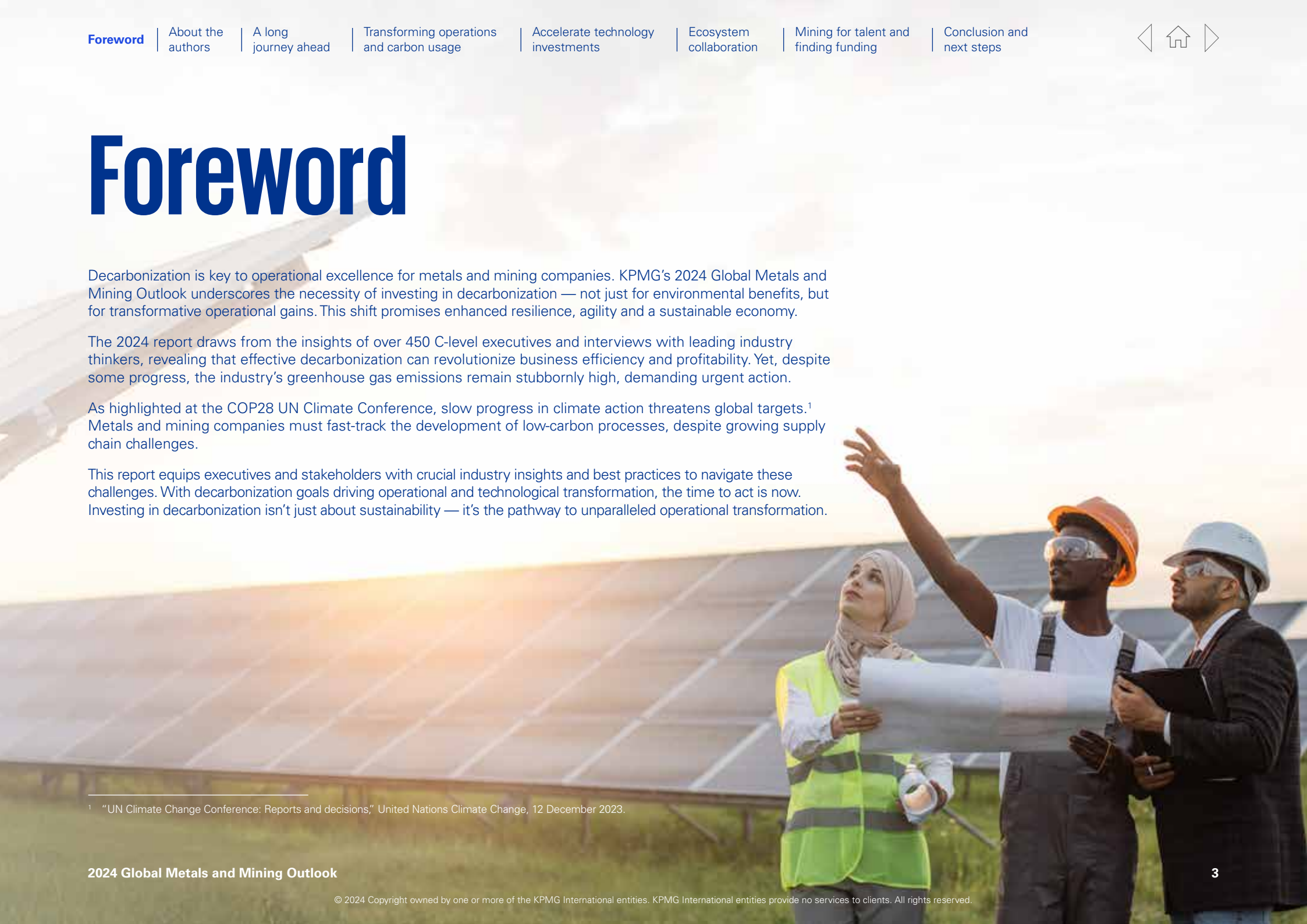
Foreword

Decarbonization is key to operational excellence for metals and mining companies. KPMG's 2024 Global Metals and Mining Outlook underscores the necessity of investing in decarbonization — not just for environmental benefits, but for transformative operational gains. This shift promises enhanced resilience, agility and a sustainable economy.

The 2024 report draws from the insights of over 450 C-level executives and interviews with leading industry thinkers, revealing that effective decarbonization can revolutionize business efficiency and profitability. Yet, despite some progress, the industry's greenhouse gas emissions remain stubbornly high, demanding urgent action.

