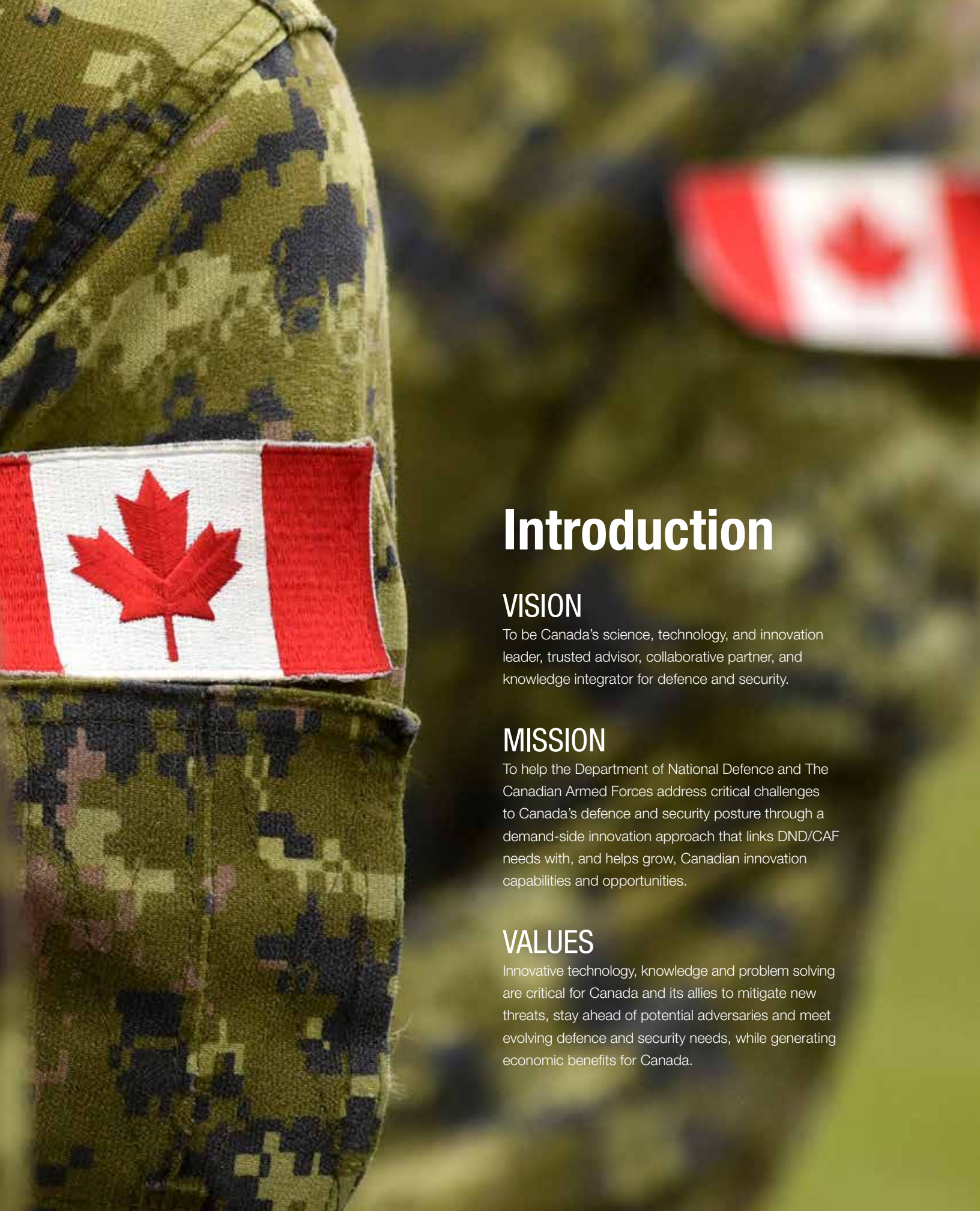




# IDEaS

**INNOVATION FOR DEFENCE  
EXCELLENCE AND SECURITY**

**ANNUAL REPORT  
2019 - 2020**



# Introduction

## VISION

To be Canada's science, technology, and innovation leader, trusted advisor, collaborative partner, and knowledge integrator for defence and security.

## MISSION

To help the Department of National Defence and The Canadian Armed Forces address critical challenges to Canada's defence and security posture through a demand-side innovation approach that links DND/CAF needs with, and helps grow, Canadian innovation capabilities and opportunities.

## VALUES

Innovative technology, knowledge and 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.

## MESSAGE FROM THE ASSISTANT DEPUTY MINISTER

I am very proud to present the second annual report for the Innovation for Defence Excellence and Security (IDEaS) program. Our approach to accessing innovation has taken us to new heights and places, and we are eager to share the stories from our journey.

Progress in organizations can be gradual. Sometimes organizations make a quantum leap in progress, and it can seem like it came out of the blue. In reality, a slow and steady build up of hard work, calculated pivots and strategic relationships has been the foundation for IDEaS success this past year.

