



Introduction to TRIUMF

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Director & CEO

Electron-Ion Collider
Accelerator Partnership
Workshop 2021

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 **TRIUMF**

What is TRIUMF?

TRIUMF is Canada's particle accelerator Centre. Located in Vancouver, British Columbia, we are a world-class hub of research, education, and innovation

Founded in 1968 by three local Canadian universities as a nuclear physics laboratory, TRIUMF has evolved into a multidisciplinary facility owned and operated by a consortium of universities from coast to coast



Our multidisciplinary community uses its world-class accelerator infrastructure to drive leading-edge research that delivers impact in **science, medicine, and industry**

Member Universities

University of Alberta
University of British Columbia
Carleton University
University of Calgary
University of Guelph
University of Manitoba
McMaster University

Université de Montréal
Queen's University
University of Regina
Simon Fraser University
University of Toronto
University of Victoria
York University



Our **Vision** is for
Canada to lead in
science, discovery,
and innovation,
improving lives
and building a
better world





Our **Mission** is to serve as Canada's particle accelerator centre

We advance isotope science and technology, both fundamental and applied

We collaborate across communities and disciplines, from nuclear and particle physics to the life and materials sciences

We discover and innovate, inspire and educate, creating knowledge and opportunity for all

Scale of Operations

HIGHLY QUALIFIED PERSONNEL

>500 staff¹

>200 students & post-doctoral researchers²



1000+ scientist & researcher visits per year



KNOWLEDGE

~80% of Canada's subatomic physics research involves TRIUMF



INTERNATIONAL ENGAGEMENT

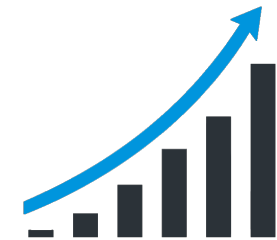
75+ international agreements & partnerships

China Italy Switzerland
Israel USA Korea France
Russia United Kingdom India Japan
Austria Germany



BUSINESS

Over \$1.1B in gross economic output since 2012, and >\$600M in GDP attributable to TRIUMF over this period



1 – Total across funding sources

2 – Includes external students and post-docs

TRIUMF's Research

Both fundamental and applied:



