Canada – UN Complexities at a Smaller Scale

- Complex geospatial characteristics

  - Nation with second largest landmass globally.

  - Longest coastline in the world.

  - Diverse environments (rainforest, desert, tundra, marine, urban).

  - Arctic warming 4x faster than rest of the world.

- Complex governance

  - Federal (national level)

  - Provincial/Territorial

  - Local

  - Indigenous Nations and reconciliation
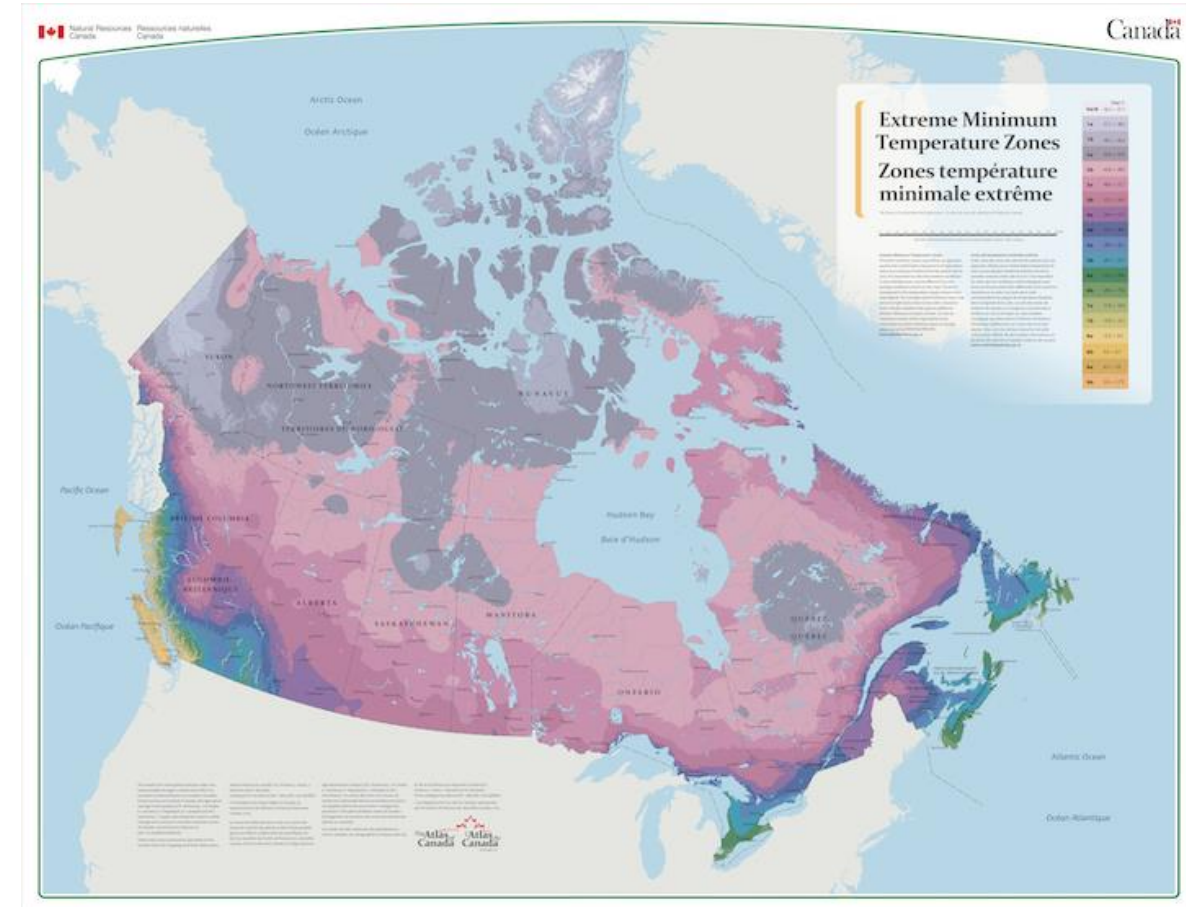
Challenges are Increasing

Dwayne Reilander

- Impacts from Disasters/Climate Change

  - Worst wildfire season on record (2023).