In its second year of operation, we have supported innovative research that includes taking inspiration from octopuses to create artificially intelligent camouflage, as well as the development of cutting-edge cyber attribution that is already in the hands of our troops for testing. As you can see, the IDEaS approach wastes no effort from the innovator community to ensure that DND/CAF defence capabilities will remain on the leading edge.

I would like to acknowledge all those who have contributed to the IDEaS continuum for their efforts in continuing to move the innovation agenda forward. I look forward to seeing what comes next.

### **Isabelle Desmartis**

Assistant Deputy Minister  
Defence Research and Development Canada



## MESSAGE FROM ERIC FOURNIER - DG INNOVATION

Fail fast, learn quickly, game changes, and then adapt! Innovation is a fast moving sport, and the Innovation for Defence Excellence and Security (IDEaS) program has been developed to play in this environment with the aim of helping Canada's Department of National Defence (DND) and Canadian Armed Forces (CAF).

On behalf of the entire IDEaS Team, I would like to say what a privilege it is to present you with our second annual report. Although you are reading this report in 2021, the pages that follow will tell you the story of our 2019 to 2020 operating year, which saw many firsts for the program.

Since our last report, we have all been impacted by COVID-19. This pandemic has had an enormous impact on our staff, our innovators, and our stakeholders. From all of us to all of you, we want to thank you for your dedication and support during this time. You have helped us to move forward despite the pandemic and the changes it has brought. Your support on our COVID-19 challenges has been amazing and will yield great results to help us weather this storm. We look forward to continuing to work with you and look forward to the day we can see you again, face to face!

On to our newest report! Over the past year, IDEaS has been able to invest more than \$100M in organizations across Canada (now over 270 and counting) that are using their innovative thinking and solutions in support of the women and men of the CAF and the staff in DND. We have also increased our reach throughout Canada, as our external network has grown to more than 4,000 innovators!

The numbers are just amazing! We launched 15 challenges through the Competitive Projects vehicle, covering topics like better energy generation in the north, reducing visual and infrared detection of our soldiers and vehicles, cyber protection of avionics networks and bus technologies and many more. We also launched our first Contest, working closely with DND/CAF to identify the best solution for an integrated waste/water/energy component of a relocatable temporary camp for the Canadian Armed Forces. Canadian innovators, whether big or small, public or private, have responded in volume to make this a success, with hundreds of proposals being submitted.

Our first Sandbox focused on the so important counter-drone technologies, which turned out to be a sizeable but highly successful effort, bringing many resources from DND/CAF, Defence Research and Development Canada (DRDC) and many innovators from many countries. As we saw at the launch of the program, the response from Canadian innovators, traditional and non-traditional alike, has been strong and continues to demonstrate brilliant and innovative solutions!



I wish to also thank the many individuals that make this program work day-to-day: our staff, our DND/CAF stakeholders, our evaluators, our integrators, our scientists, and many more that make this work possible.

As we enter the third year of the program, we will see more of the innovations funded through IDEaS being tested, evaluated and adopted by the CAF. Stay tuned for the launch of our latest element, Test Drive.

With thanks - stay safe,

Eric

## The Pillars of IDEaS



CONNECT



DEVELOP



EVALUATE



TRANSITION

## OUTREACH AND ENGAGEMENT

IDEaS has worked, through internal and external networking, to create an extensive innovation ecosystem throughout the country. This approach allows for enhanced adaptation to various defence and security challenges by connecting all members of the Canadian innovation community, from Small and Medium Enterprises (SMEs), to big industry, to academia and other institutions.



## SSE CONNECTION

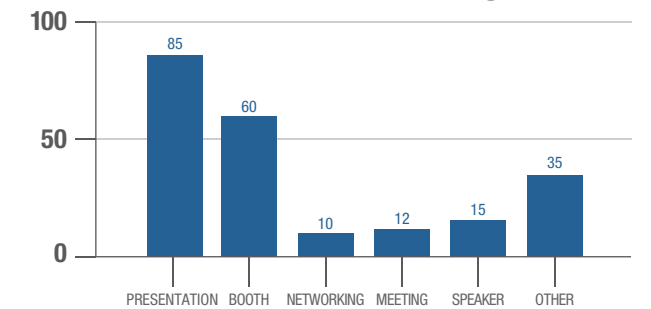
THE PROGRAM FOCUSES ON ANTICIPATING AND ADAPTING TO DEFENCE CHALLENGES AND PRESENTING SUCH TOPICS TO A WIDE RANGE OF INNOVATORS. THIS APPROACH PUTS IDEAS AT THE FOREFRONT OF INNOVATION AND ENABLES THE QUICK SPREAD OF KNOWLEDGE.

**The IDEaS website is our portal to the world of innovators.** All challenges we release are published on our website, along with updates from elements such as Contests, Sandboxes, Innovation Networks, Competitive Projects and Test Drives. We showcase the winners of our processes and we present some information on their solutions, to energize potential collaborations across the innovation community. The Program's processes are highlighted on the site, to invite people to participate.

