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ARMED FORCES



FORCES ARMÉES
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Canada

IDEaS COVID-19 Challenges



**STRONG
SECURE
ENGAGED**

**PROTECTION
SÉCURITÉ
ENGAGEMENT**



Challenge 1 - Rapid response: Real-time insights for pandemic decision-making

- Innovative epidemiological and healthcare solutions involving data gathering and data analytics technologies to support the early detection and community-based surveillance of outbreaks of contagious diseases. The goal is to provide actionable insights and to permit rapid decision-making with respect to the full emergency preparedness spectrum.
- The objective of this challenge is to use data analytic capabilities and algorithms, statistical analysis and data visualization for pandemic management.
- Can you develop new and innovative ways of collecting, sharing and analyzing real-world data (open source, social media, licensed proprietary, etc.) in order to support improved prediction, situational awareness and enable better management of such outbreaks.
- The focus is not individual level data (this is not about contact tracing) but rather community-level.





Challenge 1 – Scope considerations

What Data?

You decide what data can be used for inferential analysis related to the pandemic

- Not limited to traditional health data
- Creativity is encouraged to think of non traditional data sources

How to collect the Data?

Consider the requirements to use the proposed private or public data sets

- Formal agreements with data set owners
- Rights to use public data or agreements to access granular public data sets that might not be published

Tools and methods required to be designed into the solution for data mining

- Artificial Intelligence
- Machine learning
- Statistical Analysis

What for exactly?

Predictive and inferential analysis and data visualization to enable rapid and informed decision making at different stages of the emergency management spectrum

- Mitigate: Detect and predict outbreaks
- Prepare: Near real-time, accurate picture of the extent and patterns of disease transmission
- Respond: Support decisions about how to allocate limited and/or secure additional resources
- Recover: When is the right time to end mitigation/response measures and policies





Challenge 2 - Scrubbing your scrubs: Finding ways to re-use COVID-19 protective gear

- Innovative material and design solutions, as well as rapid and effective decontamination strategies and solutions, for Personal Protective Equipment (PPE), operational clothing and equipment for personnel responding to events involving biological hazards.

There are two main objectives for this challenge:

- solutions for rapid and effective decontamination of PPE and operational clothing and equipment that will not degrade the performance of these items and the protection they afford to biological hazards; and
- the development of innovative material and design solutions for medical PPE, operational clothing and equipment that meets or exceeds all current functional and performance requirements while being adapted to frequent and rapid decontamination procedures and reuse.





Challenge 2 – Scope Consideration

Disinfection of current PPE and specialized operational gear

You decide the PPE and/or specialized operational gear for which your solution can be used for rapid and effective decontamination. Your proposal should consider

- the efficacy of the disinfection and protection they afford to biological hazards;
- the degradation of durability and performance of the disinfected PPE, clothing and or gear;
- the time required for decontamination protocol; and
- the physical footprint and/or portability of the solution

Innovative material and design solutions for next generation PPE, operational clothing and equipment

You decide the PPE, operational clothing and/or specialized operational gear for which your solution can be applied. Your proposed solution should consider

- exceeding all current functional and performance requirements;
- resistance to frequent and rapid decontamination procedures; and
- compliance with performance standards after an established number of decontamination cycles





Challenge 3 - Super sanitize: Cleaning sensitive equipment and workspaces

- Viable and effective processes and methods for safely and rapidly decontaminating enclosed work environments (e.g., buildings and modes of transportation) containing sensitive equipment.
- The objective of this challenge is not to necessarily eliminate the need for manual cleaning but to significantly reduce the time that is needed for effectively cleaning, sanitizing and disinfecting and associated idling of that work environment or capability.





Challenge 3 – Scope Considerations

The work environments are diverse – your solution is not required to address all of them. But should consider the requirements of different work environments:

- Enclosed spaces in operational centres and Navy vessels with integrated air ducts and circulation systems
- ambulances and airplanes have very sensitive equipment and sensors.

Work environment surfaces and materials are varied

- square, flat, solid surfaces;
- soft, and porous surfaces

The proposed solution must be safe to use with no harmful residues or toxic off-gassing that might affect human health





Evaluation Process



- DND is committed to a consistent, fair, and transparent project selection process in order to identify, select, and approve the allocation of funding to projects that best fit the program's objectives.
- Proposals assessed in accordance with the entire requirement of this Call For Proposals including the evaluation criteria.
- An evaluation team composed of representatives of Canada will evaluate the proposals.





Evaluation Process (continued)

Mandatory Criteria

- Proposal must meet **all** mandatory criteria (Pass or Fail)
 1. *S&T Challenge of Proposed Solution*
 2. *Distinct Solution*
 3. *Alignment of Proposed Solution to S&T Challenge*
 4. *Solution Readiness Level of the Proposed Solution*
 5. *Budget*
 6. *Innovation*
 7. *Advance on State of the Art*

Point-Rated Criteria

- Point score on each criterion
 1. *Scope*
 2. *Project Risks*
 3. *Project Plan*
 4. *Gender Based Analysis Plus (GBA+) of Proposed Solution*





Evaluation Process (continued)

Proposal Selection

- Proposal(s) that have passed the evaluation criteria and other requirements of the Call For Proposals will be considered compliant and will be placed in a pool of pre-qualified proposals for consideration.
- All pre-qualified proposals will be ranked and other factors may be considered prior to funding recommendation such as:
 - Similar S&T initiatives being funded by DND's partners and allies;
 - Industrial and social benefits to Canada; and
 - Alignment with Government of Canada priorities.
- DND may select one, multiple, or no proposals per S&T Challenge for final funding approval.

