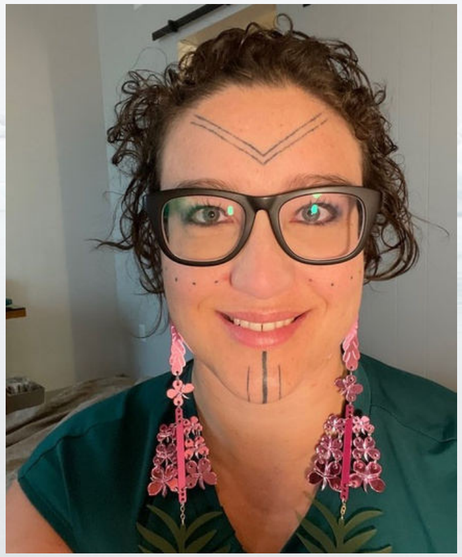
Research Priority Team 3

Understanding the dyamics and resilience of Arctic social-ecological systems to foster a sustainable future

ARCTIC SCIENCE SUMMIT WEEK
20–28 March 2025
Boulder, Colorado, USA
#ASSW2025
IASC

ICARP IV
INTERNATIONAL CONFERENCE ON ARCTIC RESEARCH PLANNING

RPT 3 Team

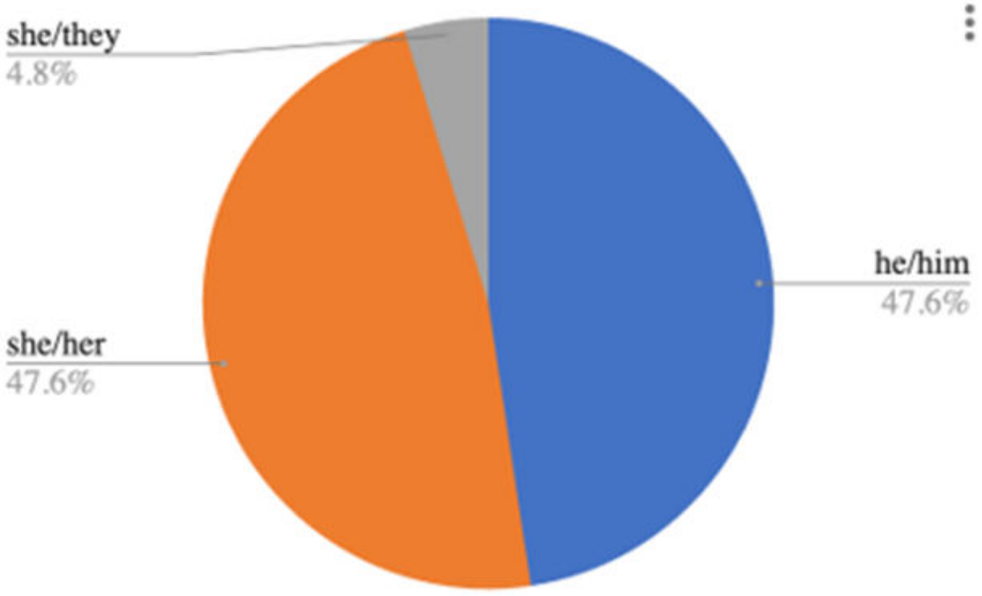


- Co-leads Heather Sauyaq Jean Gordon, Jackie Dawson, Varvara Korkina Williams
- Heather and Varvara are Indigenous co-leads
- We have around 30 members in our group, some active and others signed up for the listserv https://icarp.iasc.info/engagement/research-priority-teams/research-priority-team-3

