All Domain Situational Awareness (ADSA) S&T Program

DRDC Call for Proposals

STAKEHOLDER DAY JULY 19, 2016

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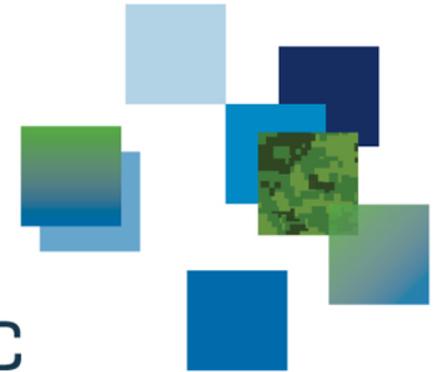
Drivers for an enhanced R&D program in continental surveillance

Technology   Broader range of threat weapons: long range, precision, stealth, hypersonic speed, drones.

Environment   Unique and changing geophysical ocean conditions, particularly in the North.

Theater   Greater accessibility to and economic activity in the North.

Geopolitics   Strategic messaging.

Enduring continental surveillance requirements are pushing technology bounds

There are no ready solutions – Replacing the North Warning System one-for-one would meet only part of the need.
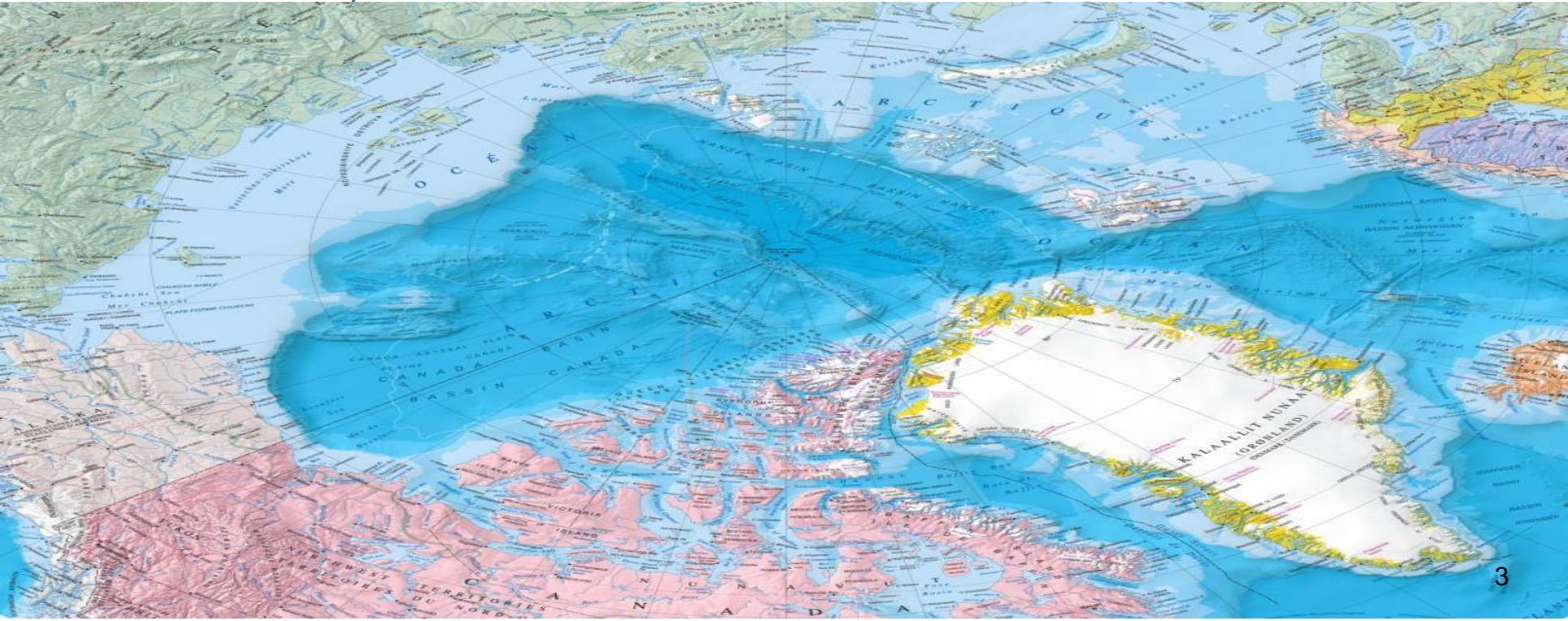
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All Domain Situational Awareness (ADSA) S&T Program

- This DND-funded program positions S&T to be ready to provide advice on the broadest range of questions pertaining to enhanced domain awareness of air, surface and sub-surface approaches to Canada.

- ADSA S&T intended to:
  - analyse requirements with DND/CAF and NORAD stakeholders;
  - work with partners to identify and leverage innovations;
  - conduct R&D projects to de-risk and test unproven technologies;
  - integrate and deliver advice;
  - provide information on technical maturity, predicted operational
  performance, sustainability and risks.

