



Risks and opportunities for mining

Outlook 2019

“With risk comes opportunity”

This adage could well represent the findings from this year’s KPMG survey of executives in the mining industry.

Every year, KPMG asks mining executives about the state of their industry, key trends, and their expectations for their organizations. This year, we expanded the survey to capture key global market trends, backed by responses from over 130 executives and industry highlights from Canada, Australia, Brazil and South Africa.

The survey was conducted during a year of growing uncertainty combined with strong growth potential for the mining industry. Of course, the recent disaster at Brumadinho in Brazil is the most sobering example of how dynamic and catastrophic risks can become reality. Many of the risks and opportunities we discuss in this report are interrelated and none more so than those impacting the obligation to safely conduct enterprise. The entire sector feels an event such as Brumadinho as industry participants reflect on the devastating impact it has on so many lives.

Certainly I see greater appetite for miners to collaborate as the industry faces an ever increasing rate of change in risks as well as expectations from many different stakeholders on key aspects of safety, community and the environment.



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Top 10 risks in mining



Percentages represent portion of global respondents who ranked as a top risk.

Continuity and change in the risk landscape



Comparing our latest global survey with results from last year, we see a measure of continuity, but also several key changes. Overall, the top risks for this year's survey were generally consistent with the previous year, including commodity prices, permitting, capital access, and issues involving community relations and the social license to operate.

The ability to access and replace reserves, economic uncertainty, political risk, community relations and social license to operate, and access to talent all rose in ranking, likely partly due to political and economic uncertainty driven by concerns over a global trade war.

Access to talent has moved into the top 10 ranking. Attracting talent has long been a challenge for the

mining industry, due in part to operations in remote locations and need for specialized skills. However, the adoption of new technologies and increased competition with other sectors for key talent have continued to put upward pressure on labor costs. This may encourage the deployment of new technologies to change where and when work is done, such as using remote operation control centers, which could have the added benefit of improving employee health and safety.

Interestingly, compared to last year, the control of capital costs has dropped year over year from risk number 5 to number 12, probably due to the decline in capital spending in recent years. Some predict the global industry will experience a projected shortfall in the supply of metals due to limited investment in brownfield and greenfield projects



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The ability to manage an evolving workforce was reported as the number one capability needed by mining companies.

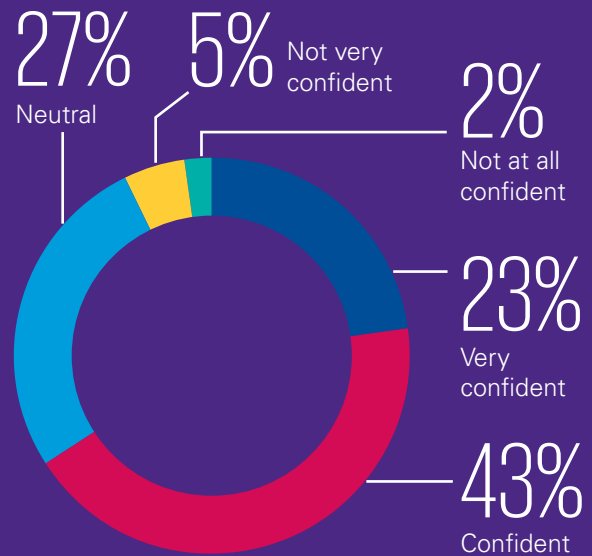


and a continued decline in ore grades. In response, capital project spending is likely to increase in general over the next several years and, in particular, for project developments in geographically remote locations as companies turn their focus to replacing reserves.