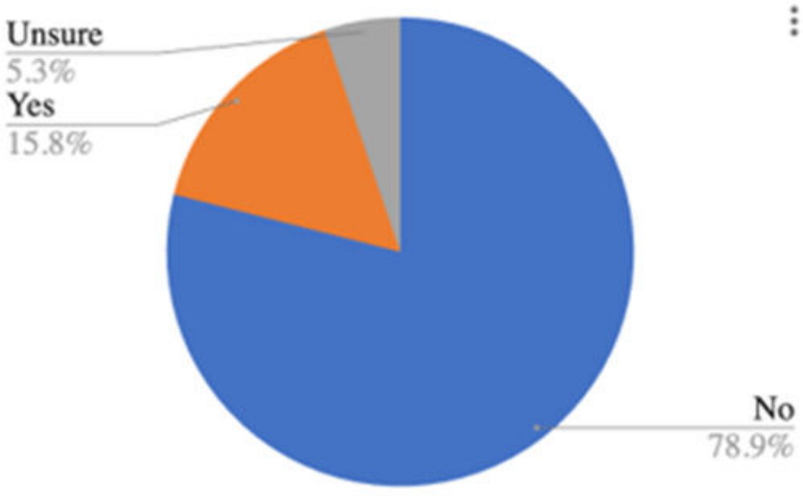
RPT - Team

Austria
Canada
Denmark
Finland
Italy
Japan
Norway
Russia
United Kingdom
USA

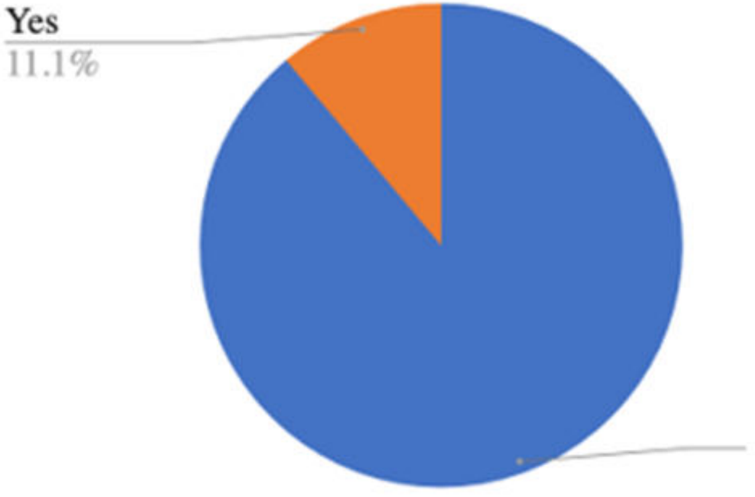
Gender Self-Identification



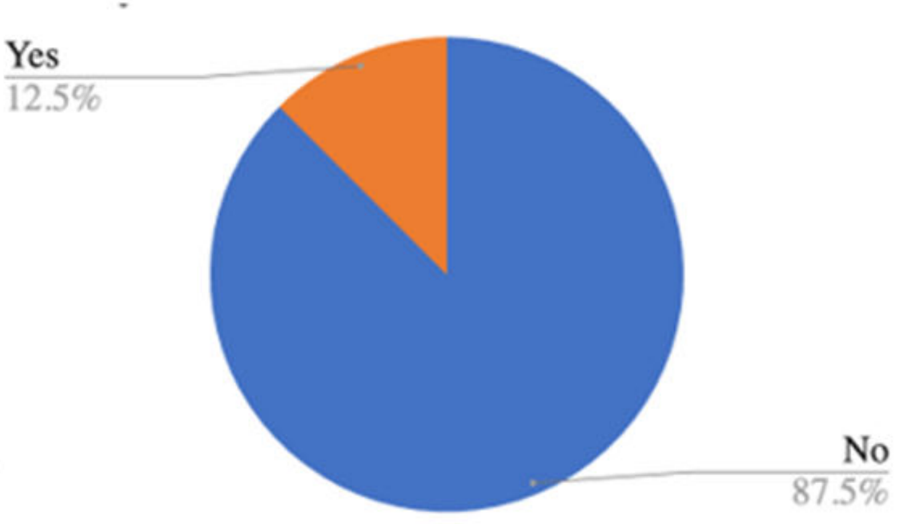
Visible Minority



LGBTQ+



Indigenous



RPT 3 Foci (not all inclusive)

- Sustainable and equitable Arctic economy
- Adaptive management and nature-based solutions (actions/adaptations/measures)
- Healthy Arctic and healthy peoples (multi-stressor effects, contaminants and climate interactions, One Health)
- Energy systems; sustainable energy production; green transition and green energy
- Reliability; resilience; food systems; sustainable production; resilience
- Water systems and drinking water; sanitary health; infrastructure and migration.

RPT 3 Objectives

- Create an open, inclusive, welcoming, diverse space for researchers, community members, and more to participate in the RPT3 process!
- Identify and analyze research priorities (RP) and gaps (RG) for the next decade of Arctic research.
- Present findings in a final report to IASC.

Timeline

April - September ‘24	October ‘24	November ‘24- February ‘25	March ‘25	October ‘25
Identify and review existing priorities	RPT group retreat - Akureyri, Iceland	Launch surveys to continue identifying RPs and begin to analyze them	Consultation: ASSW 2025 ★	Final RPT submission (report)

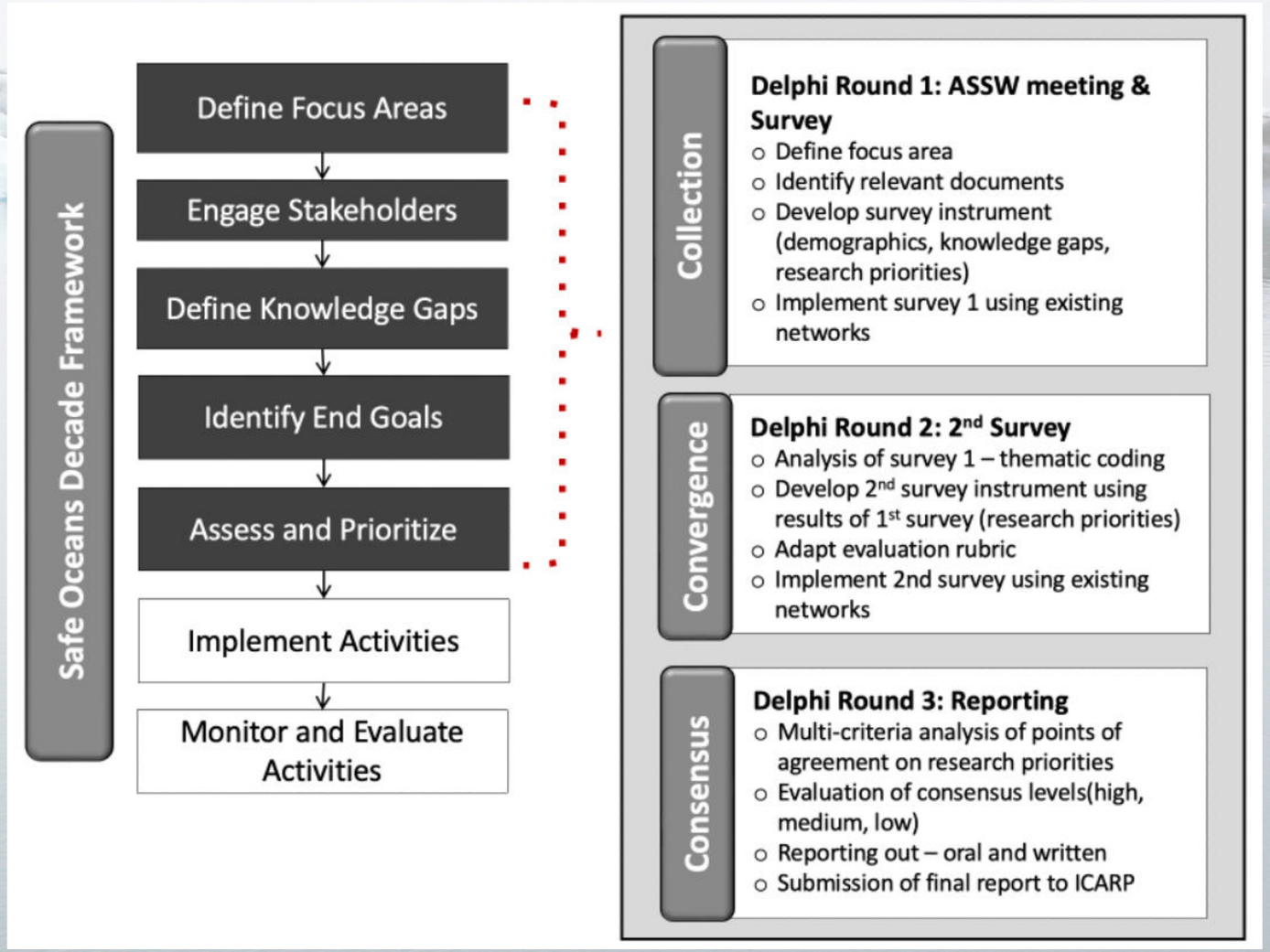
Approach to RP setting

Literature Review

- Review existing documents for already identified research gaps and priorities (e.g. IASC WG Reports)

Surveys

- Policy Delphi approch via a 2-part survey
  - Phase 1 = collection
  - Phase 2 = convergence



Survey 1

Survey link

Research priorities

Knowledge gaps

Demographics

Research priorities and knowledge gaps are then **sorted into thematic categories** to be used for survey 2.

