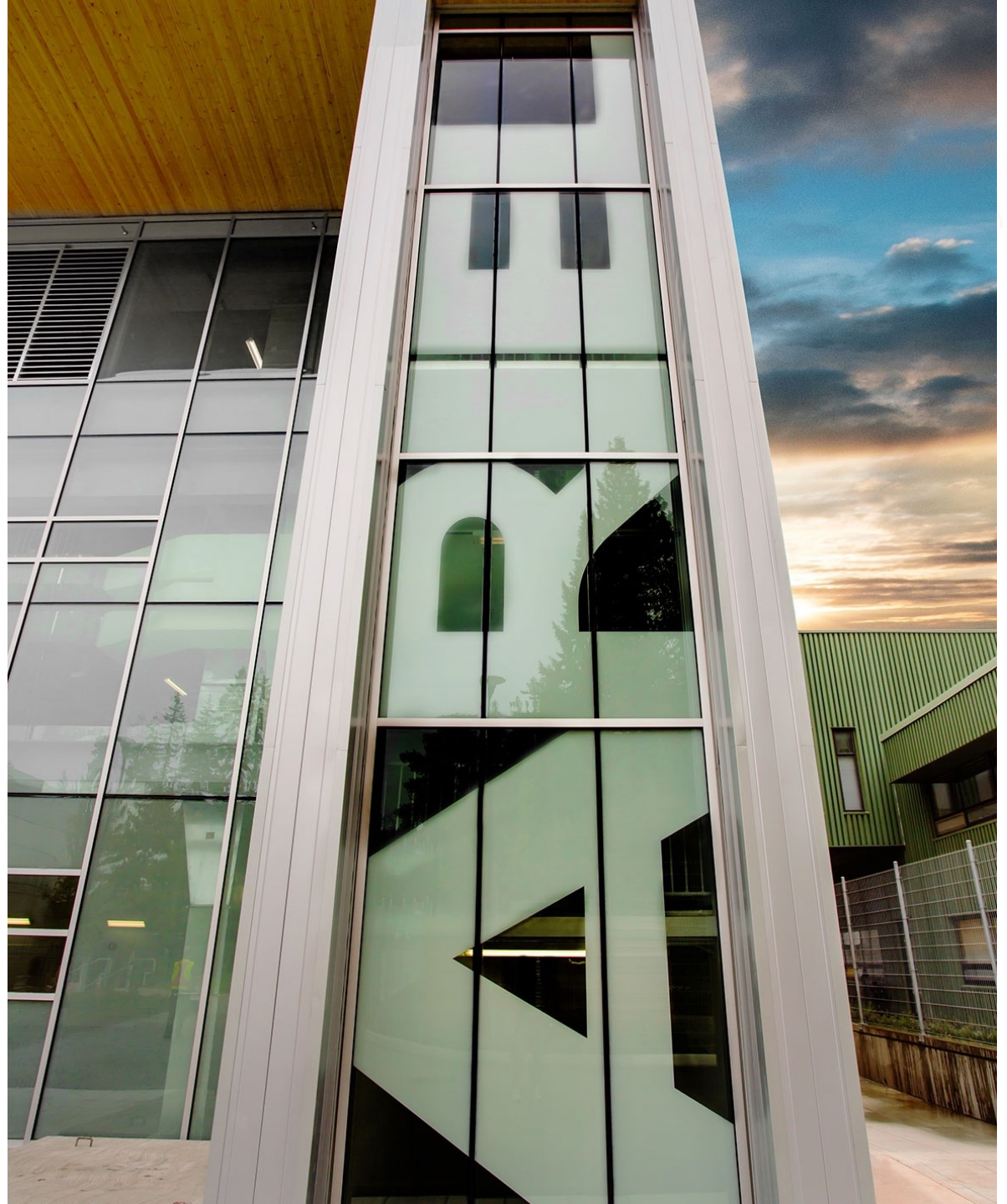


Roadmap for a 20-year Vision for TRIUMF

Reiner Kruecken

Science Week Town Hall - August 2021



Purpose of today's Town Hall

To provide and update on the overall process and what we have heard so far

To establish a few navigation markers to anchor our thinking towards articulating the final Vision

We are not presenting the Vision itself today!

