

Towards a Canadian Neutron Strategy

Context

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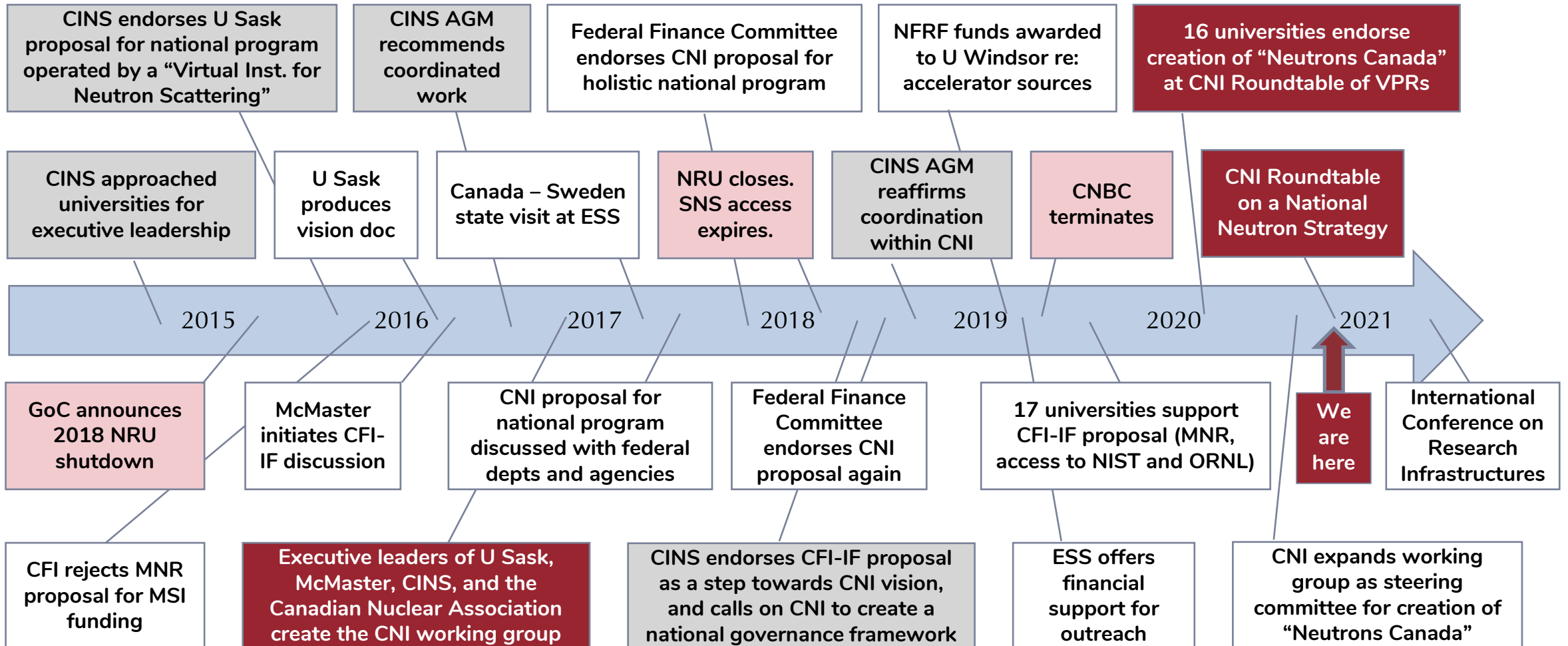
Our Purpose:

To establish a new, pan-Canadian, university-led framework for governance, management and representation of Canada's capacity for materials research with neutron beams, building on existing national and international resources.



Canadian Neutron Initiative

Timeline





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Neutron beam facilities are critical tools for materials research and technology development in areas such as clean energy, clean transportation, health, and food security.



