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Innovation for Defence Excellence and Security (IDEaS)

BIDDER'S CONFERENCE

Call For Proposals – Component 1a (W7714-186568)

111 Sussex, Ottawa ON – Victoria Hall

April 25, 2018, 1pm to 4pm (Eastern Standard Time, EST)



Government
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AGENDA

Agenda Item	Speaker	Timing
Welcoming remarks	PSPC	5 minutes
Departmental Introductions	PSPC	5 minutes
IDEaS Program Brief	IDEaS	10 minutes
Public Services and Procurement Canada CFP Brief	PSPC	60 minutes
Challenges Brief	IDEaS	20 minutes
Question and Answer Period	PSPC	60 minutes



REPRESENTATIVES

Name	Title	Organization
Kate Caves	Supply Team Leader	PSPC
April Charron	Manager	PSPC
Chris Brosinsky	Director, IDEaS	DND-DRDC
Kate Kaminska	Portfolio Manager, Competitive Projects	DND-DRDC





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IDEaS

**INNOVATION FOR DEFENCE
EXCELLENCE AND SECURITY**



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IDEaS Program Brief

Chris Brosinsky, IDEaS Director



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New Defence Perspective

Innovative technology, knowledge, problem solving are critical for Canada and its allies to mitigate new threats, stay ahead of potential adversaries, and meet evolving defence and security needs, while generating economic benefits for Canada.

Strong, Secure, Engaged (SSE)
Canada's Defence Policy 2017



In SSE, DND announced the Innovation for Defence Excellence and Security (IDEaS) program and will invest **\$1.6 billion over 20 years**





The Innovation Imperative

WHY WE MUST INNOVATE

- ⚙️ **Nature of conflicts and threats** is rapidly evolving and changing as new technologies, players and domains emerge;
- ⚙️ To **enrich defence capabilities** that address current and emerging challenges;
- ⚙️ To **stay ahead** of rapidly evolving technology;
- ⚙️ To **inform** future decisions; and
- ⚙️ We must innovate to **remain economically competitive**.

HOW WE CAN INNOVATE

- ⚙️ **Recruit** more of the Canadian innovation ecosystem to partner in the delivery of S&T for defence and security;
- ⚙️ Foster a **technologically advanced** and **innovation-driven** defence and security sector capable of addressing evolving threats and generating economic benefits;
- ⚙️ **Increase partnerships** and collaboration to foster and build on emerging S&T developed across the innovation ecosystem; and
- ⚙️ **Leverage government buying power** to target sectors that have the most innovative solutions.





Innovation Lessons Learned

Canada has learned from its allies as well as from organizations at home and abroad. These principles form the foundation for the design and operations of **IDEaS**.

INNOVATION PRINCIPLES

- ✦ Agile business process proposal, selection and engagement
- ✦ Multidisciplinary teams
- ✦ Learn fast through frequent trials
- ✦ Hardest problems attract best ideas

In 2018, Canada announces the Innovation for Defence Excellence and Security (IDEaS) program (\$1.6B over 20 years)





Program Mandate

RECRUITING INNOVATORS



- ✦ Experts and entrepreneurs engage in **ideation** sessions to gain new insights on defence and security problems
- ✦ **Innovation networks** build S&T expertise across academia, industry, and government defence
- ✦ **Mobility** of experts allows a sharing of experience and proficiency

Vibrant innovation community

SUPPORTING INNOVATION



- ✦ Supporting **projects** to foster development of promising ideas and solutions
- ✦ Create **contests** to support demonstrable solutions
- ✦ **Sandboxes** assess the applicability and effectiveness of a prototype

