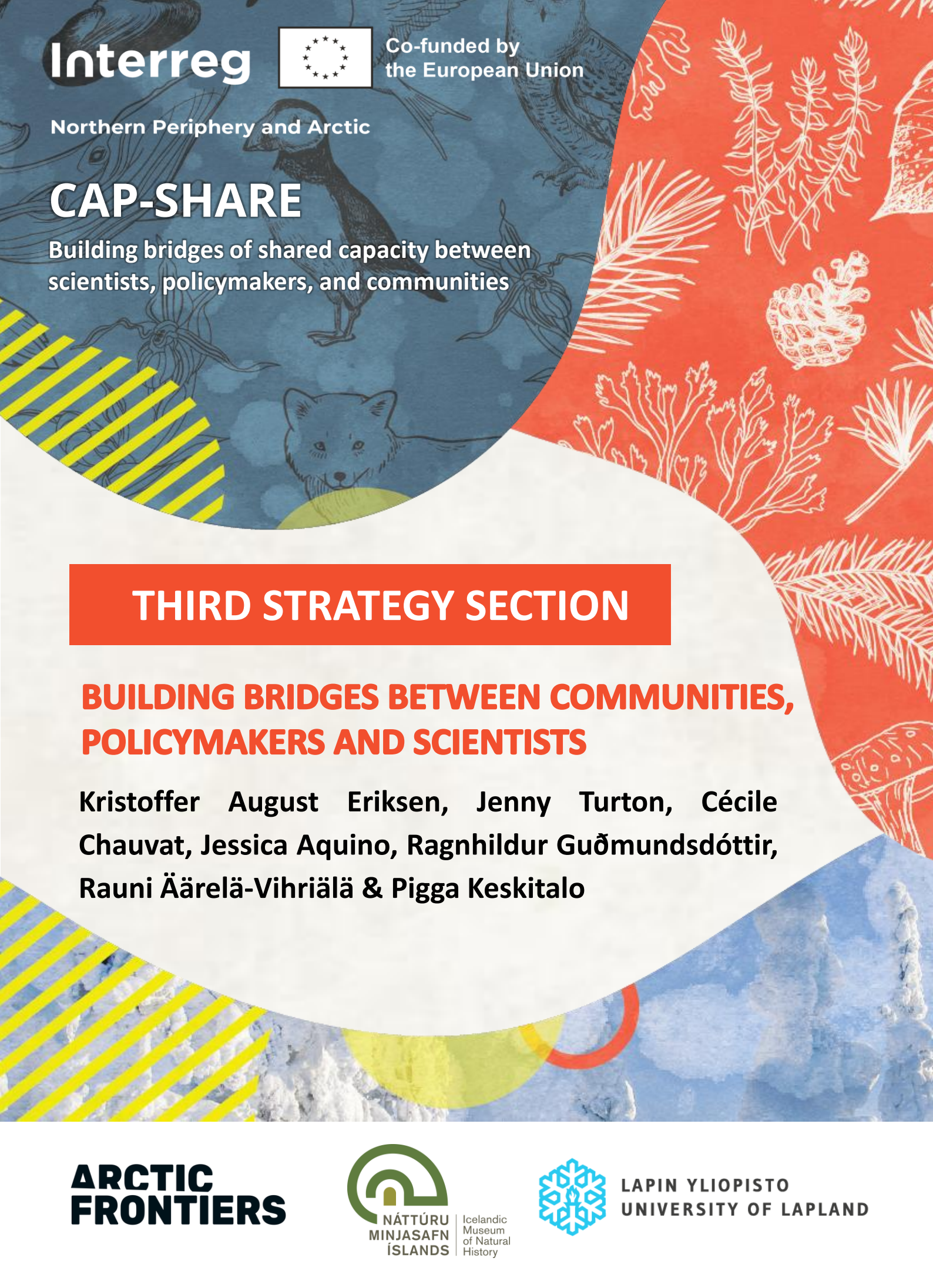




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Co-funded by
the European Union

Northern Periphery and Arctic

CAP-SHARE

Building bridges of shared capacity between
scientists, policymakers, and communities

THIRD STRATEGY SECTION

BUILDING BRIDGES BETWEEN COMMUNITIES, POLICYMAKERS AND SCIENTISTS

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**ARCTIC
FRONTIERS**



Icelandic
Museum
of Natural
History



LAPIN YLIOPISTO
UNIVERSITY OF LAPLAND

Eriksen, K. A., Turton, J., Chauvat, C., Aquino, J., Guðmundsdóttir, R., Äärelä-Vihriälä, R., and Keskitalo, P. (2026) Third Strategy Section: Building Bridges between Communities, Policymakers and Scientists. *Sauðárkrókur, Iceland: Háskóla Íslands á Hólum/University of Iceland at Hólar*

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Útgefandi/Publisher: Háskóla Íslands á Hólum/University of Iceland at Hólar. Hólar í Hjaltadal, 551 Sauðárkrókur, Ísland.