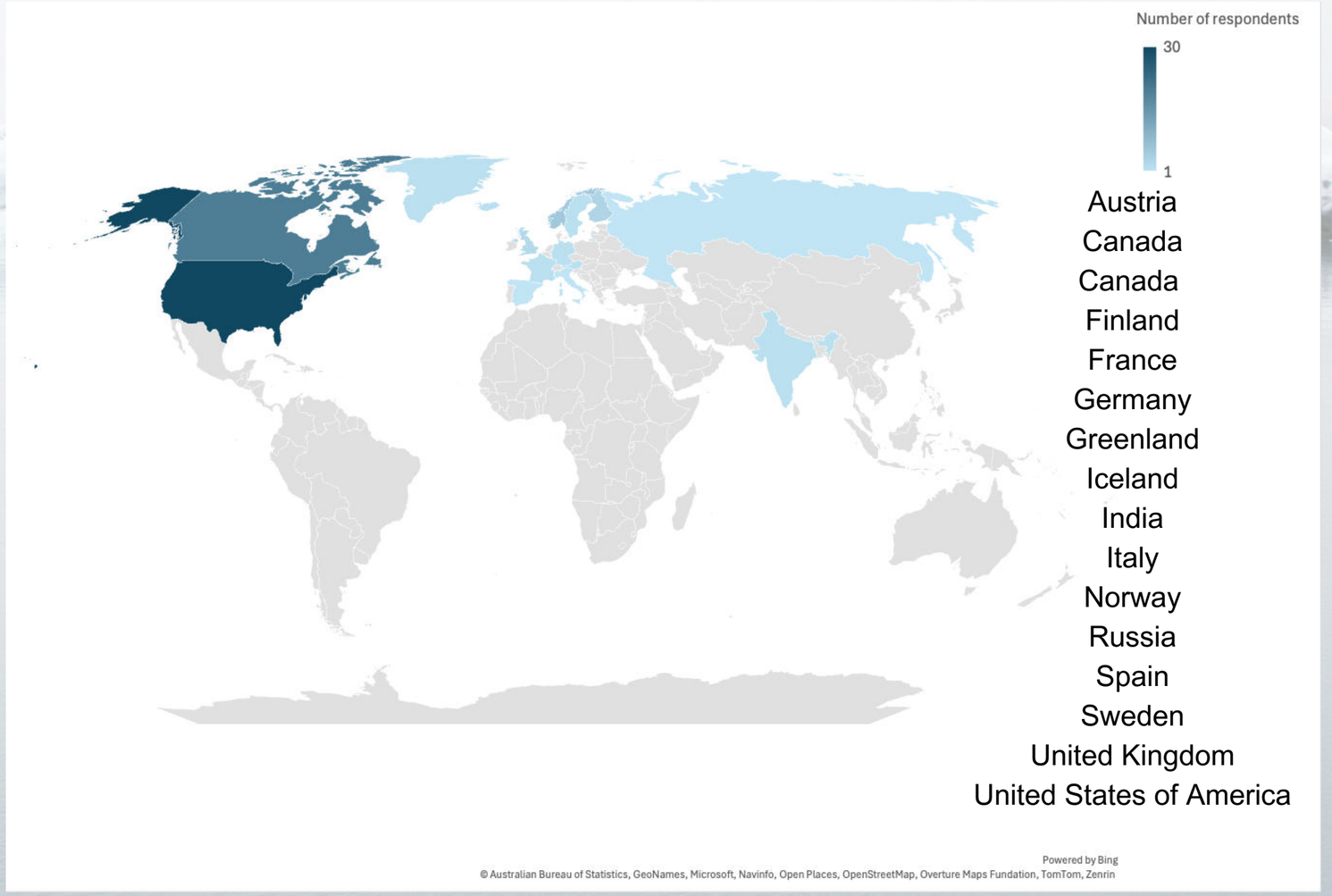
This information will tell us who completed the 1st survey and is willing to complete the 2nd survey.