Open competition of ideas

MATURING INNOVATIVE IDEAS INTO PRODUCTS

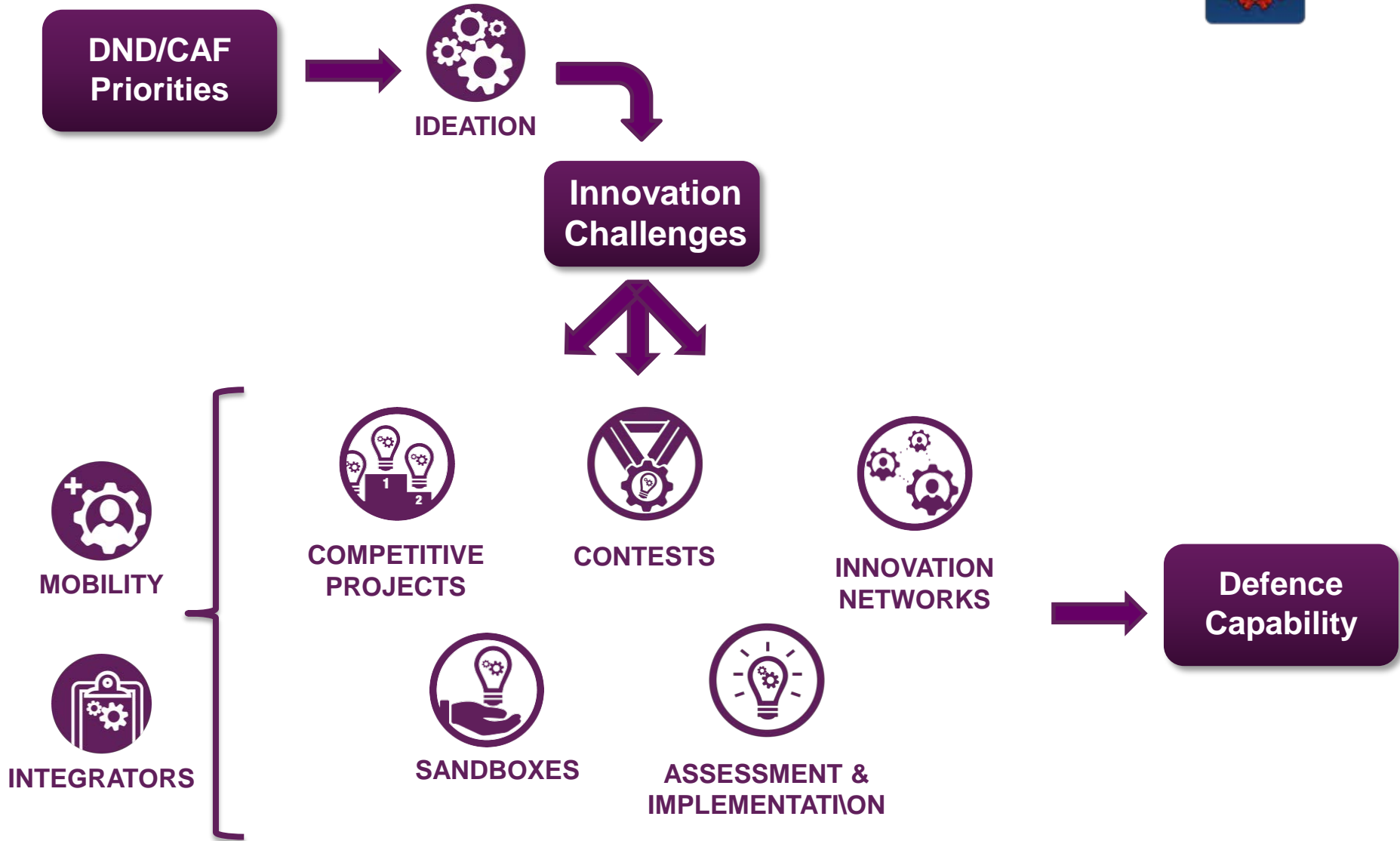


- ✦ Procure limited quantity for **assessment** by operators
- ✦ Provide support to mature solutions using **integrators** and transition to operators

Validated innovative solutions

Elements may be used independently, or in support of one another, to access and foster innovation