As highlighted at the COP28 UN Climate Conference, slow progress in climate action threatens global targets.[1] Metals and mining companies must fast-track the development of low-carbon processes, despite growing supply chain challenges.

This report equips executives and stakeholders with crucial industry insights and best practices to navigate these challenges. With decarbonization goals driving operational and technological transformation, the time to act is now. Investing in decarbonization isn't just about sustainability — it's the pathway to unparalleled operational transformation.



[1] "UN Climate Change Conference: Reports and decisions," United Nations Climate Change, 12 December 2023.

Key findings

The opportunity potential is clear.

61%

are more confident than they were two years before about their company's growth prospects. Two-thirds say that this greater confidence is partly the result of increased optimism that their companies can meet their sustainability goals. Therefore, decarbonization is a significant business opportunity, especially when it is merged with operational transformation initiatives and social license to operate commitments. In fact,

57%

of executives say the most effective way of meeting their decarbonization goals is to integrate them into the overall corporate strategy.

But challenges abound. Metals and mining executives will need to raise billions of dollars to fund new production processes, amidst volatile commodity prices and ever shifting demand scenarios while searching labor markets for the vital skills to achieve carbon transformations.

Executives have identified many of the challenges they face.

47%

say skills shortages are the most important challenge that must be overcome when implementing the latest technologies.

They also need to hire more talent to address issues in the supply chain amid faster-changing markets, reflected in see-sawing prices. Commodity price volatility adds a new level of complexity.

66%

say that output prices have become more volatile, heightening business risks. Input-price volatility is more of a factor for mining companies (59 percent) than metals companies (46 percent).

These risks reflect the dramatic changes occurring in the sector in 2022 and 2023 that were highlighted in the KPMG *Mining and Metals Outlook*: severe supply chain disruptions, the war in Ukraine, and a surge in demand for battery materials. In 2023, we focused on the crucial role played by the mining and metals industries in enabling the global economy to shift to a carbon-free future. In 2024, our attention turns to examining efforts made by metals and mining companies to reduce their carbon emissions.

This year's report provides detailed insights into how companies are faring amidst these changes. It examines their priorities for the

next five years,

as they work to increase the cost-effectiveness of their operations while seeking to meet decarbonization goals. How do they balance managing short-term volatility against long-term objectives? How can they maintain confidence, while adapting to the realities of the market? The metals and mining industries have never been more challenging — or exciting.

About the research

In May to June 2024, KPMG conducted a global online survey of 453 executives, all of whom are in the C-suite or the board of directors. A third are chief executive officers. More than half (56 percent) of the executives work in roles directly related to decarbonization.

Executives in 20 countries responded to the survey.

41%
are in the Americas (17 percent in the US and 10 percent in Canada)

27%
in Europe, Middle East and Africa

32%
in Asia-Pacific (10 percent in Australia)

The responses are almost evenly divided between metals and mining companies, with three percent operating in both industries. Some 45 percent of the companies earn annual revenues greater than US$10 billion.

We interviewed six executives between June 6 and 13, 2024:

Mohammed Ali
Vice President, Sustainability & Regulatory Affairs, Agnico Eagle Mines

Sepanta Dorri
Vice President, Chief of Staff and Strategy Activation, Teck Resources

Patrick Drouin
President of Wheaton International and Chief Sustainability Officer, Wheaton Precious Metals

Craig Miller
Chief Executive Officer, Anglo American Platinum

Henning Opperman
Senior Vice President, Corporate Finance, Sibanye-Stillwater

Robert (Bob) Wilt
Chief Executive Officer, Ma'aden

We are grateful to the interviewees and the survey respondents for their time and insights.