Preliminary Results: Survey 1

82 responses

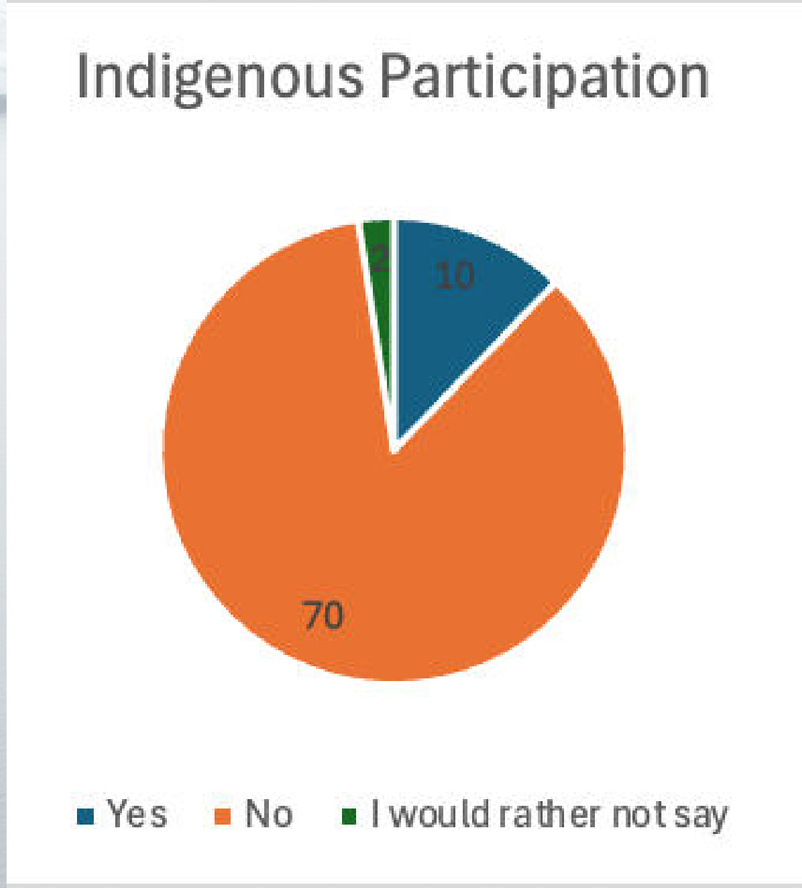
155 knowledge gaps

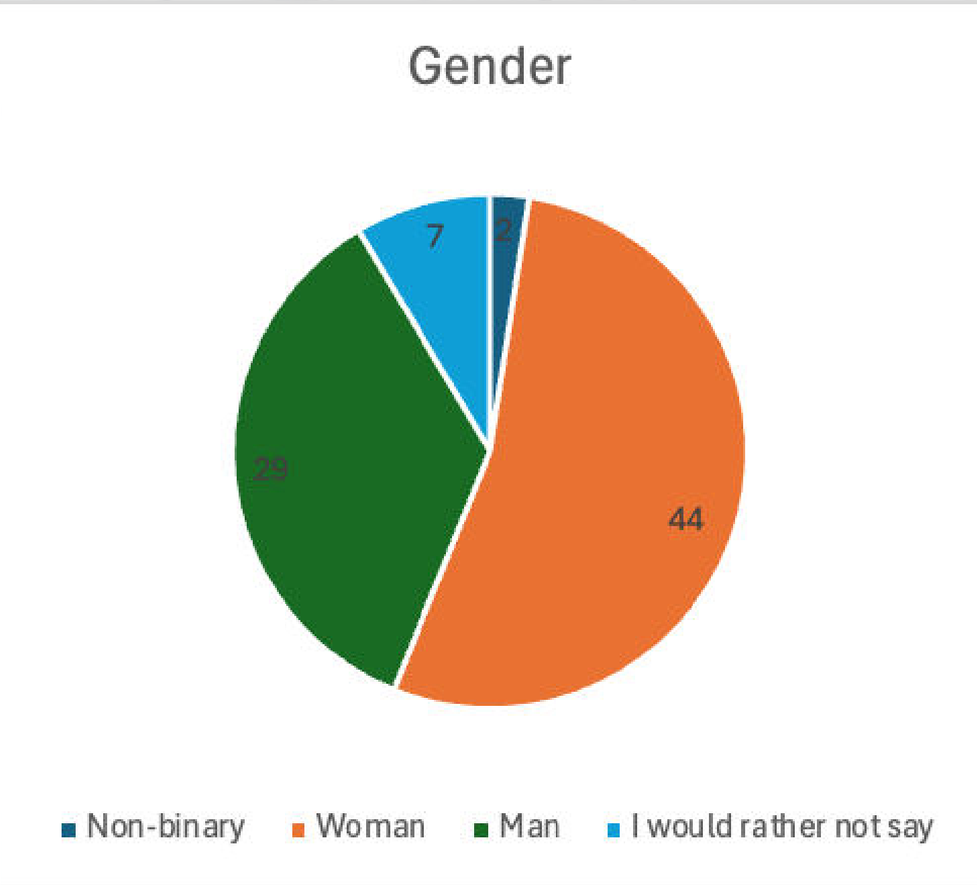
96 priority statements



Preliminary Results: Survey 1

12% of responses are from Indigenous persons





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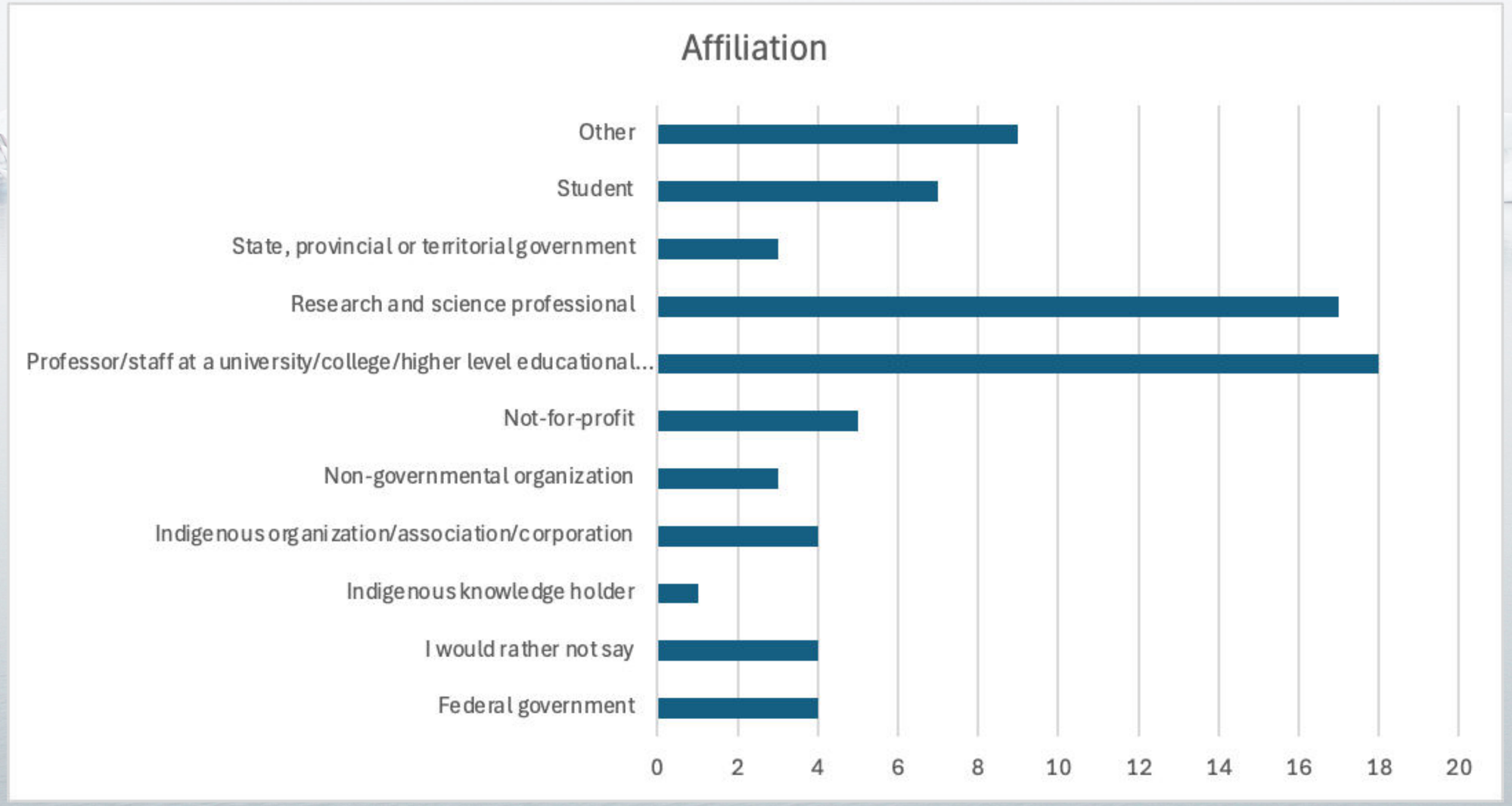