Towards a 20-year Vision for TRIUMF

Launching from the priorities of Five-Year Plan 2020-25 and guided by our Vision, Mission and Core Values we project ~20 years into the future

- **Output:** High-level 20-year Vision Document by end of 2021
- **Purpose:**
 - To articulate TRIUMF's purpose and ambitions for future accomplishments
 - To position TRIUMF in the Canadian and international science ecosystems
 - To guide the development of the next 5-Year Plan(s)
- **Target audience:**
 - University Presidents, NRC, Tri-Agency & CFI Presidents
 - Federal & Provincial Governments, Chief Science Advisor
 - General Public (at least in communications strategy)



Context: National and International planning

- **Long-range planning exercises**

- Nuclear and Particle Physics

- Canadian Subatomic Physics Long Range Plan (under way)
- Canadian Long Range Plan for astronomy and astrophysics (under way)
- European Particle Physics Strategy (2020 update)
- Snowmass Process for Particle Physics in the US (ongoing)
- NSAC Nuclear Science Long Range Plan in the US (2015)
- NuPECC Nuclear Physics Long Range Plan in Europe (2016/17)

- Molecular & Materials Science

- Frontiers of Materials Research - A Decadal Survey (2019)

- Nuclear Medicine

- US DOE-NP Isotope Program Long Range Plan (2015)

A dark teal banner with a subtle pattern of white lines radiating from the center. The text "Canadian Subatomic Physics" is in a white serif font, and "LONG RANGE PLAN" is in a white sans-serif font below it.

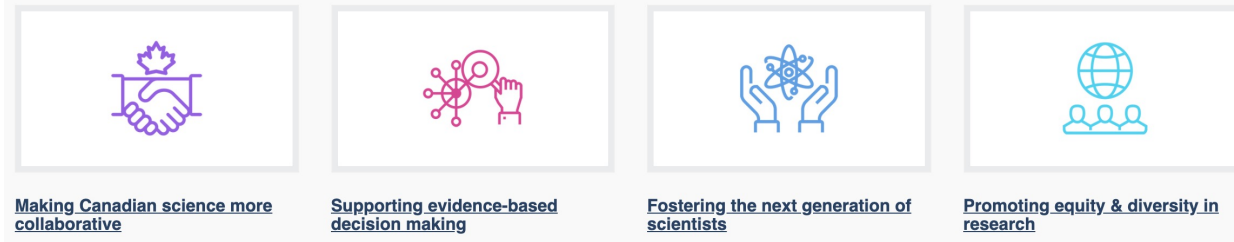
Canadian Subatomic Physics
LONG RANGE PLAN

A black banner with the text "SnowMass2021" in a white, stylized, cursive font.

SnowMass2021

Context: National Science Ecosystem

- **Dimensions: Equity, Diversity, and Inclusion (EDI) Charter**
- **Canada's Science Vision ([ISED](#))**



- **Perspectives on Canada's Technology Future (NRC)**
 - Subject Areas: Climate Change, Resource Futures, Big Data and AI, Cybersecurity and Privacy, Health-care Futures, New Models of Innovation
 - [How does TRIUMF support Canada's needs to tackle major challenges?](#)
- **Big Science Landscape in Canada**
 - How will Canada evolve the management of its investments in "Big Science" in a more coordinated manner? (2017 Naylor report)
 - [How can TRIUMF further partner with universities, NRC, and other large-scale infrastructures to advance Canada's vision?](#)
 - [How do we best position TRIUMF in the Canadian science ecosystem?](#)



Phases of the TRIUMF 20-year Vision development

- **Phase 1: Visioning and listening** (Fall 2020 – Summer 2021)
A broad spectrum of stakeholders will be engaged through various means to capture the full diversity of ideas and perspectives of our community.
- **Phase 2: Convergence on vision framework** (Summer – Fall 2021)
Based on the input received, the high-level pillars of the vision and supporting elements will be developed and refined through consultations.
- **Phase 3: Finalization** (Fall – Winter 2021)
The 20-year Vision document will be drafted, refined, and the final version approved by the TRIUMF Board.

