2021/05/13

SNOLAB 2023-2029 Strategic Plan development

Blaire Flynn
Senior Education and Outreach Officer, SNOLAB

Daniel Banks
President, TVB Associates

Presentation overview

- Strategic Plan development
- Community survey results
- Content of initial draft
- Q&A

Purpose of the strategic plan

Organizational compass to guide SNOLAB from 2023 - 2029

Priorities
Activities

Vision
Mission
Values
Goals

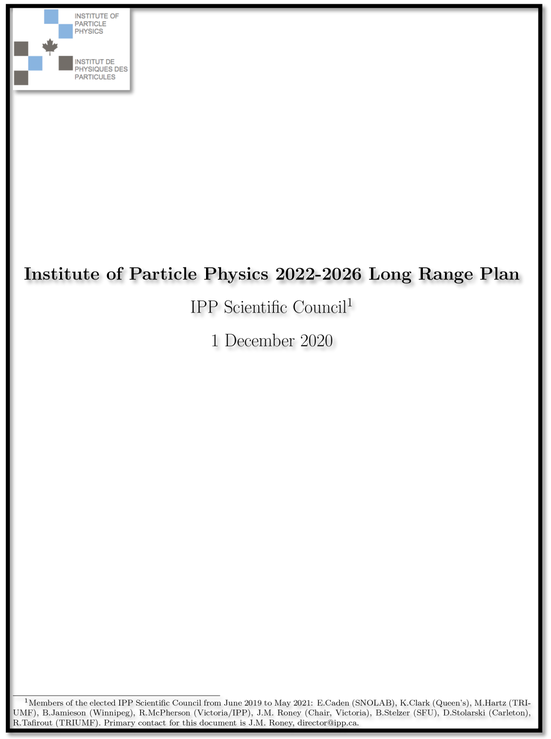
Funding
Resources

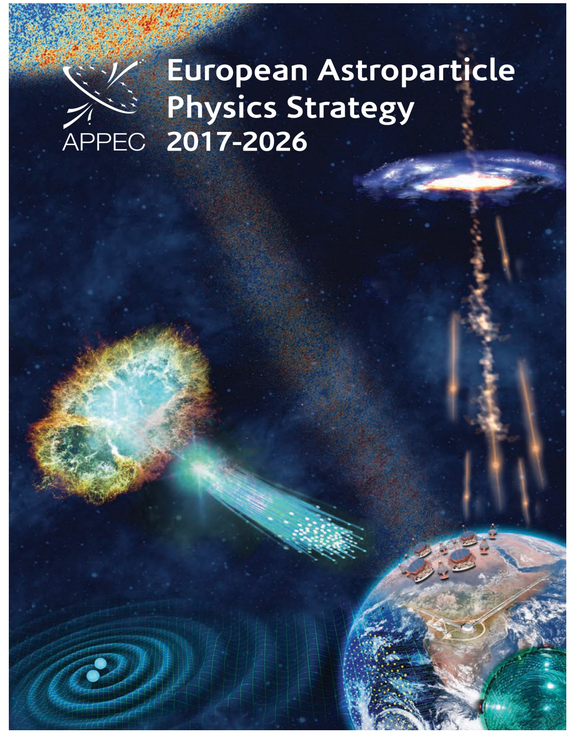
SNOLAB strategic documents

Development of the plan

Background

1. SNOLAB has completed its a transition from a single-experiment site to a multi-experiment facility and achieved the vision of the 2017-2022 plan, "To be an internationally recognized laboratory and partner of choice..."
2. In SNOLAB's science community, several intense consultations and long-range planning exercises are nearing, or have recently reached, completion.





Other long-range plans:

- Canadian Subatomic Physics LRP2022
- USA: Snowmass 2021
- Update of the European Strategy for Particle Physics (European Strategy Group, June 2020)
- Latin American Strategy Forum for Research Infrastructures for High Energy, Cosmology, Astroparticle Physics

SNOLAB Strategic Plan working group

Daniel Banks, President, TVB Associates Inc.

