Kick-off Webinar

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INTERNATIONAL MINERALS INNOVATION INSTITUTE

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Section on Prevention in the Mining Industry

Land Acknowledgement:

We acknowledge that the land on which we gather is Treaty six territory and the homeland of the Metis people.

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Safety Moment:

Mental Health & Stress

- **Signs:**
  - Mood swings, increased irritability
  - Social withdrawal
  - Decreased productivity.
- **Strategies:**
  - Encourage maintaining a healthy work-life balance & self-care.
  - Building resilience, promote growth mindset.
  - Foster supportive connections in work teams.
  - Support options availability & encourage seeking help.

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Partners:

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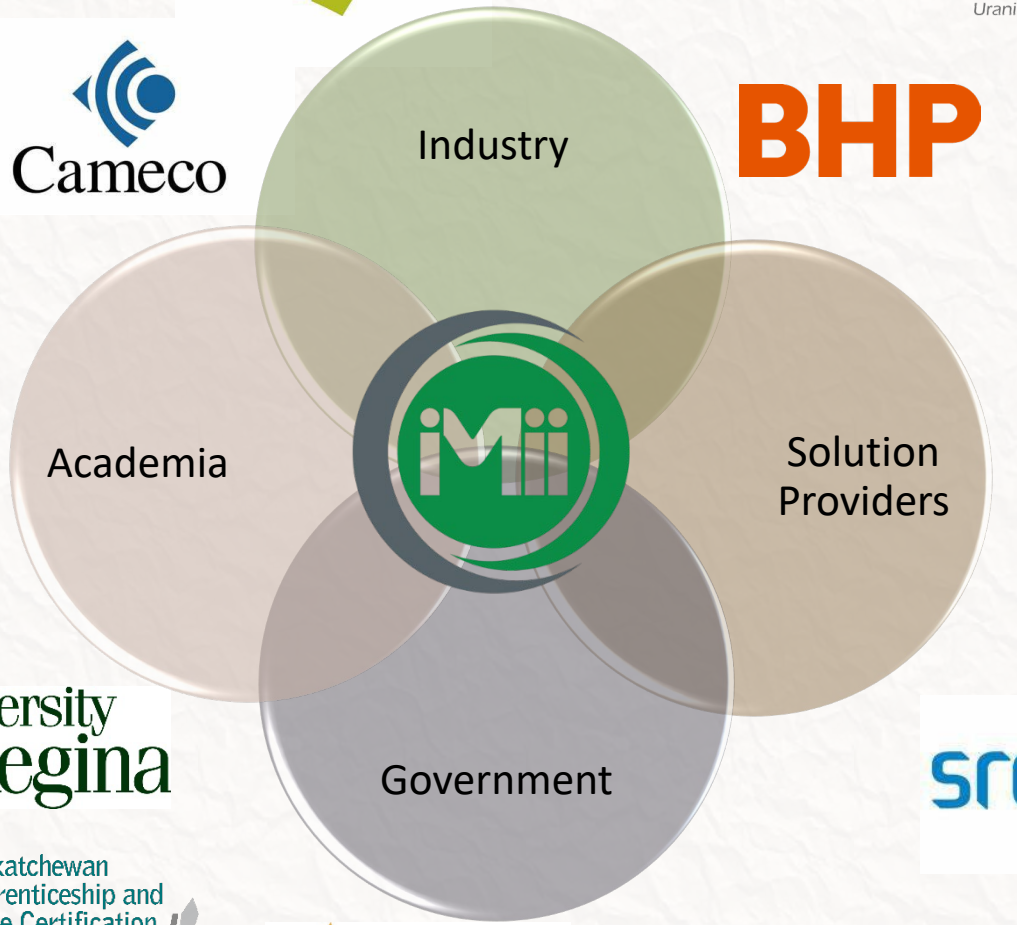
IMII:

- Facilitate intersections to drive innovation.
- We belong where collaboration matters
- Draw and deliver value for all collaborators.



