



TRIUMF Update

January 2025

Discovery,
accelerated

Land Acknowledgement

TRIUMF is located on the traditional, ancestral, and unceded territory of the x^wməθk^wəyəm (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

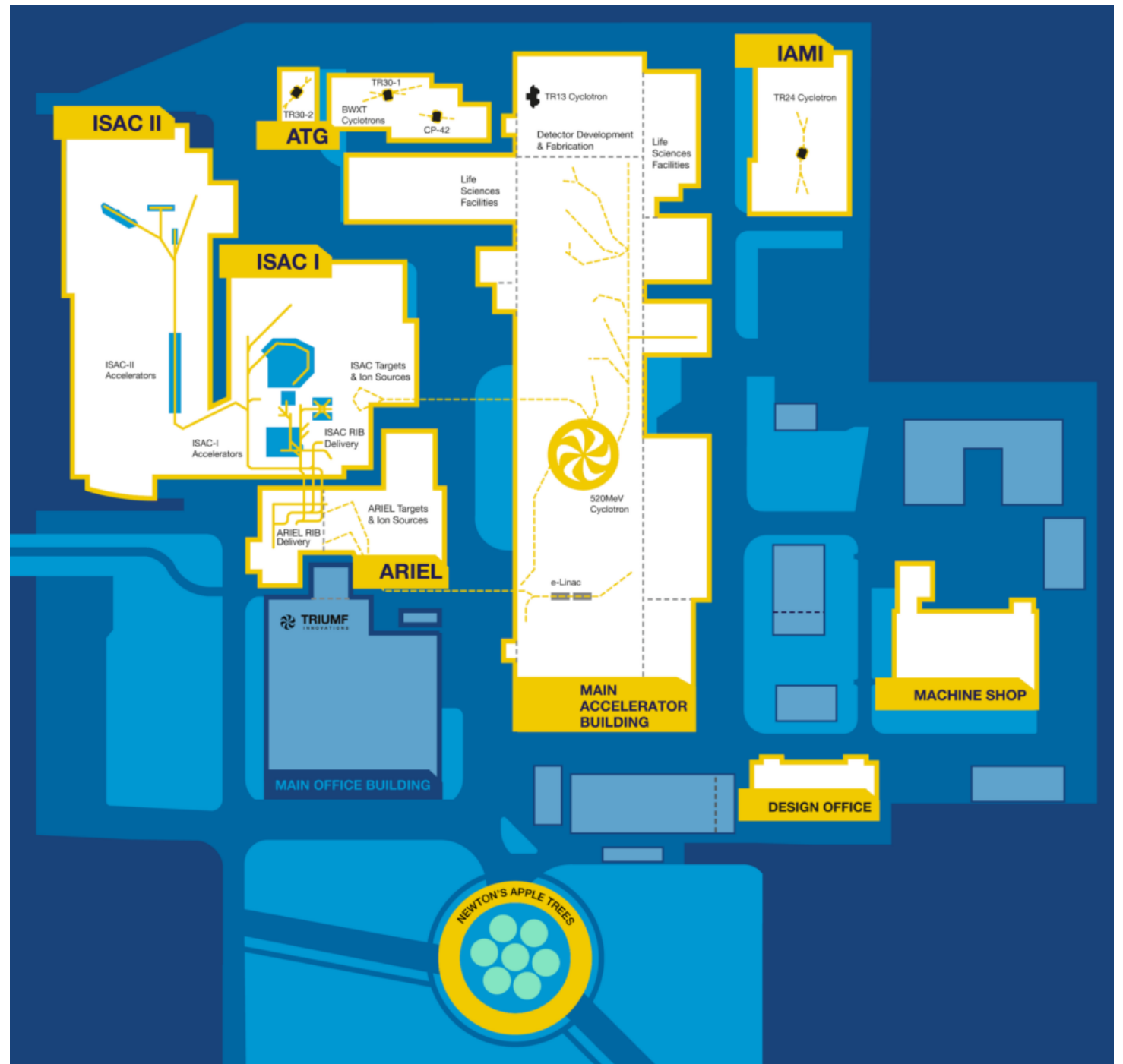
TRIUMF's home has always been a seat of learning.