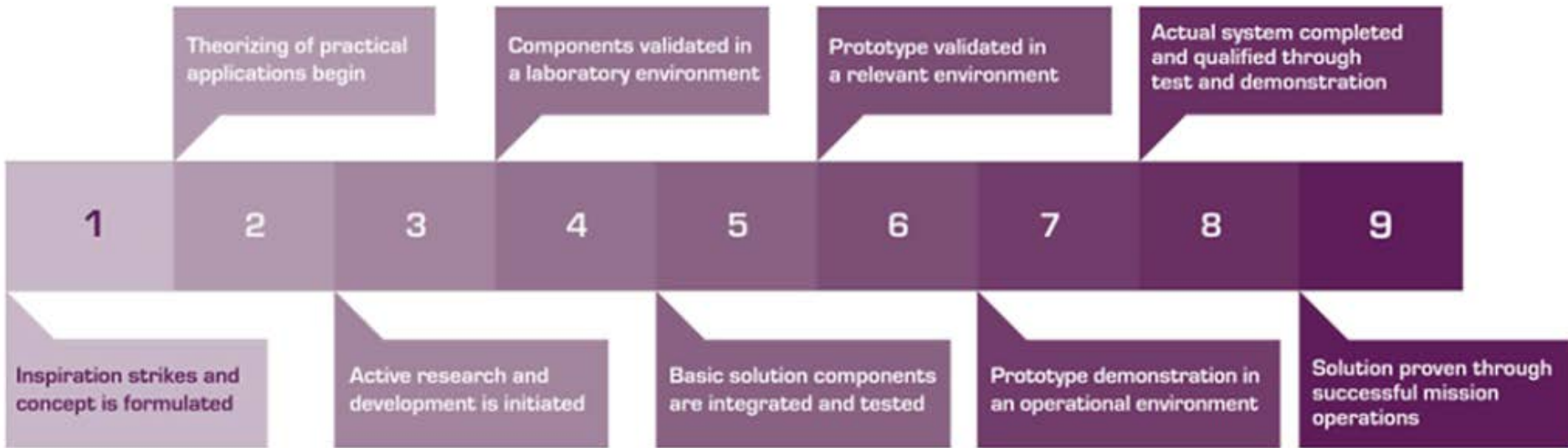






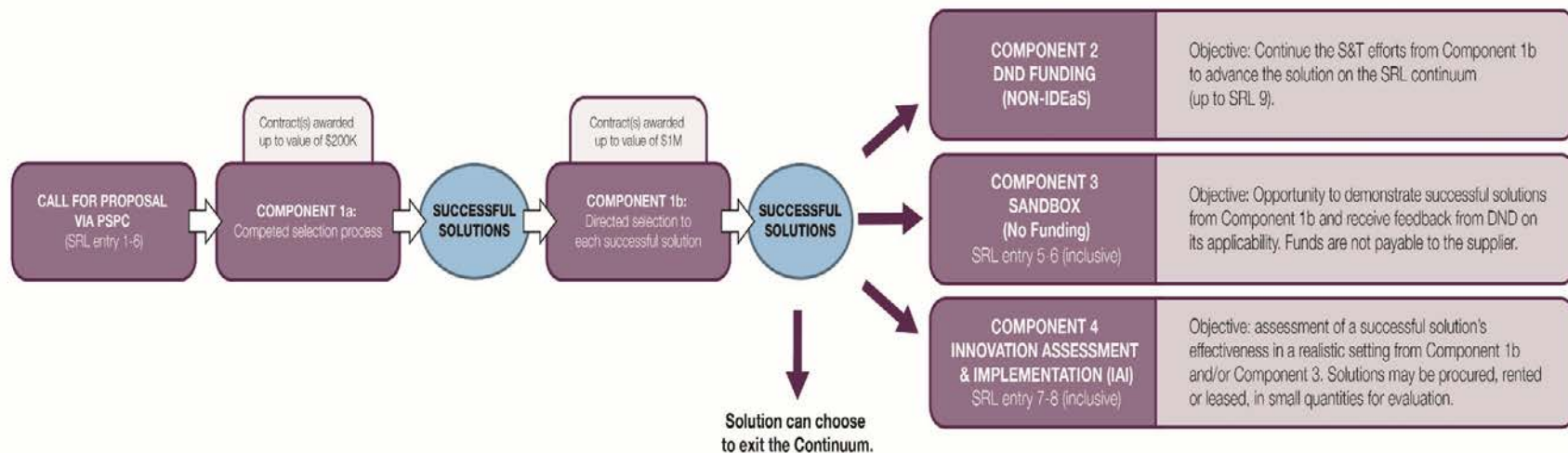
Innovation Continuum

SOLUTION READINESS LEVEL (SRL)



Overview

Components 1-4 Flow



CFP

- **Component 1a**
 - Entry is for solutions within SRL 1-6
 - Bidders present their solution in a proposal
 - Funds – up to \$200,000 (Applicable Taxes included) per contract, up to six months performance

IDEaS Components

- **Component 1b**

- Entry is for successfully completed Component 1a solutions that are promising to Canada; PSPC invites proposals
- Bidders present their solutions in a proposal
- Up to \$1M/contract (Applicable Taxes included), up to one year performance
- Negotiations

IDEaS Components (cont.)

- **Component 2**

- For successful and promising solutions from Component 1b; PSPC invites proposals
- Continue S&T efforts to a higher SRL
- Bidders to present their solution in a proposal
- Opportunity is outside of IDEaS Program funding

IDEaS Components (cont.)