Blaire Flynn, Education and Outreach Officer, SNOLAB

Brent Donnely, Interim Chief Business Officer, SNOLAB

Jeter Hall, Director of Research, SNOLAB

Samantha Kuula, Chief Business Officer, SNOLAB

Jenna Saffin, Science Communications Coordinator, SNOLAB

Nigel Smith, Executive Director, SNOLAB

Clarence Virtue, Interim Executive Director, SNOLAB

SNOLAB Strategic Plan external advisory group

Joe Bramante, Queen's University, McDonald Institute, Perimeter Institute

Dean Chapman, University of Saskatchewan, former Science Director at CLS

Ken Clark, Queen's University, McDonald Institute, TRIUMF

Miriam Diamond, University of Toronto, McDonald Institute

Christine Kraus, Laurentian University

Pawel Mekarski, Health Canada

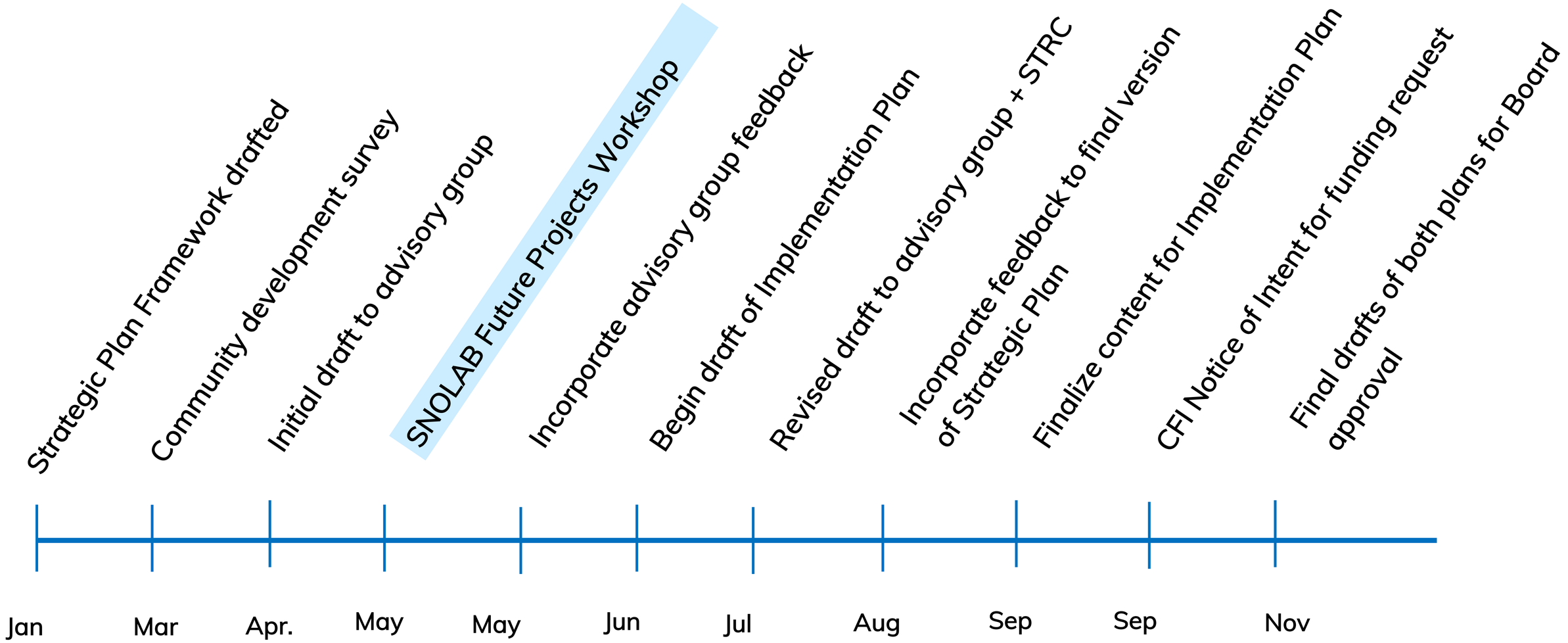
Thomas Merritt, Laurentian University

Kimberly Palladino, Oxford University, Lincoln College

Andrew Sonnenschein, Fermi National Accelerator Laboratory

Isabel Trigger, TRIUMF, University of Victoria