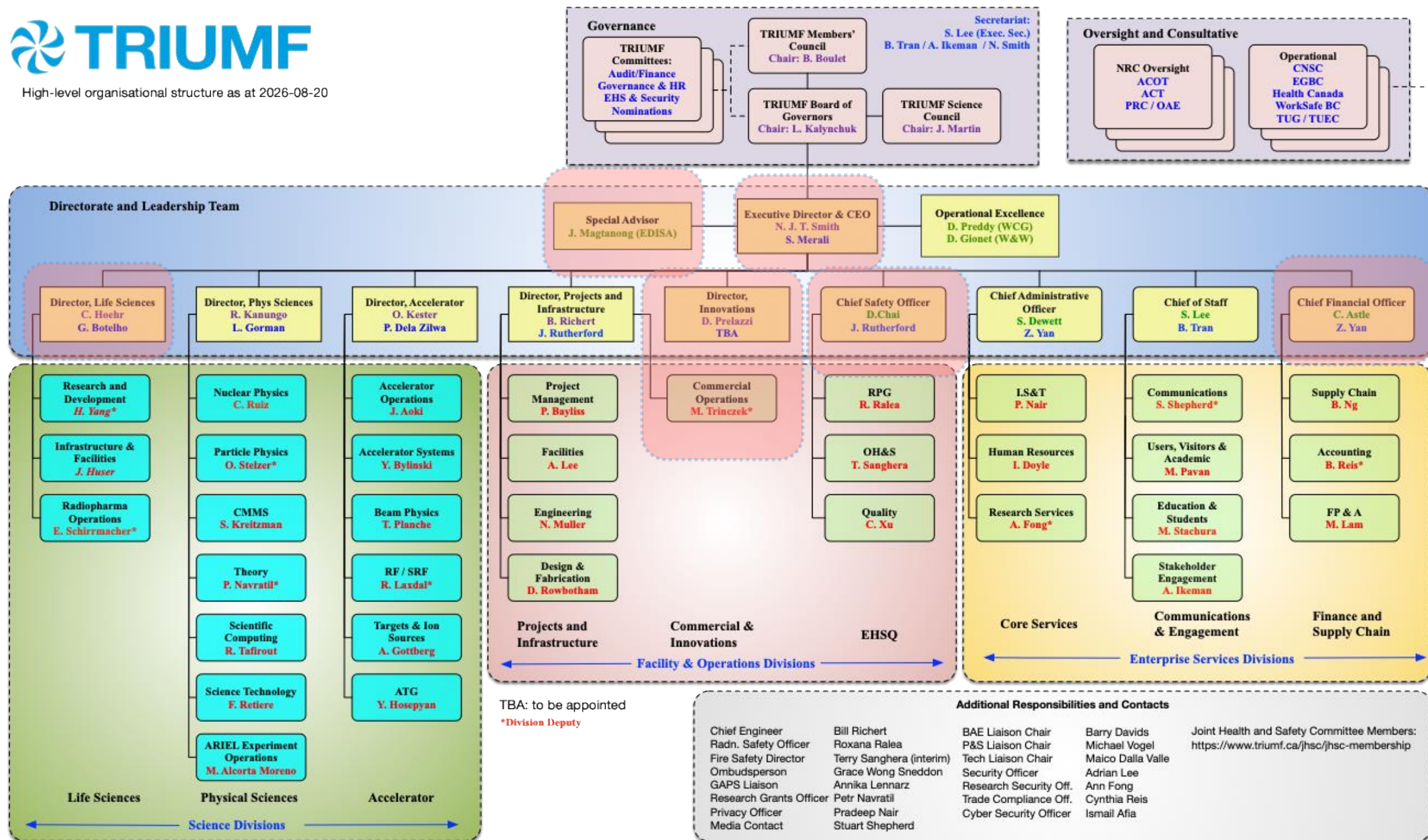


Who are we?

TRIUMF is Canada's particle accelerator centre. We are a world-class hub of research, education, and innovation that is home to ~600 staff and students.

Founded in 1968 by the University of British Columbia, Simon Fraser University, and the University of Victoria, **TRIUMF is a national asset**, driving research locally, nationally, and connecting Canadian researchers to the world.