Expanding the boundaries of human knowledge



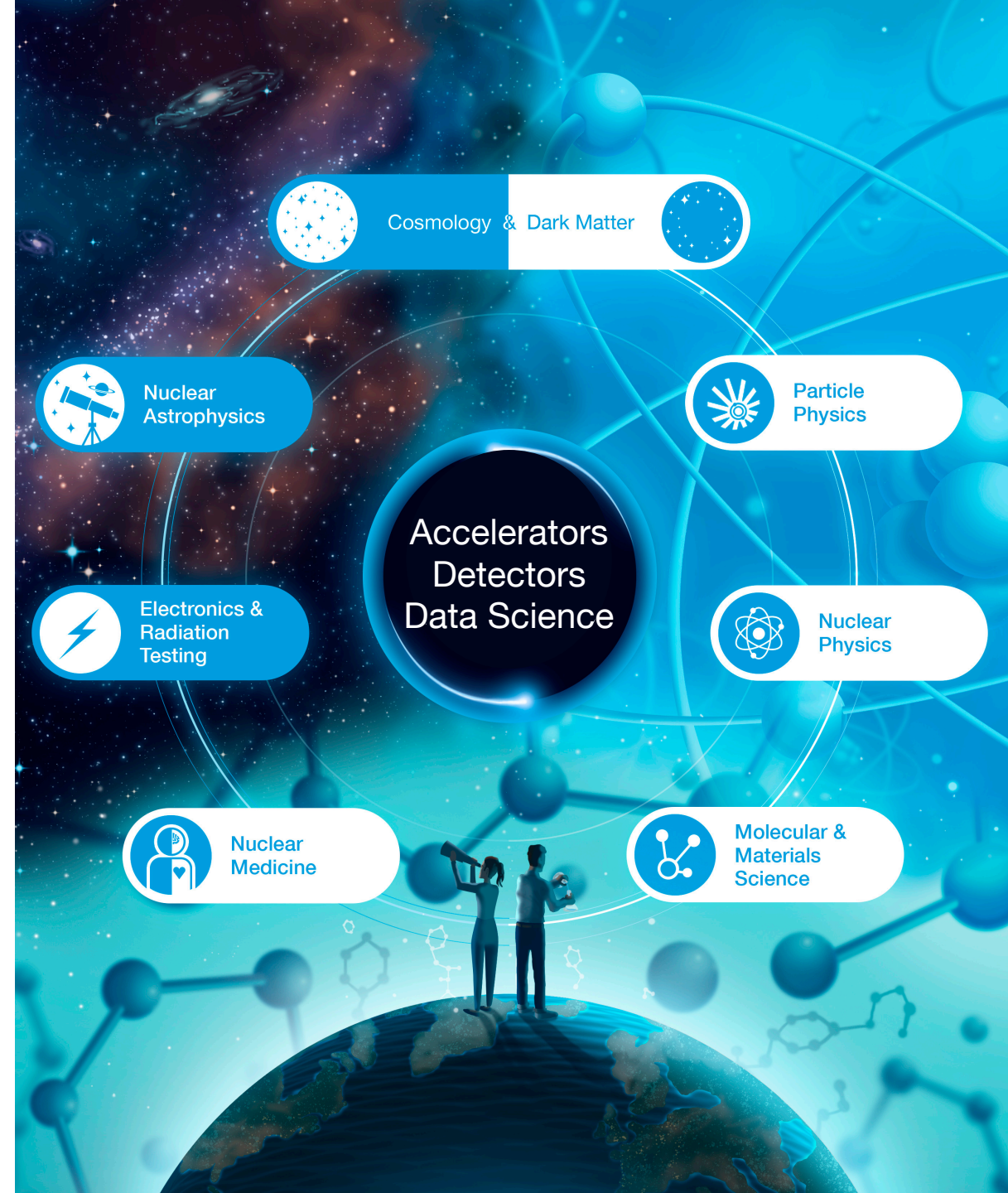
Advancing the treatment of critical diseases



Developing new technologies and innovations



Deepening our understanding of the natural world





World's Highest Current
Superconducting Electron
Linear Accelerator



World's Largest
Conventional Cyclotron

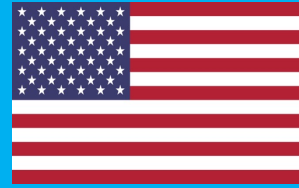


Accelerator Science and Research at TRIUMF

- The legacy from past and on-going development is a diverse cutting-edge infrastructure and staff with expertise in a wide range of technologies
- Accelerator science at TRIUMF provides Canada with a world-class platform in
 - Beam physics and instrumentation
 - Secondary particle production
 - SRF technologies



TRIUMF is Canada's
point of entry into the
international ecosystem
of sister laboratories
around the world



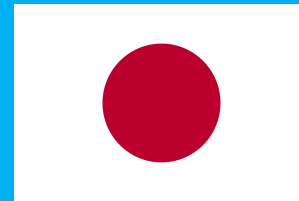
Department of Energy
Laboratories
USA



CERN
Europe



RAL / Daresbury
United Kingdom



KEK / J-PARC
Japan



Helmholtz Association
Germany



VECC
India



Thank You!
Merci!

www.triumf.ca

@TRIUMFLab



Supplemental Slides

Innovation and Collaboration

The real-world impact of TRIUMF's reach spans well beyond its expertise in physics, with application in:

- Medicine and drug development
- Materials development and testing
- Accelerator and detector technologies
- Mining and natural resources
- Border security
- Oil and gas exploration
- Data sciences