- **Component 2 (cont.)**
 - Up to \$20M/contract (Applicable taxes included)
 - performance period commensurate with effort necessary to advance solution for operational readiness (SRL 9)

IDEaS Components (cont.)

- **Component 3 (Sandbox)**
 - Non Procurement activity
 - DND, not PSPC
 - DND invites participation

IDEaS Components (cont.)

- **Component 4 (Innovation Assessment and Implementation - IAI)**
 - Entry is solutions within SRL 7-8
 - purchase or rent up to limited quantity of solution/prototype(s) developed through Components 1 and/or 3
 - funds allocated unknown at this time, estimated up to \$5M

Procurement Process for Component 1a

- Stage 1: Proposal Submission
- Stage 2: Proposal Evaluation and Selection
- Stage 3: Contracting

Evaluation Criteria

- **Mandatory**
 - Proposal must meet all the mandatory criteria
- **Point rated**
 - Proposal meeting all mandatory criteria evaluated against point rated criteria and must obtain at least 40 points to be responsive.

Evaluation Criteria (cont.)

- **Strategic considerations**
 - Proposal will be evaluated, scored and ranked in descending order from highest to lowest
 - All ranked proposals considered by Senior Management Funding Oversight team for proposal selection purposes.

Proposal Selection

- For each S&T Challenge, the Senior Management Funding Oversight team will select up to six proposals for contract award from highest to lowest.
- After funding of up to six highest ranked proposals, up to four additional ranked proposals may be funded.

Contracting

- Award determined based on available budget and success in completing the following steps:
 - Financial Capability and Certifications
 - Contract Negotiation

Security Requirements

- No security requirements associated from Component 1a
- Other components may have security requirements

Canadian Content

- Conditionally Limited to Canadian Content
- Minimum 50%



Intellectual Property (IP)

- Contractors to retain IP rights; IP to Foreground and Background
- the excerpt from clause 2040 “use and have used the IP for Canada’s activities” is being highlighted.

Basis of Payment

- Firm Price
 - No adjustment for the performance of the contract

Method of Payment / Performance

- Two Milestones
 - No. 1
 - Report (App B)
 - Go/No Go
 - Price: no more than 50% of contract value
 - No. 2
 - Report (App B)
 - Interest to advance to Component 1b
 - Price: balance of contact value

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Statement of Work

	Project Objective: <i>(In maximum of 300 words, the Bidder must address the criteria and supporting information for MC-2 of Part 4, Attachment 1.)</i>
	Solution Readiness Level (SRL) of the solution before starting the project (under the Contract):
	Project's S/T Merit, Novelty & Innovation, Impact, Feasibility and Approach, and the Strategic Considerations: <i>(In a maximum of 1600 words, the Bidder should address the criteria and supporting information PRC-1, PRC-2, and PRC-3, PRC-4 of Part 4, Attachment 1 and also SCC-1 to SCC-3 of Part 4, Attachment 1.)</i>
	S/T Merit:
	Novel & Innovation:

Statement of Work(cont.)

Impact:	
Feasibility and Approach:	
Investment Viability:	
Operational Relevance:	
Capabilities / Benefits:	
Solution Progression to Component 1b:	<i>(In a maximum of 200 words, the Bidder is requested to briefly describe the S&T work to be performed under Component 1b, and, what the solution/idea may be at the end of Component 1b, including the end-state SRL and its capabilities and benefits for Canada. If the Bidder is not proposing to progress to Component 1b, insert "N/A.")</i>



Work Plan

Milestone 1						
Work Activities					Risks and Mitigation	
Tasks	Task Start Date (dd mm yyyy)	Task End Date (dd mm yyyy)	Description of Deliverable (Articulation of the deliverable or product to be provided to the Technical Authority)	Deliverable Due Date (dd mm yyyy)	Risk(s) (Description, probability and impact [both based on a High/Medium/Low assessment])	Risk Mitigation Strategy (ies)
<i>Task 1 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Task 2 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Task 3 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Bidder to add/delete rows as required</i>						
Interim Progress Report to be completed and delivered in accordance with the SOW. <i>(Bidder not to modify content of this task and deliverable, due date, and other information for this Report.)</i>	Input not required	Input not required	Interim Progress Report	No later than 2 business days after completion of the Work Activities of this Milestone 1.	Input not required	Input not required
<i>Firm Milestone Price: \$</i>						



Work Plan (cont.)