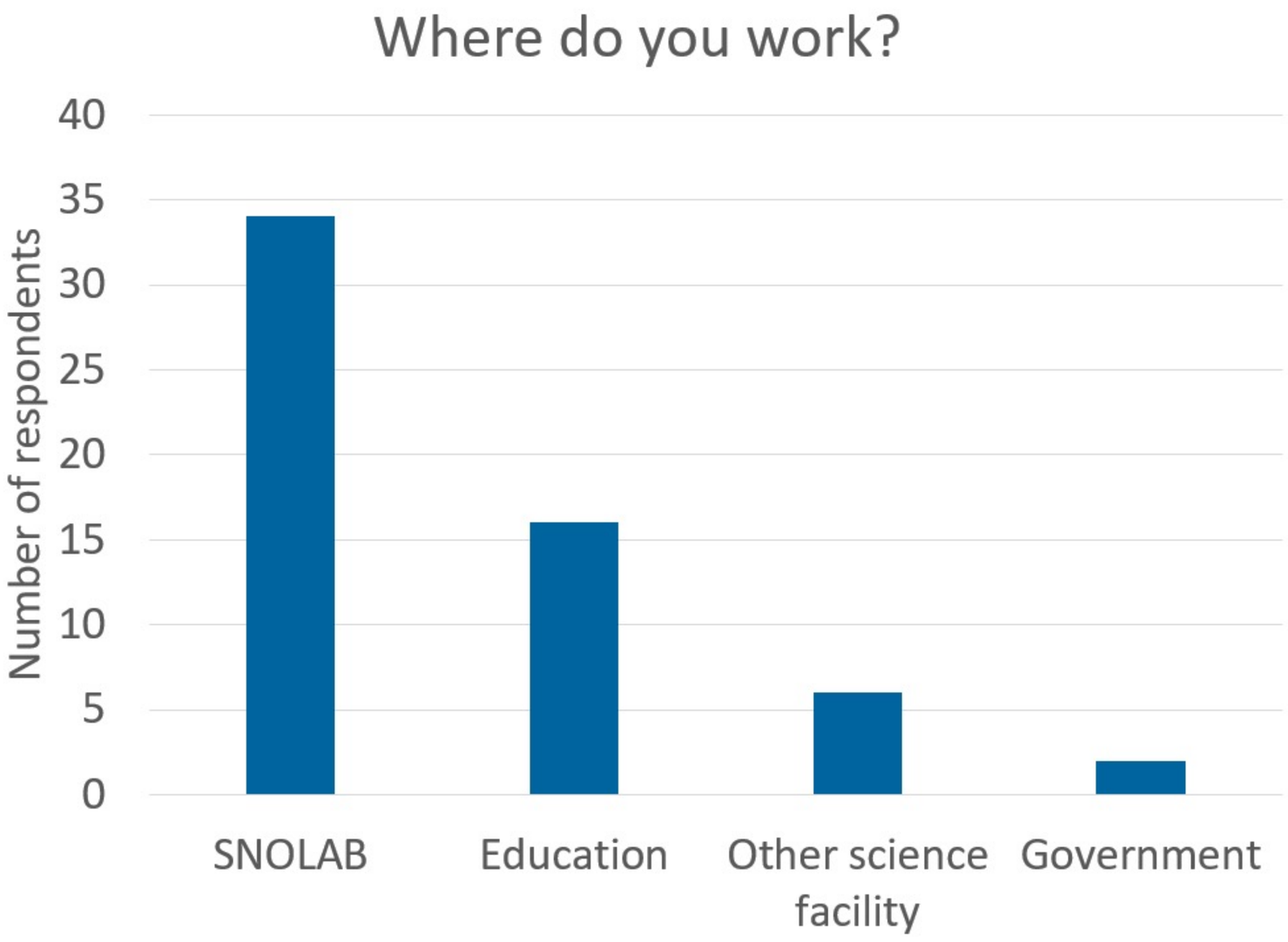
Strategic Plan development timeline

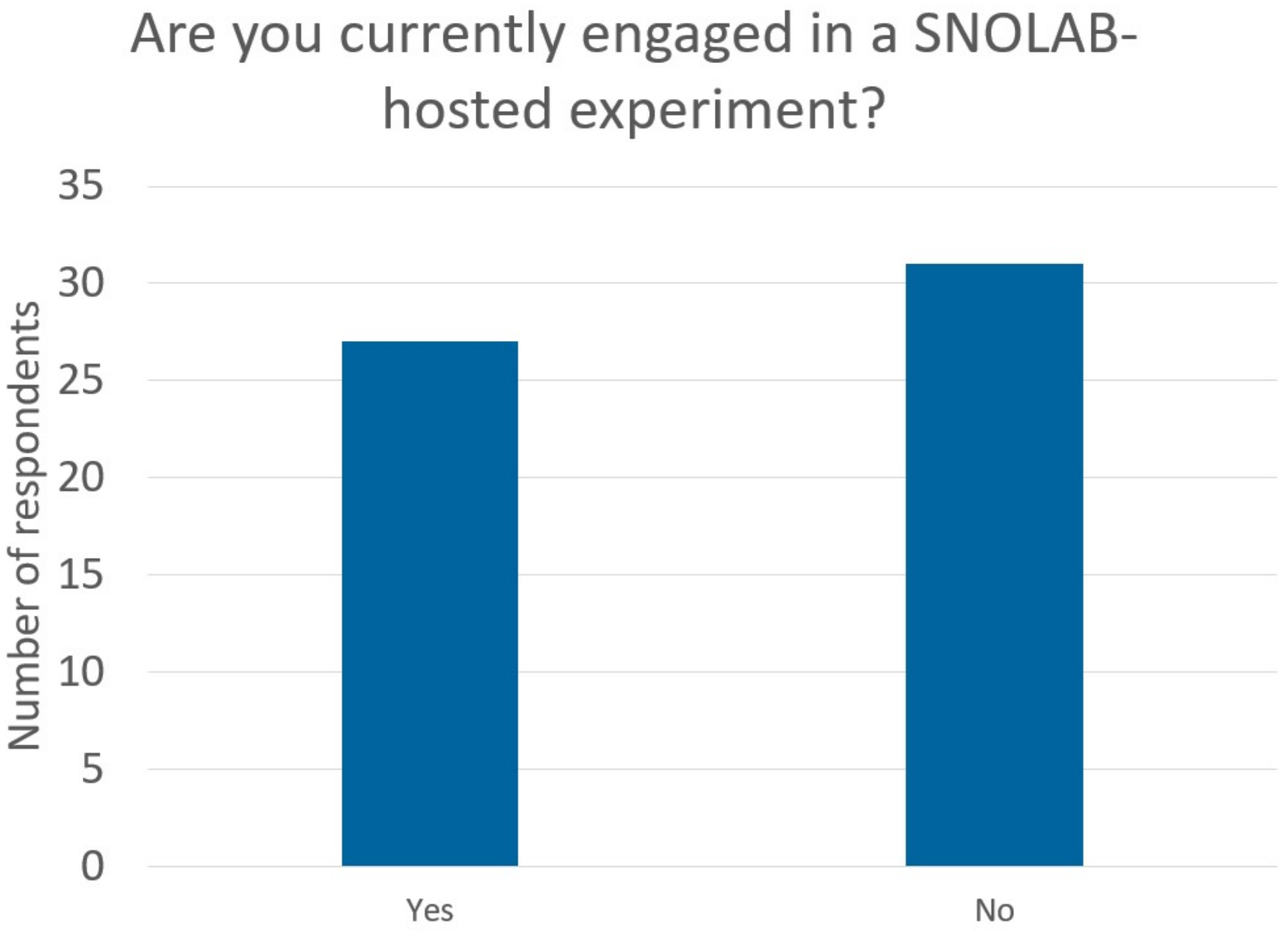


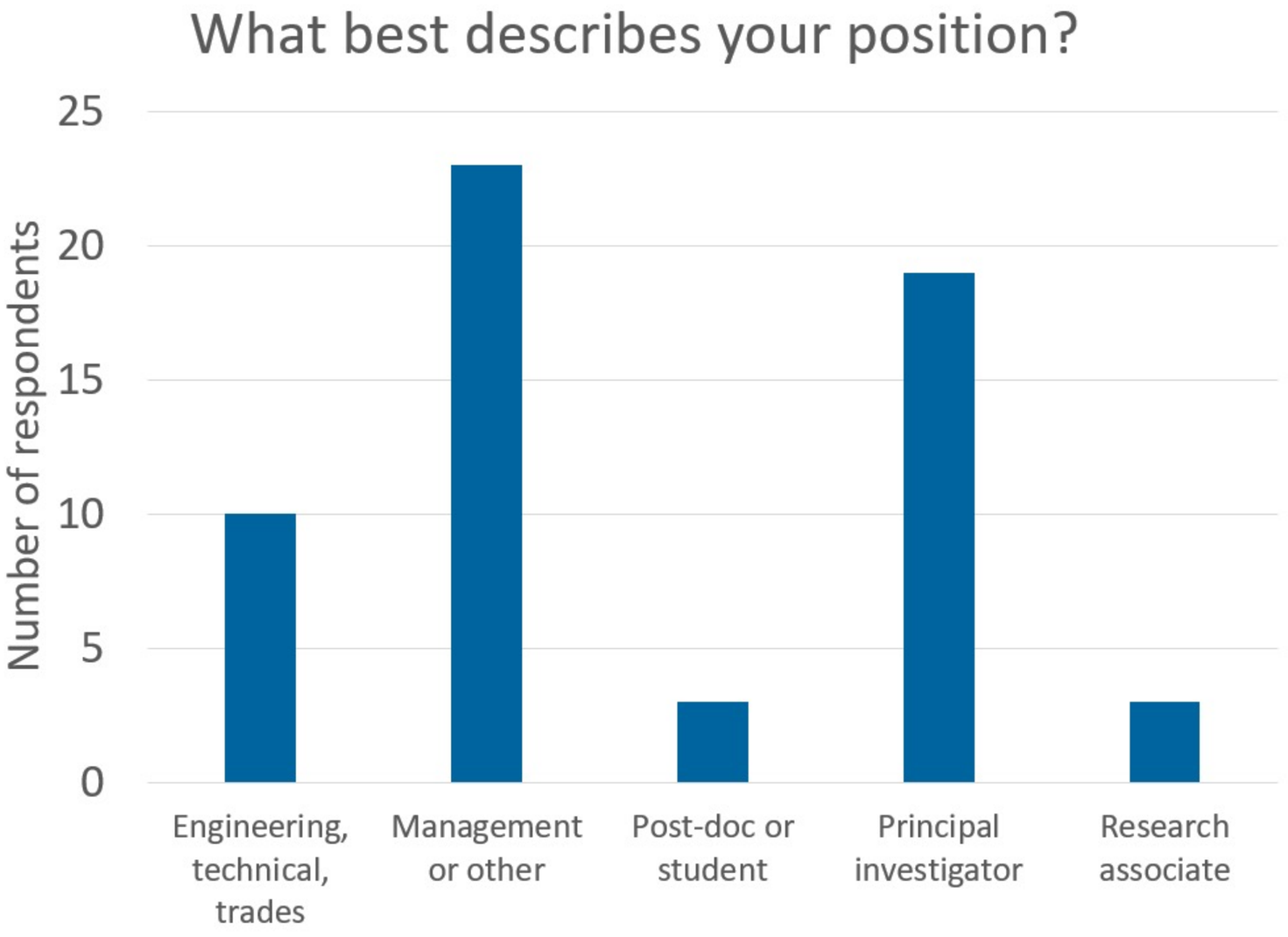
Community Survey

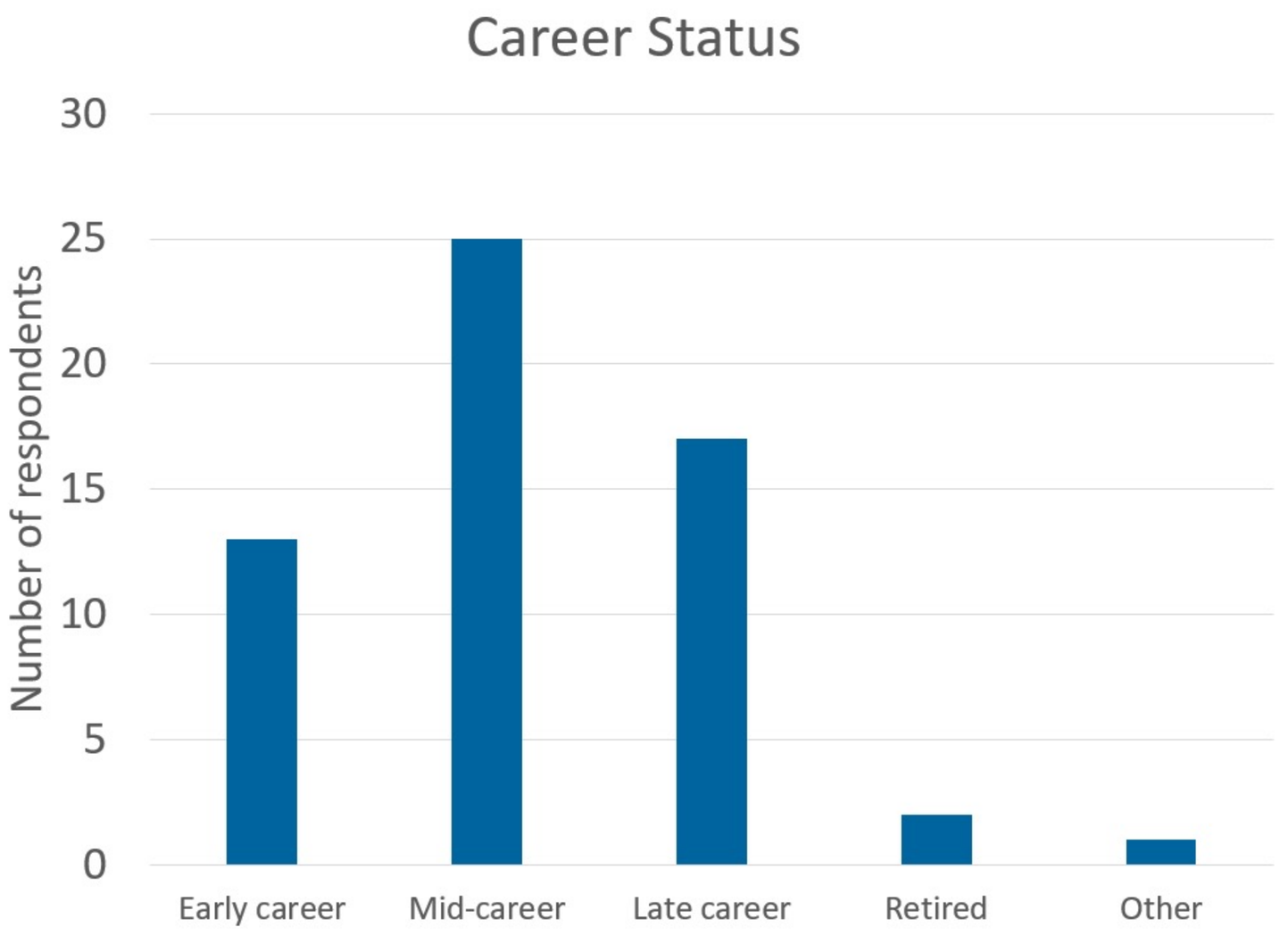
- Circulated to our staff and our community of ~800 people
- ~ 60 surveys were completed

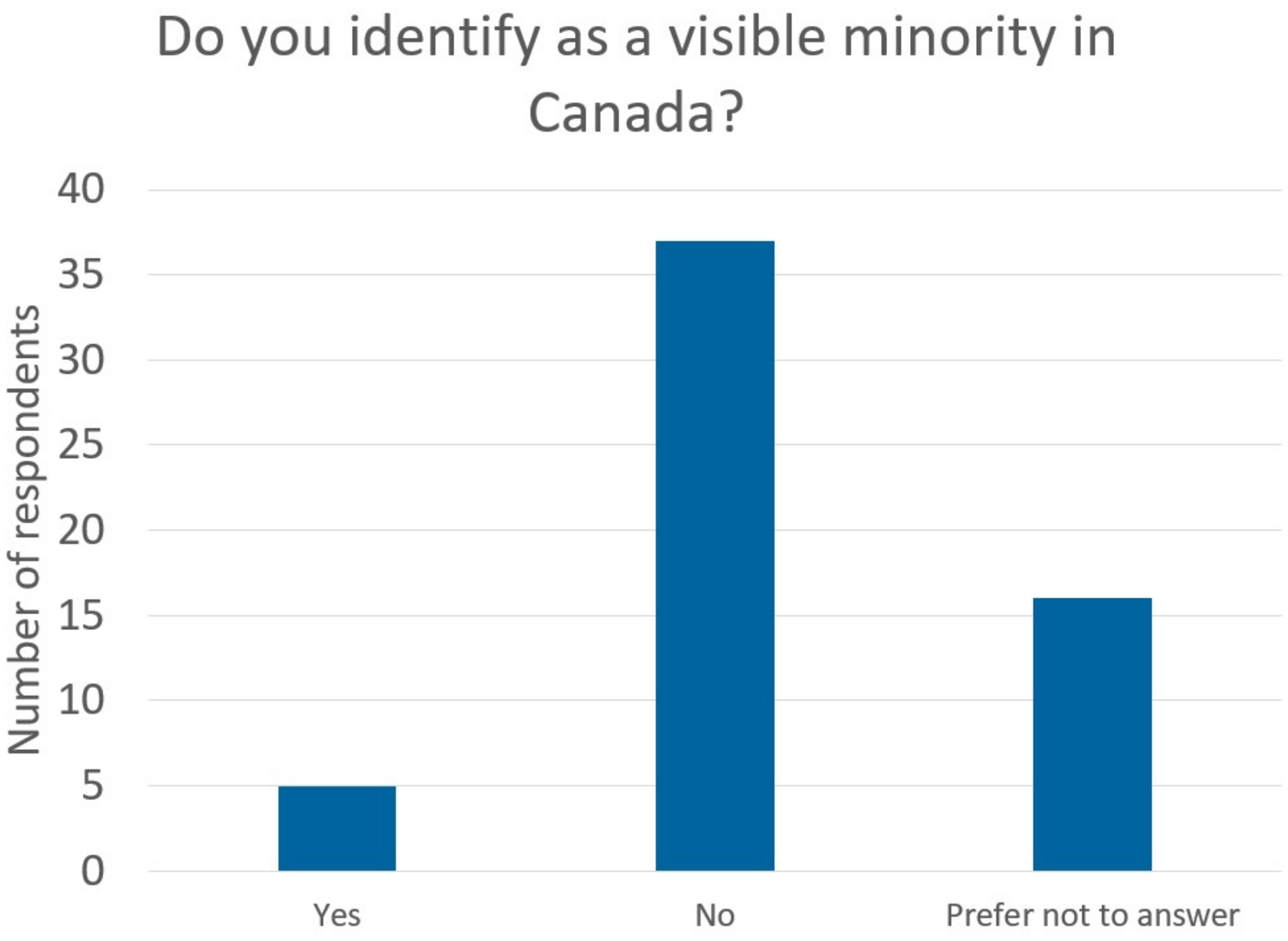
- Focused on non-scientific aspects of the plan:
  - Performance toward goals of previous plan
  - Draft vision, mission, goals, core values