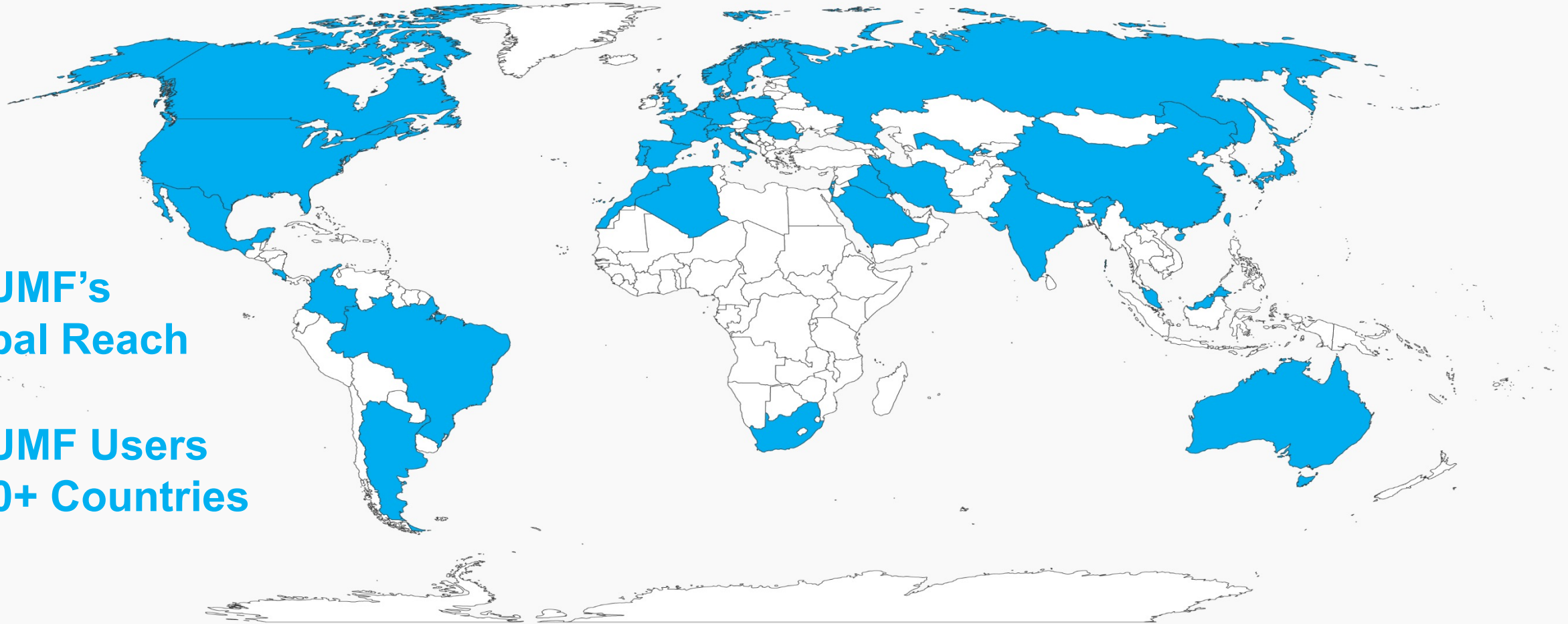


TRIUMF
INNOVATIONS



**TRIUMF's
Global Reach**

**TRIUMF Users
in 40+ Countries**

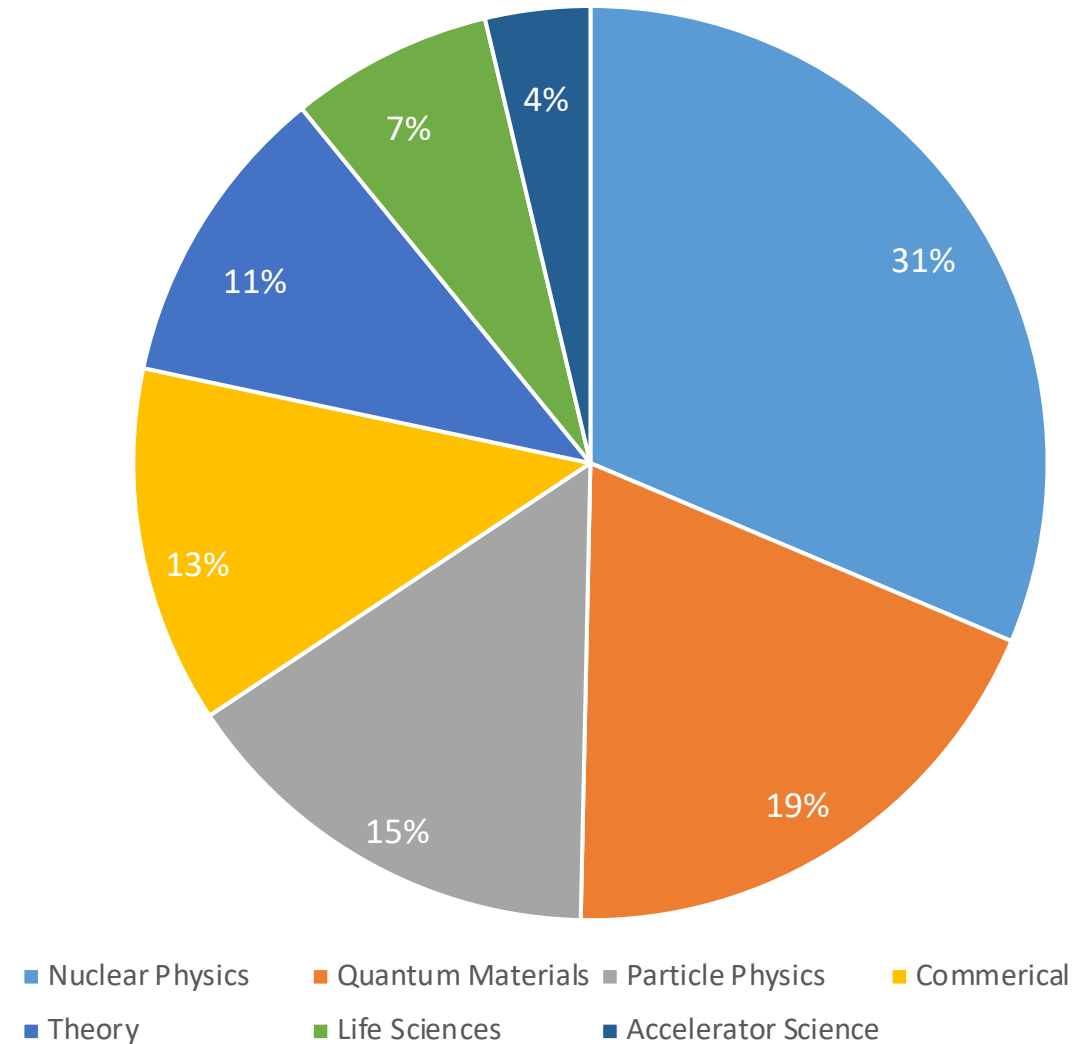


Multidisciplinary

1186 Scientific Users
and Visitors

* As the last full year before the outbreak of the COVID-19 pandemic, these values are most representative of TRIUMF's community

Scientific Users and Visitors by Field (2019*)



