



National  
Defence

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Canada

# CFD-IDEaS

## Challenge Elicitation Process

### A Preliminary Meeting of the Working Group

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STRONG  
SECURE  
ENGAGED

PROTECTION  
SÉCURITÉ  
ENGAGEMENT



# 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** 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 (\$84 M/year)**





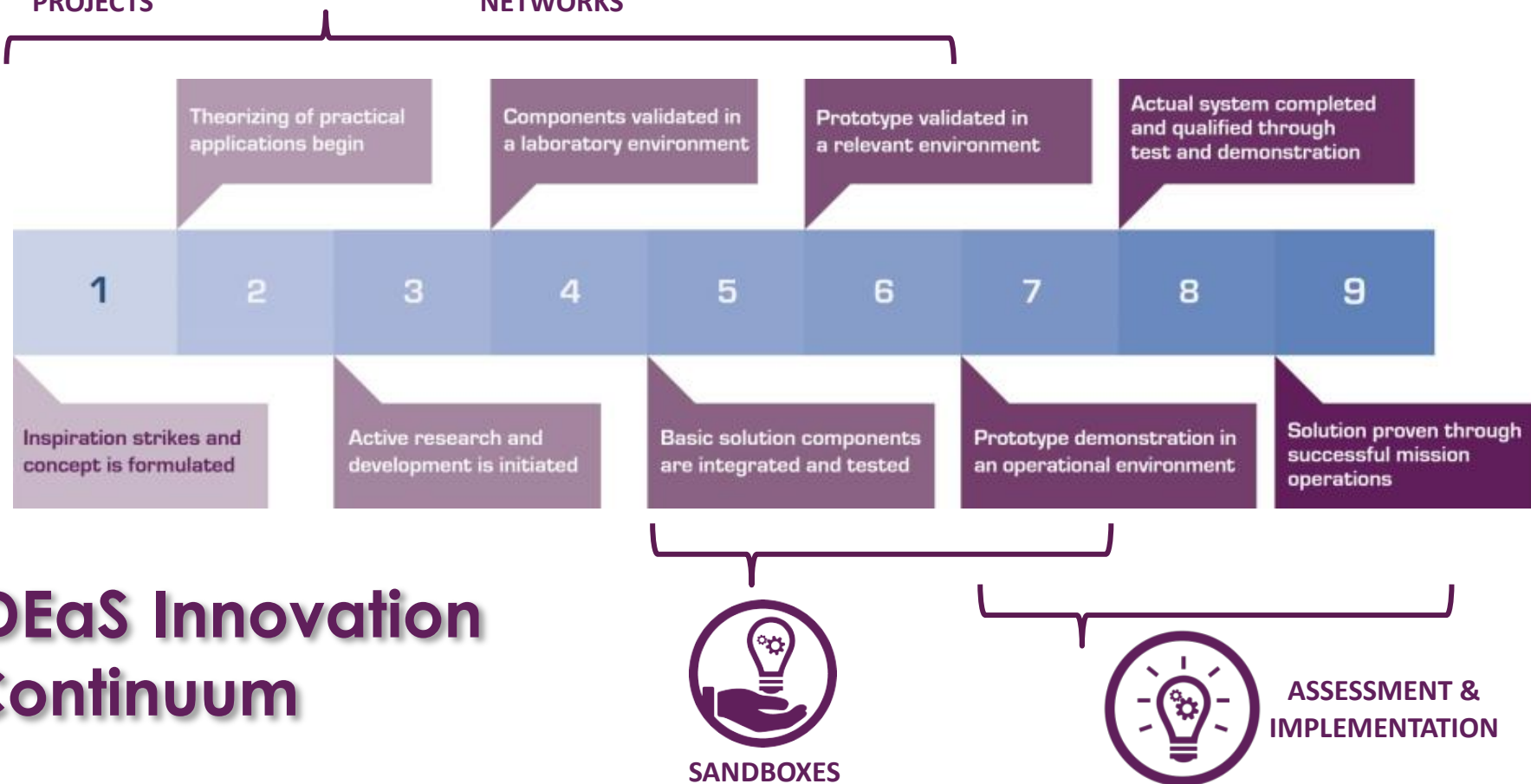
COMPETITIVE  
PROJECTS



CONTESTS



INNOVATION  
NETWORKS



# IDEaS Innovation Continuum





# Competitive Projects

- Open solicitations that mobilize innovators to provide their solutions;
- Goal: to mature solutions towards prototypes and potential capabilities.
- Allocated funding of approximately \$52 M/year