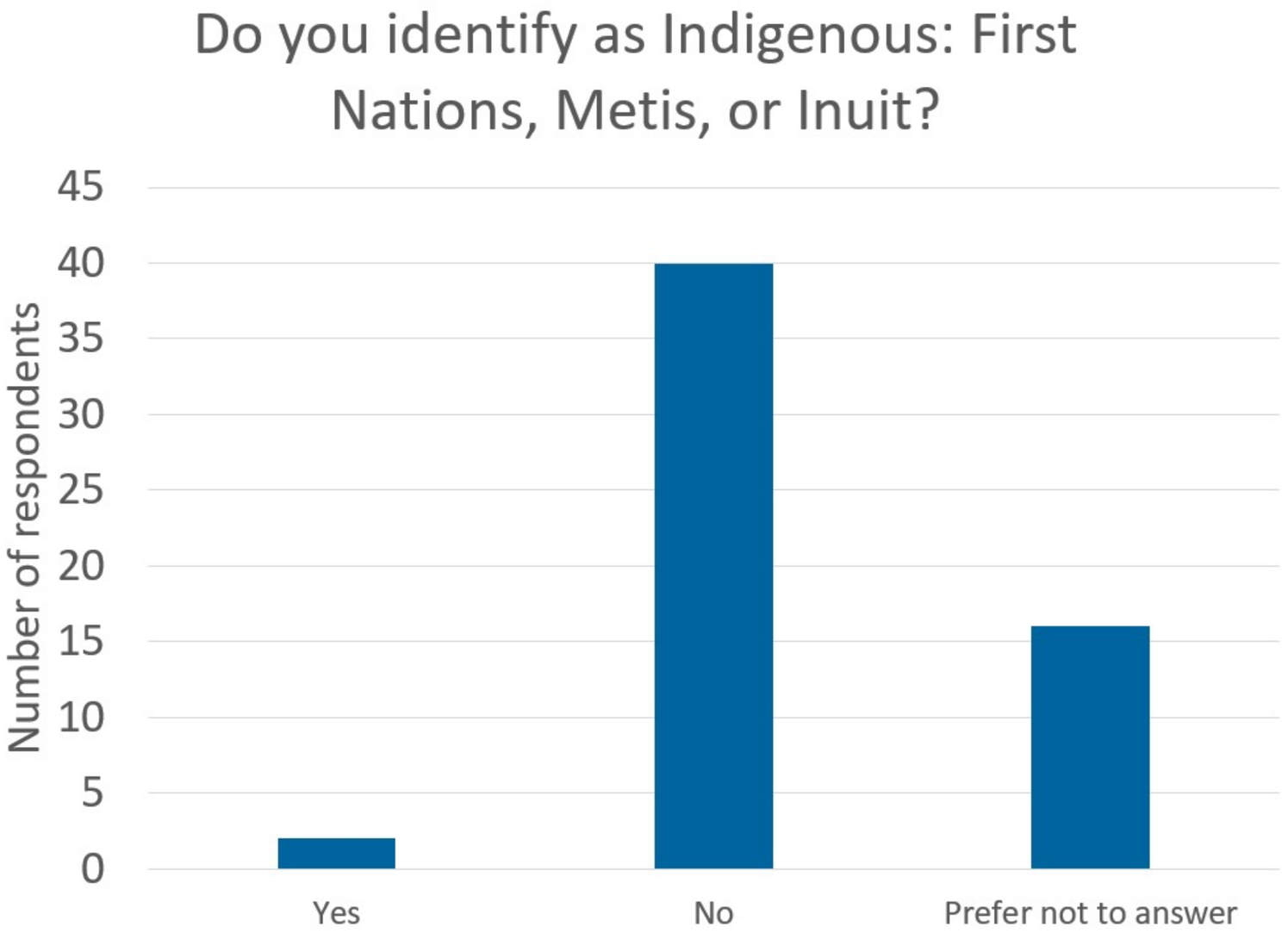

Where do you work?
Number of respondents
40
35
30
25
20
15
10
5
0
SNOLAB
Education
Other science facility
Government