TRIUMF 20-year Vision Planning, TRIUMF
March 2021

Imagine it's 2042 - what is TRIUMF and what has it accomplished?



176
Participants



141
Thoughts



3,524
Ratings



PARTICIPATION

Breakdown of Participation



Occupation

%	Person Icon	Answer
56%	(93)	Researcher
16%	(27)	Technical
11%	(18)	Administrative
10%	(16)	Management
7%	(12)	Other

Place of work

%	Person Icon	Answer
74%	(120)	TRIUMF
15%	(24)	A member university
4%	(6)	A Canadian partner institution
4%	(7)	An international partner institution
1%	(1)	Government
0%	(1)	Private sector
2%	(4)	Other

Primary Field of Interest

%	Person Icon	Answer
22%	(36)	Nuclear Physics
24%	(39)	Particle Physics
6%	(10)	Molecular and Materials Science
6%	(10)	Life Science
11%	(18)	Accelerator Science and Technology
2%	(3)	Other Natural Sciences
12%	(19)	Engineering
6%	(10)	Arts, Social Sciences and Humanities
10%	(16)	Other
1%	(2)	Answer not available



THOUGHTS

Key Thoughts



TRIUMF will be strongly established as Canada's particle and nuclear physics laboratory, contributing to local and global fundamental science. Canada needs a national resource in these exciting and important fields.

4.2  (32 )
Ranked #2 of 136



TRIUMF will be an astute partner in international flagship experiments in subatomic physics This is an interconnected world where large scale science projects get done collaboratively and internationally. It is crucial TRIUMF be part of that.

4.1  (32 )
Ranked #4 of 136



The 520 MeV cyclotron refurbishment projects have been completed over previous decades, extending the expected lifespan of our flagship accelerator. We will maintain the cyclotron as long as it makes sense to do so, and we will provide proton beams to experiments.

4.1  (31 )
Ranked #7 of 136





THOUGHTS

Key Thoughts



Attractive to postdocs and students. To create connections with talented individuals who may stay at TRIUMF or take up positions elsewhere.



TRIUMF's student and talent development programs are nationally renowned TRIUMF must develop and foster a pipeline of talent



A place where every employee feels fully valued and have a deep sense of belonging to TRIUMF's mission and role, both nationally and internationally. It's important that every employee be proud of TRIUMF, acts as an ambassador wherever they are, and would not refer to TRIUMF as a 3rd person.





