SAON Roadmap Task Force: Organizational strategy and homework assignment

A Roadmap is a planning tool used in science and technology development processes to set the broad conceptual direction for where an [organization, network, widget] needs to go and how the various partners and players are going to work - with specific milestones identified - towards getting it there.

In short, it answers

1. Where do we (or the existing and developing networks of the Arctic Observing System) need to go?
2. How are we going to get there (implicit in how is "who is going to take these actions")?

But before this, there should be formulations about

0. An underpinning set of assumptions to concisely clarify, among other things:

1. Why the Arctic Observing System should be developed.
2. But also the findings/recognitions that are critical to setting the development context, such as the role of indigenous partners in Arctic observing or the need to provide both scientific and operational benefits.
3. Finally, it should clarify the intended audience(s) for the Roadmap.

SAON has already done quite a bit of work on these underlying formulations, many of which are well outlined in the guiding principles of the Strategic Plan, but as a stand-alone document, the definition should include or expand upon them.

We need to be careful not to simply rewrite the Strategic Plan for SAON as the Roadmap to Arctic Observing (RAO) is much more focused on the nuts and bolts of assessing the network and developing nuts and bolts requirements.

Homework assignment

For a homework assignment to move towards synthesizing the inputs, everyone should take the materials/inputs (including the national statements) and consider or respond to what they think fits under each header:

0. There are some basic assumptions and rationale that underpin why we are creating a Roadmap and what the Arctic-specific challenges and opportunities of such a proposition entail for how we proceed. List what you think the most critical assumptions are that should be stated in this document:

* AUDIENCE: Funding organizations, AC working groups, component networks other than AC, Operational services, communities, private sector.
* (FROM RMTF discussion) There are already numerous networks (regional, subject-oriented, led by different principles, global networks) that are active and have developed strong strategies. SAON's RAO should not interfere or redefine what these groups are doing, but seek to add value at the "meta-level" to advance system-level integration across these diverse organizational systems.
* SAON’s RAO should adhere to the Guiding Principles that were laid out in the SAON Strategy.
* SAON’s RAO should support research, operational and community needs consistent with the Arctic SBA’s.
* (e.g. from Sandven): The SAON Roadmap should acknowledge that Arctic observing (AO) is a complex system with several dimensions. Broadly speaking, AO is driven by the need to support:
* Scientific disciplines: atmosphere, ocean, cryopshere, terrestrial themes
* Societal benefit areas: weather, climate, environment, natural hazards, resources, economic activities, +
* Community-driven requirements: across several scientific and social benefit areas

1. A well-developed Roadmap for Arctic observing should describe "where we are going". Our exercise is not simply to redefine the SAON Strategic Plan but to look specifically at how network requirements should be developed in a way that national funding bodies can understand and react to/fund and that global and regional partners can organize themselves around. What are the types of details and specifics that you think the RAO should include?

* (**Integration**) RAO should offer a “holistic view” of the diverse regional projects, networks, infrastructures and data assets that are integrated into the Arctic Observing System. The IAOAF is a foundational input towards creating such a view. (e.g. Finnish national input, “The holistic picture is needed for most Societal Benefits as identified in the Arctic Observations assessment frameworks (IAOAF) first value tree. Most key objectives for SBAs depend on more than one information service.”) The application of the IAOAF towards RAO to address the “adequacy of the system” was also supported by Iceland. It is clear that the is a long-term vision and the RAO will develop first around those topics/themes where there are resources to support it. None-the-less, each contribution should take the whole into consideration.
* (**Integration)** Essential Variable frameworks provided a valuable organization system that is already being used by several key Arctic observing systems (e.g. CBMP, AMAP, INTAROS) and global systems (e.g. GCOS, GOOS, GCW, GEO-CRI). EV’s support coordination of existing observations and networks through merging their outputs around specific requirements for spatial and temporal observing scales and point to the specific observing strategies (e.g. ARGO floats) and data dissemination plans that are needed to get there.  Current system readiness and technology gaps should be explicitly identified along with strategies for promoting their development (e.g. from GOOS). RAO should be organized around EV’s, but these should not merely be a re-iteration of global/existing EV’s. RAO must set a standard for why an EV is included, demonstrate how it supports IAOAF, outline/extend specific requirements that are not ALREADY part of the global definitions, and demonstrate how it is linked to other EV’s in the RAO.
* (**Optimization**) RAO should go beyond inventories of current activities to assess **priorities and optimized approaches** so that national & multi-national funding bodies can understand where their efforts will be most impactful (e.g. French national input, “From the national standpoint, it would be useful if the Roadmap addresses questions such as how national initiatives could optimally contribute to the development and coordination of joint Arctic infrastructures and observing networks.”) The US supports quantitative (OSSE’s) and qualitative (IAOAF) oriented assessments to assure maximized return on observing investments (multiple use).
* (**Governance and Relationships, Regional)** The RAO, including the process by which Essential Variables are identified and assessed, should be strongly informed by Indigenous subject matter experts and adhere to principles of equitable inclusion (US principles of research, Canadian Inuit Research Stragety). What remains a subject for debate is whether SAON should suggest any type of thematic organization strategy (e.g. INTAROS input) for the participating networks to follow or if we should seek to “group” existing SAON networks into “work units” (e.g. GOOS defined 3 thematic groups for its “expert panels”, Polaris had user categories and themes) or if we should continue to let the community self-organize. Given that much of this work will be accomplished through national/multi-national proposals (e.g. Eicken et al), we need to consider allowing for flexibility and bottom up approaches. SAON is in a unique position to suggest some high-level organizational units, but doing so without explicit CHAMPIONs identified could prove dangerous. It should also be noted that Arctic regionality itself is something the RAO will need to acknowledge and address.
* (**Governance and Relationships, Global**) RAO should specifically identify how it is aligning with and supporting (related to) global programs within the Arctic (e.g. from Finland, “The working definition needs a relationship to roadmaps like European Science Foundation Research Infrastructure or Earth Observation programs like Copernicus have. We need to highlight the Arctic parts of many different networks and bring in their proposals into the pool of proposals that we would shape in SAON.”) Clarifying relationships with e.g. Arctic Cluster was also supported by Italy.
* (**Commitments, Research Infrastructures**) RAO should indicate budgetary and timeline requirements. (Germany) It should indicate how current research infrastructures (e.g. ESFRI) will be included or utilized. Sweden also indicated the importance of understanding the impacts on near and long-term infrastructure utilization and improvements. (TO DO) Attilio mentioned an important part of the ESFRI plan that I can’t find in my notes.
* (**Data Access, “Delivering Science Services”**)

2. The inputs provided suggest some strategies for "how to get there". List the examples and ideas from other frameworks that you think provide this strategic framework. How do you think the RAO should adopt, reject or modify these strategies in the Arctic context:

* The IAOAF should be used to assess how specific observations (Essential Variables) accrue value and support Arctic Societal Benefit Areas.
* (e.g. from GOOS), the community organized into broad subject matter expert panels under specific topics: Physical oceanography, biogeochemical oceanography and used existing partner organizations to lead progress under these expert panels, all following the same expectations for identifying and describing Essential Variables. We should explicitly state that experts include those with traditional technical training but also those with indigenous knowledge.
* We need to carefully consider how to enlist the support/help of existing SAON Networks; identify needs within AC working groups that do not already have EV frameworks; identify research priorities from IASC.
* Even developing a portion of the RAO will require funding. SAON should consider a strategy for adding support directly to the Secretariat to support RAO.
* RAO should include a vision for assessing and re-evaluating the outcomes on a periodic basis.