  - Increasing regularity of severe disasters (e.g. 2023 Nova Scotia wildfires and flooding).

  - Arctic coastal erosion.

Tyler Ford/Reuters via the Globe and Mail

- Mitigating and Adapting to Climate Change

  - Net-zero emissions by 2050. Major energy transition required.

  - Challenges of developing supply chains (critical minerals, electric vehicles, hydrogen) to facilitate the transition.

  - Increasing community resilience. Major infrastructure implications.

- Population Changes

  - Aging population. Health care challenges to increase significantly.

  - Immigration target of 500,000 people/year by 2025. Substantial infrastructure challenges (e.g. housing, transit) from rapid population growth.
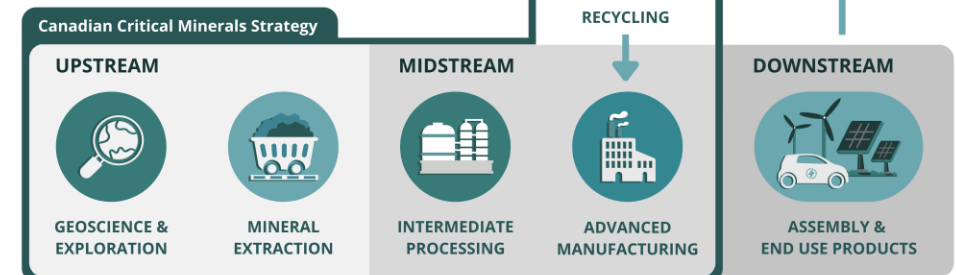

Critical Minerals are the Building Blocks for the Green and Digital Economy

Canadian Critical Minerals Strategy

UPSTREAM		MIDSTREAM		DOWNSTREAM
GEOSCIENCE & EXPLORATION	MINERAL EXTRACTION	INTERMEDIATE PROCESSING	ADVANCED MANUFACTURING	ASSEMBLY & END USE PRODUCTS

RECYCLING

The Canadian Critical Minerals Strategy

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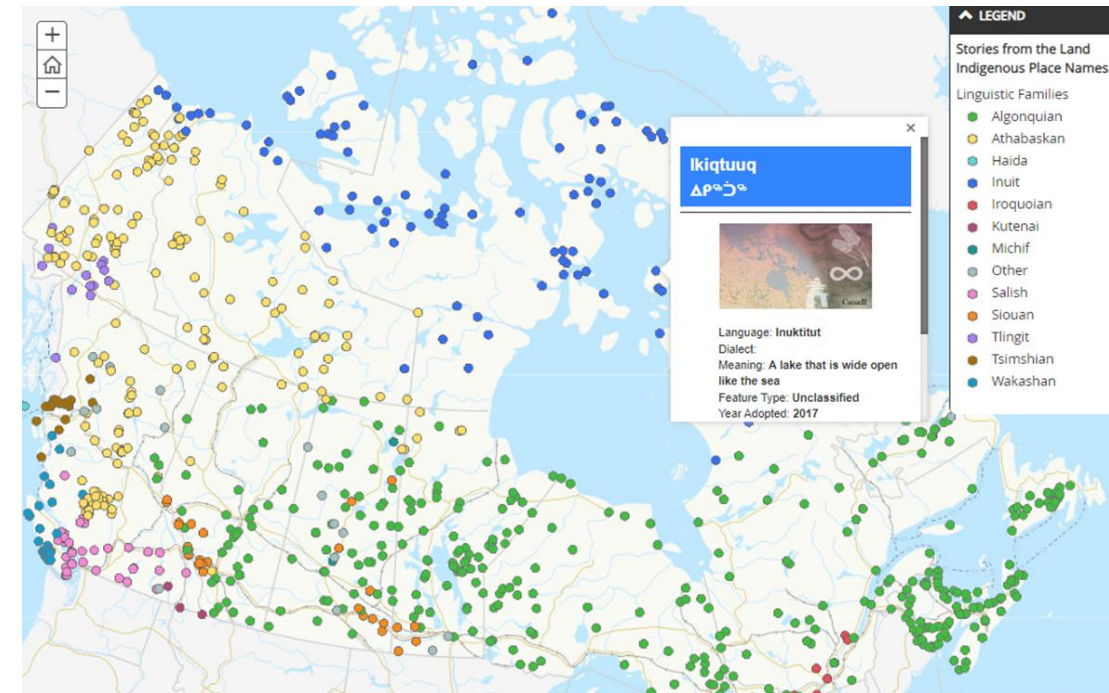
The Role of Geospatial

- Understanding "where" is foundational to address these challenges.