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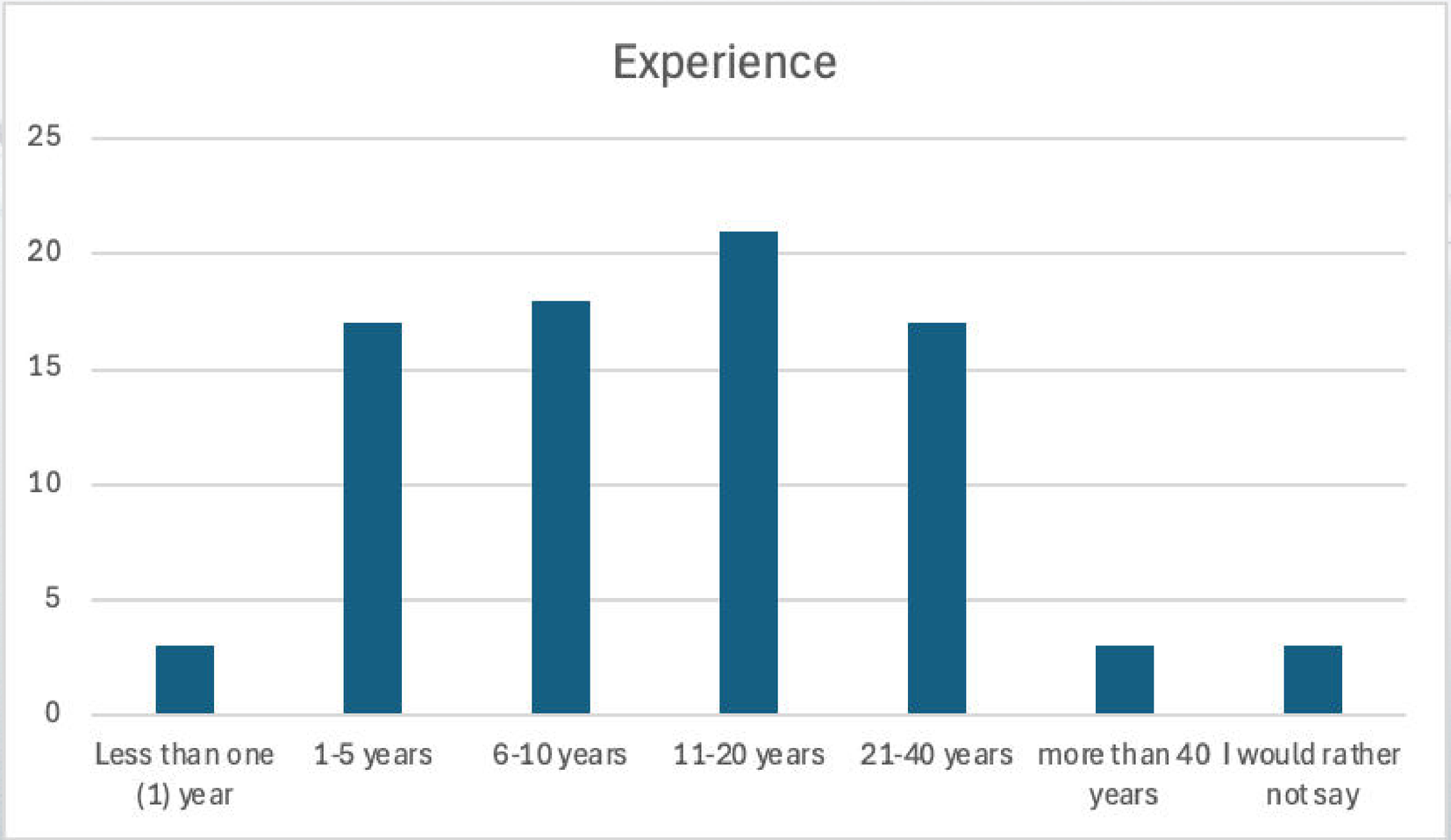


Knowledge Gaps

Systems analysis, tracking and planning (5)

Linked human-ecological and interdisciplinary research (13)

Social (e.g. food, health, cultural, and economic) security (25)

Documenting and preserving Arctic social systems (past and present) (7)

Emergency management and hazard risk management (3)

Climate change and weather (18)

Impacts of development and infrastructure (20)

Local, national and global politics (15)

Braiding knowledge systems and knowledge mobilization (24)

Sustainable resource use and energy systems (15)

Foundational knowledge, knowledge-holder partnerships and self-determination (10)