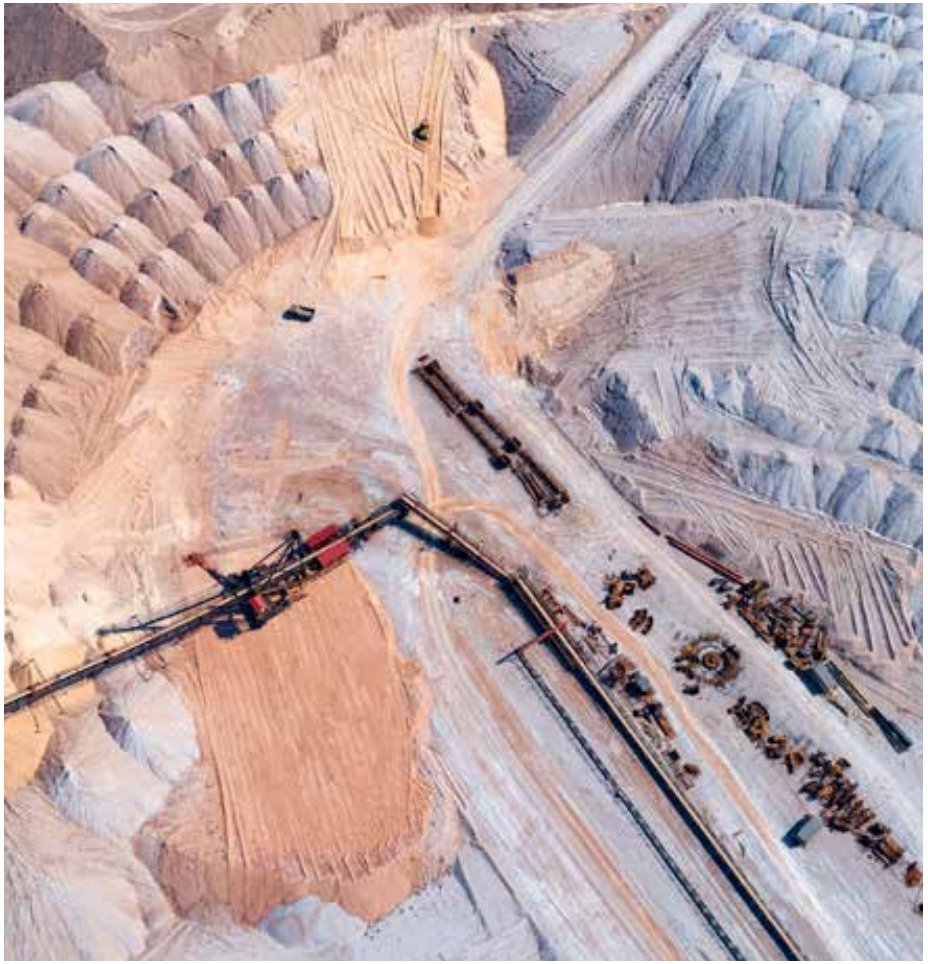
About the authors

Trevor Hart
Global Sector Leader, Mining
KPMG International

A West Australian, Trevor has worked with mining and metals companies as a Partner with KPMG in Australia for over 20 years. With significant Australian and international mining asset experience he ensures KPMG supports its clients in navigating complex capital markets transactions, business transformation and operational excellence initiatives. He has advised and audited ASX50 to ASX500 companies across commodities, including iron ore, coal, copper, lithium and gold. Trevor's extensive experience in the mining sector, combined with his leadership roles, ensures he understands the exploration, development, mining, and processing activities of the sector, as well as commodity markets.