- Geospatial knowledge, tools, information, and data from many domains need to be accessed and integrated.

- Different jurisdictions need to collaborate to drive geospatial solutions.

- Requirement for policy and technical geospatial to influence each other.

Stories from the Land:
Indigenous Place Names in Canada

Towards reconciliation

Exploring Indigenous place names in Canada offers all Canadians a lens through which to better understand the languages, histories, and cultural heritage values of the lands on which they live. An exploration of these names not only provides insight into the Indigenous past and present, but is also a step towards a reconciliatory future.

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The Value of Standards

- Standards are key for realizing an **On-Demand Geospatial** future.

  - Geospatial information and solutions are available to **everyone who needs them, when they need them**.

  - Framework for **benefiting** from advanced and automated processes, like artificial intelligence.

- Interoperability is **necessary** to realize this goal.

  - **No single organization** has or can manage all information and tools needed to address any challenge.

  - Standards help **connect** communities with solutions to those who need them.

  - Help to **address** complex issues across multiple jurisdictions over time.

- Helpful for **reducing** the digital divide.

  - Standards enable **flexibility**, putting innovative, lower cost solutions on equal footing.

  - Enhance **knowledge transfer** by providing consistency for communication, use, and understanding.

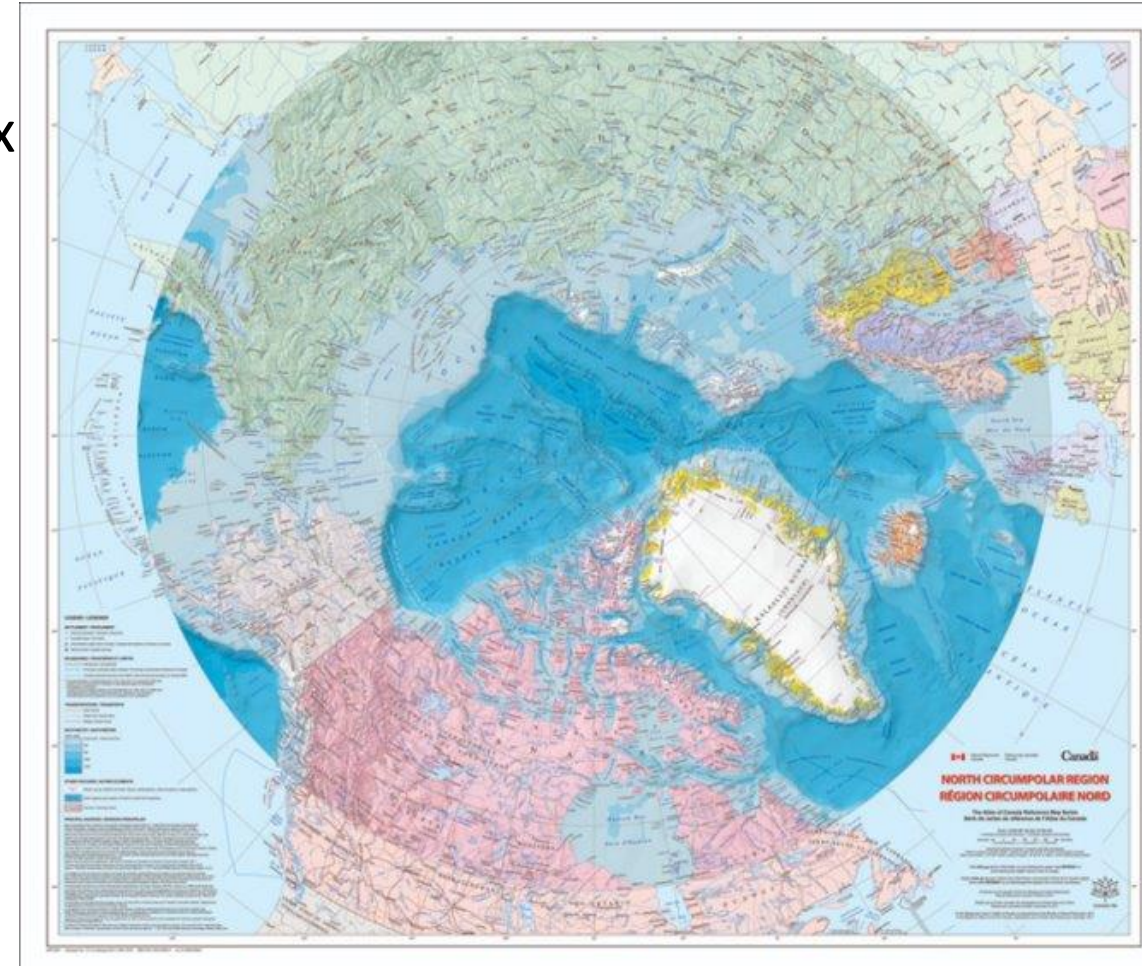Natural Resources Canada   Ressources naturelles Canada