TRIUMF Long(ish) Shutdown 2026

“Long” Shutdown 2026 is underway



IAMI – Critical sovereign medical R&D capacity

The Institute for Advanced Medical Isotopes (IAMIs) is a **>\$80M research and production medical isotope facility. This investment amplifies BC strategic advantage in radioisotope development and production – as noted in the Life Sciences Strategy and Look West Strategy**

IAMI will enable research into next-generation medical isotopes and radiopharmaceuticals, and will:

- Unlock development of next-generation cancer therapies
- Enable clinical trials and cutting-edge medical research
- Advance technological innovation and skills training
- Provide isotope security through production

Initial IAMIs funding announced by Prime Minister Trudeau in November 2018. \$32M of additional BC investment into IAMIs was announced in January 2024, following the initial \$12.25M investment.

IAMI will be operational in late 2026 and, through a dedicated second BC Cancer cyclotron, begin adding capacity to provincial health care system soon thereafter



Recently Completed Tasks

TR24 cyclotron commissioned

GE cyclotron installed and commissioning started

All hot and cold laboratories completed including furniture

Perform shielding verifications on last hotcells

Offices and meeting rooms completed



Remaining Tasks to Operations

Apply for Operating Licence for TR24 and TRIUMF processing labs (Oct 2026)

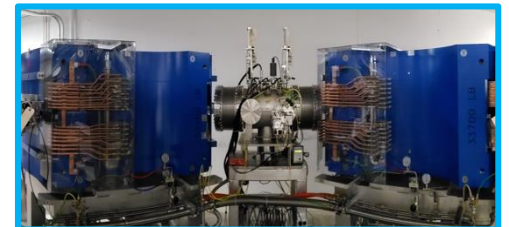
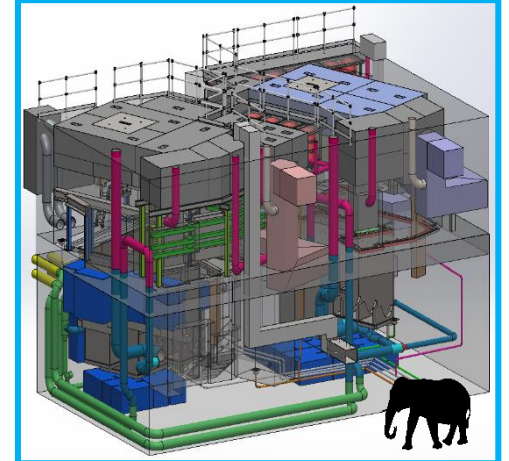
Install lab equipment (Sep/Oct 2026)