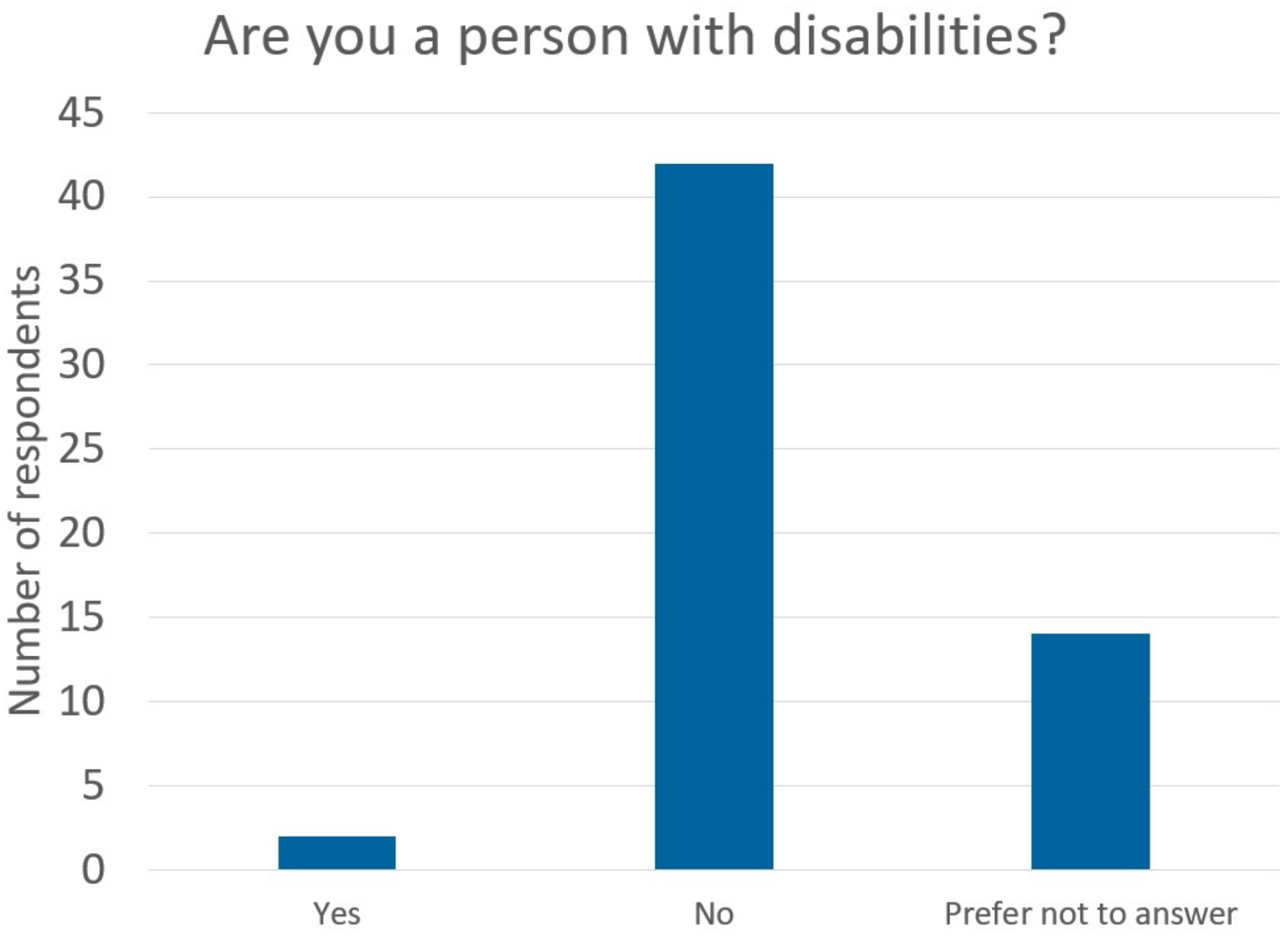

Are you currently engaged in a SNOLAB-hosted experiment?
Number of respondents
35
30
25
20
15
10
5
0
Yes
No

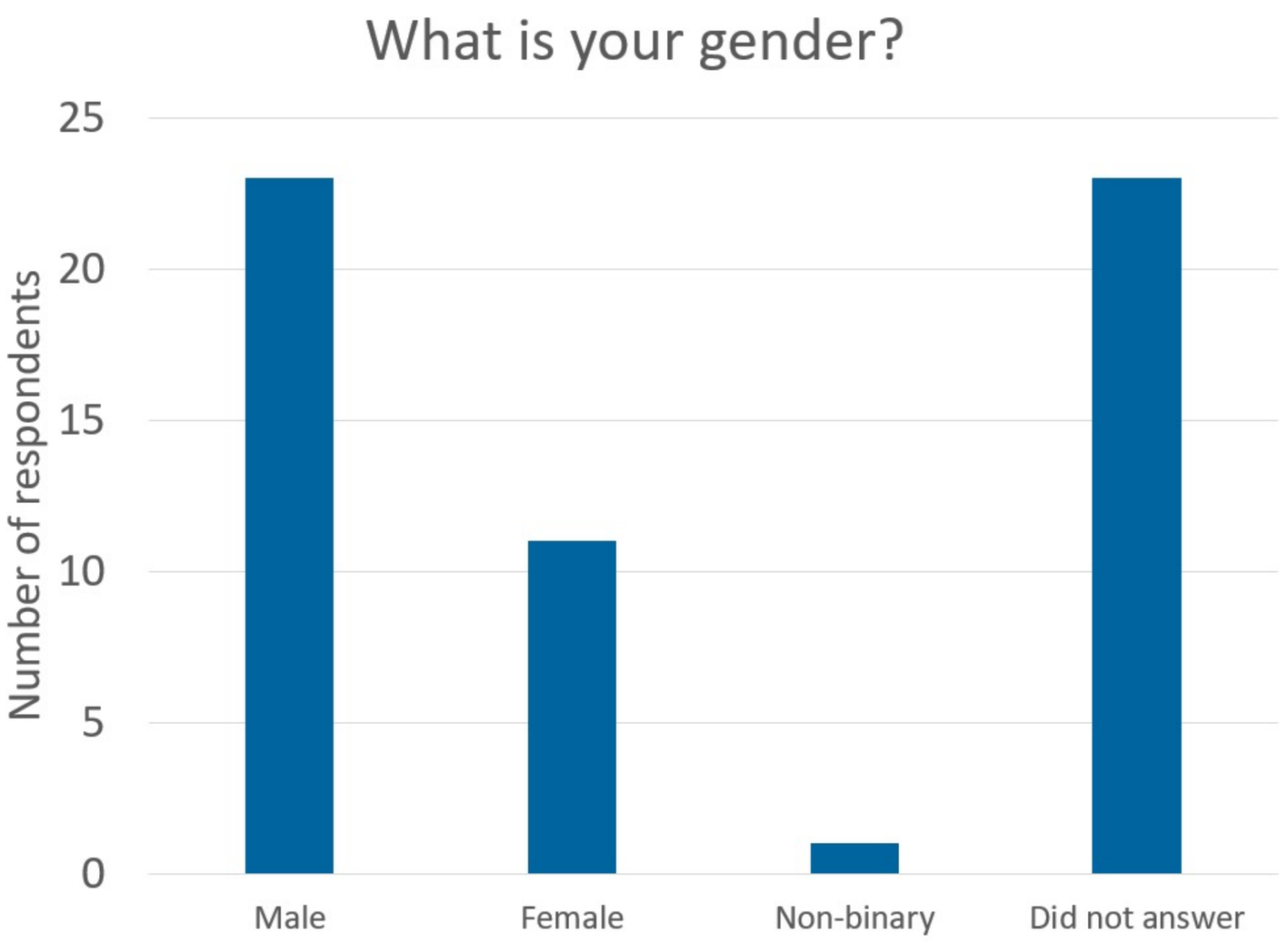

What best describes your position?
Number of respondents
25
20
15
10
5
0
Engineering, technical, trades
Management or other
Post-doc or student
Principal investigator
Research associate


Career Status
Number of respondents
30
25
20
15
10
5
0
Early career
Mid-career
Late career
Retired
Other


Do you identify as a visible minority in Canada?
Number of respondents
40
35
30
25
20
15
10
5
0
Yes
No
Prefer not to answer


Do you identify as Indigenous: First Nations, Metis, or Inuit?
Number of respondents
45
40
35
30
25
20
15
10
5
0
Yes
No
Prefer not to answer


Are you a person with disabilities?
Number of respondents
45
40
35
30
25
20
15
10
5
0
Yes
No
Prefer not to answer


What is your gender?
Number of respondents
25
20
15
10
5
0
Male
Female
Non-binary
Did not answer

Content of the Strategic Plan for 2023-2029

Main sections:

- Drivers
- Vision
- Mission
- Research Focus
- Strategic Goals
- Core Values
- Governance

Drivers

Particle physics is a fruitful field of discovery.

Key science questions:

- What is the nature of the dark matter in the universe?
- What is the nature of neutrino masses?

