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FORCES ARMÉES
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Robot Round-up : Advanced Robotics Platforms and Control Solutions

Contests Applicant Guide



IDEaS IDEeS

**INNOVATION FOR DEFENCE INNOVATION POUR LA DÉFENSE,
EXCELLENCE AND SECURITY L'EXCELLENCE ET LA SÉCURITÉ**



**STRONG
SECURE
ENGAGED**

**PROTECTION
SÉCURITÉ
ENGAGEMENT**

Canada

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Preface

The Innovation for Defence Excellence and Security (IDEaS) Contest: Robot Round-up, calls for Canadian innovators to demonstrate their advanced robotic platforms and control solutions to simulated Canadian Armed Forces (CAF) challenges.

The Contest is a two-step process:

- 1) Applicants must submit a Proposal Package, which includes an Applicant Form and a video.
- 2) Successfully screened-in applicants will be invited to compete on-site.

This Applicant Guide explains the background, timeline, eligibility requirements, funding, assessment criteria, application process, and other information for this Contest.

Enquiries about the Contest can be sent to:
IDEaSContests.IDEeSConcours@forces.gc.ca.

Disclaimer: For this Contest, should there be a discrepancy between the content in the Applicant Form and the Applicant Guide, the Applicant Guide will take precedence.



Part 1

1.1 About IDEaS

As part of Strong, Secure, Engaged: Canada's Defence Policy, the Department of National Defence (DND) has launched the IDEaS Program. The IDEaS program will be investing \$1.6 billion in innovations for defence and security over the next 20 years.

The IDEaS program is designed to improve DND's access to the creative potential of Canadian innovators. We use your knowledge and concepts to enhance defence capability, create an economic impact, and ultimately, to build an innovation ecosystem for national defence.

From the early stages of an idea to the final testing in a real world environment, IDEaS mobilizes Canadian innovators through defence and security challenges and collaborates to best adapt, shape and maximize the potential of your technology.

Whether it be a hackathon, a pitch event in front of military experts, or an amazing race, Contests will bring you face-to-face with the competition. We put your ideas in the spotlight to help find solutions to defence and security challenges, with cash prizes for the best solutions.

For this Contest, innovators will need to submit a Proposal Package. Each application will be carefully screened by our DND/CAF experts and successful applicants will be invited to an on-site competition to test their solutions for a chance to win cash prizes and an opportunity to further develop their technology with the CAF.



Part 2

2.1 Challenge statement

Robot Round-up – Advanced robotic platforms and control solutions

The intent of this Contest is to allow innovators to demonstrate to DND/CAF how advancements in robotic platforms and methods of control can be leveraged to help CAF members accomplish high risk tasks.

2.2 Background

There are many specialized tasks that are routinely performed by personnel of the CAF both domestically and abroad. These tasks include detection, identification, and mitigation of agents of concern. Stand-off technologies and fixed sensor arrays are techniques that could provide information, but operators may still be required to be in direct contact with hazardous substances, while in various states of protected equipment dress, and in environments that could be hostile. Robotic systems that could operate handheld advanced sensing devices, are highly mobile, able to manipulate the environment, and reduce operator involvement could alter the need to commit military personnel into potentially hazardous situations.

2.3 Objectives

Current field robotic systems in this domain, as well as system of robotic systems, exist with limitations that place the burden on the operator. These robotic systems have capability to move in unstructured terrain both with direct control, as well as with general control, and can be configured with wheels, tracks, articulations, and combinations. Current systems also have advanced manipulation and force feedback to the operator. The robots are equipped with 3D modeling and mapping of the location of the agents of concern. Further, some robotic systems have advanced autonomous functions that have the ability to significantly reduce operator involvement.

DND/CAF are hosting this Contest to observe advancements from the current state of the art in robotics. These could include advancements in mobility, manipulation, sensing, localization of threats, advanced modeling, information synthesis, or by using Artificial Intelligence (AI), Machine Learning (ML), supervised autonomy, techniques to reduce the operator involvement in the task.



2.4 Desired outcomes

This Contest is designed to challenge robotics systems in scenarios that reflect the tasks operators could encounter, and these tasks will include both discrete challenges as well as challenges that build to a larger capability.