Close-out documentation and permits

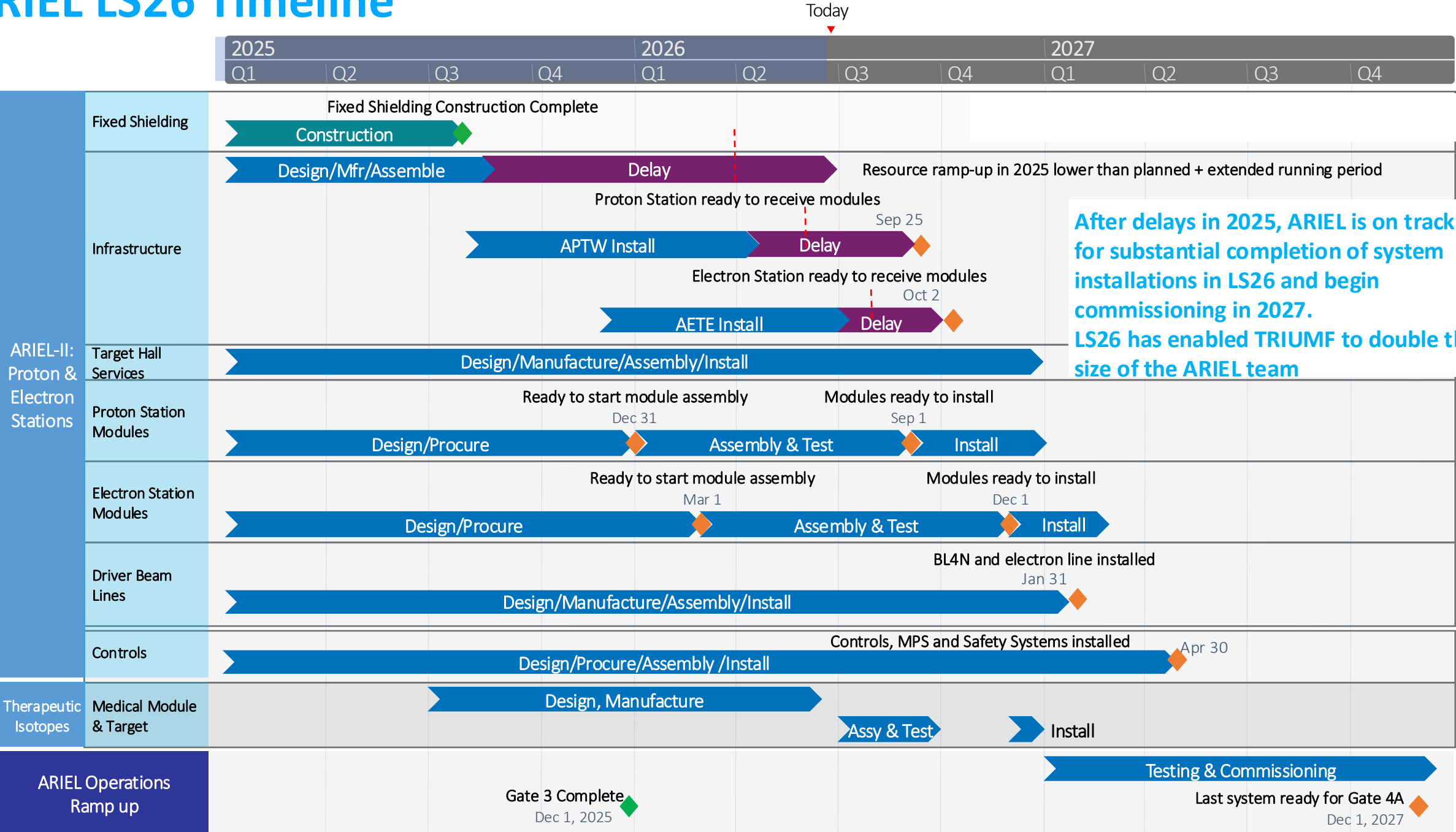


ARIEL – Delivering new capacity in rare isotope beams

- Leveraging Canada-made super-conducting RF accelerator technology, the Advanced Rare Isotope Laboratory (ARIEL) will triple TRIUMF's rare isotope production capacity – enabling more science, more training, and more commercial activity
- Represents > \$100 million investment by federal and provincial governments; \$200 million total project costs
- Supported by 21 universities from across Canada
- **ARIEL operation will begin in 2027**



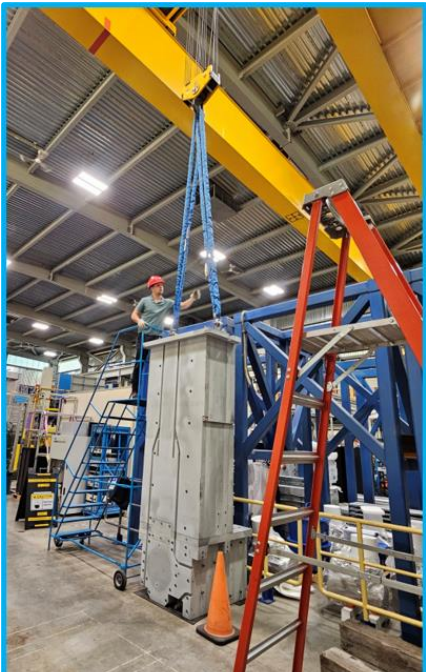
ARIEL LS26 Timeline



After delays in 2025, ARIEL is on track for substantial completion of system installations in LS26 and begin commissioning in 2027. LS26 has enabled TRIUMF to double the size of the ARIEL team