155 KGs condensed in to 12 categories

3 omitted answers

Research Priorities

Climate Change: predictions, mitigation, adaptation, perceptions and impacts

Development, technology, infrastructure, transportation and energy

Knowledge systems: research methods and ethics

Arctic cooperation, sovereignty, and diplomacy

Social systems and well-being: health, ecnonomy, education, and culture

Human-ecological and interdisciplinary research

Arctic geopolotics and security

7 omitted answers

96 RPs condensed into 7 cetegories

Climate Change: predictions, mitigation, adaptation, perceptions and impacts

27 responses

- Understanding environmental and social impacts and perceptions of climate change in an Arctic context (10)
- Developing culturally sensitive climate change adaptation and mitigation strategies in the Arctic (7)
- Vulnerability assessment for existing and emerging human and naturally made hazards (4)

9 others identified

Development, technology, infrastructure, transportation and energy

28 responses

- Impacts of shipping and ship pollution on local climate and environmental conditions (4)
- Researching opportunities for alternative sustainable energy sources (4)

29 others identified

Knowledge systems: research methods and ethics

21 responses

- Develop methods which include alternate worldviews in western scientific studies (and vice-versa) (8)
- Implement systems which allow for co-creation and Indigenous-led research (3)
- Deconstructing colonial and capitalist notions of research, the environment and sustainability (3)

7 others identified

Arctic cooperation, sovereignty, and diplomacy

12 responses

- Developing common Arctic research objectives and knowledge gaps within the international scientific community (3)
- Developing flexible and equitable policies which reflect changing needs of Arctic inhabitants (2)

7 others identified

Social systems and well-being: health, ecnonomy, education, and culture

27 responses

- Monitoring and predicting climate change impacts on Arctic access to and quality of food and water (8)
- Monitoring and predicting human health and healthcare access for Arctic populations under climate change (6)
- Recording oral history, voices and stories from Elders for community use and for understanding changes (4)

16 other responses

Human-ecological and interdisciplinary research

13 responses

- Developing interdisciplinary research frameworks and models linking environmental changes with changes in community well-being (6)

9 others identified

Arctic geopolitics and security

9 responses

- Understanding stressors for Indigenous self-determination and sovereignty (2)
- Security and cybersecurity in an Arctic context (2)

5 others identified

Literature Review

We are consulting existing literature to identify KGs and RPs and classifying them into one of 10 categories:

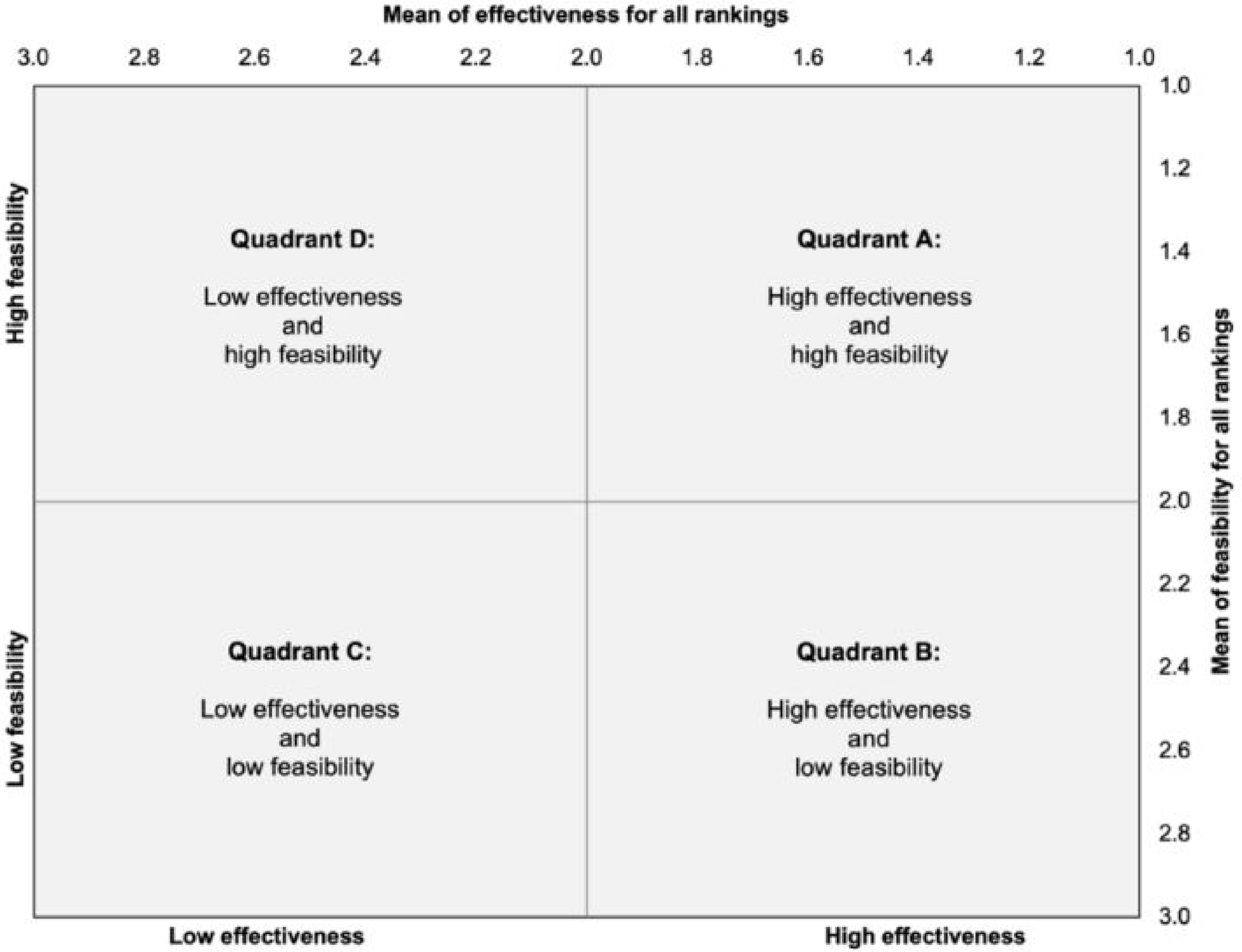
- Ecosystem change and monitoring
- Populations and adaptation
- Biodiversity and ecosystem services
- Food security and sustainable development
- Socio-cultural and economic impacts
- Technology and innovation for Arctic sustainability
- Governance and policy
- Arctic health and well-being
- Disaster management and preparedness
- Science and international collaboration

Results from survey 1 and from the literature review will be used in survey 2

Survey 2

Survey 2 participants will be asked to rank each priority statement that emerged from survey 1 and the lit review by rating effectiveness and feasibility of each statement using a rubric.