Nobel Laureate in Physics (2015), Prof. Art McDonald, Queen's University

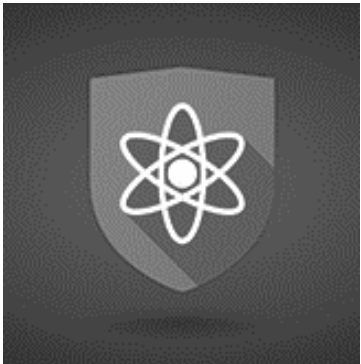
Challenges

Environmental, Social, Health, Economic



CLEAN ENERGY

Producing clean energy and storing it in an efficient electricity grid.



SAFETY & SECURITY

Ensuring nuclear, pipeline and rail safety, and determining fitness-for-service of naval ships.



CLEAN GROWTH

Making parts for clean, light-weight planes, ships, and cars using advanced manufacturing.



HEALTH AND FOOD SECURITY

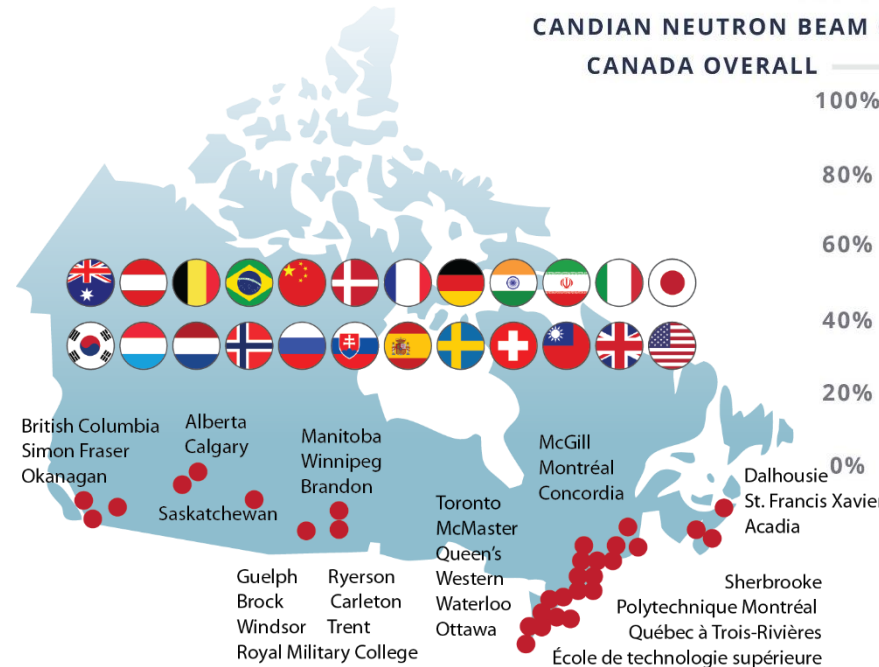
Understanding the materials of our bodies, designing medical devices, and developing resilient crops.