2025 Members

SMA Saskatchewan Mining Association
PALADIN
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ISSA INTERNATIONAL SOCIAL SECURITY ASSOCIATION on Prevention in the Mining Industry

AI4SafeMines Student Competition

Compete to develop an application layer tool using AI that can make an impact on health and safety, focusing on in field hazard identification and interventions.

Mine Safety Themes:

Environmental Hazard Awareness: Leverage AI combined with sensors to alert people to hazards they can't see (electricity, radiation, airborne contaminants, etc.).

Human Health and Well-being: Could be used to AI detect declining fit for duty during a shift and intervene?

Equipment and safety: Can AI assist in developing a safe operation readiness program for bringing new system online? Or, could AI help to stop equipment or infrastructure failure in between inspections?

Training and Performance: Use AI to monitor, assist or improve developing, following and forgetting procedures. Could AI improve quality or performance with tips for improvement?

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What it involves:

Step 1: Form Teams of 3

Step 2: Select a challenge from the mine safety themes

Step 3: Develop and submit your Expression of Interest – Due Feb. 26, 2026

Step 4: If selected (10 teams), prepare your preliminary pitch to present on March 31, 2026

Step 5: If selected (3 teams), develop your ai innovation with seed money, strengthen and further develop your pitch with the help of mentors.

Step 6: Present your ai-based mine safety innovation at the ISSA International Safety Mining Conference in Saskatoon – Sept. 24, 2026

Step 7: Winning Team Receives their Prize.