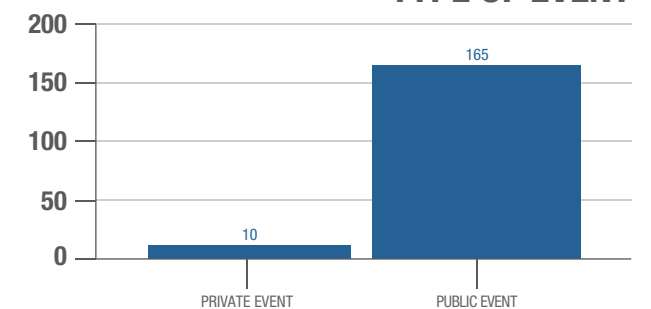
We invite all to sign up to our distribution list: [www.Canada.ca/Defence-IDEaS](http://www.Canada.ca/Defence-IDEaS). Direct communications allow IDEaS to reach more than 4,000 innovators every time an important piece of information is available! And the list is always growing!

**Building an innovation ecosystem starts with finding the (b)right people. That's why IDEaS showcased our program at 167 in-person and virtual events throughout 2019 and 2020. From conferences to trade shows, symposiums to information sessions, IDEaS was on the ground increasing our network of potential innovators.**

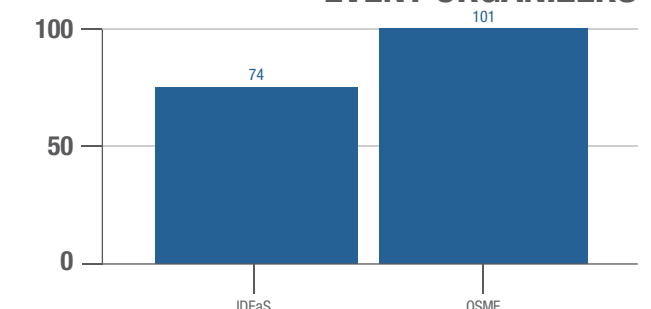
TYPE OF EVENT



TYPE OF EVENT



EVENT ORGANIZERS



## STRATEGIC PARTNERSHIPS

As IDEaS seeks new innovators, to help deliver creative solutions to defence and security challenges, the program recognizes that the prospects for ongoing, sustainable success of these innovators can be enhanced both during and after their IDEaS-funded projects.

### WHILE IDEAS PROJECTS ARE UNDERWAY...

We have several supports in place to help keep successful projects moving in the right direction. Within the scope of the program, we have introduced ways to enhance the prospects for innovators' success; including elements like Sandbox, to demonstrate their technologies and get feedback from defence and other representatives, and Test Drive, to enable small purchases of a technology for defence users to try it out and evaluate it in various circumstances. To complement these program efforts, we've partnered with the Office of Small and Medium Enterprise (OSME) to broaden the reach of promotional efforts with their regional networks. By getting the word out about IDEaS, OSME is helping us engage with and attract potential innovators as well as potential collaborators, clients and suppliers for IDEaS innovators. In addition, our partnership with the Canadian Intellectual Property Office (CIPO) helps us connect innovators with valuable information and experts on intellectual property, to help them develop IP strategies for their projects, access information through webinars, and contact regional experts for assistance with their questions.

## AND AFTER THE IDEAS-FUNDED WORK...

We are lining up supports to complement IDEaS funding, with follow-on funding and services to suit the needs of late-stage solutions. In the coming year, we're looking forward to hosting our first marketplace for IDEaS innovators, creating a platform to showcase their projects with representatives from defence and security in government and industry, and to give them a chance to connect with other federal departments with funding and services to support late-stage development (including business development) and networking. IDEaS is often represented in speaking panels at major conferences. We'll use those opportunities to speak to innovator success stories and invite innovators to join in and share their stories. These opportunities for ongoing promotion after graduating IDEaS will help innovators access collaborators, clients and partners to help sustain and grow the success of their solutions. Through our existing, and growing collaborations with strategic partners, IDEaS is expanding the reach of program and innovator promotions, attracting talented innovators and potential collaborators, clients and suppliers, and helping to advance Government of Canada objectives, including: support for small and medium enterprises; jobs and revenues in the defence and related high-tech sectors (e.g. cyber security, information and communication technologies, advanced manufacturing, ocean technologies, cleantech); and intellectual property development in a global innovation economy. As a program, IDEaS doesn't just want to support projects, we want to support innovators and their solutions. And we'll do what we can to help innovators access the funding, services and networks to make successful solutions a reality, both during and after IDEaS.