**Level of Funding:** \$100k to \$1.2M per project of developmental funding

**SRL Level Input / Output:** 1-6 / 1-9

**Duration:** 1-2 years

**Direct deliverables:** Outputs can be rolled into a DRDC program or bridged into Sandboxes or Innovation Assessments. L1 funding of up to \$20 M/year can support further development via a directed contract.





## Contests

- Monetary prize for the successful demonstration of promising solutions
- Allocated funding of approximately \$5 M/year per project.

**Level of Funding:** \$100k to \$1.2M per project of developmental funding

**SRL Level Input / Output:** 1-6 / 1-9

**Duration:** 3-24 months

**Direct deliverables:** Contests leverage capabilities within the innovation system to address challenges. Results support an analysis of options or Statement of Requirements for a competitive procurement.







# Innovation Networks

- Multidisciplinary networks of S&T experts (academics, industry, etc.);
- Seeks to build capacity by supporting collaboration and free flow of ideas;
- Supports “micro-nets” of 5-14 investigators and research laboratories.

**Level of Funding:** up to \$3 M/year per network

**SRL Level Input / Output:** 1-6 / 1-9

**Duration:** 3+ years

**Direct deliverables:** Innovation Networks build capacity and capability to address defence and security challenges over time. The outputs can be leveraged to inform future S&T investments and the DRDC program.





# Sandboxes

- Opportunity to test/demonstrate solutions in a scenario/test environment
- Solutions will be evaluated by SMEs and feedback provided to participants

**Level of Funding:** No develop. funding. DND provides test environment.

**Allocated Funding:** up to \$3 M/year

**SRL Level Input / Output:** 5-6 / 5-7

**Duration:** 1 month

**Direct deliverables:** : Purpose is to provide a test environment to accelerate the development and testing of prototypes. Results permit a refinement of solutions, support an analysis of options by the L1 or permit development of a SoR for a procurement based on a competitive process.





## Assessments & Implementation

- An opportunity to purchase a limited number of pre-production units of a solution for evaluation in a realistic environment by CAF operators.

**Level of Funding:** \$5 M/year (CAF to provide operational evaluations)

**SRL Level Input / Output:** 7-8 / 7-9

**Duration:** 1-6 months

**Direct deliverables:** The IAI report can be used to influence the Statement of Requirements for a competitive procurement process within the Dept.







# Lessons Learned from Elicitation – May 2018

## What Worked Well

- L1s were involved in the identification, review, revision, and assessment of challenges;
- L1 stakeholders shared control over the process and decision-making was participatory;
- Process for eliciting/prioritizing challenges was regarded as fair, transparent, and inclusive;
- Recognized the importance of stakeholder engagement for program “buy-in”; and
- process produced a bank of 100 challenges for IDEaS that were endorsed by the L1s.

## Recommendations

- ✓ A workshop to inform the L1 organizations about the IDEaS program;
- ✓ ADM(S&T) should be included in future requests for submissions or there should be a process for ensuring that the DGSTPs/DSTs are consulted by their L1 counterparts;
- ✓ An identified L1 Champion, L1 POC/SME, ADM(S&T) Advisor
- ✓ Continued use of a standard problem statement template for future submissions;
- ✓ The prioritisation process is robust and sound and should continue to be used;
- ✓ L1s should be able to identify their top priorities (not subject to further prioritization).