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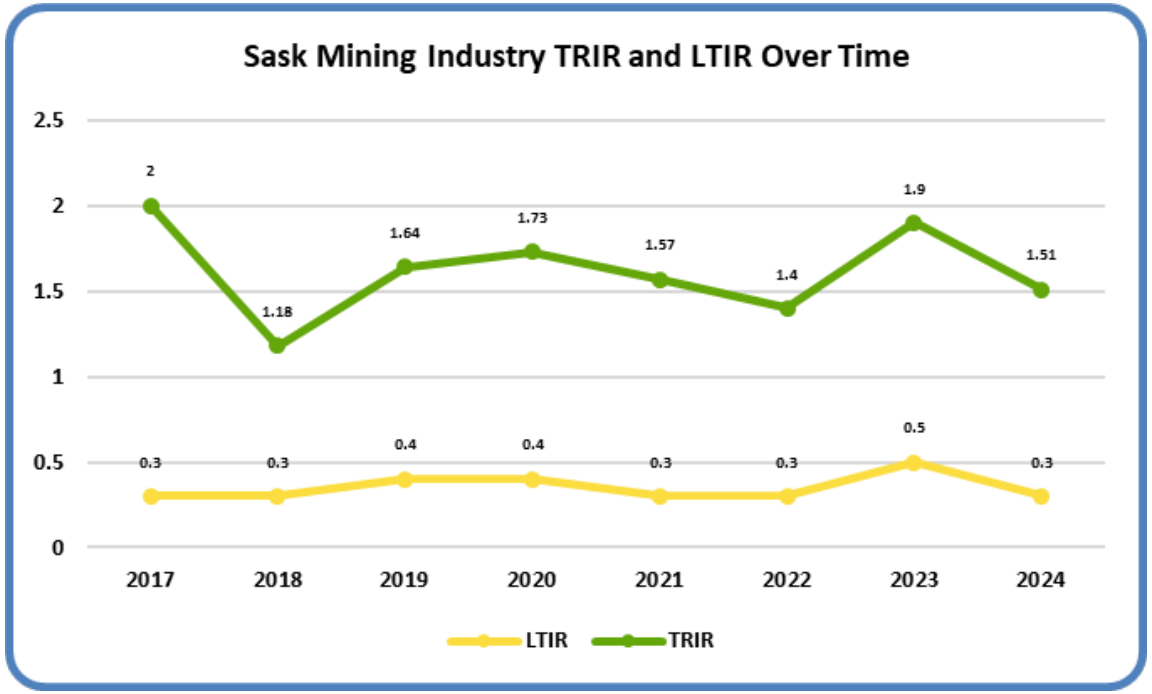
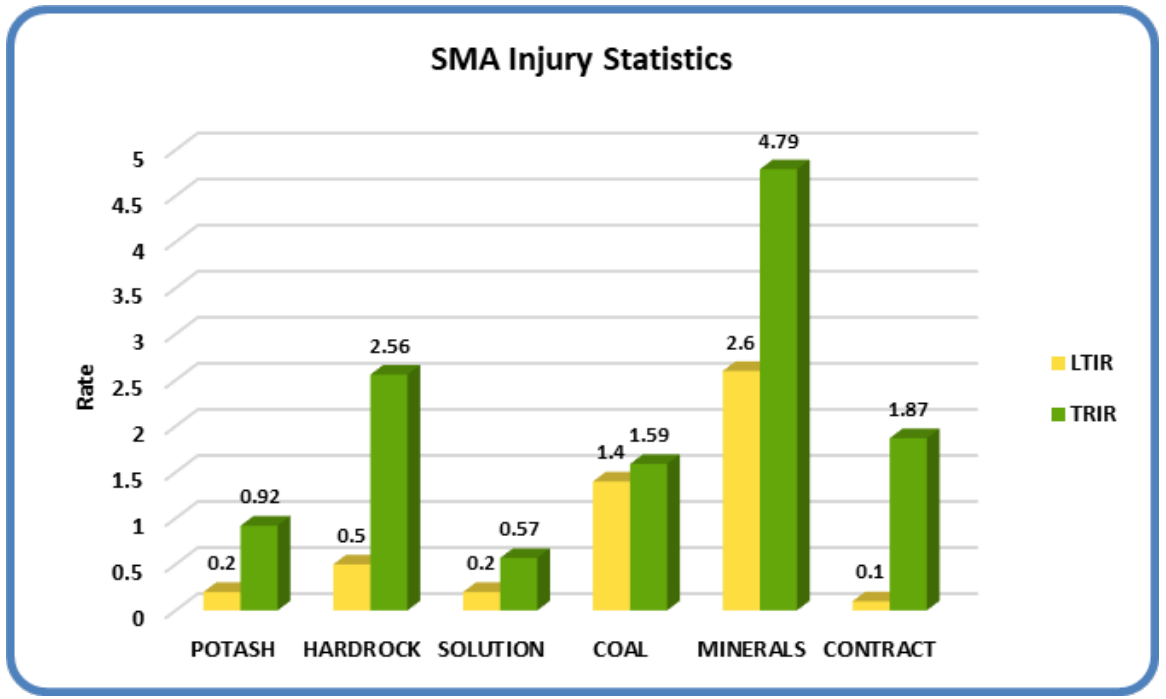
SASKATCHEWAN MINING INJURY RATES

VISION ZERO
Safety.Health.Wellbeing.