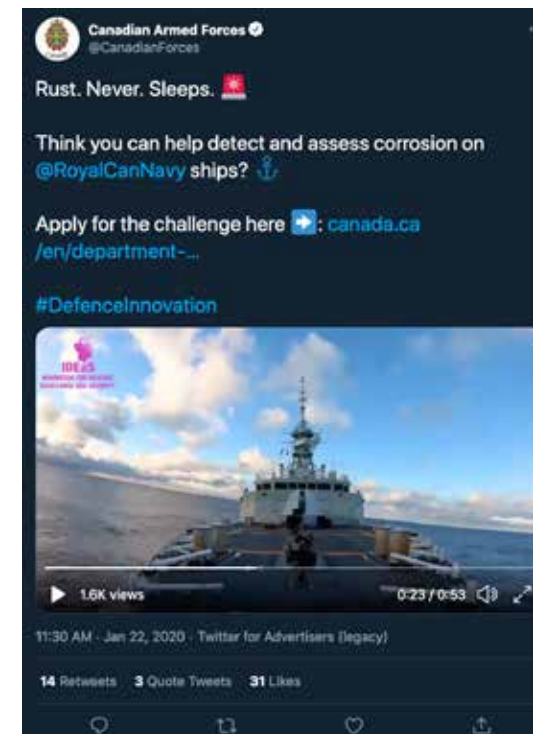
## COLLABORATION

By collaborating with a variety of departments, individuals, and external resources, IDEaS is able to expand their network. By doing so, more partnerships are formed, allowing for enhanced advancement of technology and solutions for defence and security challenges.



### VISDOC

The VISDOC team has been a valuable partner in capturing innovation for the IDEaS program through photos and videos



### PUBLIC AFFAIRS

The Public Affairs team has done an incredible job of connecting IDEaS with innovators and stakeholders throughout the WEB, Social Media, Strategic Communications, Creative Services and the Defence Team News

## WHAT DO WE DEVELOP?

IDEaS aims to shape, shift, and promote innovation from Canadian innovators to benefit challenges posed by DND/CAF. Using this approach, we can adapt to the rapidly changing needs of DND/CAF, defence and security. This constant development also allows for continuous anticipation of future threats and challenges. IDEaS is a versatile program that is able to adapt to the rapid pace of change in today's fluid security environment. Canada's new approach to defence adopts new technologies and methods, and transforms the way people manage defence and security challenges.

## PROGRAM ELEMENTS

IDEaS makes use of several program elements to enhance the Canadian Innovation ecosystem for defence and promote modernization of defence and security business.