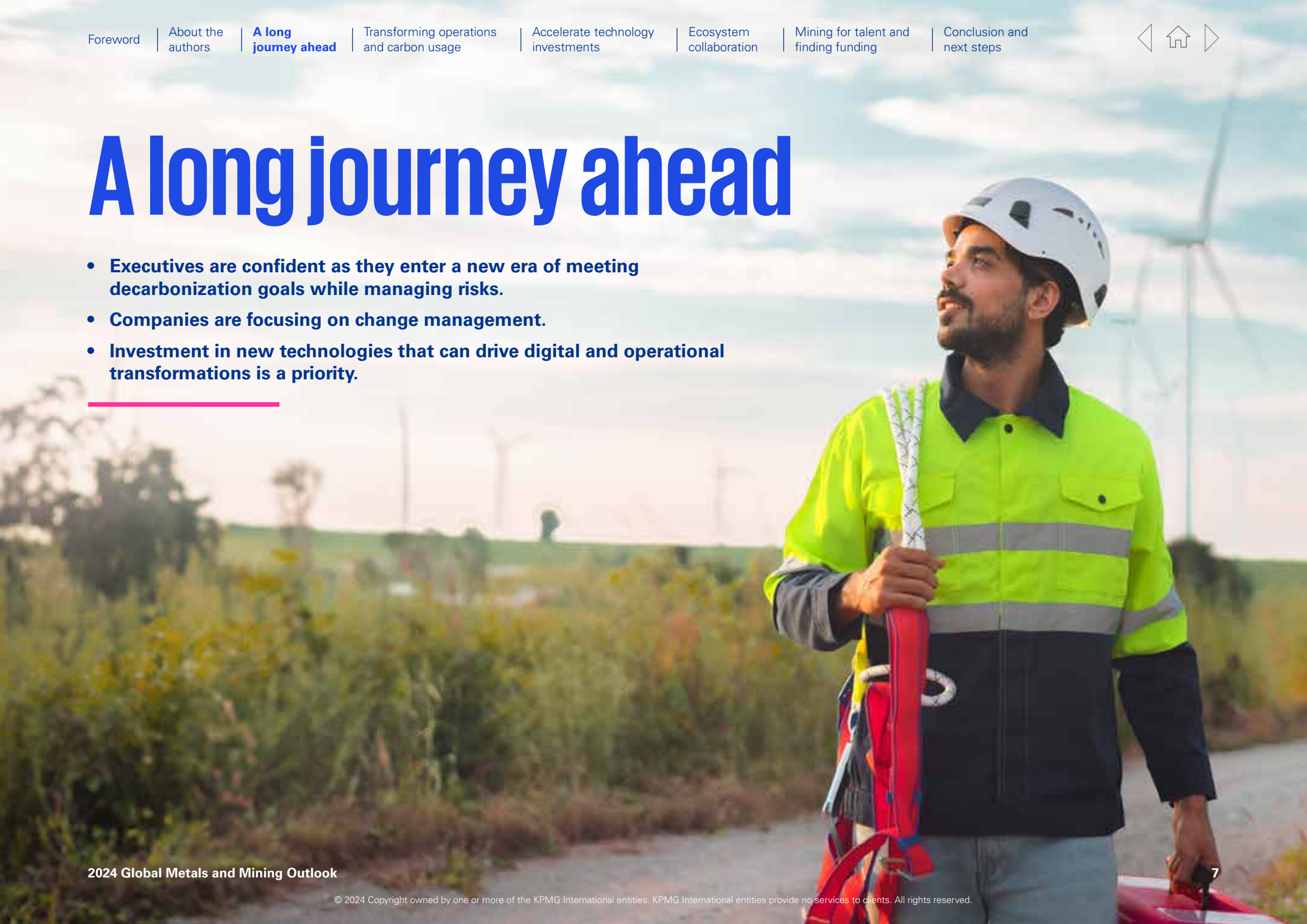
Ugo Platania
Global Sector Leader, Steel
KPMG International

Ugo is the KPMG Global Head for the Steel & Metals sector. He joined KPMG in the UK in 2001, where he advised major global clients on strategic and transformational initiatives. In October 2017, he became a Partner at KPMG in Luxembourg, responsible for developing the Corporate Management Consulting practice and acting as the Client Lead Partner for global metals companies. Prior to joining KPMG, Ugo gained extensive experience in corporate strategy and development, working within multinational organizations and start-ups. His consulting work has focused on organizational development, corporate transactions, market entries and regulatory changes, with a strong emphasis on stakeholder engagement.



A long journey ahead

- **Executives are confident as they enter a new era of meeting decarbonization goals while managing risks.**
- **Companies are focusing on change management.**
- **Investment in new technologies that can drive digital and operational transformations is a priority.**



Pivot to address new realities

The metals and mining industries have entered a brave, new era in managing their operations by unlocking decarbonization opportunities while mitigating risk. The mood among industry executives is positive as they make progress in the energy transition toward a net-zero emissions target. But they will need to accelerate decarbonization to achieve their goals, as they navigate fast-moving geopolitical trends, uncertain demand in countries such as China, and high interest rates. A failure to do so is likely to make it harder for the global economy to meet decarbonization targets, so the stakes could not be higher.

Companies are striving to become more agile in response to the new pressures. This will require re-strategizing, change management and digital transformation. They face tough, new KPIs for tracking and evaluating initiatives to reduce cost and decarbonize operations, while raising production. To achieve this operational transformation, companies in the sector must invest in new technology because the pace of change is accelerating, while at the same time the market for materials is more complex than ever.

Industry stakeholders' views — on trend or counter-intuitive?

Building on previous KPMG studies, this research gathered insights from over 450 C-level executives, the largest survey in the series. Additionally, it features perspectives from six senior industry executives and four top KPMG specialists. This forward-looking survey targets metals and mining sector executives and their stakeholders, including technology companies, financial services, government agencies and non-profits.