Evaluation Criteria	Rating 1	Rating 2	Rating 3	Rating 4
Priority	**First order priority**; a clear research need; addresses key knowledge gap(s); if resolved will make important progress.	**Second order priority**; a research need; may addresses key knowledge gap(s); if resolved may make some progress.	**Third order priority;** potentially a research need; may or may not address key knowledge gap(s); no urgent need to investigate.	**No priority**; not a research need; does not respond to key knowledge gap(s); no need to investigate.
Feasibility 1: Affordability	**Definitely affordable**; can be achieved with current fiscal realities. AND/OR High cost sharing possibilities.	**Probably affordable**; might be achieved with current fiscal realities. AND/OR Some cost sharing opportunities.	**Maybe not affordable**; additional monetary resources or reallocation required to achieve. AND/OR Low cost sharing opportunities.	**Definitely not affordable**; priority cannot be achieved within current fiscal realities AND/OR No cost sharing opportunities exist.
Feasibility 2: Achievability	**Definitely achievable** No non-financial barriers exist (e.g., legal, political, institutional, social, etc.) AND/ OR barriers that do exist can easily be overcome.	**Probably achievable;** Some non-financial barriers exist (e.g. legal, political, institutional, social, etc.) AND/OR barriers that do exist can be overcome with some effort.	**Probably not achievable;** Non-financial barriers exist (e.g. legal, political, institutional, social, etc.) AND/OR barriers may be too significant to overcome.	**Definitely not achievable;** Major non-financial barriers (e .g. legal, political, institutional, social, etc.) AND/OR barriers can not be overcome.
Timeframe	**Short-term** (within 2 years)	**Medium-term** (between 2-7 years from now)	**Long-term** (8 years or longer from now)	


Mean of effectiveness for all rankings
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
High feasibility
Low feasibility
Quadrant D:
Low effectiveness
and
high feasibility
Quadrant A:
High effectiveness
and
high feasibility
Quadrant C:
Low effectiveness
and
low feasibility
Quadrant B:
High effectiveness
and
low feasibility
Low effectiveness
High effectiveness
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
Mean of feasibility for all rankings

Survey 2

- Survey 2 brings in our mixed-methods approach, ranking the priorities
- Using statistical analysis, statements will be ranked by evaluation criteria (i.e. effectiveness and feasibility - the rubric) to determine where we are in meeting consensus across the different respondents.

Priority

	FOP	SOP	TOP	NP	CONSENSUS	POINT OF AGREEMENT
Responses	13	14	2	1	Medium	First order priority to second order priority
% with opinion	44%	30%	19%	4%		
% like categories	74%	48%	22%			

FOP=First order priority; SOP=Second order priority; TOP=Third order priority; NP=No priority.

Affordability

	DA	PA	MNA	DNA	CONSENSUS	POINT OF AGREEMENT
Responses	14	15	1	0	Low	Definitely affordable to probably affordable
% with opinion	21%	39%	29%	7%		
% like categories	74%	48%	22%			

DA=Definitely affordable; PA=Probably affordable; MNA=Maybe not affordable; DNA=Definitely not affordable.

Achievability

	DA	PA	PNA	DNA	CONSENSUS	POINT OF AGREEMENT
Responses	18	12	0	0	Medium	Probably achievable
% with opinion	14%	61%	18%	4%		
% like categories	75%	79%	21%			

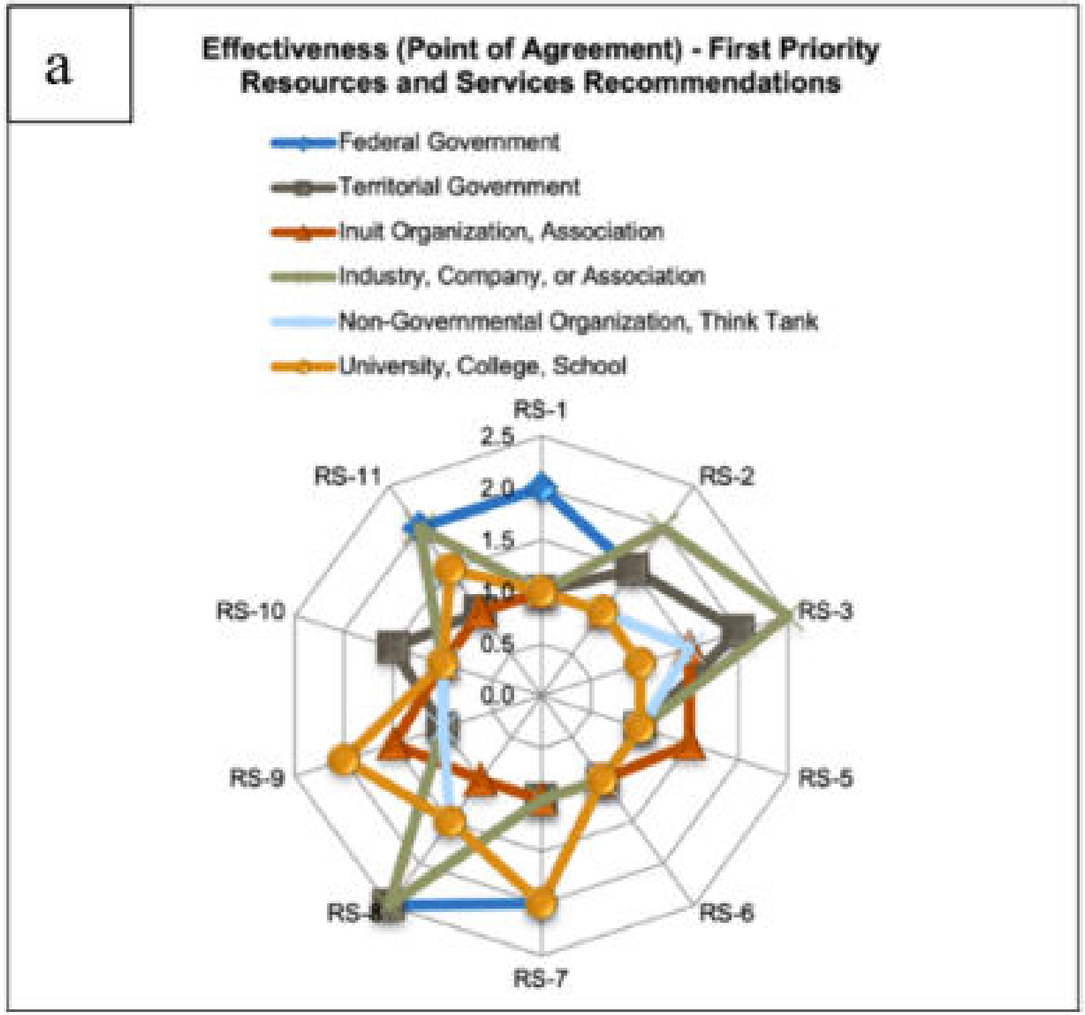
DA=Definitely achievable; PA=Probably achievable; PNA=Probably not achievable; DNA=Definitely not achievable.