### PROGRAM ELEMENTS INCLUDE:



INNOVATION NETWORKS



CONTESTS



COMPETITIVE PROJECTS



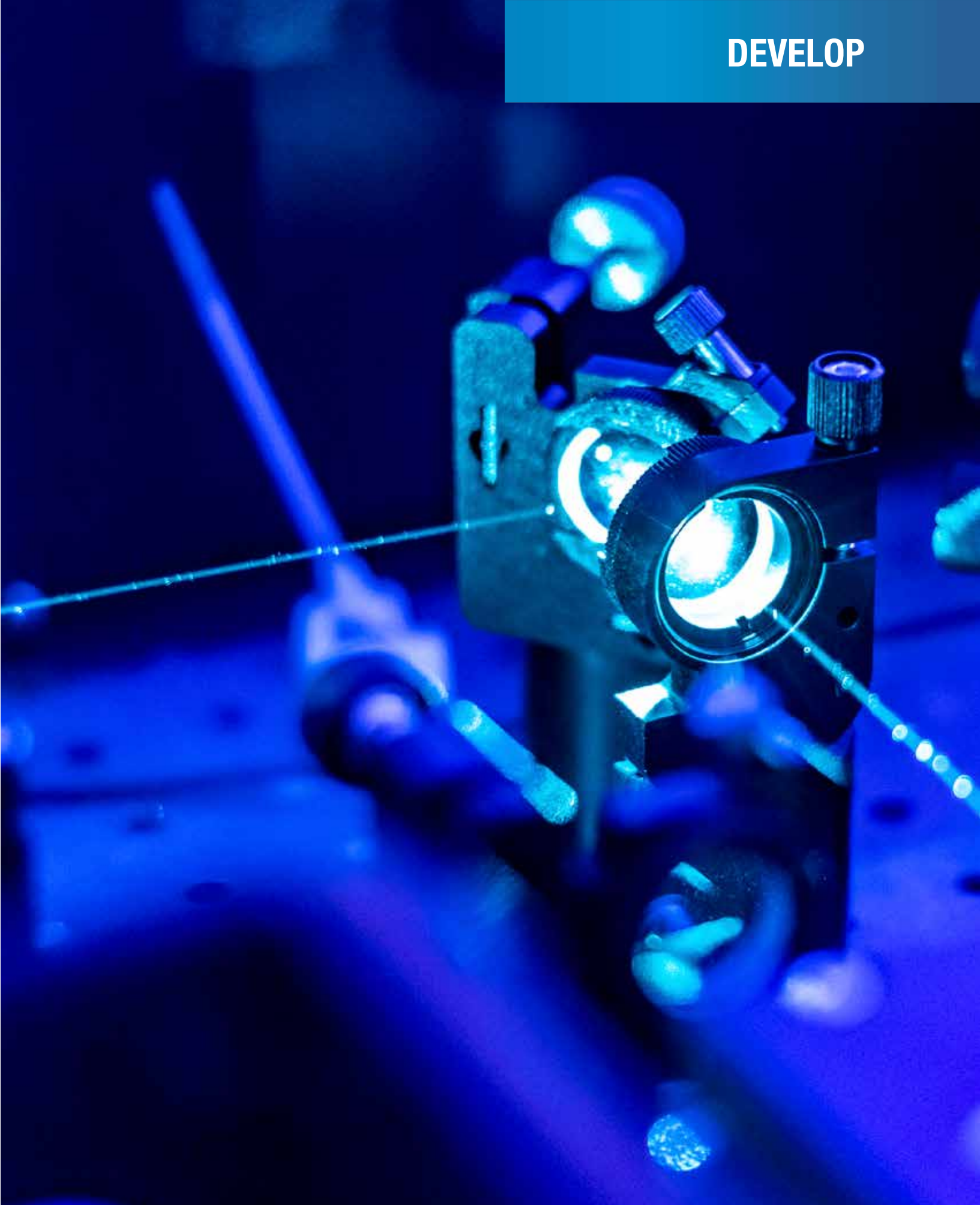
SANDBOXES



TEST DRIVE

## SSE CONNECTION

IDEAS IS A VERSATILE PROGRAM THAT IS ABLE TO ADAPT TO THE RAPID PACE OF CHANGE IN TODAY'S FLUID SECURITY ENVIRONMENT. CANADA'S NEW APPROACH TO DEFENCE ADOPTS NEW TECHNOLOGIES AND METHODS, AND TRANSFORMS THE WAY PEOPLE MANAGE DEFENCE AND SECURITY CHALLENGES.



## COMPETITIVE PROJECTS

Competitive Projects are project proposals sought to address S&T challenges through regular calls for proposals. The IDEaS Program will provide financial support through contracts and contribution agreements where phased development allows for continual progress as milestones are achieved for quick project implementation as well as quick termination if warranted.

### FUNDING

**PHASE 1:** Up to **\$200,000** is available for the first six months.

**PHASE 2:** Up to **\$1,000,000** for 1 year to further develop their solution.

### ELIGIBLE RECIPIENTS

**EVERYONE!** Except government employees and Crown corporations

### SOLUTION READINESS

**LEVEL: 1-6**

## COMPETITIVE PROJECTS SUCCESS STORIES CHANGING THE CYBER GAME

Whether it be rogue nations, terror groups or individuals bent on doing harm, malicious actors are constantly seeking ways to infiltrate Canada's cyber defences. Being able to identify who is behind the screen is the first stage of taking action to combat a threat. The Department of National Defence (DND) launched a challenge 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. One innovator who is helping to tackle this challenge is Sapper Labs. Based in Ottawa, Ontario and Fredericton, New Brunswick, the company is building a cyber protection platform capable of identifying the perpetrators of sophisticated cyber threats. The system will accelerate the CAF's ability to act against advanced threats to Canadian assets. It is the first step in bringing industry expertise and knowledge to advance Canada's active cyber defence architecture under the IDEaS program.

*"The IDEaS program is leading a very positive change in the Canadian innovation landscape that is giving rise to new dynamic interactions between the DND and industry. Through this IDEaS challenge, we will develop new tools for [the] DND in cyber defence, that are at the forefront in the engagement of Canada's cyber adversaries."* — **Shaun Covell, CEO, Sapper Labs Inc.**

*"Working as an operational DND stakeholder within the IDEaS challenge, "Cyber Attribution of Sophisticated Threat Actors" has been truly rewarding and has promoted collaboration between innovators and departmental resources to a level that is unparalleled in other R&D organizations within the defence sector. The innovation components and subsequent vehicles have enabled the defence research community, industry and operational DND stakeholders to truly come together to solve some of the toughest defence and security problems that our sector will be facing for the next 20 years. The program has provided the support structures for innovators to develop solutions from their conceptual stage, through to prototype testing and operationally scaled test drives, that put their respective solutions through the paces in order to provide scaled solutions to some of our toughest problem sets. We sincerely look forward to continuing to work through the IDEaS Component 4 element in order to test and evaluate the innovator's Cyber Attribution solution in a realistic environment as part of a DND operational stakeholder-led test drive plan."* — **Operational DND Stakeholder**

## COMPETITIVE PROJECTS SUCCESS STORIES REPAIRING THE FABRIC OF SOLDIERS AND THEIR FAMILIES

You've heard the term: Post-Traumatic Stress Disorder (PTSD). But it takes on a new meaning in a military context. It can disrupt lives and families when soldiers return from active duty. It can even lead to substance abuse and suicide. That's why IDEaS has committed to supporting the research community involved in studying this condition from the unique perspective of the Armed Forces. Eight one million dollar projects are putting the pieces of the PTSD puzzle together. Studying biofeedback, biomarkers, and brain scans, researchers are looking at the physiology of the disorder. Treatment options that employ virtual reality and online tools help soldiers cope with their symptoms and heal. And re-integrating into family life takes a new set of skills. All with the goal of advanced and customized treatments for soldiers.