# CFD-IDEaS Challenge Elicitation Process – Spring 2019

## Step 1: Continue to inform L1 working-level participants about IDEaS

- The IDEaS program, its elements and what L1s can expect in terms of deliverables;
- Standardized template for creating challenge statements and criteria;
- Process for identifying, prioritizing and receiving endorsement of challenges.

## Step 2: Elicit Hard Problems for Innovation – April 15<sup>th</sup> (until May 15<sup>th</sup>)

- Distribute L1 Reference document to L1 organizations to be used as a guide;
- Disseminate Excel challenge elicitation document to capture L1 challenges

## Step 3: Consolidated List of Challenges

- The top 2 challenges per L1 organization included as part of IDEaS innovation agenda;
- Remaining challenges subjected to prioritization activity by IDEaS-CFD Working Group

## Step 4: Seek approval of the challenges

- Priority-Risk Matrix presented to FDF (June 2019); subsequent approval by STISC





## Step 2: Elicit Hard Problems for Innovation

- L1s will be asked to identify their innovation priorities in consultation with their ADM (S&T) DGs/DSTs vis-à-vis the S&T program and the entire S&T investment portfolio;
- L1s will prioritize their challenge statements (e.g., Urgency/Impact);
- L1s will identify their top 2 challenges for innovation in the coming year; and
- L1s must specify other resources being assigned to the addressing challenge area.

### Challenge elicitation document (Excel spreadsheet)

- L1 organization;
- Prioritization by Urgency/Impact criteria;
- SSE priority theme;
- Planning horizon - H1 (1-5 years), H2 (5-10 years), H3 (10-30 years)
- L1 Champion, Coordinator, POC/SME
- ADM (S&T) Advisor
- Preferred IDEaS Element





## Step 2: Elicit Hard Problems for Innovation

Challenges submitted by all L1s must meet the following criteria:

- Represent a clear and concise problem not a solution
- Align with strategic priorities/guidance
- Have a definite scope
- A solvable problem within a certain timeframe
- A real “pain point” and not just a “nice to have”
- Not require access to classified knowledge or materials

### Template for Creating Problem Statements

How might we \_\_\_\_\_ for \_\_\_\_\_ in order to \_\_\_\_\_ .

*Ex: How might we provide real time location for Navy Divers in order to increase their situational awareness and increase mission capabilities?*





