Remote Controlled: Technology and the Canadian Mining Sector - Part III: Preliminary Ontario Case Study Findings

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ONTARIO MINING CONTEXT

Ontario Mining Sector – Facts and Figures

- 29 metal mines in Ontario (gold, base metals, iron, platinum group)
- The mining sector produced $11.1 billion worth of minerals, which accounted for 20% of Canada's total production value.
- Mining in Ontario directly contributed an estimated annual total of $8.0 billion to gross domestic product (GDP), $2.9 billion in wages and salaries, and approximately 75,000 jobs in the province via direct, indirect and induced channels.
- There are over 1,400 mining supply and service companies in Ontario; the sector employs more than 40,000 people and Ontario produces more than $10 billion worth of mining supplies and services every year.

Source: Ontario Mining Association, 2021, Facts and Figures

ONTARIO CASE STUDY/ NATIONAL CONTEXT

Progress To Date

- Completed 11 Phase 1 interviews with national and provincial industry experts
- Currently conducting Phase 2 and 3 interviews with mining companies and mining-related technology companies

PRELIMINARY FINDINGS

Technologies

- Ventilation
- Wearable technology
- Software
- Battery electric vehicles (BEVs)
- Drones
- Autonomous vehicles
- Remote operations
- Artificial Intelligence
- Fiber optics, wireless LTE
- IoT and sensors (RFIDs)

Drivers

- Labour shortages
- Safety
- Need for better coordination of data for risk detection
- Improving efficiency and productivity
- Improved data
- Enabling the use of other technologies
- Less maintenance required
- Cost efficiency
- Clean technology production and environmentally friendly solutions
- Accuracy and reliability

Barriers

- Technology limitations and infrastructure challenges
- Hostile underground environments
- Culture in the mining industry
- Requirements for implementing technology
- Lack of skilled/trained workers
- Curriculum and training program challenges
- Cost of implementing new technologies
- Investment and strong business cases needed
- Regulations & legislation on technologies
- Social license to operate

Impacts

- **Employment impacts** (e.g., reduce labour costs in mining and transfer to service sector to develop tech, declining number of employees in mining and shift to high skilled workers, new employment opportunities as mines become economical with tech adoption)
- **New skills, education or training opportunities needed** (e.g., technical skills needed in IT, computer coding/programming, AI, mechanical, electrical and computer engineering, critical problem-solving skills, teamwork, communication, and blended skills)
- **Impacts on business development** (e.g., cross sector opportunities, adopt technologies to stay competitive)
- **Industry, government, unions, postsecondary responses to impacts** (e.g., committees reviewing regulation changes, new training programs)

Thank You! Questions?

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Project Website: https://uwaterloo.ca/disruptive-technologies-economic-development/

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