WORDCLOUD
Top mention





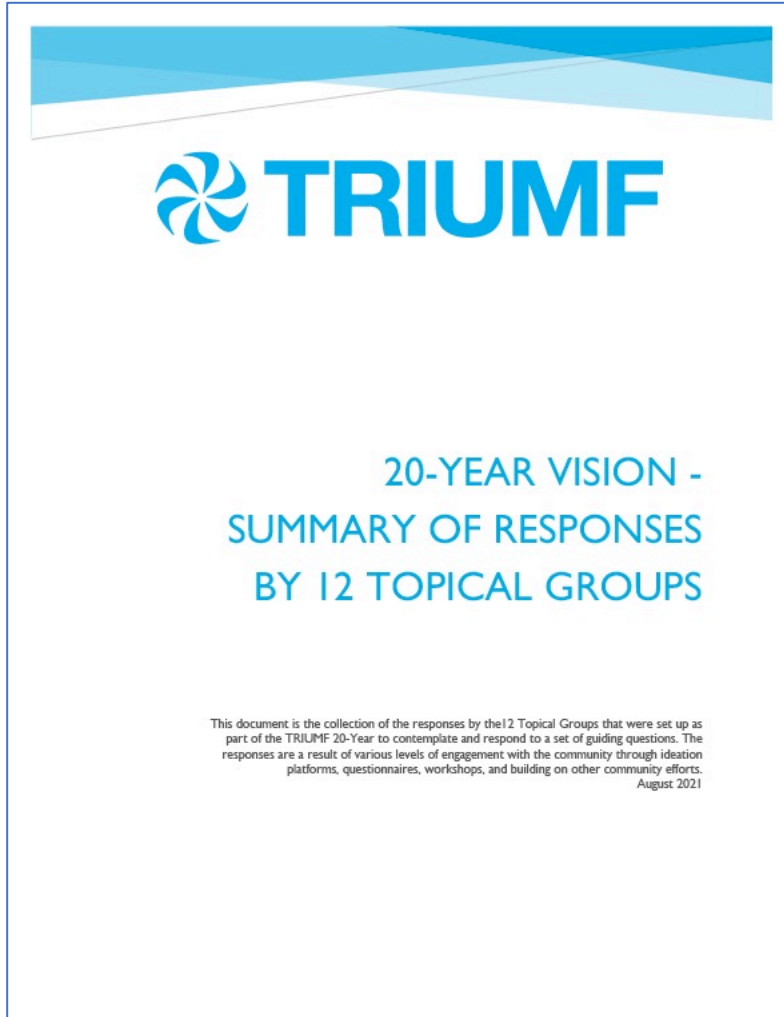
WORDCLOUD
Top Rated



Phase 1 - Visioning and Listening Topical Groups

- 8-12 members per group
 - TRIUMF & external, diverse, all career stages
 - Consultations, interviews, workshops, leveraging community activities
-
- Nuclear Physics
 - Particle Physics
 - Fundamental Physics with AMO techniques
 - Life Sciences
 - Probes for Quantum Materials and Biomolecules
 - Quantum Technologies
 - Scientific Computing
 - Emerging trends in Convergence Research
 - Accelerator Sciences and Facilities
 - TRIUMF Site Development
 - People and Skills
 - Innovation & Collaboration

Summary Documents of Phase 1



[Collection](#) of responses to the Guiding Questions
[Collection](#) of topical Vision Summary slides

Guiding Questions

- What is TRIUMF today?
- What trends and changes will shape TRIUMF's future?
- What will TRIUMF be?
- What will TRIUMF have accomplished?
- What will TRIUMF be doing and what will TRIUMF not be doing anymore?
- What will TRIUMF look like?





20-Year Vision Development

Today, we will present several high-level statements that begin to sketch the outlines of the full picture of TRIUMF's 20-year vision