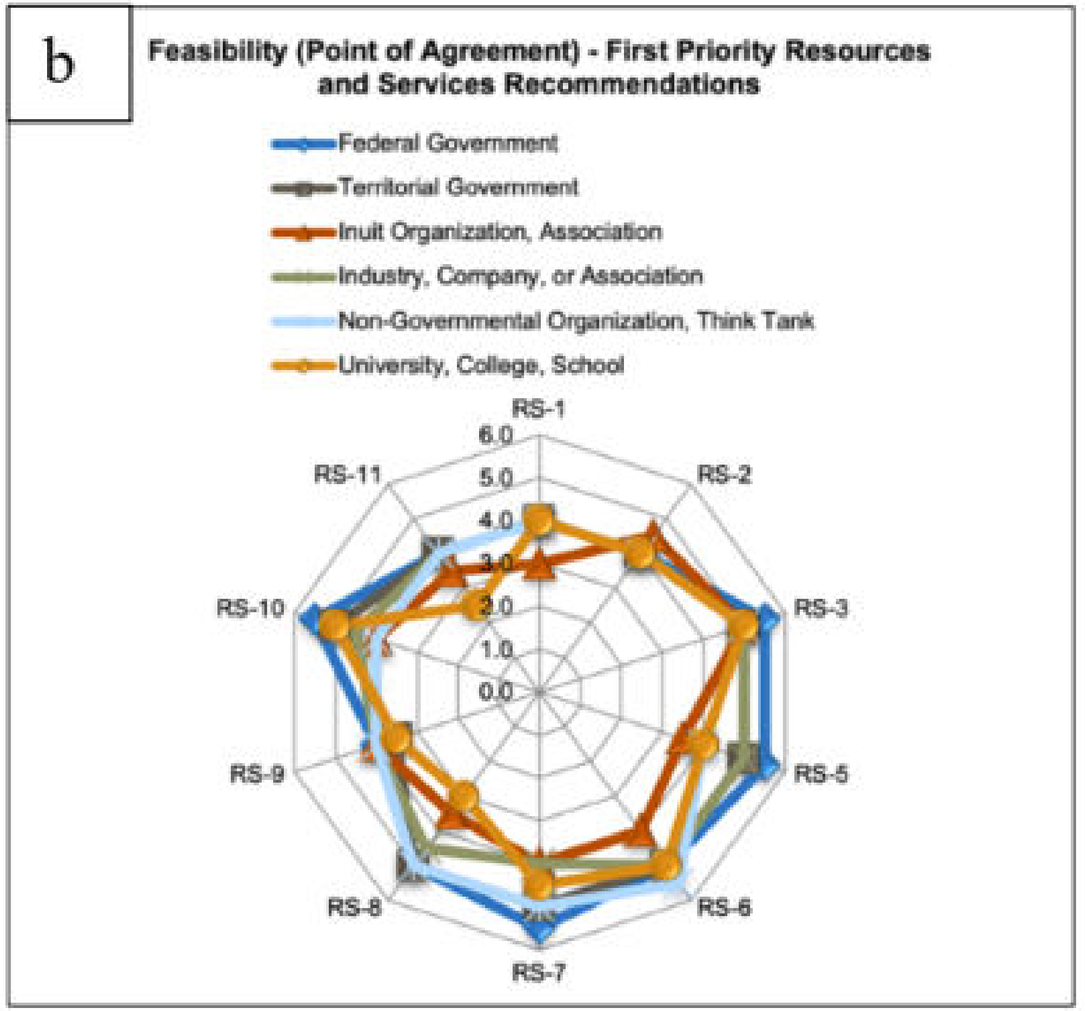
Timeframe

	ST	MT	LT	CONSENSUS	POINT OF AGREEMENT
Responses	22	9	0	High	Short to medium term
% with opinion	32%	54%	4%		
% like categories	86%	57%			

ST=Short-term; MT=Medium-term; LT=Long-term

Finding Consensus





Conclusion

Take our short survey!

- The 5 most highly ranked priorities will be included in the final report for IASC.

- We believe this bottom up approach will allow our group to broadly capture the perspectives of Arctic experts from various communities, disciplines, affiliations, and nationalities.

Discussion

Take our short survey!

Understanding the dyamics and resilience of Arctic social-ecological systems to foster a sustainable future

- Do you have any questions about our process?
- What existing prioritiy lists post 2015 exist that we need to be sure to include?
- Do you have ideas on how to get more community input? (would you please share our survey broadly?)
- Which organizations are critical to review the priorities prior to finalization?
- Do you have any priorities or knowledge gaps that you would like to share?

Quyana
Thank you!

Take our short survey!

Please contact us if you have more ideas, want our survey link and QR, or have questions!

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- Varvara Korkina Williams varvara.korkina.williams@dartmouth.edu