There are two desired outcomes for this Contest:

1. Innovators are expected to showcase technological advancements in both discretized and multi-level challenges to accomplish the tasks in the on-site challenge. These methods of control in this category could be more aligned to traditional systems where an operator is fully involved in the outcome of the challenge and demonstrated in the video submission.
2. In the second category, the focus will be on how little the operator is involved in the challenge. Special considerations for time, precision, and level of success will be provided for systems that have little to no involvement from external sources. Additional considerations could also be provided for how much information has to be preloaded or configured for an individual challenge.



Part 3

3.1 Eligibility requirements

3.1.1 Eligible recipients

Eligible recipients for funding under the IDEaS Contests Program must be a legal entity duly incorporated and validly existing in Canada, including:

- Canadian universities and educational institutions chartered in Canada;
- Incorporated Canadian not-for-profit organizations or associations;
- Incorporated Canadian for-profit companies, organizations or associations; and,
- Provincial/territorial, or municipal government organizations.

Federal and provincial crown corporations are not eligible for funding.

3.1.2 Funding

Funding is twofold for this Contest:

1. The on-site competition will declare two winners to each receive a \$25,000 cash prize in the form of a Grant.
2. The two winners will each have the opportunity to further develop their technology through a Contribution Agreement up to \$1.5 million dollars.

DND reserves the right to not accept proposals or to reduce the amount of the available funding at its entire discretion.

3.1.3 Eligible and ineligible expenditures

1. Grant Funding: is not subject to the eligible and ineligible expenditures requirement. The winner of the Grant will receive all funds and is not required to disclose expenditures.
2. Contribution Agreement Funding:
 - Contributions will be made towards eligible expenditures that, DND has deemed are reasonable, and required to achieve the objectives and results of the Contest.
 - A full list of eligible and ineligible expenditures applicable to the Contribution Agreements are provided in Annex B – Eligible and ineligible expenditures.



Part 4

4.1 Overall assessment criteria

Your Proposal Package will be assessed based on the overall assessment criteria.

4.2 Scoring

The Proposal Package, including the video portion; as well as the on-site competition¹ will be evaluated using point-rated criteria, and each assessment criterion will be scored using the five-point scale below:

- Insufficient: 0 points
- Poor: 1 points
- Average: 2 points
- Good: 3 points
- Excellent: 4 points

4.3 Criteria

Evaluators will be asked to score the following criteria:

Defence and Security Alignment: The degree to which the proposal responds to the specific defence and security challenge.

Technical Quality and Innovation: The degree to which the proposal demonstrates that the solution is technologically innovative (in that it presents a new approach, or new solution) and feasible (in that it can reasonably be expected to result in new capabilities to achieve the proposed benefits).

Management and Technical Capabilities: The degree to which the proposal demonstrates possession of the required managerial and technical capability to successfully deliver the solution.

Benefits to Canada: The degree to which the proposal demonstrates that the initiative is expected to benefit Canada's defence and security sectors. Benefits may also include how the proposal will lead to more innovative defence and security sector(s) in Canada, how results may support the next generation of manufacturing and/or services in Canada, and any other longer-term economic benefits.

GBA+: The degree to which intersecting identity factors (such as gender, sex, language, ethnicity, race, religion, age, disability, geography, culture, income, sexual orientation, and education) impact diverse groups and are appropriately addressed, and outlined in the Applicant Form.

¹ The on-site competition will follow the same overall assessment criteria. Those invited to compete will receive an instruction manual with further guidance.



Part 5

5.1 The application process

All applicants must submit a Proposal Package in order to be eligible for the Contest: Robot Round-up.

5.2 Submitting a Proposal Package

The Proposal Package must include the Applicant Form and the video submission.

DND will assess the Proposal Packages to determine whether they can move forward to the on-site competition and be considered for funding.

- ineligible solutions will be screened out and applicants will receive a written email response; or,
- eligible solutions will receive a written email invitation to compete on-site, as well as an on-site instruction manual.

5.2.1 Part 1: Submitting the video

Applicants are required to submit their video using the submission steps below:

1. Review Annex A – Video instructions.
2. Create the recording.
3. Save the video in MP4 format.
4. Provide the MP4 video to our [Drop Box location](#) by the submission deadline.
5. Applicants will receive confirmation of the video submission by email.

5.2.2 Part 2: Submitting the Applicant Form

The Applicant Form must be submitted directly to the IDEaS Contests Program through the Canada Post Corporation (CPC) Connect service.