*"As the Chief of Psychiatry for the Canadian Armed Forces, IDEaS has been an exciting opportunity to advance our understanding of PTSD with the promise of improving diagnosis and treatment and ultimately reducing suffering of our psychologically injured members. IDEaS has been a timely welcome boost to our research program."* — **Col Rakesh Jetly, Chief of Psychiatry, CAF OMM, CD, MD, FRCPC**

**COMPETITIVE PROJECTS  
SUCCESS STORIES**  
ALL SEEING EYES DETER  
SPACE THREATS

When conducting space operations, the Canadian Armed Forces needs a comprehensive picture of the environment to make it safe and efficient for operators and equipment.

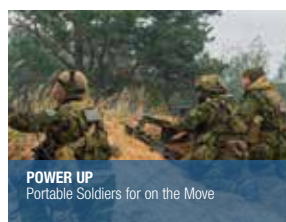
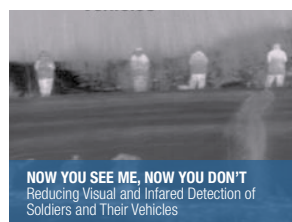
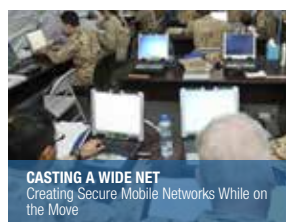
A prototype 360 degree camera armed with onboard Artificial Intelligence (AI) developed by Canadensys Aerospace will allow the CAF to classify, and potentially identify, approaching space objects.

Visual identification of approaching space objects can protect space assets. Identifying the cause of an incident gives decision makers better information to formulate an appropriate response. Attributing a threat to a group, nation, or individual changes the risk-reward calculus for an adversary. And rapid identification, via on-board AI, of an incoming threat will allow for appropriate defensive actions to be taken.

*"In an increasingly congested, contested and competitive space domain we need actionable, situational awareness of what is happening around our assets, including the identification of approaching space objects. This high definition space surveillance system is a perfect example of the type of innovation we must pursue if we are to achieve our defend and protect mandate."*  
— **Brigadier General Kevin G. Whale, Director General & Component Commander – Space, Royal Canadian Air Force**

*"In the space of a single year IDEaS catapulted our technology to the point where it not only aligns better with national needs in security and defence, but also now genuinely competes in the global market"* — **Dr. Nadeem Ghafoor, Vice-President, Space Exploration Canadensys Aerospace Corporation**

**COMPETITIVE PROJECTS - CFP 3**



- And others including:**
- Beyond the Classroom
  - Spot the Hack
  - Spring Into Action
  - Staying Four Steps Ahead

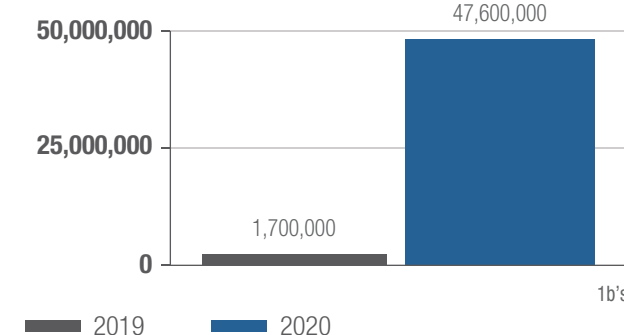
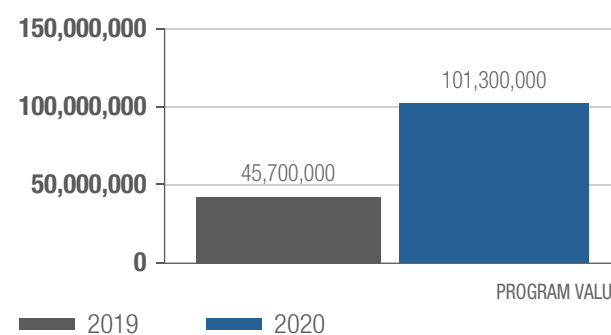


**CHALLENGES AND ENTRIES FUNDED:**

**March 2019:**  
27 Challenges  
172 Entries Funded

**February 2020:**  
45 Challenges  
278 Entries Funded

**PROGRAM VALUE**  
MARCH 2019 vs. FEBRUARY 2020





## CONTESTS

Contests are a competitive means of finding innovative solutions and awarding prizes to the best solutions derived from the innovation community. Each contest focuses on one of the defence and security challenges identified by the program. Each contest is held independently; the number of winners, as well as the type and/or value of the prizes, will vary.

This year, we launched our first Contest, and it is still progressing!

### FUNDING

**BIG \$ PRIZES WILL VARY PER CONTEST**

### ELIGIBLE RECIPIENTS

**EVERYONE!** Except government employees and Crown corporations

### SOLUTION READINESS

**LEVEL: 6-7**

## CONTEST POP UP CITY

The “Pop up City” Contest is a multi-phased contest for innovators to propose and develop reliable, energy efficient, integrated and scalable energy, water and waste management systems for Relocatable Temporary Camps.