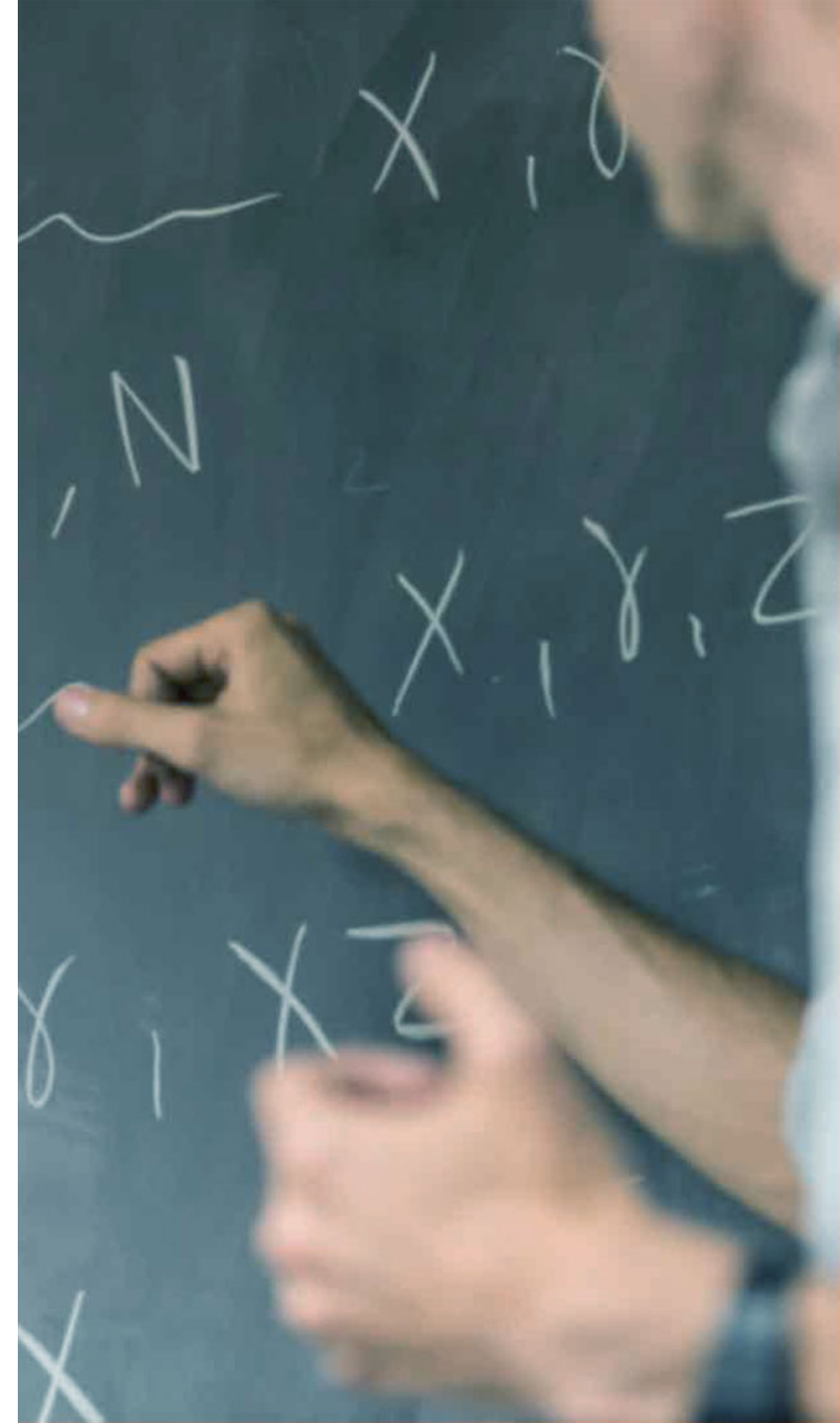
Each high-level statement is supported by several supporting statements

We are not presenting the Vision itself today!