The science community plans to build extremely sensitive, large-scale experiments.

The increasing sensitivity of these experiments drives demand for access to SNOLAB.

Recent investment in astroparticle physics at Canadian universities and in SNOLAB place Canada in the vanguard of underground science.

SNOLAB's competitive advantage includes:

- access to extremely deep, clean halls for large experiments;
- access to expert scientific, technical and administrative support;
- access to technology that enables the low radiological backgrounds.

Draft vision statement:

“ To be the leading international laboratory in deep underground science, hosting the world’s largest and most advanced experiments that provide insight into the nature and evolution of the universe. ”

Mission

Enable world-class science performed at SNOLAB by national and international collaborative research teams from concept to decommissioning;

Spearhead world-class science at SNOLAB through its own research group as part of the international and national community, developing synergies with other groups worldwide;

Catalyze world-class science at SNOLAB by providing opportunities for collaboration and knowledge exchange through workshops, local interactions, and professional outreach;

Promote world-class science and societal benefits through a strong public outreach programme, and through technical knowledge development and transfer;

Inspire the next generation of innovators through strong educational outreach and the training of highly qualified personnel.

Research Focus

Our key focus areas for experiments at SNOLAB include:

- Dark matter research
- Neutrino research
- Life sciences
- Nuclear security
- Quantum technology

SNOLAB will spearhead research and development in supporting technologies:

- low background materials production
- cryogenic systems, and
- highly sensitive light detectors.

Performance on 2017-2022 goals

Respondents rated performance on sub-goals in each of our strategic goals

1. Enable and spearhead world-class underground science
2. Develop and maintain world-class facilities and infrastructure
3. Educate, inspire, and innovate
4. Develop delivery systems of internationally recognized standard

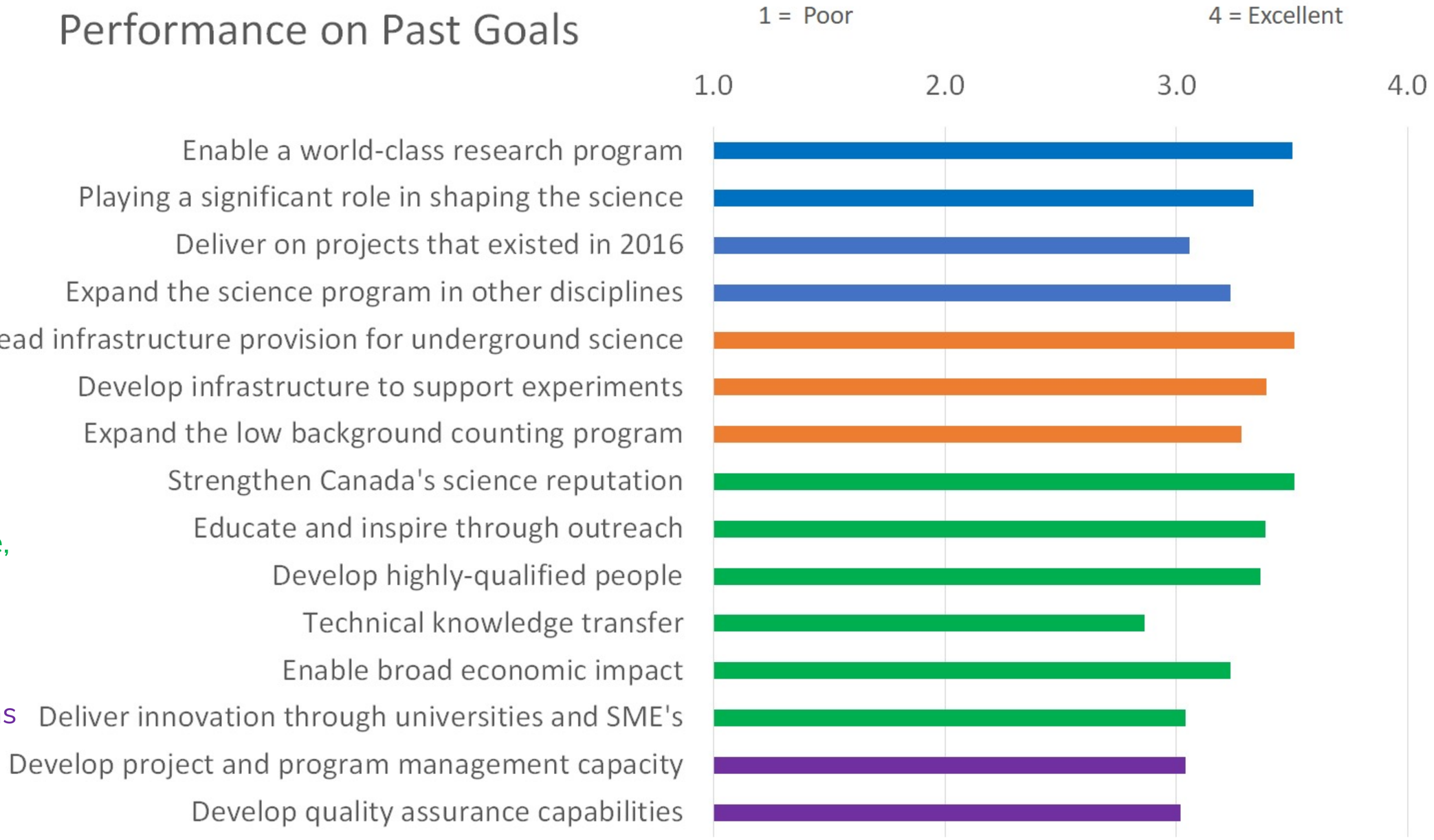
Performance on Past Goals

1.Enable and spearhead science

2. World-class facilities and infrastructure

3.Educate, inspire, innovate

4.Delivery systems of internationally recognized standard



Themes in survey comments

- Engineering, project management and quality assurance support have improved but can improve more.
- Low background counting program has improved and has much more potential to be innovative.
- Need for continuous improvement of the infrastructure.
- Training of HQP is a strength, but SNOLAB can do more to develop its own staff.
- Outreach functions are good, but need to be larger in scale.
- Little technology transfer has occurred.
- SNOLAB has a diverse workforce, but there is work to be done to improve EDI.
- Overall, respondents are proud to be associated with SNOLAB

Strategic Goals for 2023-2029

1. Enable and spearhead world-class underground science
2. Continuously improve our world-class research infrastructure
3. Educate, inspire, and innovate
4. Build a culture of equity, diversity, and inclusion **(new)**