## Step 2: Elicit Hard Problems for Innovation

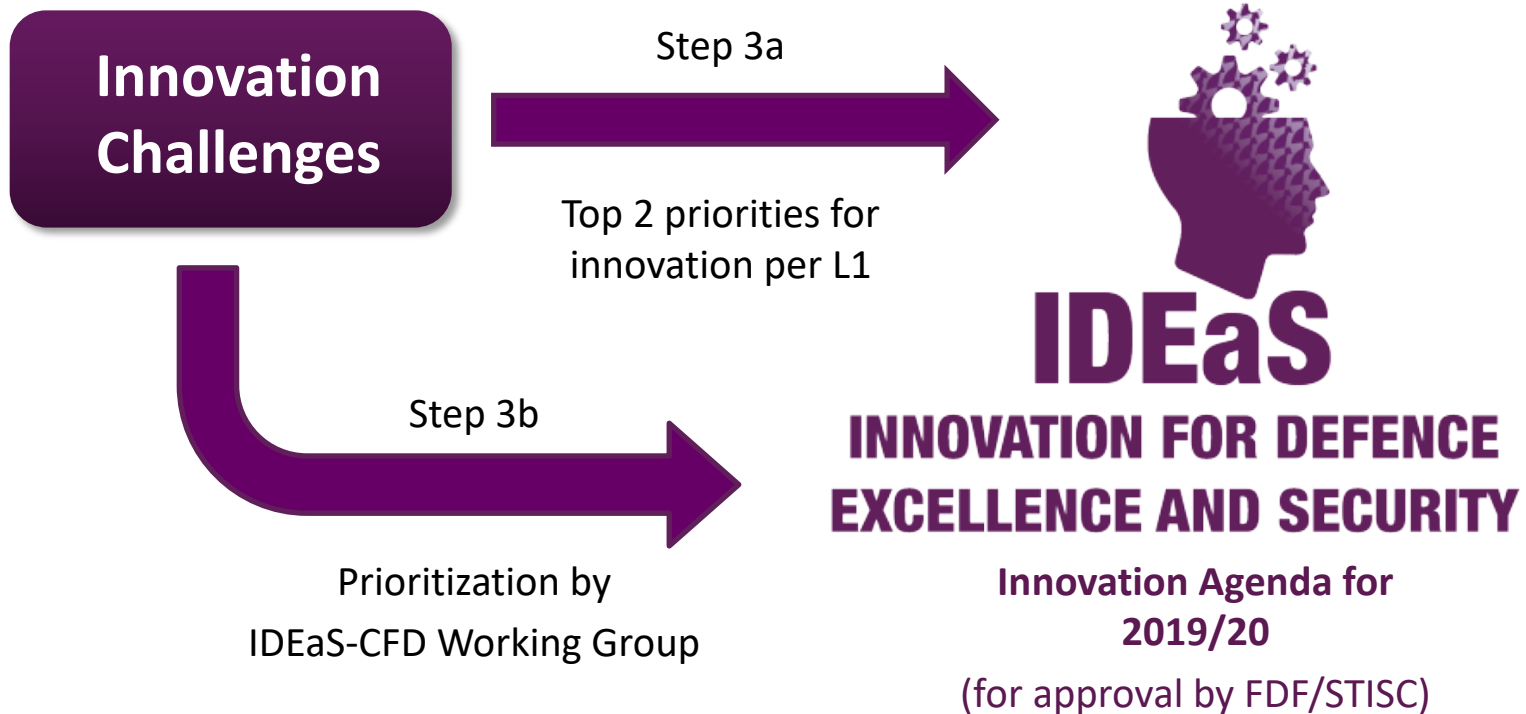
Submitted challenges will be evaluated by IDEaS, based on the following:

- Whether problems prescribe single solutions or create opportunities for innovation;
- Problems fit within the mandate and scope of the target program (IDEaS, Build in Canada Program (BCIP), Innovation Solutions Canada (ISC), etc.);
- Whether challenges are likely to attract interest from an external innovation audience;
- Not adequately covered by existing or planned DRDC S&T programs; and
- Potential for exploitation/adoption of resulting solutions within DND/CAF.





## Step 3: Consolidated List of Challenges







# Step 3b: Prioritize Challenge Statements

## PRIORITIZATION PROCESS

All of the challenges were assessed by representatives from each L1 based two criteria: Urgency and Impact

### 1. Urgency

How urgent would you say the problem is?

*Urgency measures the time sensitivity of the problem based on the length of time that is needed to obtain solutions, and when answers are needed to prevent or limit impacts on operations or processes.*

Urgency	Action Needed
High	Work to address the problem should begin immediately to prevent impacts
Medium	Work to address the problem should be scheduled as soon as possible.
Low	There is time to address the problem. Work can be scheduled or deferred.

### 2. Impact

What is the level of impact should the problem not be addressed?

*Impact measures the effect a problem has on operations or processes. Impact is based on the extent to which DND/CAF is likely to be affected should a solution to the problem not be found.*

Impact	Criteria
High	Significant impacts on operations or processes are likely.
Medium	Moderate impacts can be identified.
Low	Impacts on operations or processes are considered low or negligible





## Step 3b: Construct a Priority Risk Matrix

		Urgency			
		L	M-	M+	H
Impact	L-	44	21		
	L+	22 25 87	12 13 14 28	98	
	M-		8 18 27 39 61 67 75 94	16 19 26 30 43 56 57 64 68	34 65 99
	M+	31	17 32 35 42 46 52 54 60 85 86 88	1 58 77 78 83 91	2 9 29 49 62 63 73 81
	H		5 23 33 84 95	10 11 15 36 45 51 55 59 70 71 72 74 76 89 92	3 4 6 7 20 24 37 38 40 41 47 48 50 53 66 69 79 80 82 90 93 96 97