1. Strategic surveillance of airborne traffic and aerospace warning;

2. Awareness of maritime traffic in Canadian approaches and Arctic littoral regions;

3. Awareness of sub-surface activity approaching or in the North;

4. Analysis of sensor mixes and information integration for domain awareness to detect threats beyond the threshold of current systems.
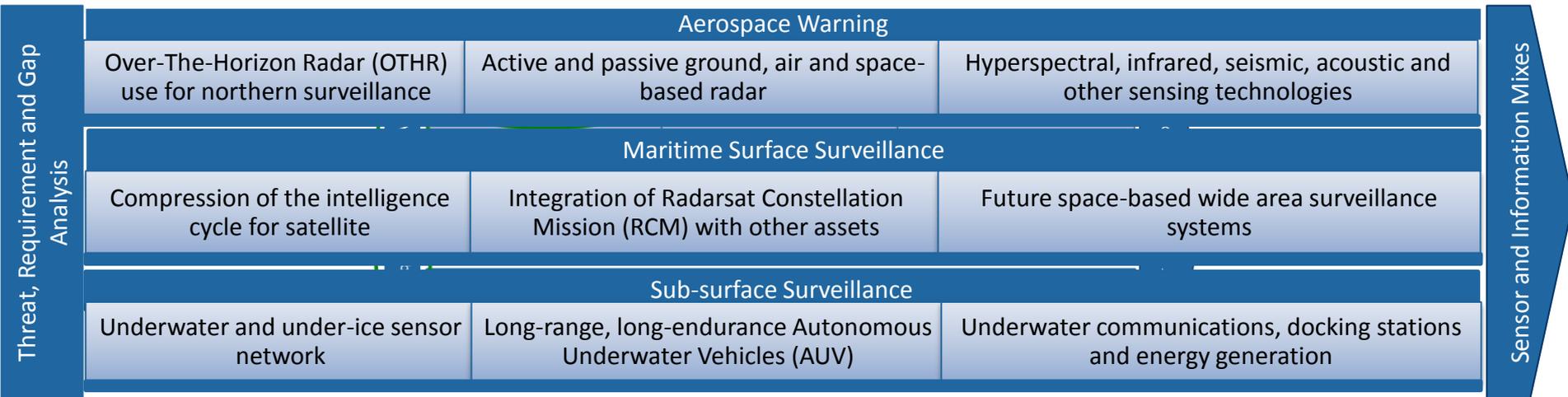
ADSA S&T Program Scope

Area	High Level Deliverable (HLD)
1. Aerospace Warning	1.1 Identification and assessment of **current and future threats** (including dark targets) and **surveillance requirements and gaps** (including requirements and gaps in monitoring of pre-launch activities and launch locations) associated with the defence of Canada and North America 1.2 Assessment and provision of advice regarding the **performance and viability of surveillance technologies and techniques** which could contribute to a replacement/upgrade of the North Warning System and/or to provide improved and integrated aerospace warning and surveillance capability in support of domestic DND missions
2. Maritime Surface Surveillance	2.1 Identification and assessment of **existing and future Surface Maritime Threats** (including dark targets), **surveillance requirements and gaps**, in support of NORAD and domestic DND missions 2.2 Assessment and delivery of advice on the **performance and viability of existing and future surveillance technologies and methodologies** in support of improved awareness and corroboration of surface maritime traffic approaching and within Canadian Areas of Responsibility
3. Sub-surface Surveillance	3.1 Identification and assessment of **existing and future underwater/under-ice Maritime threats, surveillance requirements and gaps**, in support of NORAD and domestic DND missions 3.2 Assessment and delivery of advice on the **performance and the viability of existing and future surveillance technologies and methodologies** for detection, localization, classification and tracking of underwater objects of interest in order to provide improved underwater warning and surveillance capability in both blue water and littoral environments (including chokepoints)
4. Sensor and Information Mixes	4.1 Assessment and provision of advice on the **contribution of current, near term and future sensors and information sources** against Canadian and NORAD surveillance requirements. Assessment and provision of advice on **candidate sensor mixes** for future joint strategic surveillance architectures

Delivering the ADSA S&T program

- Four ADSA S&T Projects Currently Resourced:
    1. Polar OTHR – implementation
    2. Compress the Task, Collect, Process, Exploit, Disseminate (TCPED) cycle – definition
    3. Canadian Arctic Underwater Sentinel Experimentation (CAUSE) – definition
    4. Threat, Requirement and Gap (TRG) Analysis – implementation

Threat, Requirement and Gap Analysis	Aerospace Warning			Sensor and Information Mixes
	Over-The-Horizon Radar (OTHR) use for northern surveillance	Active and passive ground, air and space-based radar	Hyperspectral, infrared, seismic, acoustic and other sensing technologies	
	Maritime Surface Surveillance			
	Compression of the intelligence cycle for satellite	Integration of Radarsat Constellation Mission (RCM) with other assets	Future space-based wide area surveillance systems	
	Sub-surface Surveillance			
	Underwater and under-ice sensor network	Long-range, long-endurance Autonomous Underwater Vehicles (AUV)	Underwater communications, docking stations and energy generation	

- Majority of program to be delivered externally through collaboration with the innovation sector.