Heiti/Title: Third Strategy Section: Building Bridges between Communities, Policymakers and Scientists.

Höfundar/Authors: Eriksen, K. A., Turton, J., Chauvat, C., Aquino, J., Guðmundsdóttir, R., Äärelä-Vihriälä, R., and Keskitalo, P.

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Heiti/Title: Third Strategy Section: Building Bridges between Communities, Policymakers and Scientists. (online ed.)

ISBN: 978-9935-9744-8-8

DOI: 10.33112/JUGK6274

This publication was supported as part of the project CAP-SHARE, an Interreg Northern Periphery and Arctic project co-funded by the European Union.

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SUMMARY OF OUTCOMES

The third online workshop explored how collaboration between researchers, communities and policymakers can be effectively facilitated in Arctic contexts. Bringing together researchers, community actors, knowledge holders, educators and policy-adjacent participants, the workshop shared concrete case studies and experiences of science-community engagement grounded in place-based and relational approaches. The discussions highlighted key opportunities and challenges related to trust-building, reciprocity, and inclusive engagement across diverse knowledge systems, including Indigenous and local knowledge, within historically and socially situated contexts. Research-community relations in many Arctic Indigenous regions are shaped by histories of colonisation, extractive research practices and externally imposed decision-making processes. This document synthesises the main insights from the workshop and outlines how they inform the further development of the CAP-SHARE model for strengthening resilient and collaborative Arctic knowledge communities.

INTRODUCTION

A central goal of the CAP-SHARE project is to strengthen collaboration between researchers, communities and policymakers through relational, place-based approaches to knowledge sharing and informed decision-making. This includes recognising intergenerational, local and Indigenous knowledge, and especially involving youth. Indigenous knowledge should not be understood merely as an additional source of information, but as part of broader Indigenous rights, governance systems, cultural continuity and relationships with land and waters. Furthermore, (Indigenous) youth should not only be viewed as recipients of knowledge but also active contributors to knowledge creation, cultural continuity and future-oriented decision-making. It is also important to recognize that many Arctic and Indigenous participants simultaneously occupy multiple roles (e.g., researcher, community member, educator, knowledge holder, policymaker).

In this endeavour, a range of engagement approaches can be employed to foster meaningful collaboration, strengthen mutual understanding and support shared learning around biodiversity.

This report presents the outcomes of a workshop that brought together researchers, community actors, knowledge holders (consisting of families, Elders, and community-based knowledge practitioners), educators and policymakers to reflect on collaborative and place-based approaches to science-community engagement. The report will further elaborate on the key themes discussed during the workshop. These themes were expanded on during the workshop through the following guiding questions:

1. What strategies support collaboration and knowledge sharing among scientists, knowledge-holders and communities?
2. What are examples of place-based actions for knowledge sharing and collaboration between communities, scientists and knowledge-holders?

The discussions explored a set of interrelated themes, including community engagement practices, shared understanding across diverse contexts, inclusive collaboration strategies and pathways for scaling place-based initiatives beyond the local level.

BUILDING BRIDGES BETWEEN COMMUNITIES, POLICYMAKERS AND SCIENTISTS

This CAP-SHARE online workshop was held on 21 March 2025 and led by Arctic Frontiers.

The first part of the workshop featured presentations from invited speakers representing a range of roles and knowledge positions, including researchers collaborating with local and national actors, community service representatives and knowledge holders. Through their case examples, the speakers shared experiences and reflections on collaborative, place-based approaches to strengthening community resilience and biodiversity protection.

The session was introduced by **Jenny Turton** from Arctic Frontiers, who outlined the workshop's overall framing, including its core themes, key concepts and guiding questions for discussion. **Skúli Skúlason** from Hólar University and the Icelandic Museum of Natural History presented BIODICE as

a case study illustrating how biodiversity knowledge can be integrated into policy-making processes. **Máret J. Heatta** presented the CITE project (Climate Change Impact on Terrestrial Ecosystems) as a case study highlighting equitable co-production of knowledge between reindeer herders and researchers in the context of climate change impacts on terrestrial ecosystems. **Delphin Ruché** presented his work with Rissa Citizens Science as a third case study, illustrating community-led approaches to supporting conservation and biodiversity-related initiatives. Together, these contributions framed the subsequent discussions by foregrounding different perspectives on collaboration and knowledge practices in Arctic contexts.