Tunnel beamline, magnets and services



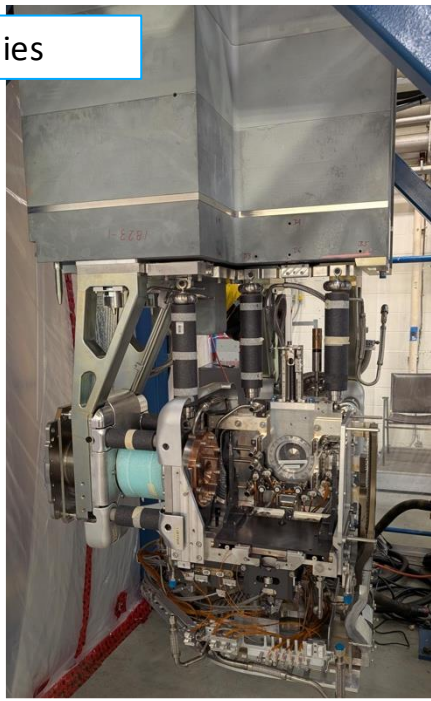
Rad gas tanks & manifold



HV Service Chase



RIB & Target module assemblies



Target Hall Construction



Proton Beam line shielding

Capabilities: World-Leading Talent Pipeline

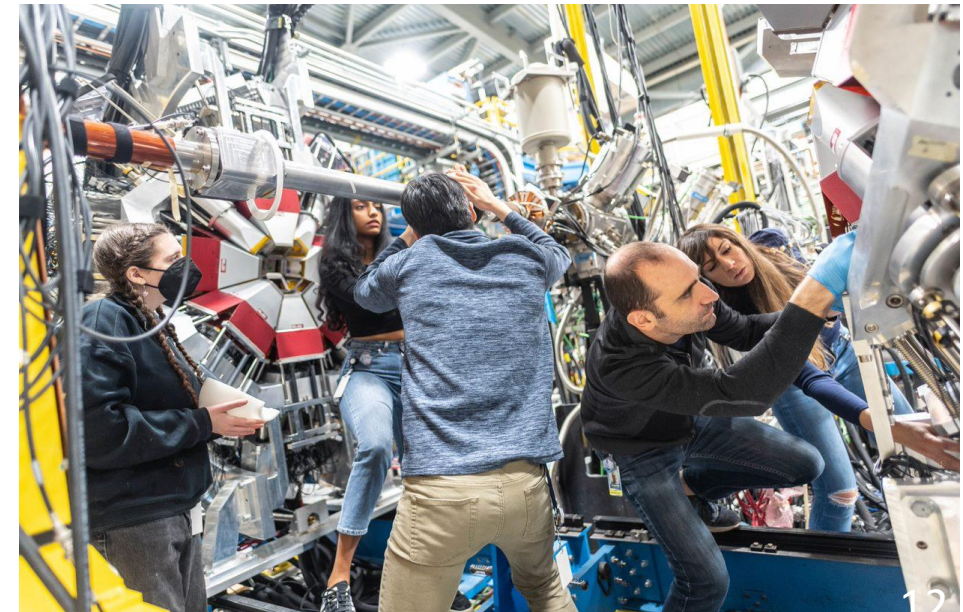
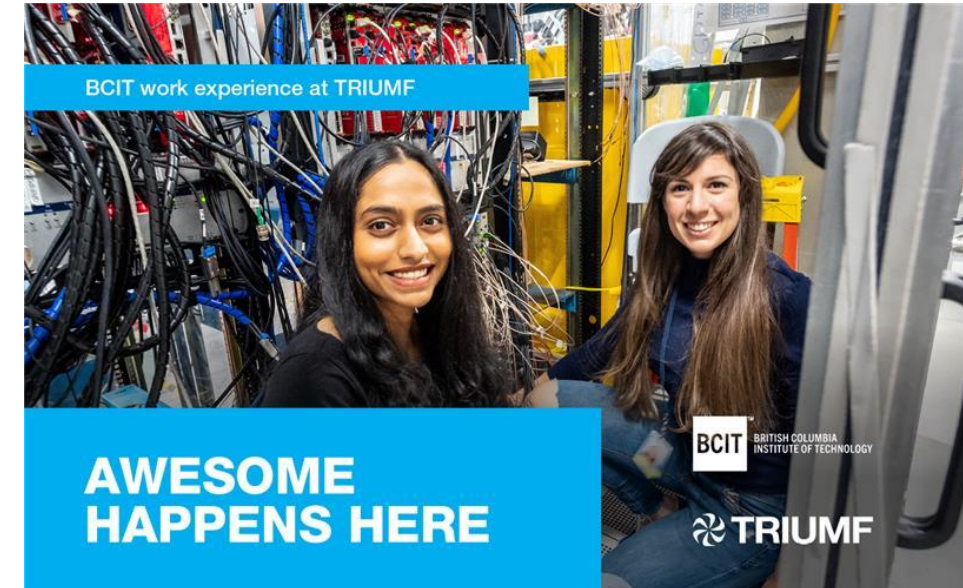
TRIUMF is developing Canada's next-generation workforce.