Canada
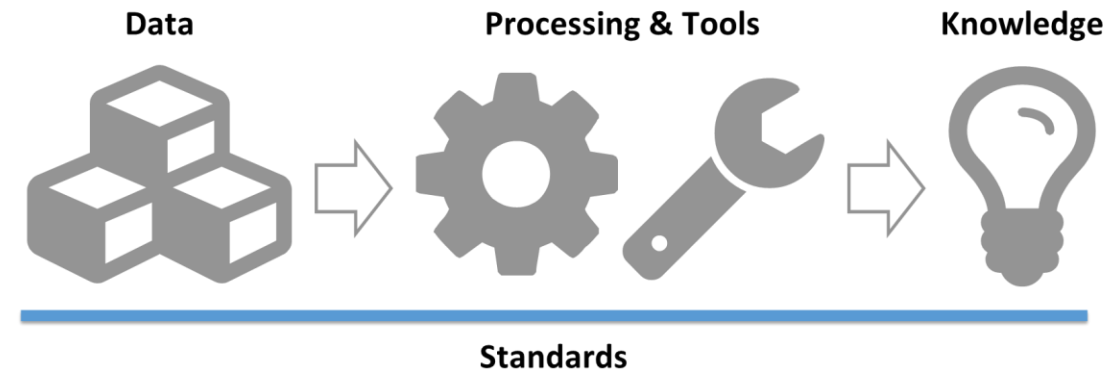
Where do we need to go?

- The need for **accessible interoperability**.

  - Implementing standards-based approaches needs to be **low cost and simple**.

  - Requirements for specialized expertise should be **minimized**. Ensure bridge between the theoretical and practical.

  - Need to meet people **where they are**.

- Enhance **connection** between technical and policy communities.

  - Policy makers **leverage** standards governance and partners when building policy options.

  - Evolving policies important for **maximizing** use of interoperable approaches.

- **Modernize** the concept of Spatial Data Infrastructure (SDI).

  - Ensuring SDI concepts are **relatable to everyone**, not only geospatial experts.

  - Create **additional resources** to help communities leverage the potential of SDI (e.g. build on the <u>UN-GGIM Standards Guide</u>).

  - Explore how to support and benefit from **emerging advanced technologies** (e.g. artificial intelligence).

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Opportunities for UN-GGIM

- Determine **resource types** needed to help all nations better leverage standards meet complex environmental and societal challenges.

- Explore how to **bridge gaps** between technical and policy communities to enhance benefits to both.

- Build **collaborations** in common areas of interest to prototype solutions while sharing risk. For example, regional digital twins (Polar, Continental, Small Island Developing States).

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