Milestone 2						
Work Activities					Risks and Mitigation	
Tasks	Task Start Date (dd mm yyyy)	Task End Date (dd mm yyyy)	Description of Deliverable (Articulation of the deliverable or product to be provided to the Technical Authority)	Deliverable Due Date (dd mm yyyy)	Risk(s) (Description, probability and impact [both based on a High/Medium/Low assessment])	Risk Mitigation Strategy (ies)
<i>Task 1 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Task 2 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Task 3 Description Here</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>	<i>Input</i>
<i>Bidder to add/delete rows as required</i>						
Component 1a Final Report to be completed and delivered in accordance with the SOW. (Bidder not to modify content of this task and deliverable, due date and other information.)	Input not required	Input not required	Final Report	No later than 2 business days after completion of the Work Activities of this Milestone 2.	Input not required	Input not required
<i>Firm Milestone Price: \$</i>						



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Challenges Brief

Dr. Kate Kaminska



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1 - Understanding and addressing Post-Traumatic Stress Disorder (PTSD)

- ⚙️ The Department of National Defence (DND) requires novel tools and methods to assess, address and treat PTSD resulting from defence and security operations. This includes the integrated dimensions of diagnosis, prevention, training, education, resilience, and moral injury treatment.





2 - Recruit, retain, and reach 25% representation of women by 2026

- ⚙️ DND needs to develop recommendations on how the Canadian Armed Forces (CAF) can increase the recruitment and retention of women, including in non-traditional occupations in which women are under-represented.





3 – Cognitive Performance Enhancement

- ⚙️ CAF personnel need to process huge volume of information presented by complex information environments, often under stressful conditions. Therefore, the DND requires the means to support CAF personnel in their use of at least one of the following: augmented reality environments, advanced interactive visualization, or enhanced vision (including extensions of the visible spectrum).





4 - Predicting and Optimizing Personnel Performance

- ⚙️ DND is looking for novel concepts and technologies to facilitate prediction of individuals' ability in the areas of athletics, physical strength, mental strength and resilience, as well as cognitive skills. DND is also looking for means of achieving the predicted peak performance in individuals.





5 - Human Performance in Extreme Climatic Environments

- ⚙️ DND seeks the means to enable human operators to perform tasks in extreme conditions including cold or hot and humid/dry environments, for extended periods interspersed by intense activity and inactivity. Manual dexterity issues in cold environments and mitigating thermal strain in hot/humid environments should be addressed. DND seeks innovative solutions in both physical and psychological conditioning aspects.





6 - Detection and Classification of Objects of Interest

⚙️ DND is looking for novel concepts, approaches, techniques and technologies to enable and augment the ability of CAF and security personnel to:

- detect, recognize, and identify persons or objects of interest in a physical environment, and/or
- track identified persons and objects of interest using seamless information sharing across a decision network.

Of particular interest are methods supporting the soldier or emergency responder to:

- minimize or manage cognitive load;
- support real-time identification and tracking of objects for timely decision-making;
- leverage and fuse multiple sensor and data sources;
- enable operations in complex environments including urban settings with the presence of cooperative and non-cooperative targets (i.e. disguised, camouflaged, or concealed); and
- differentiate between combatants and non-combatants.





7 - Persistent Maritime Surveillance

- ⚙️ DND requires the capability to monitor offshore waters with emphasis on the detection of underwater threats by way of rapidly deployed, persistent, autonomous, yet affordable solutions.





8 - Lightweight Ballistic Protection

- ⚙ From the perspective of CAF personnel, current ballistic protection systems are heavy, bulky, limit mobility, contribute to overheating and discomfort and alter natural movement biomechanics which may increase the risk of injury. In addition, current ballistic protection does not offer much modularity or scalability that might enable adoption of less burdensome solution and improve integrated survivability. DND is looking for means to significantly improve any of these characteristics in order to increase survivability, personnel performance, and unit effectiveness.





9 - Chemical, Biological and Radiological (CBR) Hazard Detection and Planning

- ⚙️ DND is looking for innovative solutions and technologies for the persistent surveillance of CBR threats that allows rapid detection, early warning, and effective monitoring of CBR releases.