As of early 2023, industry estimates indicated that 75 percent of companies in both sectors have set net-zero objectives. Forty percent aim to achieve this by 2040 and 29 percent intend to do so by 2025.[2] Leading companies in the International Council on Mining and Metals have set a collective goal to reach net zero by 2050 for their Scope I and II emissions.[3]

The November 2023 United Nations Climate Change conference, COP28, spurred action on accelerating aspects of net-zero plans. Many key players in the industry pointed to the importance of renewable energy sources both for their own operations and in expanding national grid capacities.

Accelerating goals amid new geopolitical and macroeconomic pressures

KPMG's *Mining and Metals Outlook* in 2022 and 2023 reflected the dramatic changes occurring in the sector: severe supply chain disruptions, the war in Ukraine, and a surge in demand for battery materials. Two years ago, approximately 90 percent of executives surveyed were confident in growth prospects for their company and their industry over the next two years. In 2023, we focused on the crucial role played by the mining and metals industries in enabling the global economy to shift to a carbon-free future. In 2024, our attention turns to examining efforts made by metals and mining companies to reduce their carbon emissions.

> **"Confidence in the future among mining companies goes from strength to strength, reflecting the global need for mining ores. To add to the bullishness, there is likely to be a shrinking pool of mining companies that will be called upon to deliver them."**
>
> **Trevor Hart**
> Global Mining Leader,
> KPMG in Australia

Perceptions of the sector are improving in acknowledgement of their important role in the energy transition. "A decade ago, mining and metals were considered difficult and dirty industries, but now they have become a very critical part of the solution to the energy transition," says Ugo Platania, Global Sector Leader, Steel, KPMG in Luxembourg.

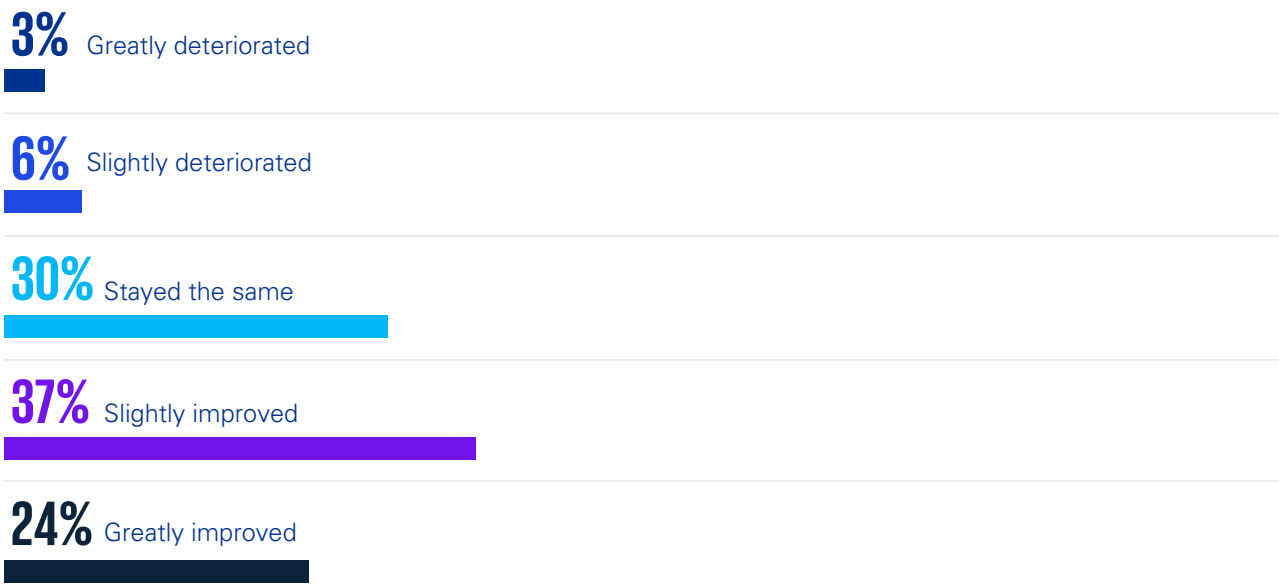
[2] "Net zero strategies in the mining sector," Research and Markets, February 2024.
[3] ICMM, "Our commitment to a goal of net zero by 2050 or sooner" (5 October 2021).