Example from May, 2018

Goal is not to rank order challenges. Challenges should be organized into a matrix of varying urgency and impact based on the results of a prioritization survey of working group representatives

Colour	Risk	Remediation Required
	Extreme Risk	Immediate
	High Risk	High Priority
	Manageable Risk	As soon as possible
	Minor Risk	Continuous Improvement
	Low Risk	Revisit later



# Requirements of L1 Sponsors

- Submitting challenges to IDEaS is the 1<sup>st</sup> step in the innovation process;
- L1s must commit human resources, possibly funding, to ensure success;
- Each challenge will require a team consisting of the following:
  - L1 Project Champion
  - L1 POC and/or SME
  - ADM (S&T) Advisor
  - Evaluator
  - ADM (S&T) Integrator

**Time commitments vary from MINIMAL TO MODERATE**





# Requirements of L1 Sponsors

## Project Champion

- The project advocate assigned by the L1 who requests the challenge;
- Champions should be senior personnel who have a vision of the future, knowledge of the problem area and can work with the concept team to ensure the project vision is successfully translated into requirements;
- Role is to negotiate with the stakeholders to remove obstacles to success, to allocate resources to ensure successful completion of the project and pave the way for selection/implementation (or not) of solution concepts.,

**Time Commitment: MINIMAL**





# Requirements of L1 Sponsors

## Primary Point of Contact / Subject-Matter-Expert

- The POC/SME will be asked to attend meetings, provide guidance and to answer questions within a reasonable time period.
- Should be open-minded, have a passion for the task; not “voluntold”;
- As a first step, will be asked to participate in problem scoping and/or Ideation sessions to flesh out challenge/opportunity for innovation;

## Time Commitment: MODERATE

- Problem scoping sessions typically range from 2-5 hours in length;
- Ideation symposia or focused workshops are usually 1-2 days in length;
- In addition, the POC must be available to respond to questions, requests, and more from staff or innovators within 3 days of requests made.





# Requirements of L1 Sponsors

## ADM (S&T) Advisor

- Plays an important leadership role in the project. Must have relevant expertise and be able to offer qualified and competent advice to team;
- Provide information to help shape research and innovation activities, and to assist the team in making decisions that are based on sound science.

## Time Commitment: MINIMAL to MODERATE

- Participate in problem scoping sessions and/or Ideation events;
- Available to review challenge documents and possibly also, act as “Evaluators” to evaluate funding proposals, and “Integrators” to liaise with contractors, review funding projects and write scientific papers.







# Requirements of L1 Sponsors

## Integrator

- Selected for their domain knowledge and familiarity with the problem space. Typically involved after the contract(s) are awarded and are responsible for maintaining a connection with external innovator(s);
- Maintains solid awareness of innovator activities, and in-depth understanding of how activities are relevant to the interests of DND/CAF;
- Provide strategic advice to L1 and are required to prepare DRDC publications (i.e., Scientific Brief, Letter) for funded project/challenge area

## Time Commitment: MINIMAL to HIGH

- Competitive Projects: 3-4 days on average per project (within 6-8 months)
- Innovation Networks: approx. 32 days per year per Integrator





# IDEaS Enablers

## Integrators



Link between external innovators and the defence and security community

## Ideation



Multidisciplinary collective brainstorming process to refine challenges and explore solution

## Mobility



Enables the exchange of expertise between organizations





## Ideation Symposia/Workshops

- Innovation challenges will also stem from Ideation Events;
- Provides an opportunity for a “deep dive” into complex themes to flesh out a strategic, integrated challenges over the medium- to long-term;
- STICS will decide which of the resulting challenges, if any, would be addressed via the S&T program and/or the innovation programs.

**Level of Funding:** Contract for \$350k for two years; est. \$60k per event

**Duration:** 1-2 days on average; up to 4-5 days for Grand Challenges Event