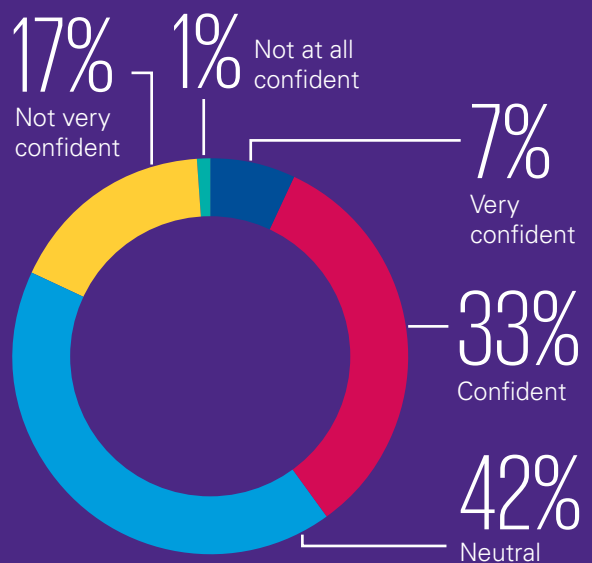
The survey also examined differences in risk by industry sector. Commodity price risk was higher for base metals than for precious metals and similarly, the possibility of an economic downturn was considered to be higher for base metals than for precious metals. This may be driven by the potential slowdown in the Chinese economy. Regulatory, compliance and environmental risks were reported to be less for precious metals than for all other metals.

Outlook for growth

Confidence in growth for organization over the next 12 months



Confidence in growth for industry over the next 12 months

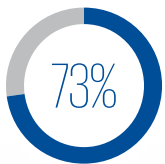


Confidence in the future

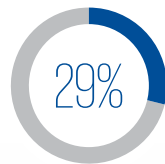
Even in the face of continued risks, the global mining industry remains generally confident about the future. The survey asked respondents how their growth outlook compared with the same time the year before. Overall, 66 percent of respondents said they are “confident” or “very confident” about the growth prospects of their organization in the next 12 months. Interestingly, executives were more optimistic about the growth prospects of their own organizations than about those of the mining industry.

The industry is seeing a move toward innovative alliances and partnerships to drive growth. “New forms of partnering won’t be just about governments, society and communities. It will also be about partnerships with customers, suppliers and even, competitors,” said Jean-Sebastien Jacques, CEO of Rio Tinto, in a recent address.¹ He added that partnerships could also help companies secure breakthroughs such as self-steering ships to transport materials.

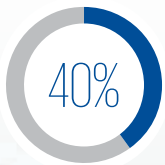
Strategies for achieving growth



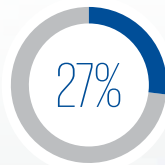
▶ Organic growth



▶ Innovation and technological transformation



▶ Mergers and acquisitions (M&As)



▶ Joint ventures (JVs) and partnerships

Global talent search

Access to key talent was ranked number 10, up from number 11 in the prior year. Equally important, the ability to manage an evolving workforce was reported as the number one capability needed by mining companies.²

Mining organizations are using new tools including cloud-based HR systems, data analysis of employee performance and real-time digital learning to manage and develop talent. While traditional roles such as mining engineers and geologists remain highly important, less traditional roles such as data scientist or geopolitical specialist were cited as “highly important” or “somewhat important” by respondents.³ Equally significant was the fact that 39 percent said that a workforce capability involving emerging technologies was “highly important.”



¹ <http://www.mining.com/web/rio-tinto-sees-new-style-partnerships-future/>
² “Highly important” for over 60 percent
³ Almost 80 percent for both roles

Investment in digital and innovation

Innovation and technological transformation will be a significant growth strategy for mining companies, according to respondents. A total of 29 percent plan to use innovation and tech transformation for growth, and 37 percent expect major disruption from these factors in next three years. Interestingly, respondents do not list technology as a top risk, although 33 percent expect it will weaken or eliminate traditional leaders in the sector.

The highest level of investment is occurring in areas such as data and analytics tools (53 percent), autonomous vehicles or AVs (30 percent), and robotic process automation (29 percent).

According to the World Economic Forum, digital transformation offers a potential benefit of approximately US\$190 billion for the mining industry.⁴ Pilot programs for digital mining now include big data analysis, knowledge production and mining mechanization. Companies are exploring the use of drones, advanced visualization

technologies, remote rock-breaking hydraulic arms, and underground sensors monitoring people and equipment.