A full description of the speakers and presentations, as well as a recording of the session, is available [here](#).

WHAT DID WE LEARN?

Knowledge gained from the online workshop

Community engagement in science-community collaboration

Workshop discussions highlighted that engagement with schoolchildren and youth can be particularly effective when it is embedded within existing educational structures and ongoing learning processes. Working within everyday educational contexts enables continuity and alignment with learners' interests and curricular activities, often addressing themes that intersect with research topics, albeit at different levels of depth and complexity.

From a pedagogical perspective, researchers and informal science educators engaging with schools can build on learners' existing curiosity and emerging knowledge in ways that support shared learning and dialogue, rather than one-directional knowledge transfer^{1, 2}. Such engagement benefits from being situated within broader educational and community contexts, where learning is reinforced over time³.

Example of notable project:**Science for Schools**

Arctic Frontiers, a CAP-SHARE project partner based in Tromsø, Northern Norway, has coordinated the Science for Schools program for over a decade. Within the CAP-SHARE project, the program brings together researchers and schoolchildren in collaborative, inquiry-based learning processes, where participants work jointly on small research projects and present their findings through posters. These are shared and discussed within the learning community, including peers and researchers, enabling dialogue and feedback

Engagement with researchers and science-related initiatives can also foster curiosity and provide scaffolding for further mutual learning and reciprocal knowledge exchange, particularly when activities are followed up by formal educators and reinforced within families, peer groups or local communities^{4,5}.

Science for Schools, coordinated by Arctic Frontiers, is an example of such an approach. As emphasised during the workshop, however, these relationships need to be

understood as mutually beneficial, with clear value for educators, learners, researchers and communities. Timing, available resources and funding structures are essential considerations, as are the capacities of both researchers and communities to engage. Participants also noted that perceived lack of engagement or mismatches in ways of working may reflect structural constraints rather than limited interest or motivation.

Challenges for effective and context-sensitive engagement

Workshop discussions underscored that collaboration between researchers, knowledge holders and communities can be approached in diverse ways, shaped by local contexts, relationships and priorities. Participants emphasised that trust-building, co-developing research questions, and capacity strengthening may each play a role, depending on the situation, rather than constituting a single or sequential model of engagement.

Participants also reflected on how collaboration is shaped by contextual conditions rather than individual shortcomings. In many Arctic settings, research and community work takes place within overlapping roles, with limited resources and shifting responsibilities. In such contexts, differences in pace, presence or modes of participation may be interpreted in various ways, even when there is shared interest and commitment.

Workshop discussions further highlighted that tensions may arise when research practices, priorities or communication styles do not resonate with local experiences, values or ways of knowing. When knowledge is not situated in relation to everyday life, land or lived realities, it risks being experienced as distant or misaligned, which can affect relationships and trust. Rather than seeking to resolve these tensions through standardised solutions, participants stressed the importance of ongoing dialogue, reflexivity and openness to adapting research practices in response to local contexts. Creating spaces for mutual interpretation, negotiating expectations, and shared sense-making were seen as ways to strengthen relationships and support more meaningful, context-responsive collaboration over time.

These reflections point to the importance of approaching engagement as an adaptive and dialogical process, rather than a one-directional act of communication. Previous research similarly highlights that working across diverse audiences and contexts requires sensitivity to how different groups engage with scientific practices and forms of knowledge⁶.

Workshop participants noted that researchers and knowledge holders may at times focus on disciplinary detail or technical concepts that are not immediately meaningful in local contexts⁷. This underscores the importance of reflecting on what different participants are able and willing to engage with at a given moment and adjusting forms of interaction accordingly.

Rather than assuming predefined information needs, participants emphasised the value of inviting communities to articulate what they consider relevant and meaningful. In some cases, this may involve engaging local actors and communities directly in shaping research processes, thereby supporting agency, shared interpretation and co-production^{8, 9}. Such approaches can strengthen perceived relevance and trust while also offering researchers essential insights into locally grounded and context-appropriate ways of working.

Strategies for effective engagement

Workshop discussions highlighted that effective engagement could take multiple forms, depending on context, participants and purposes. Rather than relying on a single approach, participants emphasised the value of drawing on a range of engagement practices, including classroom-based

activities, excursions and fieldwork, visits to schools and museums and participation in community events such as festivals. Previous research similarly points to the importance of diverse forms of participation, including opportunities for participants to actively engage in scientific practices rather than remain passive recipients of information¹⁰. In addition, participants highlighted the importance of storytelling—particularly within Indigenous contexts and across generations—as a way to support inclusive and meaningful engagement¹¹.

