

JANUARY 2022

EARTH X-RAY FOR LOW-IMPACT MINING (EARTH-X)

DIGITAL TECHNOLOGY SUPERCLUSTER PROJECT OVERVIEW

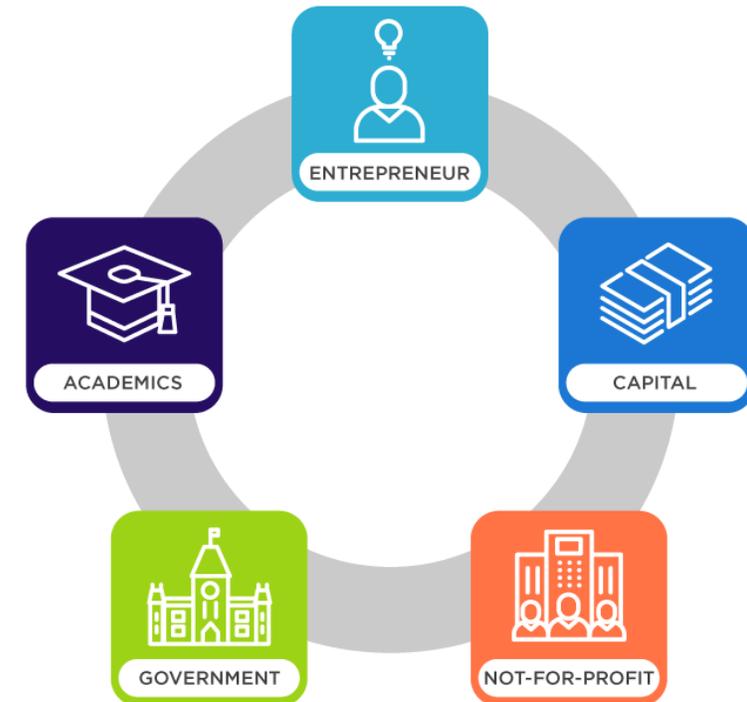


INNOVATION SUPERCLUSTER INITIATIVE

A \$950M investment in Canada's future

- Federal strategy aimed at driving commercially successful innovation, fostering growth, and creating jobs.
- Superclusters: areas of intense business activity made up of consortia of companies, academic institutions, and not-for-profit orgs.
- There are 5 Superclusters:
 - **Digital Technology**
 - Protein Industries
 - Advanced Manufacturing
 - Scale AI
 - Ocean
- Digital Technology portfolio: valued at \$326M across 82 projects enabling digital transformation of key economic sectors (June 2021).

Canada 

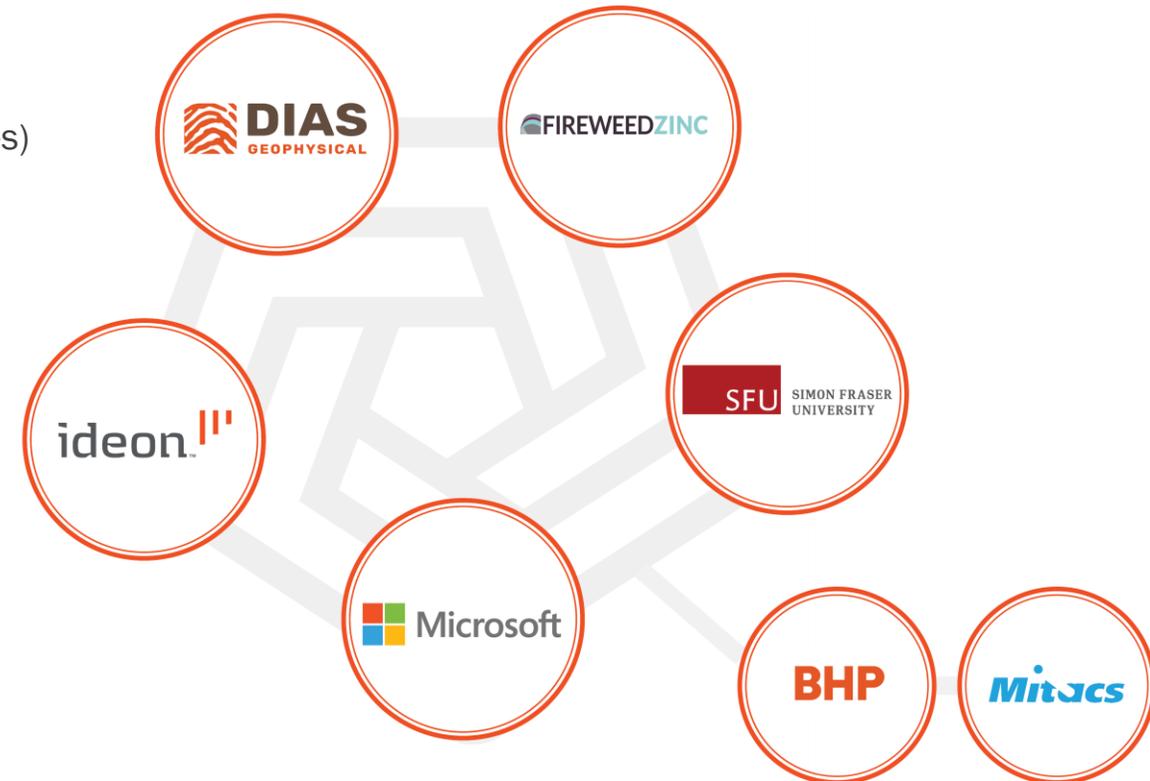


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Consortium partners and collaborators



- Ideon Technologies (muon tomography pioneer)
- Simon Fraser University (one of Canada's leading research universities)
- Dias Geophysical (quantum magnetometry pioneer)
- Microsoft (global computing leader)
- Fireweed Zinc (innovative Canadian mining junior)
- BHP (world's largest mining company)
- Mitacs (national, not-for-profit research and training organization)



THE CHALLENGE

Accelerate the global transition to low-impact mining

- Critical minerals and metals power the global shift to clean energy.
- Industry is under pressure to deliver increased production.
- They are searching deeper, more invasively, using outdated tools.
- The Earth-X project will help mining companies identify anomalies up to 1 km beneath the Earth's surface.
- Increased visibility and locational accuracy helps reduce 'hit-and-miss' drilling and the associated environmental impacts.
- This allows miners to precision-target deposits and increase the sustainable production of critical resources.