As one of many examples of innovation through technology, Rio Tinto now uses AV trucks to haul about a quarter of ore and waste material across the company's five sites in Australia's Pilbara region.⁵ The aim of the trial operations in 2018 was to reduce the injuries attributed to haul trucks by equipping them with an autonomous haulage system (AHS). The company also reports that driverless trucks have proven to be more efficient than their manned counterparts, with autonomous vehicles operating 700 hours longer and with 15 percent lower unit costs.

We expect mining companies will increasingly adopt emerging technologies to transform their operations in order to gain benefits such as reduced costs, improved health and safety of workers, minimized environmental impacts and a better understanding of the ore body.

73% see technological disruption as more of an opportunity than a threat.

42% say they are actively disrupting the sector.

M&A on the rise

M&A is also on the rise, an example of this being Barrick Gold Corporation's merger with Randgold, an Africa-focused gold mining company, in a share-for-share deal valued at US\$6.5 billion.⁶ The deal closed in January 2019 and set Barrick up to be the industry-leading gold company until Newmont announced its proposed US\$10 billion acquisition of Goldcorp. The market's reaction to these mergers and comments from both Barrick and Newmont regarding potential sales of non-core assets suggests the potential for more M&A and consolidation in the industry.



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⁴ <http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/wef-dti-mining-and-metals-white-paper.pdf>

⁵ <http://www.mining.com/rio-tinto-autonomous-trucks-now-hauling-quarter-pilbara-material/>

⁶ <https://www.forbes.com/sites/greatspeculations/2018/09/27/barrick-gold-randgold-merger-a-new-gold-mammoth-in-the-making/#6a362ee6211e>

A sample of national highlights

Several differences were identified among respondents depending on their geographical location. For example, Canadian respondents reported commodity prices and liquidity as the highest risk. In all other countries, the top risks were economic uncertainty, regulations, and challenges regarding community relationships and the social license to operate.

The following examples help illustrate a number of current risk issues:



Regulatory change and a new administration for Brazil

Political change/uncertainty was risk number 7 in this year's survey. With the recent election of Jair Bolsonaro as president of Brazil, dramatic changes are expected in the Brazilian government. Bolsonaro has indicated his government will take a more deregulated approach to the extraction of natural resources, as well as other measures designed to encourage business development.

The mining industry in Brazil is regulated by the Mining Code enacted in 1967. While the code has been amended several times, its regulations have been updated through a recently enacted decree.⁷ Changes include measures to allow for mining titles to be used as guarantees for financing. The legal modifications will open up about 20,000 exploration areas for auction where permit applications have previously been stalled or been abandoned. The new Mining Agency, effectively created at the end of 2018, will also have an important role in the modernization of the sector regulation.

In addition, the recent tailings dam accidents will significantly impact discussions about the role and responsibilities of the mining sector in the country, increasing the risks related to Environmental licenses and community relations and social license to operate.

▶ Political change/uncertainty was risk number 7



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⁷ <http://www.mining.com/brazil-opens-new-mining-agency-days-temers-govt-ends/>

South Africa welcomes new mining charter

South Africa is the continent's most industrialized country and a region rich in mining resources, however, the local mining industry faces a number of pressing issues that are increasing risk levels. Mining companies are seeing regulatory changes (risk number 8) and risks in social license to operate (risk number 3).

The government has recently published a revamped mining charter that requires minimum BEE shareholding of mining companies to remain at 26 percent for the duration of the existing mine rights and 30 percent BEE shareholding for new mine rights. In addition, the "once empowered, always empowered" principle has been accepted which means companies that met the requirements previously won't be forced to issue or sell new shares to BEE investors.

In the areas of precious metals, a continued depletion of resources has forced miners into ever deeper and more expensive operations and higher labor costs. As a result, producers have been forced to lay off workers to trim operational costs, and companies have experienced an increase in labor strikes.⁸

New mining charter provides
more certainty.

Canadian markets

Canadian stock exchanges are the global leader in mining financings,⁹ and Canada continues to be a global hub for mining finance. It is no surprise that access to capital and commodity prices continue to rank in the top three risks by Canadian respondents, as companies navigate a volatile market.