Step 1: Create a Connect account

If the Applicant has an existing Connect account please proceed to Step 2.

To register for an account please contact the [CPC Connect service](#), click on Login to Connect, then select Register now, and complete your Personal Canada Post Profile.

Step 2: Request a Connect conversation and submission

Applicants must send an email requesting a Connect conversation to IDEaSContests.IDEeSConcours@forces.gc.ca and provide the email address associated with the Connect service, at least five business days prior to the



submission deadline. The IDEaS Contests Program will initiate the Connect conversation.

The Applicant will then be able to submit the Proposal Package at any time prior to the submission deadline.

The Applicant will receive a confirmation from the IDEaS Contests Program within 1 – 2 business days of receipt.

All Connect conversations must remain open until at least 30 business days after the submission deadline.

5.2.3 Submission issues or late submissions

DND will not be responsible for any failure to transmit or submit the Proposal Package.

Late Proposal Packages will not be evaluated.

5.3 On-site invitation

Proposal Packages that are deemed successful will be invited to the on-site competition. The invitation will include an instruction manual.

5.4 Funding decision

The Funding Committee will be comprised of senior members of the CAF and DND, including the Director General, Research & Development (R&D) Innovation, subject matter experts and program representatives.

The Funding Committee examines the Proposal Packages, and on-site evaluation results through the lens of strategic considerations across multiple parameters, such as:

- budget constraints;
- distribution of investment;
- operational relevance;
- strategic relevance;
- extent of leveraging other partners through cash and in-kind contributions;
- similar S&T initiatives being funded by DND's partners and allies;
- industrial and social benefits to Canada; and,
- Government of Canada priorities.

Grants will be offered to two selected on-site winning solutions.

Contribution Agreements will be offered to two winning on-site solutions assessed, recommended and approved by the Funding Committee.

Funding decisions are final. There is no appeal process.



Part 6

6.1 Legal, regulatory, and other considerations

The Proposal Package must:

- identify any legal or regulatory requirements that apply to the project;
- demonstrate that the project will adhere to all applicable federal legislation; and,
- indicate the status and estimated timelines of any approval/permits/licenses that are required.

6.2 Confidentiality

The Applicant understands that the information provided may be accessible under the *Access to Information Act* (ATIA). No commercially confidential information which you submit will be disclosed unless required to be released by law. Information on the federal government's ATIA is available on the following website: <http://www.laws-lois.justice.gc.ca/eng/acts/A-1/>.

Any information that you wish to be considered as confidential should be annotated accordingly.

6.3 Privacy notice statement

DND will comply with the *federal ATIA and Privacy Act* with respect to proposals received. By submitting personal information, an applicant is consenting to its collection, use and disclosure in accordance with the following Privacy Notice Statement, which explains how the applicant's information will be managed.

Necessary measures have been taken to protect the confidentiality of the information provided by applicants. This information is collected under the authority of DND's terms and conditions for the IDEaS Contests Program.

Personal information included in all proposals will be kept along with the proposal results as Information Records of Business Value and retained. These data are protected under the *ATIA and Privacy Acts*. According to the *Privacy Act*, data linked to an individual and included in the proposal being evaluated can be accessed by the specific concerned individual who has rights with respect to this information. This individual may, upon request, (1) be given access to his/her data by making an official privacy request through DND for the attention of the Director, Access to Information and Privacy (DAIP) and (2) have incorrect information corrected or have a notation attached.

The ATIA governs the protection and disclosure of information, confidential or otherwise, supplied to a federal government institution.



Paragraph 20(1) (b) of the *Act* states that: a government institution [such as DND] shall refuse to disclose any record requested under the *Act* that contains financial, commercial, scientific or technical information that is confidential information supplied to a government institution by a third party and is treated consistently in a confidential manner by the third party.

Paragraph 20(1) (b) of the *Act* sets out two mandatory criteria in order to protect applicants' confidential information supplied to DND from disclosure. First, the applicants' documents supplied to DND must contain financial, commercial, scientific or technical information. Second, the applicant must consistently treat such information in a confidential manner. In other words, DND will protect the applicant's confidential information in its possession as much as the applicant protects said confidential information in their own establishment.

Any Privacy or Access to Information request made under their respective *Act* and completed, will be retained by DAIP for a duration of two (2) years following after the date the request was responded to. After the retention period of two (2) years, the Privacy or Access to Information request file will be destroyed.