We provide unique interdisciplinary training opportunities at all levels – from high school through postdoctoral researchers – in all disciplines, ranging from physics and engineering to business and communications. Our role in Canada's science and research landscape is indispensable, as TRIUMF:

- **Serves a critical role in Canada's high-tech talent pipeline**
 - Trains over 120 undergraduate co-op students per year, nearly 90 graduate students, and more than 50 post-doctoral researchers
- **Fosters and attracts world-class talent to Canada**
 - Entry into TRIUMF programs is highly competitive. For example, the co-op program is one of the most high-demand in the country with an acceptance rate as low as 2%
- **Enables Canada to retain talent, combatting the “brain drain”**
 - Across all training levels (undergraduate, graduate, and post-doctoral), the majority of TRIUMF alumni stay in Canada after their time at the laboratory



TRIUMF hosted 303 students & postdocs in FY26



TRIUMF Strategic Development

SAP Community Planning

The sub-atomic physics community is undertaking a 7 + 7 year forward look and strategic planning process

- Guides the review of proposals by NSERC against SAPES envelope, and informs the CFI expert committees
- Second document to be created to 'grow the pie' - TRIUMF asked to lead

Broad community consultation and survey, 9 Town Halls, input from community groups (IPP, CINP, MI), Alliance survey

- Community has grown by ~20% since 2019

Input from NSERC on envelope evolution to 2029 (when NSERC refunded) and assumption of flat cash from then

SAP Planning - TRIUMF related

Highest priority future projects: EIC, FCC, XLZD@SNOLAB

Highest priority current projects: ARIEL/ISAC, ATLAS, Belle-II, Hyper-K

Strong recommendation future projects: Chiral Belle, P-ONE

Strong recommendation current projects: Darkside-20k, RadMol, SuperCDMS, TUCAN

Programme breadth: BeEST, JLAB, PICO-500... ALPHA, IceCube + small scale

Support ARIEL/ISAC experiments, FCC participation, CERN associate membership

Enable the MRF programme, strongly support TRIUMF & SNOLAB

Overall, very strong continued support for TRIUMF and our programmes

TRIUMF Strategic Planning - next steps

Continue to use the cycle of 20-year Vision, Request for Support, and Implementation Plan on award of funds.

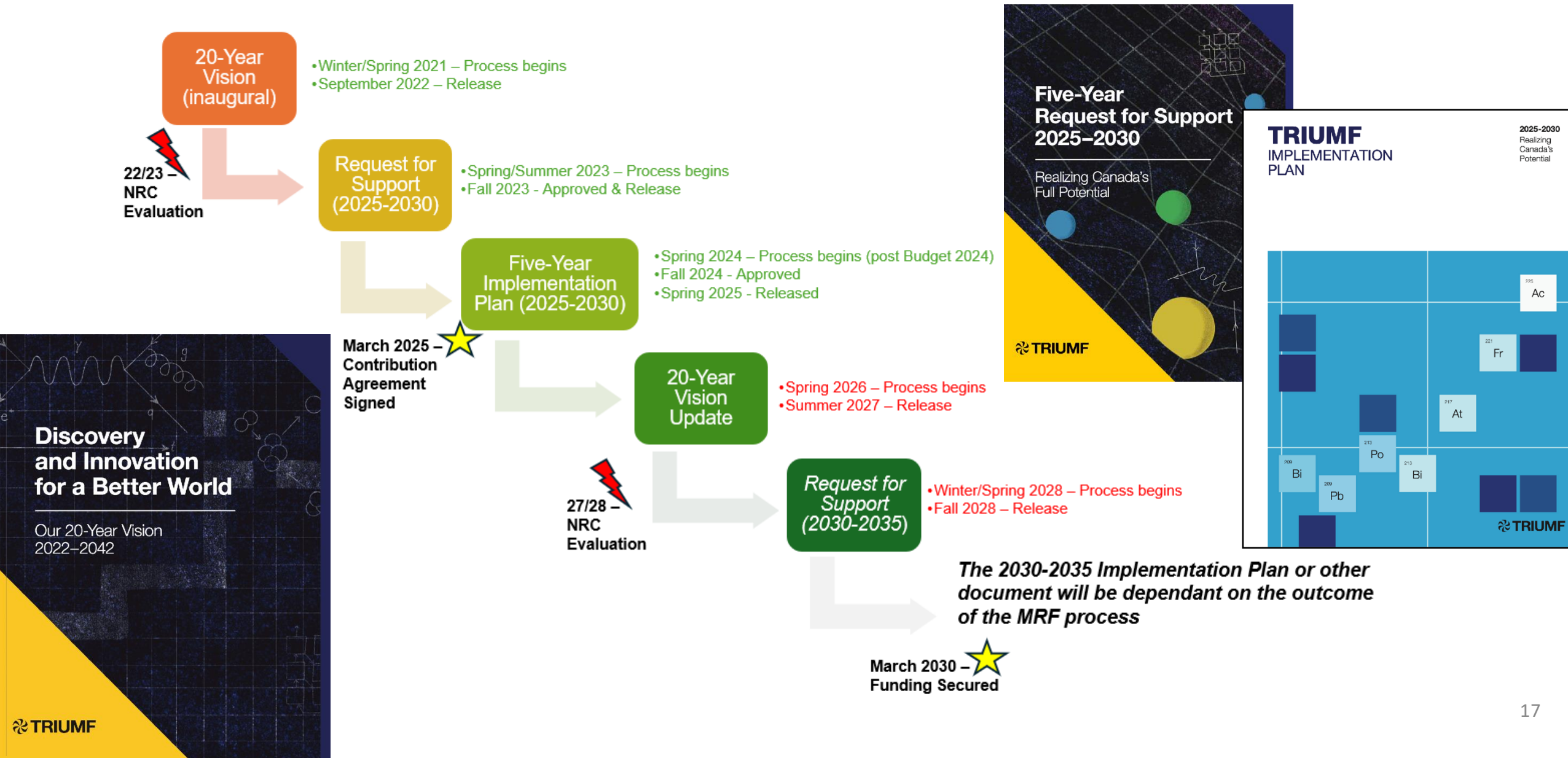
Next phase is to develop an update to the 20-year Vision