20-Year Vision Steering Committee

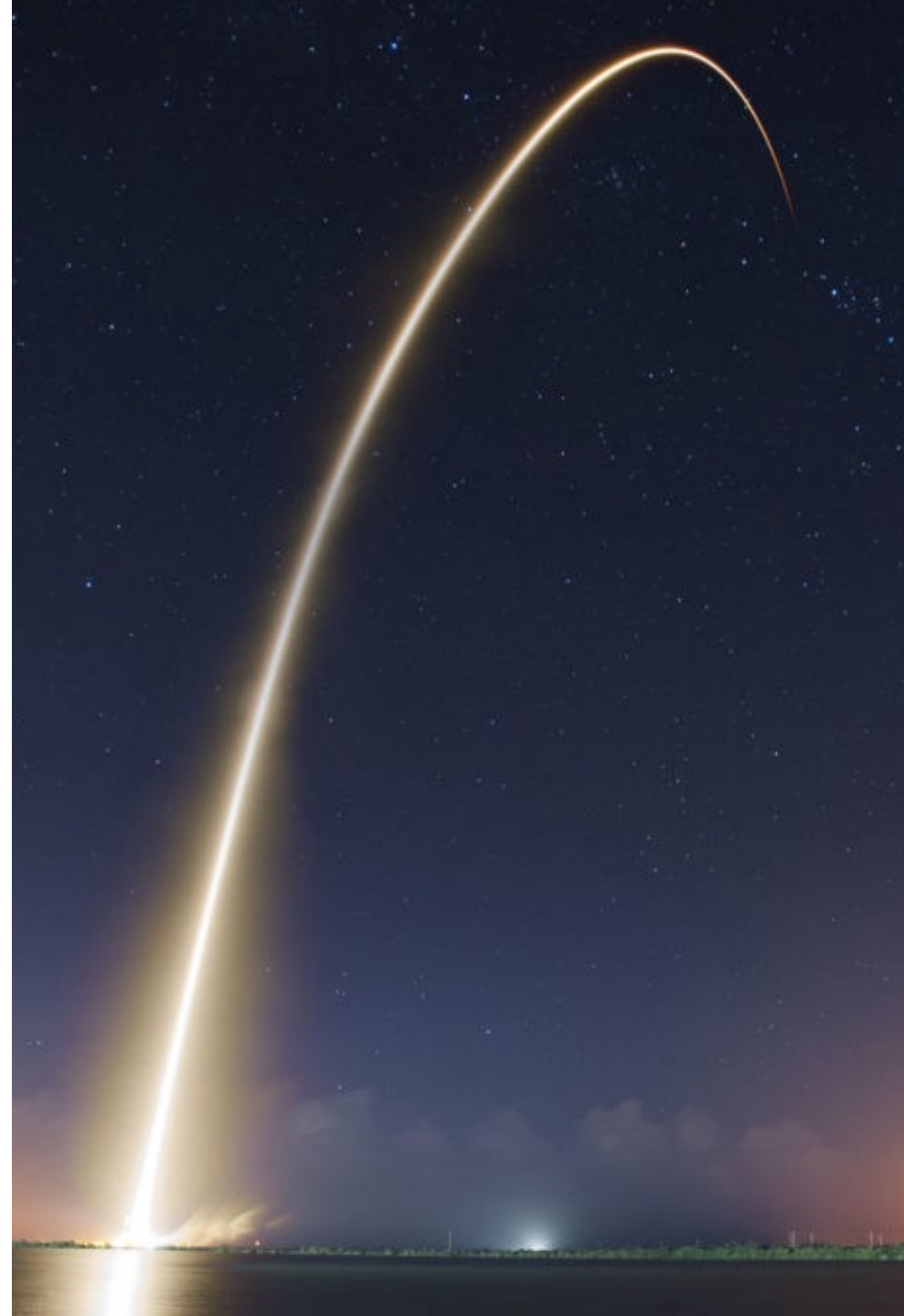
- Alan Bernstein President & CEO CIFAR
- Rob Dunlop Former ADM ISED
- Danika Goosney VP Grants, NSERC
- Digvir Jayas VPRI University of Manitoba, TRIUMF Board
- Dermot Kellerher Dean, Faculty of Medicine, VP Health UBC
- Bob Kowalewski University of Victoria, Former PPAC Chair
- Ania Kwiatkowski TRIUMF, EDI Committee chair
- Sylvain Lévesque CFO, DBC Group, TI Board
- David MacFarlane SLAC, Former ACOT Chair
- Julie Moskalyk Science Director, Science North
- Karen Mossman VPR McMaster University, TRIUMF Board
- Gilles Patry CEO, U15
- Julia Philips US National Science Board, Former IPRC Chair
- Caterina Ramogida SFU/TRIUMF, TUEC past chair
- Nigel Smith (chair) TRIUMF Director & CEO
- Geneviève Tanguay VP Emerging Technologies, NRC





20-Year Vision Development

Our vision for the next 20 years
must be ambitious and credible.





Overarching Direction

In 20 years, we see TRIUMF delivering world-class fundamental and convergence research, being instrumental in Canada's efforts towards sustainability that leverage multi-disciplinary, multi-sector collaboration, and its strategic Big Science assets.