For additional information on privacy matters prior to submitting a proposal, please contact:

Director, Access to Information and Privacy (DAIP)
Department of National Defence (DND)
Telephone: direct: 613-992-0996 or toll free: 1-888-272-8207
Email: ATIP-AIPRP@forces.gc.ca

Applicants shall note that key information related to all Contribution Agreements (e.g., amount, name of the recipient and project location) will be made available to the public on DND's website.

6.4 Information for applicants in the province of Quebec (if applicable)

The *Act Respecting the Ministère du Conseil Exécutif* (M-30) may apply to an Applicant that is a municipal body, school body, or agency located in the Province of Québec. These Applicants will be required to complete an additional information form and, if they are subject to the requirements of the *Act*, to obtain written authorization and approval from the Government of Québec prior to execution of any contribution funding agreement.



6.5 Directive on automated decision-making

The Government of Canada is increasingly looking to utilize artificial intelligence to make, or assist in making, administrative decisions to improve service delivery. The Government is committed to doing so in a manner that is compatible with core administrative law principles such as transparency, accountability, legality, and procedural fairness. Understanding that this technology is changing rapidly, this Directive will continue to evolve to ensure that it remains relevant.

At this time, no formal process is in place, applicants are encouraged to review the policy: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32592>.

6.6 Intellectual property

All Intellectual property rights that arise as a result of this Contest shall vest with the applicant.

6.7 Research security policy statement

In Spring 2021, the Government of Canada released a Research Security Policy Statement encouraging all members of the research community, including academia, private sector, and government to take extra precautions to protect the security of research, intellectual property, and knowledge development.

Research Security broadly speaking, refers to the measures that protect knowledge, technologies, and data that could assist in the advancement of a foreign threat actor's geopolitical, economic, and security interests to the detriment of Canada's. The target assets can vary from applications in weapons of mass destruction programs (i.e., chemical, biological, radiological, and nuclear) to dual-use technologies (i.e., technologies with both civilian and military applications), such as artificial intelligence, quantum computing, and bio- and nanotechnology, to intellectual property and confidential information used for research.

At this time, no formal process is in place, applicants are encouraged to review the policy: <https://www.canada.ca/en/innovation-science-economic-development/news/2021/03/research-security-policy-statement--spring-2021.html>



Annex A – Video instructions

This Contest is designed to challenge robotic platforms under increasingly difficult scenarios that resemble tasks that CAF members may potentially face.

DND/CAF have selected a simplified and representative challenge for applicants to demonstrate basic robotic control and capability. To succeed applicants must submit the required Applicant Form along with a 10 minutes maximum video submission.

The video of their robotic platform is required to demonstrate the following:

- 1) Robot pushes open a standard interior door inwards. The door will stay open after the robot enters.
- 2) Robot enters a room and approaches a table with a 2lb dumbbell sitting on top. Table top is at regular height (30”).
- 3) Robot picks up and manipulates the dumbbell to view all sides.
- 4) Robot leaves the room carrying the dumbbell.
- 5) Demonstrate Robot’s video streaming capability.



Annex B – Eligible and ineligible expenditures

1. Eligible expenditures

Eligible expenditures of the solution include direct and indirect costs which are determined by Canada as reasonable and necessary to carry out the solution.

A cost is reasonable if the nature and amount do not exceed what would be incurred by an ordinary prudent person in the conduct of a competitive business.

In determining the reasonableness of a particular cost, consideration will be given to:

- a) whether the cost is of a type generally recognized as normal and necessary to carry out the solution;
- b) the restraints and requirements by such factors as generally accepted sound business practices, arm's length bargaining, federal, provincial and local laws and regulations, and contract conditions;
- c) the action that prudent business persons would take in the circumstances, considering their responsibilities to the owners of the business, their employees, customers, the Government and public at large;
- d) significant deviations from the established practices of the Recipient which may unjustifiably increase the costs; and,
- e) the specifications, delivery schedule and quality requirements of the particular contract as they affect costs.

At least 50% of Eligible Expenditures must be incurred in Canada.

2. Cost categories

2.1 Salaries, wages and benefits

Salaries and benefits are eligible as long as they are directly related to the solutions' activities, including management, and reflect the costs associated with the employees.