Expectation is that this is a rebuild, due to the changes within the world and the Canadian research environment over the last 16 months

Will need to articulate a more Canada impact—driven approach to the TRIUMF programme (“mission-driven”)

Retain balance between academic-led research programme and mission-driven requirements

TRIUMF Strategic Planning Cycle



THANK YOU
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ありがとう!

Visit us online

www.triumf.ca

@TRIUMFLab



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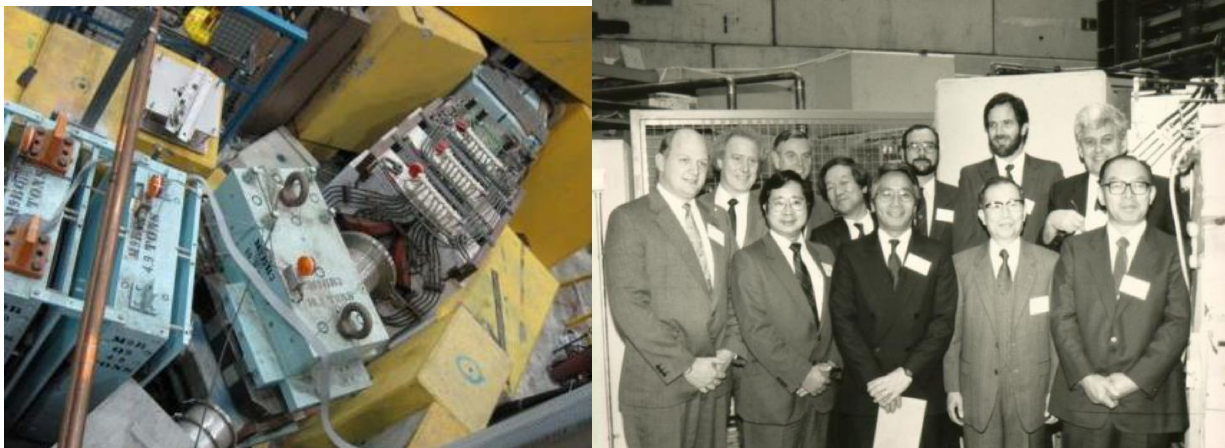
TRIUMF – Japan Historical Connections