Assumptions about the broader environment in 20 years

Science and innovation are even more important to Canada as it nears the completion of its transition from a resource economy to a knowledge economy.

Particle accelerators and associated technologies play a critical role across many areas of Canadian science and society, enabling compelling science as well as applications in health; advanced materials; energy, food & water sustainability; natural resource management; green technologies

Assumptions about TRIUMF in 20 years

TRIUMF's research portfolio will be driven by the most foundational scientific questions, from the building blocks of the universe and the origin of the elements to physics of life, the properties of next generation materials, and solutions to sustainability.

TRIUMF will, at its core, remain an accelerator-based research facility focused on advancing fundamental science and translating that knowledge into societal benefits.

TRIUMF will be a beacon of equity, diversity, and inclusion in STEM. Our workforce will reflect the make-up of Canada and our workplace will provide an equitable environment in which all people can thrive.

High-level Positioning Statements

1. As Canada's particle accelerator centre and radioisotope hub for science, medicine, and industry, TRIUMF delivers world-class fundamental and use-inspired research for societal benefit.
2. TRIUMF is recognized and leveraged as a strategic Canadian asset with unique infrastructure, expertise, and capabilities, to not only answer the biggest scientific questions, but also to address global societal challenges through convergence research, and enable Canada to react rapidly to emerging national needs.
3. TRIUMF is a catalyst for and a key player in Canada's coordinated Big Science enterprise that delivers world-class science and innovation through large scale infrastructure and secures our domestic capability to address complex challenges.

Positioning Statements 1/3

1. As Canada's particle accelerator centre and radioisotope hub for science, medicine, and industry, TRIUMF delivers world-class fundamental and use-inspired research for societal benefit.
 - a) Using and developing the most advanced particle accelerators and associated technologies as drivers, TRIUMF is a global leader across a full arc of science from particle and nuclear physics to life sciences, quantum materials, and green technologies.
 - b) TRIUMF is the linchpin of flourishing Canadian medical isotope and radiopharmaceutical industries that support the diagnosis and treatment of disease.
 - c) TRIUMF's 'green' research program carries out convergence research, leveraging our unique technologies and capabilities, in combination with our network of partners, to address climate and sustainability challenges.
 - d) TRIUMF is an essential partner for the Canadian scientific community in establishing the next major accelerator complex in Canada.

Positioning Statements 2/3

2. TRIUMF is recognized and leveraged as a strategic Canadian asset with unique infrastructure, expertise, and capabilities, to not only answer the biggest scientific questions, but also to address global societal challenges through convergence research, and enable Canada to react rapidly to emerging national needs.
 - a) TRIUMF is a valued, sought-after partner for academia, industry, and government, harnessing our strength in cross-disciplinary collaborations and our global network of partners.
 - b) TRIUMF is a beacon of EDI that attracts, inspires, educates, and retains the next generation of global STEM leaders.
 - c) TRIUMF is a cross-disciplinary and inclusive hands-on training hub that provides an inclusive, integrated environment, complementing and enhancing the academic and industrial streams of our partners.
 - d) TRIUMF is a green accelerator facility using modern infrastructure and frontier technologies for sustainable, effective operation on a reimagined central campus that enhances our historic legacy while maximizing community interaction and collaboration.