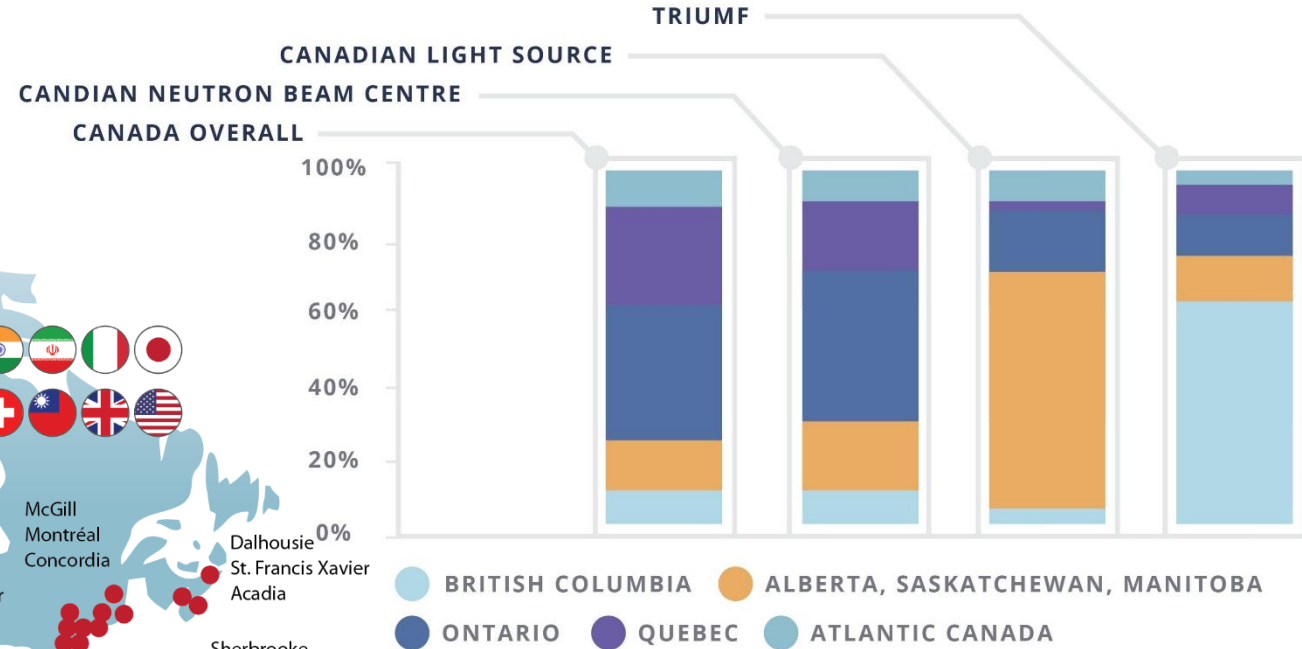
Pan-Canadian User community

Users of the CNBC included about 100 principal investigators were well-distributed among over 60 departments at 30 universities.

About 800 scientists, engineers, and students from universities, government labs, and industry participated in research at the CNBC, during its last five years of operation. Of these, over 400 researchers from 139 foreign institutions in 22 countries.



Comparison of User Distributions



CNI Supporters

The CNI working group has gathered 23 institutions from coast to coast who support its purpose:



- | UNIVERSITY OF BRITISH COLUMBIA
- | SIMON FRASER UNIVERSITY
- | UNIVERSITY OF ALBERTA
- | UNIVERSITY OF CALGARY
- | UNIVERSITY OF SASKATCHEWAN
- | UNIVERSITY OF WINNIPEG
- | UNIVERSITY OF WINDSOR
- | WESTERN UNIVERSITY
- | UNIVERSITY OF GUELPH
- | UNIVERSITY OF WATERLOO
- | MCMASTER UNIVERSITY
- | UNIVERSITY OF TORONTO

- | BROCK UNIVERSITY
- | QUEENS UNIVERSITY
- | MCGILL UNIVERSITY
- | UNIVERSITÉ DE MONTRÉAL
- | UNIVERSITÉ DU QUÉBEC À TROIS-RIVIÈRES
- | DALHOUSIE UNIVERSITY
- | MEMORIAL UNIVERSITY
- | FEDORUK CENTRE
- | NEMAK CANADA
- | CANADIAN LIGHT SOURCE
- | CANADIAN NUCLEAR ASSOCIATION

On 2020 Jan 29, executives from 16 Canadian universities agreed to establish “Neutrons Canada”