There's no clean energy without mining.

EARTH-X PROJECT

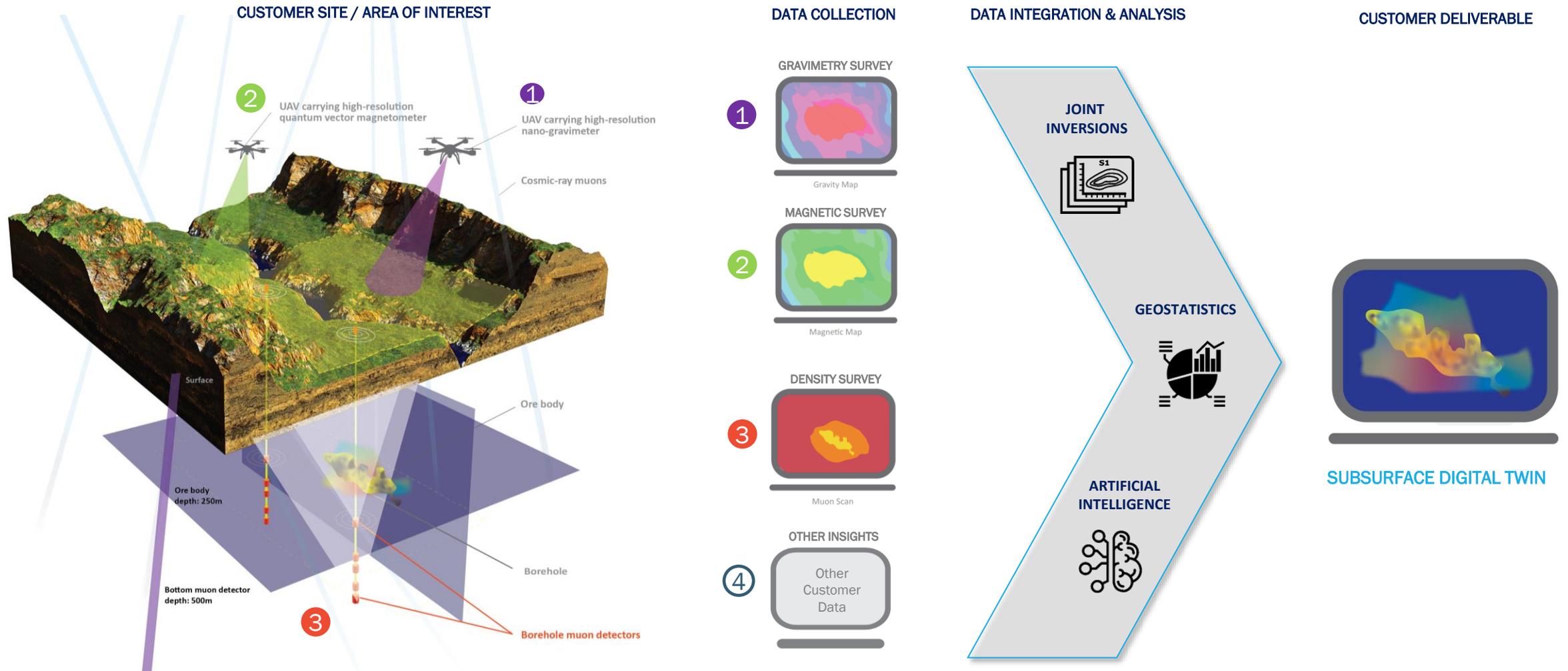
Highlights

- Total project value: C\$13.5 million
- Supercluster co-investment: C\$5.6 million
- Announced: November 2021
- Project timeline: September 2021 to August 2023
- Scope: We will advance a new **Discovery Platform** that includes:
 - New sensor hardware for data captured with 3D imaging technologies (incl. borehole muon tomography, high-resolution field-portable gravimetry, and high-resolution field-portable quantum magnetometry).
 - New statistical approaches and algorithms for incorporating multiple datasets into a cohesive and quantifiable geological interpretation.
 - High-resolution subsurface digital twin.
 - Demonstration of customer value in the field.



EARTH-X DISCOVERY PLATFORM

A series of world-firsts to deliver an integrated exploration solution



BENEFITS TO CANADA

Nurturing the innovation ecosystem

- New subsurface intelligence that lowers environmental impacts, reduces costs, and increases yields across the mining industry value chain.
- Improvement in Canada's competitiveness in the global mineral resource industry, along with GDP growth.
- Deepening of the overall Canadian tech and science talent pool, along with creation of new jobs.
- Expansion of Canada's technology ecosystem, with associated revenue growth and increase in export potential.
- Acceleration of product roadmaps and establishment of new commercial partnerships.
- Creation of new intellectual property and a step-change in capabilities for the market.
- Creation of new opportunities for scholarship and opportunities for knowledge transfer from academia into industry.
- Meaningful inclusion of First Nations, Inuit, and Métis peoples in the Northern communities of Canada.



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