Another recurring theme was that engagement is more likely to be meaningful when communities can see its relevance and value in relation to their own priorities and contexts. Participants discussed how relationships between those working closely with communities—especially youth and Indigenous groups—and knowledge holders can support such relevance and continuity^{12, 13}. Working with trusted community partners or knowledge brokers was seen as one way to navigate capacity constraints and facilitate access, while also respecting existing relationships and responsibilities within communities. Considering the historical relationships between marginalised groups and scientific institutions, participants emphasised the importance of inclusive approaches that foreground mutual participation and shared ownership of knowledge processes, rather than extractive or one-directional models of engagement¹⁴.

Example of notable project:

BIODICE

The BIODICE project, which was presented in the workshop by Professor Skúli Skúlason, focuses on incorporating biodiversity into policy making. An outcome of the project was a noticeable impact that politicians had new vocabulary after engaging with the scientists.

Workshop participants also highlighted the role of organisations already operating at the interface between research, communities and policy—such as universities, museums and science outreach organisations—as important facilitators of engagement. In smaller countries or regions, including Iceland, Northern Finland and Northern

Norway, where distances between the public and policymakers are often relatively short, such intermediaries may also help create opportunities for dialogue involving policymakers, researchers and community members. These interactions can support greater transparency into knowledge-production processes and their relationship to decision-making, while also strengthening perceptions of relevance at the local level. Participants noted that similar approaches may be more

challenging in larger countries or contexts characterised by more hierarchical governance structures.

Finally, participants reflected on how institutional conditions shape who can engage, and how. Supporting broader participation may require recognising engagement as a legitimate and valued part of research work, rather than an additional or optional activity. Participants noted that this may involve highlighting the value of citizen science and public participation for researchers, including recognising community members as equitable contributors to data collection and knowledge generation¹⁵. More broadly, enabling such engagement may require adjustments to funding structures, including greater support for time and personnel costs associated with sustained, relational forms of collaboration.

Ideas for inclusive engagement

Example of notable project:

Closed for Maintenance

The 'Closed for Maintenance' project operates in the Faroe Islands. In this model, tourists are encouraged to engage in environmental action such as path restoration, repairing signs and closing areas to allow regrowth of flora in national parks. This is a national project, with a similar local-scale project taking place Senja island, Northern Norway, which was presented by Dr Delphin Ruché in the workshop.

Workshop discussions highlighted that inclusion is not an add-on to engagement, but a central part of how biodiversity challenges are understood, discussed and addressed. In this context, inclusion was understood as creating conditions for diverse forms of participation and voice in decision-making processes. Participants emphasised the importance of engaging with groups whose perspectives are often underrepresented,

including youth, people living in rural and peripheral areas, Indigenous communities, older generations, migrants and visitors. Working across Arctic contexts also requires attention to multilingual engagement and to forms of communication accessible across different abilities and preferences, such as clear visual design, alternative formats and graphical representations of information.

Beyond representation, participants highlighted the role of intergenerational knowledge-sharing in supporting inclusive engagement and sustaining knowledge over time. Rather than assuming uniform capacities or availability among different age groups, discussions focused on the importance of creating varied entry points for participation across life situations. Institutions such as museums, which often bring together children, families and older generations, were noted as potential spaces for facilitating such encounters and exchanges.

Participants further emphasised that inclusive engagement requires mutual respect for diverse knowledge systems and learning approaches. Rather than prioritising any single form of expertise, meaningful engagement was seen to involve creating dialogue between scientific approaches, Indigenous and traditional knowledge practices, and artistic or creative forms of expression. Different aspects of biodiversity may be more meaningfully communicated through different methods, underscoring the value of plurality, flexibility and context-sensitive approaches to engagement.

CONCLUSIONS

Workshop discussions underscored that meaningful engagement is often rooted in local relationships, place-based practices and long-term presence, rather than in rapid or easily replicable models. Local initiatives can offer vital insights into how collaboration is built, sustained and negotiated over time. Instead of being viewed simply as pilots for scaling up, such initiatives were understood as context-sensitive practices that may inform broader engagement efforts when carefully adapted to new settings.

Participants noted that extending engagement across national, international or cross-border contexts requires not only additional resources but also attention to ethical considerations, institutional responsibilities and power relations. Funding frameworks and transnational bodies—such as the European Union programmes, the International Barents Secretariat or the Nordic Council of Ministers—were identified as potential enablers of longer-term collaboration, particularly when they support relational work, reciprocity and continuity rather than short-term outputs alone.