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ADSA – A New Way of Doing Business

- Engage the innovation sector writ large to respond to an operational and/or capability challenge
- Foster closer collaboration with academia and industry
- Procurement-driven innovation
- De-risk future technology options
- Promote defence and security related R&D productivity in Canada

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Procurement approach

- Competition of ideas principle: Builds on approach developed through the CRTI and evolved through the CSSP
- Three stage process:
  - Evaluation and establishment of a qualified pool of proposals
  - Selection of proposals from qualified pool for funding
  - Contract negotiation
- Defined project types
- Process intended to be used to deliver DRDC's S&T challenges in the fall
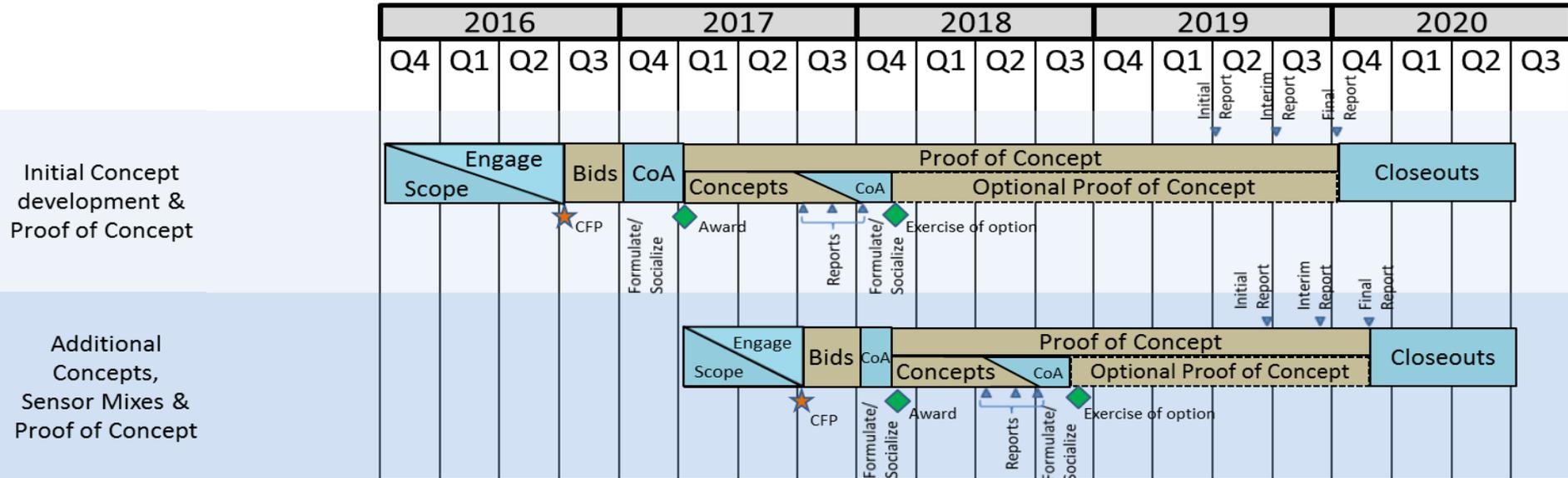
RFI Feedback summary

CFP unclear?	CFP restrictive?	1 or 2 stage proposal	Evaluation clear?	Basis of selection fair?	Improvments?	Evaluation critiera	Open to joint bid?	Canadian Content 50% vs 80%	Canadian Content solely or conditionally limited
66% No	62% No	89% 2-stage	83% yes	76% yes	64% none	87% fair	81% yes	67% for 50% CC	50% solely limited
33% commented	38% commented	11% 1-stage	17% commented	24% commented	36% commented	17% commented	19% possibly	33% for 80% CC	50% conditionally

Main Comments Received

- Industry vs. Academia
  - Studies may be separated and evaluated differently (i.e. no TRL).
- Funding
  - Funding constraints on each project type
  - Overall $3M constraint (length of time to get approval if above this value)
- Possible 2 Stage proposals
  - Will information in Bidder's Synopsis proposal remain confidential?
  - If proceeding with 2 stage – how will DRDC proceed with selecting Synopsis proposals that are similar?

Main Clarifications Sought

- $133M ADSA funding vs. $100M CFP envelope announced
- 60 month lifespan of ADSA program announced versus 36 months project constraint
- How many contracts is Canada intending to award within each S&T challenge?
- Confirm number of contracts a Bidder can receive.
- Clarify project vs. project type.
- Evaluation Criteria
  - PSC Selection criteria.
  - Length of time for DRDC evaluations and proposal selection.
  - Explain why DRDC seeks co-investment and why it is scored. Does it put academia at a disadvantage
- What are the clear DRDC priorities within each of the challenges

Canadian Content

- Solely Limited
  - all proposals must have a valid Canadian Content certification

- Conditionally Limited
  - if 2 or more proposals have a valid Canadian Content certification, only those proposals will be evaluated
  - if less than 2 proposals have a valid Canadian Content Certification, all proposals will be evaluated

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FOR **CANADA'S DEFENCE** AND **SECURITY**

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POUR LA **DÉFENSE** ET LA **SÉCURITÉ** DU **CANADA**