

Transition-opportunity sector profiles

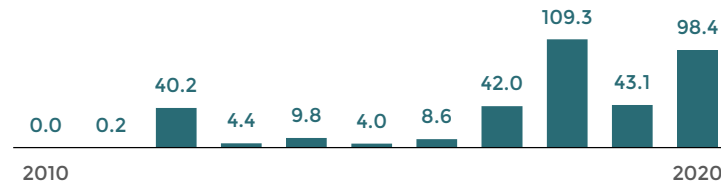
MINING TECH

Mining technology includes technologies or processes that improve the environmental performance of mining, including extraction of minerals and metals from tailings, recycling, underground mining, and electric or efficient mining vehicles and equipment.

Global market (67 companies)

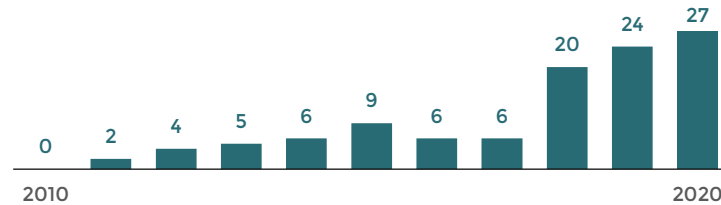
Capital invested (\$M)*

Total: \$360 million



Deal count*

Increased from zero in 2010 to 27 in 2020



Global low-carbon scenarios and trends

- Demand for minerals/metals (e.g., copper, zinc, nickel, silver) is expected to grow with expansion of renewable electricity, battery, and EV markets.¹
- The “smart mining” market was worth between \$7 and \$10 billion in 2019 and could reach \$13–\$38 billion by 2027 (CAGR 8%- 20%).^{2,3}
- Increased mining activity combined with growing pressure to improve environmental performance will drive mining technology demand.

Global market dynamics

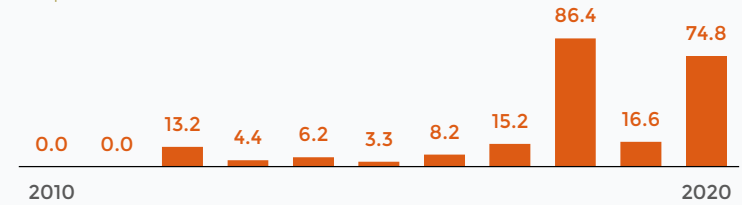
- Small technology companies represented in the investment data shown above are only a portion of overall mining technology investment, with large multinational mining companies (mainly Australian, American and Canadian) dominating overall investment activity.
- Environmental, social, and governance (ESG) performance of mining companies will increasingly be a factor in competitiveness, driving demand for technology that improves credentials.
- Rising demand for certain minerals could cause commodity price inflation, fueling a boom in investment related to mining and greater interest in mineral and metal recycling.⁴

*Source: PitchBook Data, Inc. (2021). Data is drawn from a custom search that has not been reviewed by PitchBook Analysts.

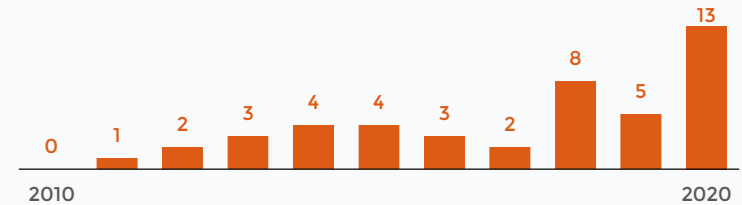
Canadian market (14 companies)

Capital invested (\$M)

Total: \$228 million



Increased from zero in 2010 to 13 in 2020



Canadian net-zero scenarios and trends

- Domestic demand for mining technology will increase with growth in mining activity (linked to global demand), along with pressure to address emissions and ecosystem impacts.
- Domestic mineral and metal demand depends on the pace and scale of growth in Canadian manufacturing of low-carbon goods (e.g., EV batteries, wind turbines, solar panels).

Canadian competitiveness

Incumbent multinational, exporting mining companies with dominant market position.

➤ Advantages

- Canadian companies invest a big share of global mining exploration (37% in 2018).⁵
- Strategic access for US importers.⁶
- Mining tech companies attracting significant investment (6 of top 12 as of August 2021).

✘ Disadvantages

- Regulatory barriers with using new tech.⁷
- Higher financial risk of being tech leader.⁸

NOTABLE COMPANIES

MineSense raised \$22.5 million in 2020.⁹

Excir: is developing a technology that extracts precious metals from e-waste.

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The information and data contained in this analysis has been obtained or prepared from publicly available documents and other sources prepared by third parties, some of which may be proprietary and used under license. In particular, the global and domestic investment trends included in the two figures are obtained from PitchBook Data, Inc., drawn from customized searches that have not been reviewed by PitchBook analysts. These data and trends also underestimate total market activity. The PitchBook database contains information on over 3 million companies globally but is not exhaustive. Within this database, not all deals are included and not all deals have a disclosed value. The sector also only includes companies whose primary line of business aligns with the sector description (e.g., it excludes large multinationals with multiple lines of goods/services and those with only indirect linkages to the sector). Total investment includes company-level data through December 31, 2020.

All dollar values included in this document are expressed in USD.

Endnotes

- 1 Baker & McKenzie. 2020. Mining & Metals Forecast 2020: Industry Trends. https://www.bakermckenzie.com/-/media/files/insight/publications/2020/06/m_m_industry_trends_technology_in_mining_20200625.pdf
- 2 Market growth estimates are an adjusted average from three sources: Research and Markets. 2020. "The Global Smart Mining Market: Growth, Trends and Forecasts (2020-2025)." Press release. January 16; Mordor Intelligence. 2020. "Smart Mining Market: Growth, Trends, COVID-19 Impact, and Forecasts (2021-2026)"; ReportLinker. 2020. "Smart Mining Market to 2027: Global Analysis and Forecasts by Component, Mining Type, and Geography." April 15.
- 3 Smart mining refers to the use of information and data, autonomy, and technology to facilitate high productivity, enhanced safety, and diminished operational costs during the mining process.
- 4 Peter Tertzakian. 2021. "Another Commodity Supercycle is Coming – This Time Driven by Renewable Energy and EVs." Financial Post. January 28.
- 5 Ibid.
- 6 Sarah Ladislav, Lachlan Carey, and Hillary Bright. 2019. Critical Minerals and the Role of the U.S. Mining in a Low-Carbon Future. Center for Strategic and International Studies. December 18. <https://www.csis.org/analysis/critical-minerals-and-role-us-mining-low-carbon-future>
- 7 Natural Resources Canada. 2011. Regulatory Barrier Identification and Analysis: Green Mining. Government of Canada. <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/mining-resources/publications-and-reports-regulatory-barrier-identification-and-analysis-green-mining/8780>
- 8 Ibid.
- 9 PitchBook Data Inc. 2021. Custom search (data has not been reviewed by PitchBook analysts). [Pitchbook.com](https://pitchbook.com)