10 - Proactive Deterrence

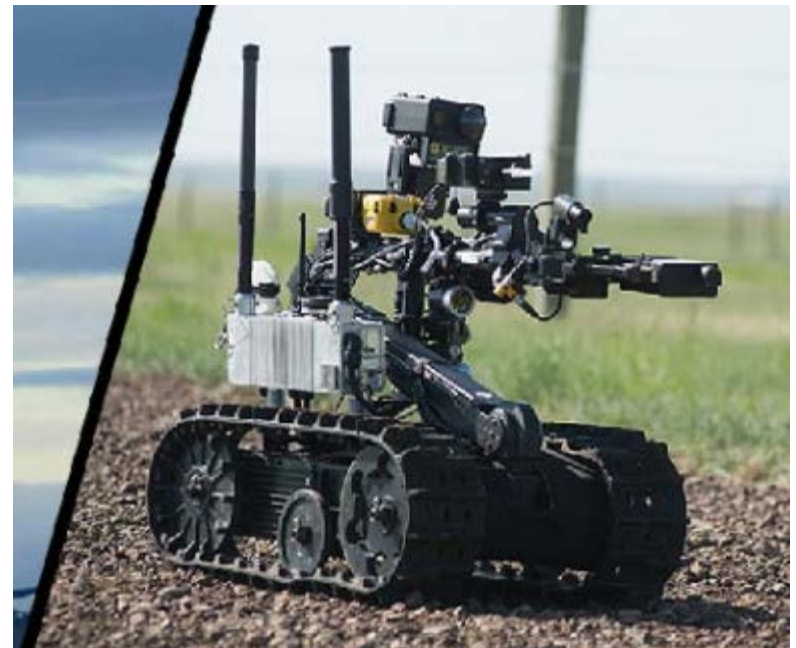
- ⚙️ DND is looking to identify novel and innovative strategies, mechanisms and enabling technologies to anticipate and deter potential international crises and war in the 21st century.





11 - Collaboration of Robotic Systems

- ⚙️ DND is looking for solutions to allow for a single human operator to control and coordinate multiple robotic systems (e.g. uninhabited vehicles, across ground, air, and sea or combinations of each) and perform tasks in an environment with many obstacles where vehicle localization is difficult.





12 - Resilient Non-Global Positioning System (GPS) Based Positioning, Navigation and Timing

- ⚙️ DND is looking for non-GPS solutions for positioning, navigation and timing (PNT). Specifically, DND seeks to provide military personnel with continuous and seamless 3D positioning and ad hoc environment mapping under degraded or denied GPS conditions. Military personnel should be able to transition from open environments to urban canyons, and operate from street level to inside buildings and underground without disruptions in their localization and navigation capabilities.

Concepts and systems that exploit recent rapid advances in relevant PNT technologies such as new or advanced sensors, algorithms, integration concepts, and tactical procedures that allow for extremely accurate PNT, are of interest.

This call to develop new, non-satellite-based PNT capability for specific requirements and constraints is critical to the development of conventional and autonomous systems requiring robust PNT.





13 - Identification and Characterization of Space Objects

- ✿ In today's highly competitive space operations environment, there is a need to improve space situational awareness to ensure a safe and efficient environment for space operations.

DND is looking to develop a configurable Common Operating Picture (COP) of space assets that provides the required space situational awareness for informed, expedited decision-making in support of space system operations.





14 - What is in that Full Motion Video?

- ⚙️ DND is looking for solutions that will assist analysts in monitoring and interpreting the high volume of Full Motion Video (FMV) feeds. FMV analysis supports the detection, identification and tracking of events, people and objects of interest.





15 - Making Sense of the Chatter

⚙️ DND and security intelligence communities are challenged with making sense of ever-increasing volume, variety, and velocity of social media data to produce actionable intelligence in support of decision-making. We are looking for novel approaches, processes, technologies, and methods to assist intelligence analysts in the analysis of social media to extract relevant information for improved situational awareness and prediction of potential threats.

To improve the intelligence capability, we are particularly interested in developments (with varying levels of automation) related to:

- content analysis and extraction;
- data fusion;
- social science approaches for inferring intent;
- processing of multiple languages and cultural use of languages (e.g. particular semantics);
- validation and assessment of credibility (source reliability and inference);
- display of results (e.g. visual analytics, reporting);
- data searching, filtering and alignment, and
- alerting and notification (e.g. cross-cueing)





16 - Cyber Attribution for the Defence of Canada

- ⚙️ DND is looking for innovative approaches to access, interpret, and compare all available evidence (e.g. technical, all-source intelligence) on how current cyberspace activities get attributed. This will assist in assessing the current cyberspace environment to improve methods on how to obtain secure cyberspace attribution in a timely manner.





Contact Us

- ⚙ Web: Canada.ca/defence-ideas
- ⚙ Follow us on Twitter [#DefenceIDEaS](https://twitter.com/DefenceIDEaS)



QUESTIONS?