At the same time, discussions highlighted how limited funding structures and competitive research environments can constrain collaboration, especially when they prioritise speed, visibility or quantifiable outputs over trust-building and sustained engagement. While competition may stimulate innovation, it can also undermine the time and care required to develop respectful and equitable relationships with communities. Participants therefore emphasised the need for funding models and ethical frameworks that recognise collaboration—particularly with Indigenous and local communities—as a long-term, relational process.

Participants reflected on the challenges of articulating and assessing the impacts of science–community collaboration. While indicators such as participation numbers or geographic reach can provide partial insights, they do not fully capture changes in relationships, trust, learning or local relevance. Rather than seeking universal metrics, workshop discussions pointed towards the value of context-sensitive approaches to understanding impact, grounded in community perspectives and aligned with the broader aims of CAP-SHARE to support resilient, reflective and collaborative Arctic knowledge practices over time.

Finally, as touched upon in the discussions, future collaboration models should also consider principles of Indigenous data sovereignty and Indigenous governance over knowledge, ensuring that communities retain meaningful influence over how information is collected, interpreted, stored and shared. Meaningful collaboration extends beyond participation in data collection and consultation. It includes opportunities for communities to influence research agendas, methodologies, interpretation of findings and decisions regarding the use of knowledge.

¹ Ruiz-Mallén, I., Bacelar-Nicolau, P., Castro, P., Azeiteiro, U. M., Leal Filho, W., & Azul, A. M. (2016). Communicating Biodiversity Conservation Research Through Dialogue and Mutual Learning in Rural and Indigenous Communities. In *Biodiversity and Education for Sustainable Development* (pp. 155–168). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-32318-3_10

² See Fleer, M. & March, S. (2009). "Engagement in Science, Engineering and Technology in the Early Years: A Cultural-Historical Reading" in *Review of Science, Mathematics & ICT Education*, 3(1), 23–47. DOI: <https://doi.org/10.26220/rev.120>

³ Vygotsky, L. (1986). *Thought and Language* (A. Kozulin, Ed.). The MIT Press. ISBN: 0262220296

⁴ E.g. Marsh, C. L., Gold, A. U., & Rongstad Strong, B. (2023). Elevating community voices through inclusive science communication: a case study of the We are Water program in the Southwestern United States. *Frontiers in Communication*, 8. <https://doi.org/10.3389/fcomm.2023.1214105>

⁵ Ruiz-Mallén, I., Bacelar-Nicolau, P., Castro, P., Azeiteiro, U. M., Leal Filho, W., & Azul, A. M. (2016). Communicating Biodiversity Conservation Research Through Dialogue and Mutual Learning in Rural and Indigenous Communities.

⁶ Crowl, M. (2016). The influence of professional development on informal science educators' engagement of preschool-age audiences in science practices

⁷ See Fler, M. & March, S. (2009). "Engagement in science, engineering and technology in the early years : a cultural-historical reading".

⁸ Marsh, C. L., Gold, A. U., & Rongstad Strong, B. (2023). Elevating community voices through inclusive science communication: a case study of the We are Water program in the Southwestern United States.

⁹ Ruiz-Mallén, I., Bacelar-Nicolau, P., Castro, P., Azeiteiro, U. M., Leal Filho, W., & Azul, A. M. (2016). Communicating Biodiversity Conservation Research Through Dialogue and Mutual Learning in Rural and Indigenous Communities.

¹⁰ Crowl, M. (2016). *The influence of professional development on informal science educators' engagement of preschool-age audiences in science practices*

¹¹ Marsh, C. L., Gold, A. U., & Rongstad Strong, B. (2023). Elevating community voices through inclusive science communication: a case study of the We are Water program in the Southwestern United States.

¹² Ruiz-Mallén, I., Bacelar-Nicolau, P., Castro, P., Azeiteiro, U. M., Leal Filho, W., & Azul, A. M. (2016). Communicating Biodiversity Conservation Research Through Dialogue and Mutual Learning in Rural and Indigenous Communities.

¹³ Marsh, C. L., Gold, A. U., & Rongstad Strong, B. (2023). Elevating community voices through inclusive science communication: a case study of the We are Water program in the Southwestern United States.

¹⁴ Ruiz-Mallén, I., Bacelar-Nicolau, P., Castro, P., Azeiteiro, U. M., Leal Filho, W., & Azul, A. M. (2016). Communicating Biodiversity Conservation Research Through Dialogue and Mutual Learning in Rural and Indigenous Communities.

¹⁵ Marsh, C. L., Gold, A. U., & Rongstad Strong, B. (2023). Elevating community voices through inclusive science communication: a case study of the We are Water program in the Southwestern United States.