### Round 1:

- 111 applications were received.
- 42 Round 1 winners each received a \$10,000 prize and were invited to participate in Round 2 which included presenting their innovative waste, water, or energy management solution at an integration partnering event in March 2020.

### Round 2:

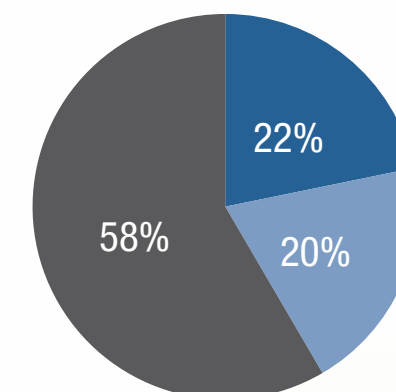
Contestants have the opportunity to partner up to propose an integrated energy, water and waste management system. Up to 10 integrated proposals will be selected and each semi-finalist team will receive an additional \$50,000 in prize money and a spot in Round 3.

### Round 3:

Semi-finalist teams from Round 2 will get to showcase their technical savvy and presentation skills at a pitch event to be held in March 2021. Up to 3 finalist teams will be eligible for up to \$1,500,000 for the development of their proposed prototype over an 18 month timeframe.

### Round 4:

The final Round of Contest will test all of the prototypes developed from the “Pop up City” finalist teams. A grand prize of \$2,000,000 will be awarded in the Fall of 2022 to the prototype with the best overall performance!



## ROUND 1 WINNERS

- Portable water management
- Solid and liquid waste management
- Energy generation and management

## INNOVATION NETWORKS

The IDEaS Program supports the establishment of new Innovation Networks and, where appropriate, existing networks, to stimulate collaboration and the free flow of ideas critical to innovation. Academics, industry and other partners are encouraged to come together to form collaborative Innovation Networks. Areas for support of advanced research and development (R&D) will vary over time depending on Canada's current and future defence and security innovation challenges.

### INNOVATION OPPORTUNITIES

#### FUNDING

Up to **\$1,500,000** for a period of 3 years

#### ELIGIBLE RECIPIENTS

COLLABORATION BETWEEN ACADEMIA AND INDUSTRY.  
**CANADIAN UNIVERSITY MUST BE THE LEAD APPLICANT**

#### SOLUTION READINESS

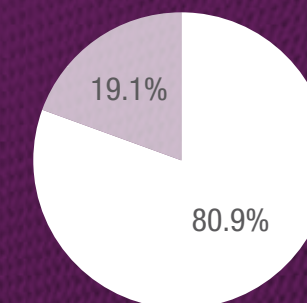
LEVEL: **1-6**

### ADVANCED MATERIALS FOR DEFENCE & SECURITY

**6** INNOVATION MICRO-NETWORKS INVOLVING

**21** INNOVATORS IN ACADEMIA AND PRIVATE SECTOR

Projects involve 17 **different** academic institutions and 4 private institutions



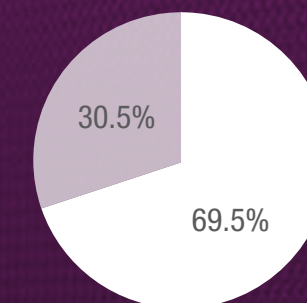
Universities/Academia  
Private Companies

### AUTONOMOUS SYSTEMS FOR DEFENCE & SECURITY

**6** INNOVATION MICRO-NETWORKS INVOLVING

**23** INNOVATORS IN ACADEMIA AND PRIVATE SECTOR

Projects involve 16 **different** academic institutions and 7 private institutions



Universities/Academia  
Private Companies

### INNOVATION NETWORK INTERCONNECTION SAMPLE



## INNOVATION NETWORKS

### AUTONOMOUS SYSTEMS FOR DEFENCE AND SECURITY: TRUST AND BARRIERS TO ADOPTION

The fields of autonomy, artificial intelligence and machine learning are advancing rapidly. Already, autonomous systems are being integrated into the private sector, with the advent of systems such as self-driving cars, delivery drones and medical advisory systems.

Defence and security applications of autonomous systems share much with applications in the private sector, including navigation and route planning, decision support, surveillance and reconnaissance, and search and recovery. In this context, several trends are converging to make the increased use of autonomous systems an attractive option for future capabilities. These include increased public reluctance to accept casualties during operations, a need to decrease the reaction time for complex or time-sensitive tasks, the requirement to work in physical environments where humans cannot go, the need to reduce the physical and cognitive burden on soldiers/first responders, and potentially the need to compensate for reduced numbers of soldiers/first responders due to changing demographics.

To fully benefit from the recent advances in the field of autonomous systems, an understanding of the issues involving trust and other barriers to adoption is essential.

### ADVANCED MATERIALS FOR DEFENCE AND SECURITY: SEEKING INNOVATION IN DETECTION AVOIDANCE AND PHYSICAL PROTECTION:

Injury or damage to personnel and military platforms (e.g., penetration, overpressure and impulsive loading, and blunt impact) is a persistent challenge for the Canadian Armed Forces and Canada's Public Security sector. Future challenges will arise from emerging battlefield technologies such as high-energy lasers and other directed energy weapons. Thus, there is an ongoing need to understand and exploit advances in materials science, specifically to increase protection against current and future threats, reduce protection system weight, and improve mission effectiveness.