Lost Time Incident Rate and Total Recordable Incident Rate 2024-25





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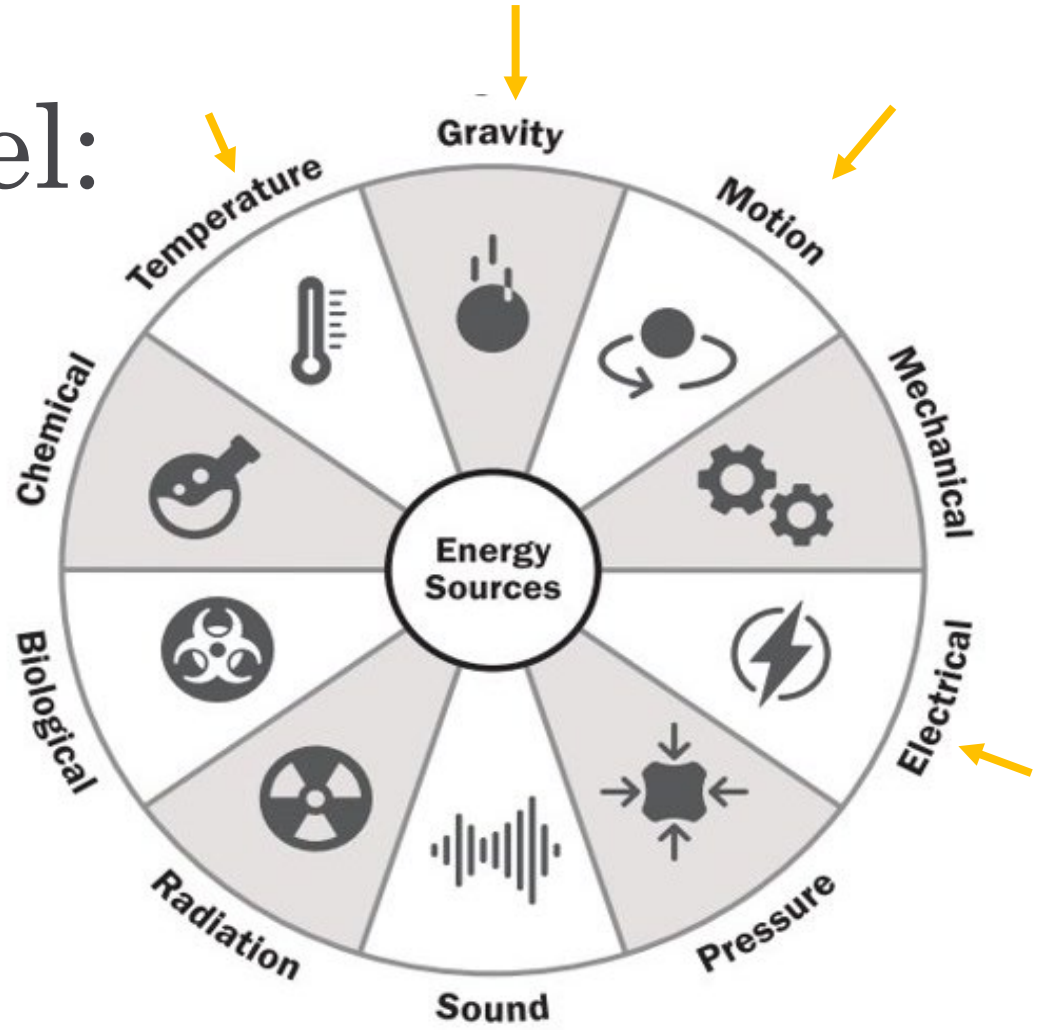
Energy Wheel:

Energy is fundamental cause of injuries, with high energy leading to serious injuries and fatalities (SIFs).



Highest 2024-25 incidences of dangerous occurrences.

Temperature: Fires, steam, sudden pressure change

Gravity: Fall of ground, hoisting, falling objects

Motion: Vehicles

Electricity: presence of electrical charge or current (wires, power lines, transformer, relay, power tools, extension cords)