Toshimitsu Yamazaki

Erich Vogt



520 Cyclotron MeV First beam (1974)



M9B beamline build by University of Tokyo

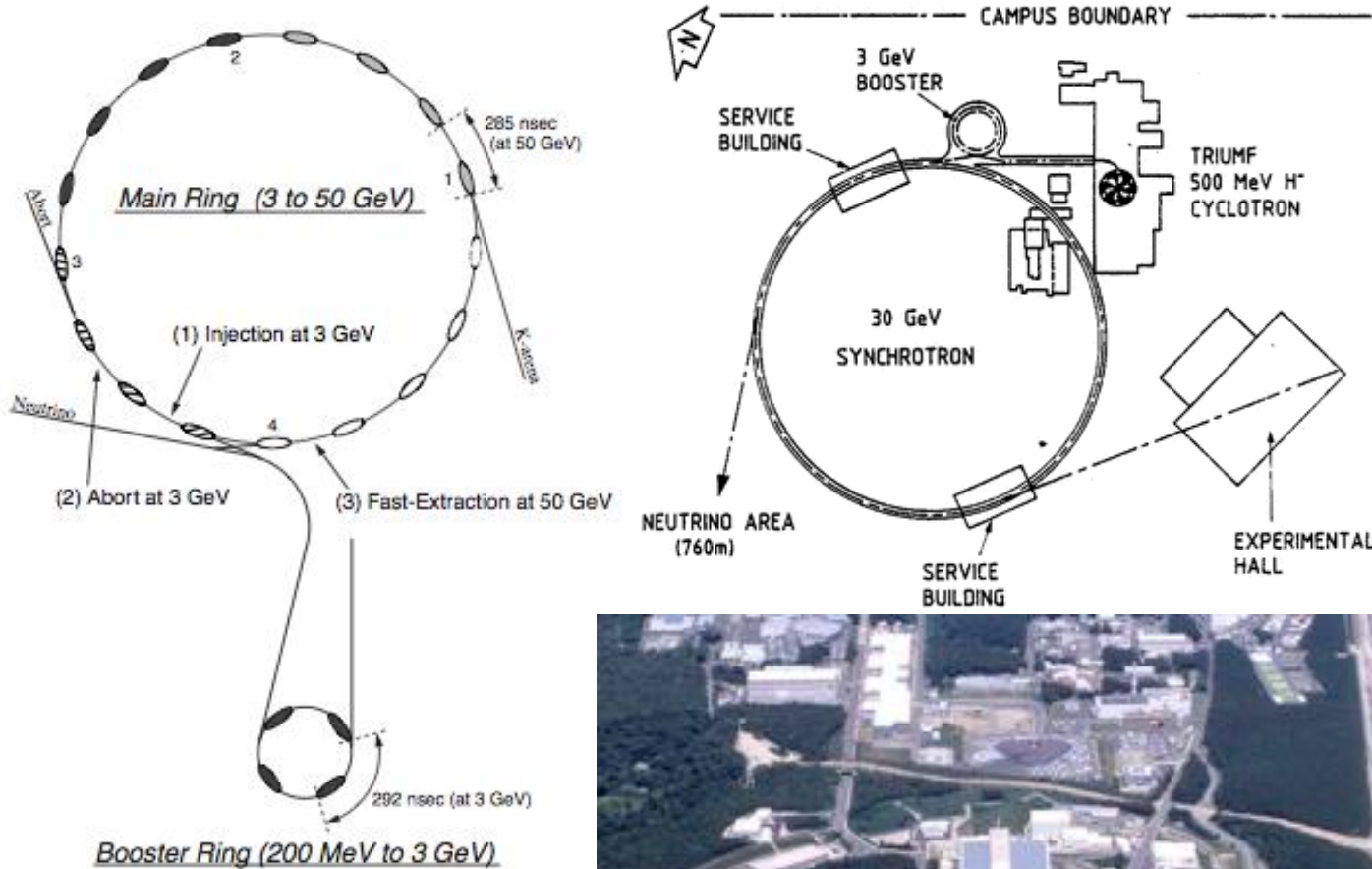


Visit of the Prime Minister of Japan (1989)

*Osaka beamline
at ISAC*



TRIUMF – Japan Historical Connections



*KEK and TRIUMF
worked very closely on
the JHF, KAON, J-PARC
projects*



- TRIUMF has had joint positions with IPMU, Osaka, and others
- TRIUMF also has a long history of cooperation with KEK via MOUs and other activities (symposia, exchanges, administrative support, etc.)

TRIUMF – KEK related collaborations