Positioning Statements 3/3

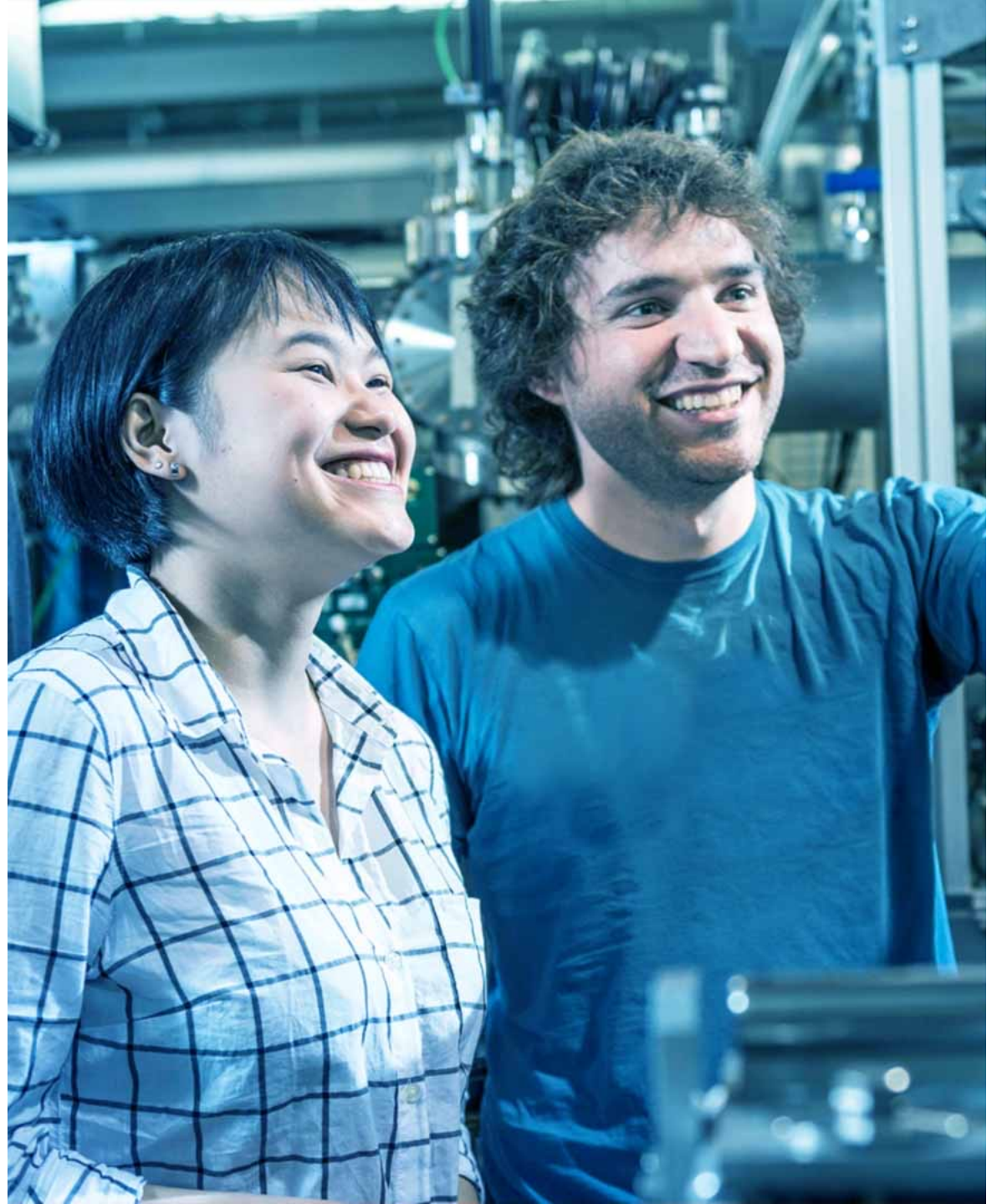
3. TRIUMF is a catalyst for and a key player in Canada's coordinated Big Science enterprise that delivers world-class science and innovation through large scale infrastructure and secures our domestic capability to address complex challenges.
 - a) TRIUMF is at the centre of both local and national innovation ecosystems that drive the research, development, and commercialization of disruptive technologies based on our cross-disciplinary research.
 - b) TRIUMF is a key member of an international network of big science facilities, positioning Canada for leadership in high-impact science and high-value collaborations.

Discussion

Recall:

These statements are not the vision.

They only serve as navigation markers to anchor our thinking in articulating the vision



Positioning Statements 1/3

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Thank you
Merci