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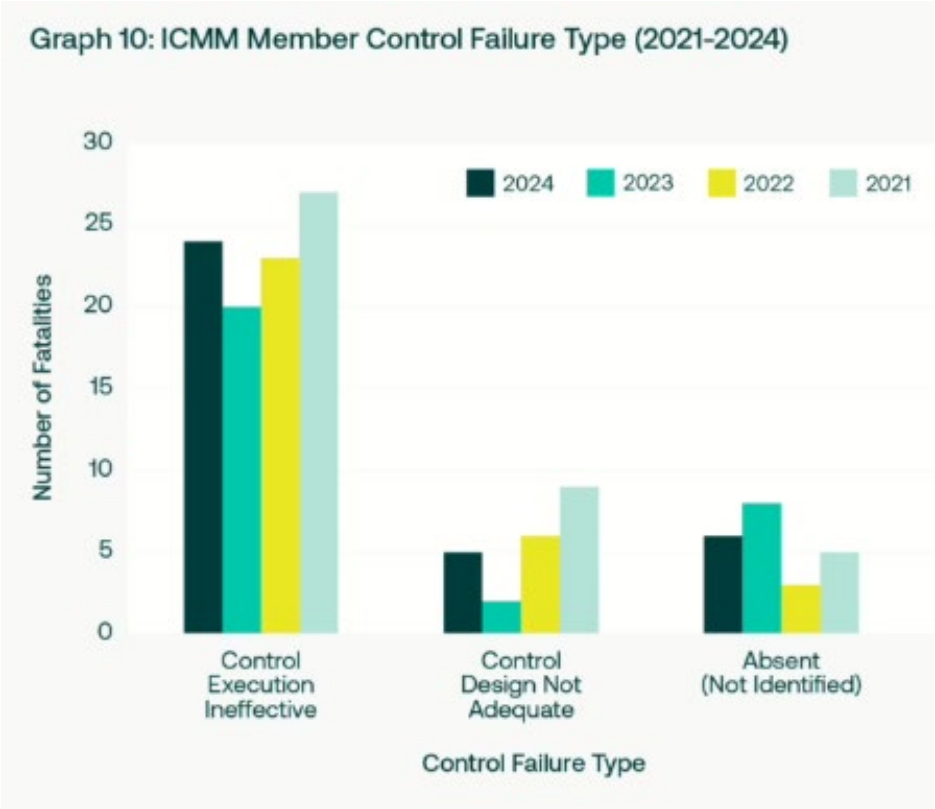
FUTURE OUTLOOK THREATS & OPPORTUNITIES

Effectiveness of critical controls

- Impact of control issues on fatalities between 2021-2024.
  - 67% of control failures were due to ineffective execution of controls within the operating environment.
- In 2024, failure to implement effective critical controls accounted for 83% of fatalities.



[ICMM - Safety Performance: Benchmarking progress of ICMM company members in 2024]

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Effective Hazard Controls

What hazard controls could AI provide?

Direct Controls: specifically designed to mitigate energy

- Specifically targeted to the High Energy source.
- Effectively mitigates exposure to High Energy when installed, verified and used properly.
- Effective when someone makes a mistake.

Alternative Controls: specifically designed to mitigate human error.

When a Direct Control is not feasible, must be at least 2 Alternative Controls from at least 2 or more of:

- Physical Obstacle: An Obstruction blocks the path or hinders progress toward a high energy hazard.
- **Dedicated Monitoring:** Devoted and continuous attention to the high energy hazard.
- **Visual Reminder:** A visible warning of presence of high energy hazard.

[High Energy: Controlling the Uncontrolled | CSRA]

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Competition Success Criteria:

- ease-of-use for field personnel
- impact on health and safety
- high potential for adoption (worker-friendly: ai as a coach or helper, not a watchdog)
- additional factors including:
  - scalability, cost
  - online/offline modes
  - impactful features - no fluff, security, minimal hardware requirements

Tip for Success:

Clearly understand the problem your technology helps solve and the potential value and impact it could have for the mining industry.

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Phase 1: Expression of Interest

Submission requires up to 3 pages describing:

1. **Project Team:**
    1. Core Project Team
    2. Supporting Organization(s)
2. **Project Concept & Methodology:**
    1. Statement of Need
    2. Solution description: Your core AI-based innovation concept
    3. Development Plan
3. **Adoption Pathway and Impacts:**
    1. Pathway to Adoption
    2. Innovation Impacts

Applications should be submitted to AI4SafeMines@imii.ca no later than February 26, 2026.

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Good luck to all the teams

For more information visit:

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