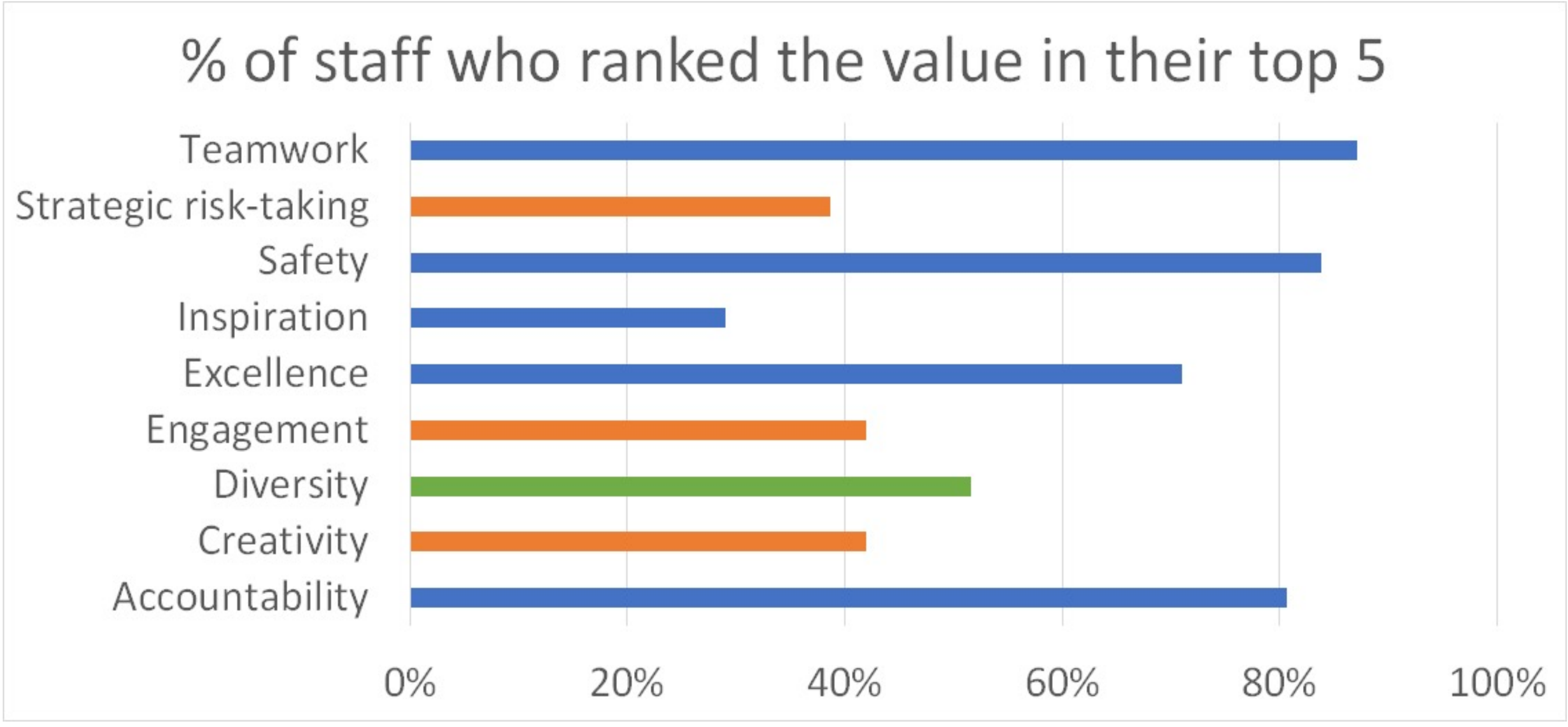
Core Values

Core values are enduring beliefs in which the staff are emotionally invested and which guide individual behaviour and organizational decisions. Core values are described in behavioural terms.

They can be understood as boundaries within which the organization will operate in pursuit of its vision.

Respondents were provided a list of 9 values with a brief description of each. 5 of the 9 were the existing core values.

Respondents ranked how important the values are to them.


% of staff who ranked the value in their top 5
Teamwork
Strategic risk-taking
Safety
Inspiration
Excellence
Engagement
Diversity
Creativity
Accountability
0%
20%
40%
60%
80%
100%

Governance

- SNOLAB requires robust governance practices to ensure that it is funded, managed and operated for success. Best practices will guide the **evolution of our governance**.
- SNOLAB cooperates with international laboratories as well as other major research facilities in Canada and the Canada Foundation for Innovation to **share best practices**.
- SNOLAB will establish a set of **specific actions and target outcomes** for each of the strategic goals, as well as a robust set of Key Performance Indicators. We will routinely measure, track and **report our performance** to the Board of Directors and stakeholders.

Discussion questions

What innovations in supporting technologies (e.g. low background materials production, cryogenic systems, and highly sensitive light detectors) are most needed to support a wide array of experiments? How can SNOLAB best support development of these technologies?

Discussion questions

Should SNOLAB host a major international project with currently limited Canadian participation? Previous community strategy discussions have supported this path as a way to increase Canadian engagement in the field. What can SNOLAB and the research community do to increase Canadian participation and leadership over time in such a programme? How do we maximise benefit to Canada?

Feedback?

Keep the discussion going:

- Blaire Flynn: Blaire.Flynn@snolab.ca
- Daniel Banks: Daniel.Banks@tvbassociates.ca

Goal #1 *(initial draft)*

1. **Enable and spearhead world-class underground science**

- Enable delivery of the current suite of experiments hosted in our underground lab.
- Enhance the research programme by adding at least one major international, next-generation project searching for neutrinoless double beta decay or dark matter by 2029.
- Diversify the research programme by adding projects in emerging areas of underground science such as nuclear security, quantum computing, biology, or geology.
- Broaden our engagement with the global research community and support it in identifying future science goals.
- Spearhead research and development in technologies that support current and future underground science projects—technologies such as low background materials production and highly-sensitive light detectors.
- Explore the creation of a SNOLAB research institute in Sudbury.

Goal #2 *(initial draft)*

2. Continuously improve our world-class research infrastructure

- Evaluate, develop and expand our research infrastructure as needed to support the current research programme and respond to future scientific directions.
- Continuously improve the infrastructure and supporting capabilities, such as project management and delivery systems, at a high level to safely and efficiently meet the needs of our community.
- Develop and refine our expertise in engineering and operations of cryogenic systems.
- Expand the low radiogenic background programme, including ultra-low materials production and low radon systems.

Goal #3 *(initial draft)*

3. Educate, inspire, and innovate

- Educate and inspire through inclusive and accessible public and professional outreach activities.
- Develop highly skilled people as the next generation of scientists, innovators and leaders.
- Develop and transfer technical knowledge to generate innovation and economic impact.
- Strengthen Canada’s reputation as an international leader in science and innovation.

Goal #4 *(initial draft)*

4. Build a culture of equity, diversity, and inclusion

- Ensure our culture and work environment are safe and respectful for everyone, from how we communicate with each other to how we design and maintain our workspaces.
- Work with our staff and users to create an environment where people have an equal opportunity to succeed.
- Review our processes and policies to identify and address barriers to inclusion.
- Actively develop a workforce that is representative of both our local community and our national user base, providing diverse perspectives.