At risk ranking number 2, permitting also continues to be top of mind for Canadian respondents. Canadian mining companies continue to face increasing levels of regulation and scrutiny in order to get key mining permits granted, both at home, in Canada and across the globe. With new mining projects pushing deeper into socially and environmentally sensitive areas, responsible extractive and processing methods continue to be paramount. However, these can have a material impact on development and operating costs that can be challenging to absorb, especially in periods of low commodity prices.

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⁸ <https://www.fitchsolutions.com/corporates/metals-mining/stimulus-plan-unlikely-revive-bleak-south-african-mining-outlook-05-10-2018>

⁹ <https://www.tsx.com/listings/listing-with-us/sector-and-product-profiles/mining>



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Coenie is an audit partner with a focus on the mining industry in South Africa. He has over 20 years' experience with multinational multi-listed clients, primarily in the gold, platinum, chemicals, pulp and paper and oil and gas industries. He has widespread audit experience of IFRS, US GAAP and internal control over financial reporting (ICOFR) reporting for JSE, NYSE, TSX and NASDAQ listed groups, and has also worked on IPOs, spin-offs, fundraisings and carve-out financial statements as well as ICOFR implementations. Coenie is also involved with several non-audit clients on advisory engagements.



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Heather is a Partner in KPMG's Canadian Mining practice and is the Toronto Mining Industry Leader. Heather has specialized in the industry for close to 15 years and has an in-depth understanding of the risks and challenges faced by mining companies. She has significant experience providing internal and external audit, risk and control services, as well as accounting and transaction assistance to companies at all stages in the mining life cycle. Over the course of her career, Heather has visited over twenty mine sites on six continents.

Australia focusing on social license to operate, productivity and talent

Like much of the global mining sector, macro-economic instability (risk number 5 globally, number 2 for Australia), along with regulatory and compliance changes/burden and commodity price risks, are presenting challenges in the Australian market. However, this is not a new challenge and the market has adapted to operating in this environment which is why it no longer ranks as highly as other risks on a residual risk basis.

The top three areas of focus arising from the survey were noted to be:

Community relations and social license to operate

How the needs and rising expectations of communities, governments, employees and other stakeholders is managed, has a profound impact on an organization's reputation and "social currency". The impact of events caused by other companies also impacts the industry as a whole. The Royal Commission into banking and the APRA report into CBA have escalated the focus on trust in large organizations. Not only does this have an impact on shareholders and future access to resources but also on the community and current/future employees.

Controlling operating costs – Productivity

The impact of emerging technology, process automation and disruption, increasing operating costs, and accessibility of reserves (i.e. digging deeper and extracting less) are impacting levels of production, costs and competitiveness.

Access to key talent

Recent declines in mining engineering related enrolments, combined with the recent uptick in mining activity, has led to an increase in the demand for talent. Of further concern is the demand for digital talent (refer to the data management risk), which places the industry in competition with industries and organizations which may be perceived to be less volatile. (Google etc.).

Social license to operate risk

continues to increase as
trust in large organizations declines.



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Caron is a Partner and Australian Lead for risk management in the mining sector. She has over 20 years' experience in governance and risk management as well as external and internal audit. Caron works with clients to facilitate identification and management of strategic and operational risks (including emerging risks). She also helps clients define risk maturity and draft risk procedures. Caron is also accredited to perform Dynamic Risk Assessment whereby risk connectivity and velocity can also be determined.

With experience gained from working with clients at all stages of maturity, of all sizes and located across the world, Caron is able to bring pragmatic commercial solutions and approaches to developing and embedding risk frameworks and creating sound risk cultures to ensure decision-making processes reflect the board's risk appetite.

Opportunities to create new value

Change is the only certainty for today's global mining industry. Along with traditional risks such as commodity price and access to reserves, new and growing threats involving cyber-attacks, access to water and energy, health and safety issues, climate change and a host of other factors all play a critical role in the risk landscape. However, miners can also help support growth and sustainability through the adoption of innovative technologies designed to better manage operational

costs, improve extraction methods, streamline distribution, increase worker productivity, and mitigate risks by building new partnerships and attracting the right talent. In every case, the proper strategic response to risk can be an opportunity to create value for mining companies.

For more information about this survey and risk management for today's global mining industry, contact your KPMG representative.



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