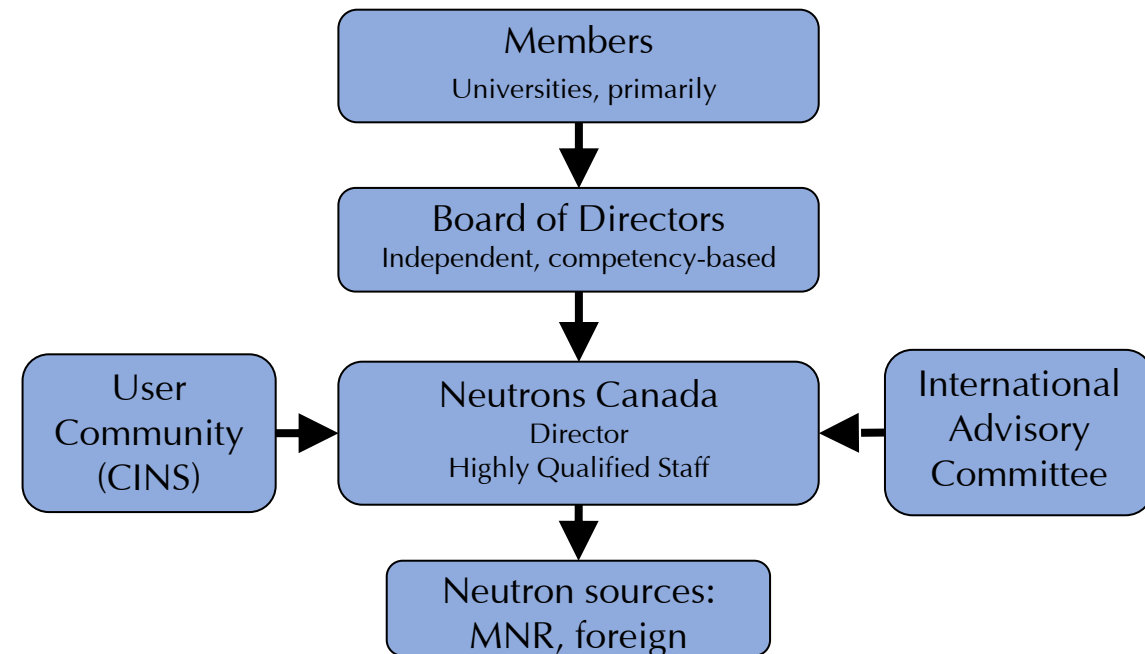
Governance

For excellence and maximum impact

- *A not-for-profit corporation whose members will be composed of organizations with interest in neutron beams.*
- *Members elect an independent Board based on governance competencies, technical knowledge, and perspectives.*
- *The Board appoints the Director, who leads the organization.*
- *Highly qualified staff will operate the pan-Canadian program, and could be deployed to the neutron sources.*
- *Neutrons Canada acts as a paying customer to neutron sources and negotiates terms of partnership with each source.*
- *CINS represents the user community, providing advice and coordinates with Neutrons Canada on funding applications.*



Structure under consideration



National Strategy

1. *Forge foreign partnerships*
2. *Build on existing domestic capabilities*
3. *Explore new neutron sources for the long term; and*
4. *Create a new governance framework*

Simplified timeline

2021-2022

- Begin major projects to:
- Forge partnerships with foreign facilities^[1]
 - Build capacity at the McMaster Nuclear Reactor^[2]
 - Explore long-term options, including a prototype source^[3]

2020-2021

Create "Neutrons Canada"^[4]

2022-2027

Establish a national program (\$20M/year) using domestic and foreign neutron sources, under a new governance framework^[1-4]

BEYOND

Major investment in new source(s) for the long-term (\$100M-1B)?^[3]

Purpose of Meeting Today

“A gathering of leading scientists from universities and industry, government agencies, and international facilities to shape a national neutron strategy to rebuild Canadian capacity for materials research with neutron beams.”



**CANADIAN NEUTRON
INITIATIVE ROUNDTABLE:
TOWARDS A NATIONAL
NEUTRON STRATEGY**

Overview Agenda Organizers & Sponsors Pre-Reading Material Zoom Contact Us

Virtual Meeting: Please register by November 30, 2020.

Sponsoring partners



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