These hopeful signs, however, need to be seen in the light of tough realities. The KPMG Financial Performance Index for mining and metals shows a decline in the performance of mining and metals companies in the two years to the end of March 2024. Their index score has improved slightly in the most recent three quarters, but they continue to face headwinds from geopolitical disruptions and macroeconomic challenges. These include:

- Geopolitical risks continue to pose transportation and supply chain risks, along with the impact of continuing volatility on commodities (and energy) markets.
- Cooperation among some of the most sanctioned states in the international community, such as Iran, Russia and North Korea.
- Competition for critical minerals is disrupting globally integrated supply chains, demand trajectories and organizations across the globe.

In the KPMG Energy and Natural Resources Top Risks Forecast the outlook is for geopolitical volatility to continue to intensify, with disruptive events coming more frequently, lasting longer, and having deeper impacts.[4] Executives will likely need to redouble their climate change mitigation and containment efforts to prevent security, logistical, economic and business operating shocks from pushing them off course. These challenges will require better decision-making abilities and more sophisticated risk analysis. Artificial intelligence (AI) is one answer; more talented employees is another.

Has there been a change since 2022 in your level of confidence about growth prospects for your company's revenue over the next two years? It has:



> "A decade ago, mining and metals were considered difficult and dirty industries, but now they have become a critical part of the solution to the energy transition."

Ugo Platania
Global Sector Leader, Steel, KPMG in Luxembourg

[4] Energy and Natural Resources Top Risks Forecast, KPMG, 2024.

Creating value sustainably

Mining and metals companies are pivotal in the energy transition. Despite differing demand trajectories, regulatory environments and technology developments, strategic investments in new technologies for decarbonization and operational efficiency are crucial.

With clean energy technologies surging, global demand for critical minerals is set to double by 2040, and could even quadruple under sustainable development scenarios, according to the IEA.[5] This includes low-carbon power generation like solar, wind, nuclear, electric vehicles, battery storage and hydrogen for electrolysis and fuel cells.

Fuel cell electric vehicle growth will drive demand for lithium, copper and platinum group metals. The urgent need to combat climate change and the rapid evolution of clean energy technologies make large-scale investment commitments complex yet essential.

Changing commodity price volatility

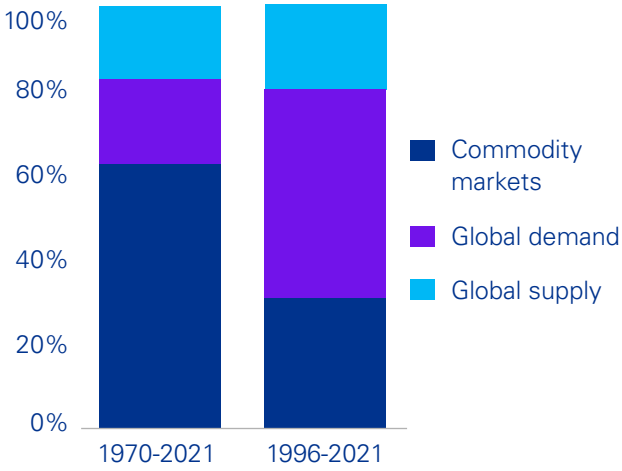
A simple way to understand the complexity of the sector's business environment is to consider the increased instability of input and output prices.

Sixty-six percent of executives say the volatility of output prices has increased in the past two years and 53 percent say input-price volatility has increased.

As the KPMG Financial Performance Index points out, record industrial commodity prices (by historical standards) carry a hidden threat. The last time there were such elevated levels was prior to the global financial crisis of 2008-09, when increased capital expenditure and higher cost structures led to subsequent asset write-downs, with much of the past decade spent rebuilding balance sheets. Executives should bear this in mind as they invest in new technology and decarbonization projects.

Commodity-price volatility has increased over the past 10 years, driven by various, new risks. Some industry analysis points to 10 to 20 percent commodity price volatility, on average, since 2017. A World Bank study[6] analyzes the drivers of change in commodity price volatility.It found that since 1996, commodity price shifts have been driven by macroeconomic shocks rather than changes specific to particular commodity markets. In recent years, global demand shocks account for 50 percent of the variance in commodity price growth. Global supply shocks account for only 20 percent and changes in commodity markets 30 percent.

Commodity price cycles: Causes and Consequences



Sources: Baumeister and Hamilton (2019); Ha, Kose, and Ohnsorge (2021); Kabundi and Zahid (Forthcoming); World Bank.

[5] International Energy Agency, "The Role of Critical Minerals in Clean Energy Transitions". (May 2021).
[6] World Bank, "Commodity price cycles: Causes and consequences" (January 2022).