Large Scale

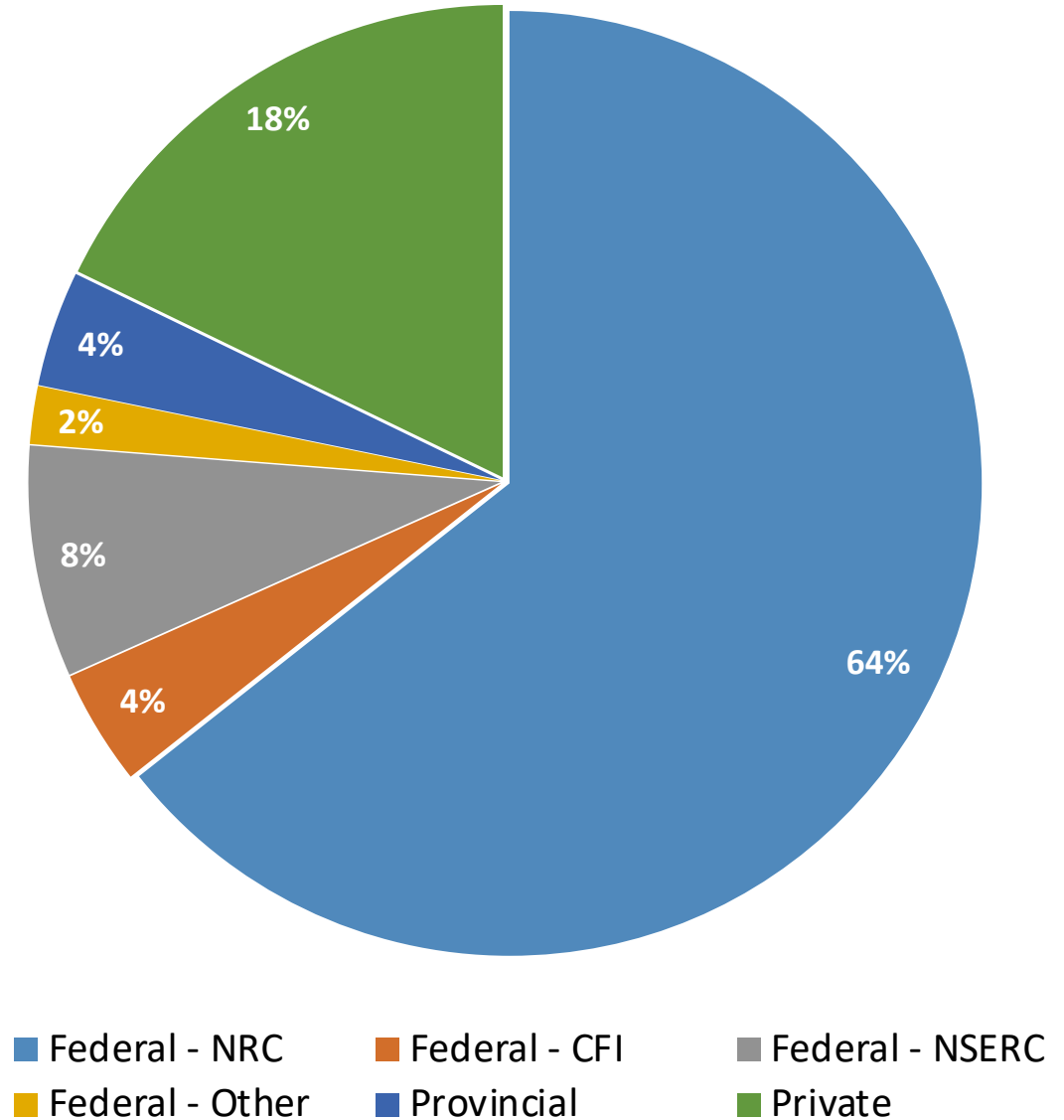
FY20/21:

\$89.1 M Total Revenues

~560 Employees

Federal Budget 2019:
\$292.7M allocated for core operations for 2020-25!

Revenue Sources (2020-2025)



Potential areas of Canadian Contributions to EIC Accelerator via TRIUMF

- SRF/RF (crab (or other) cavities, cryomodules, rf ancillaries)
- HV kickers and Rf bunch switcher
- beam physics (FFA optics, spin)
- e-beam technology including beam diagnostics
- Normal conducting magnets (also permanent magnet optics for e-beam lines)
- high brightness electron gun
- Polarized sources