Benefits are defined as employment costs paid by the employer and may include the following:

- employer's portion of Canada Pension Plan (CPP) / Quebec Pension Plan (QPP);
- employer's portion of Employment Insurance (EI);
- employer's portion of group insurance; and/or,
- employer's pension contributions.



2.2 Acquisitions or rental of equipment

Equipment is defined as any item (or interrelated collection of items comprising a system) which is used wholly or in part for the proposed solution and meets all three of the following conditions:

- 1) non-expendable tangible property;
- 2) having a useful life of more than one year; and,
- 3) a cost of \$2,000 or more.

Equipment over \$50,000 requires prior IDEaS Program authorization.

Equipment cannot exceed 20% of the total eligible costs.

2.3 Consultant services

Upon request, recipients are to send DND a copy of service contracts for work under the solution prior to signing the contract with the service provider.

The Contribution Agreement must not be used or replicated for contracting with other parties. A recipient's own contract should detail the milestones to be achieved under that contract, the costs, and deliverables.

It is the responsibility of the recipient to ensure that all costs from service providers providing contracted services are eligible expenditures.

2.4 Laboratory analysis services

Examples include physical, chemical or biological property analysis of samples, standardized testing laboratory services, and calibration services from fee-for-service laboratories.

2.5 Materials and supplies

Material and supplies includes items that meet at least one of the following conditions:

- 1) expendable tangible property;
- 2) useful life of 1 year or less; or,
- 3) a cost of less than \$2,000.

For consumables commonly utilized in most laboratories, a general rate per FTE will be accepted, provided that the rate is appropriately justified in the supporting documentation.

The consumables category also includes items such as equipment maintenance contracts and general maintenance of research infrastructure that is directly related to the conduct of the solution.



2.6 Overhead costs

Overhead costs are indirect expenditures incurred by Recipients, which are required for the activities, but cannot be specifically identified as solution costs. These costs relate to the use of the organization's resources, which may include, but are not limited to:

- administrative support (e.g. accounting, payroll administration, meetings);
- IT (Information Technology) support;
- Internet, telephone, excluding long-distance charges;
- use of photocopiers, fax machines, and other office equipment;
- use of existing workstations, including furnishings and equipment (e.g. computers, scanners);
- normal office software (not including software specifically required for the project);
- memberships and subscriptions;
- staff recruitment and training;
- routine laboratory and field equipment maintenance (e.g. oil changes);
- building occupancy and operating costs (e.g. use of space); and/or,
- facility maintenance.

Overhead cannot exceed 15% of the total eligible costs.

2.7 Travel

Consult website at <https://www.njc-cnm.gc.ca/directive/d10/> for further details.



3. Ineligible expenditures

Ineligible costs include, but are not limited to, the following:

- in-kind contributions;
- staff awards and recognition;
- professional training or development, such as computer or language courses;
- the purchase of land or buildings;
- costs of moving a lab;
- the purchase or lease of private/personal vehicles;
- assets and capital items not specifically required for the execution of the solution;
- normal costs of establishing a commercial operation;
- costs for activities that are deemed to be part of normal business practice for any recipient, such as review engagements and audits, unless required in the agreement
- board of directors' meetings;
- insurance;
- interest and overdraft charges;
- credit card charges;
- refundable portion of the GST/HST, value-added taxes, or other items for which a refund or rebate is receivable;
- hospitality, alcohol, entertainment, honorariums, gifts (gifts for speakers or facilitators);
- travel insurance (medical, accident, cancellation);
- non-essential options for rental vehicles, for example GPS and roadside assistance (collision damage waiver (CDW) insurance may be eligible);
- gasoline purchased for private or company-owned vehicles (vehicle costs must be based on applicable NJC kilometric rate), and vehicle maintenance costs;
- monthly parking fees for vehicles, unless specifically required for field work;
- costs of regular clothing;
- rental charges for company-owned vehicles;
- internet charges outside headquarters, unless specifically required for the solution;
- membership fees, unless specifically required for the project;
- discretionary employee benefits (parking at employer's location);
- relocation costs for employees hired for the solution;
- patent fees;
- costs for activities intended to directly influence/lobby governments;
- direct marketing, business promotion or one-on-one extension types of activities;
- costs associated with the review of graduate and Ph.D. thesis;
- supplementary employment insurance benefits for maternity/paternity leave; and,
- other costs not specifically required for the solution.