When considering the potential beneficial applications of research on advanced materials, two broad areas are of critical importance in the defence and security context: *Detection Avoidance and Physical Protection.*

### INNOVATION INSPIRATION: CEPHALOPOD CAMOUFLAGE

With thousands of years of evolution to refine its purpose, nature has a healthy head start on man-made technology. Case in point: the ability for an octopus to seamlessly blend into its surroundings. That's why innovators are looking for inspiration from the advanced biomechanics of the octopus to design surfaces that mimic surroundings. Researchers from three of Canada's leading universities are working to design artificially intelligent camouflage for the Canadian Armed Forces using biomimetic metasurfaces that change to match the colours and patterns they travel through. The metasurfaces will be tested using both simple and complex patterns to see how well disguised vehicles can be from detection technology such as radar. Smart sensing networks will help power this advanced technology to help troops avoid detection from kinetic and non-kinetic threats.

## SANDBOXES

Sandboxes are an opportunity for innovators to test and demonstrate their solutions to published challenges. The scenario and environment are provided by the Department of National Defence (DND)/the Canadian Armed Forces (CAF), and participants will receive observational feedback from DND/CAF experts and potential users.

### FUNDING

POSSIBLE \$ AVAILABLE FOR TRAVEL

### ELIGIBLE RECIPIENTS

**EVERYONE!** Everyone including international companies except federal public servants

### SOLUTION READINESS

LEVEL: 6-7



“The Canadian Army is thrilled to see advancement and we will keenly await the results and outcomes from this IDEaS Sandbox event.”

- Colonel Chris Renahan, Directorate Land Requirement



## SANDBOX

### DRONE WARS: COUNTERING UNMANNED AERIAL ASSAULTS

- Drone technology is cheap, widely available and can be easily modified to do harm. It is hard to detect and can be used for surveillance. There is only one option: Detect and Defeat. A recent Sandbox aimed at countering unmanned aerial threats brought together Canadian and international participants, presenting them with realistic threats and modern tactical scenarios.
- Technology such as Electro-Optical, Acoustic and Radar detection, Drone fired nets, jammers, and bullet drones received live feedback by members of DND, CAF, the RCMP and other experts. This collaborative approach will enable innovators to reach new levels by refining their systems and technologies.

#### The Challenge

The Canadian Armed Forces need new technologies and approaches to detect and defeat various threats from drones. The Counter Unmanned Aerial Systems Sandbox gave an opportunity for innovators to test and demonstrate their solutions to potential government and military clients in a real world environment. Innovators were given access to advanced infrastructure in an optimal test environment to trial responses to various realistic threats and modern tactical scenarios while receiving expert feedback for use and development.



From left to right: **Eric Fournier, DG Innovation;**  
**Isabelle Desmartis, ADM(DRDC); Tom Hughes, Manager,**  
**Sandbox; Robert Chaloux, Sandbox Team**

## SANDBOX OUTCOMES

### DRONE WARS: COUNTERING UNMANNED AERIAL ASSAULTS

#### Benefits of this Sandbox

- **Expertise**—With this event, we now have a solid exposure to different types of Counter-UAS systems. This goes far beyond what can be learned from web searches or superficial demonstrations. This expertise will allow us to speak authoritatively about the technology in providing sound advice to our Defence and Security partners.
- **Experimental Capacity**—The conduct of a complex test event such as this involved the development of procedures and tactics to fully test Counter-UAS systems. This capacity can now be used for further research and evaluation for our other partners.



## UNMANNED AUTONOMOUS SYSTEMS (UAS) FLIGHT STATS

The Sandbox was structured to accommodate both UAS detection technologies and defeat technologies such as RF jammers and kinetic drone intercept. A total of 12 participating companies with medium to high Technology Readiness Level (TRL) systems from five different countries were invited to DRDC Suffield over four weeks to demonstrate, test, and receive expert feedback from September 9 to October 4 of 2019.



### HOW MANY HOURS OF FLIGHT?

Over **19 trial days**, the team conducted **298** drone test flights, consisting of **3,771** minutes of flight time.

## OTHER INTERESTING FACTS ABOUT THE PAST SANDBOX:

**298** Drone test flights were conducted against the various Counter-UAS systems, with varying success



Technologies tested included radars, optical tracking, acoustic detection and tracking, radiofrequency (RF) detection and direction finding, RF jamming, and physical UAS intercept using airborne net guns and physical impact with friendly drones



Unmanned Aerial Systems tested had **wingspans 30cm to 2m** and **speeds up to 160 km/hr**

**SANDBOX****RUST NEVER SLEEPS: CORROSION DETECTION ON SHIPS**

- Rust is a relentless enemy, attacking ships from the inside out. In this Sandbox challenge, innovators are asked to develop technology to detect rust, putting their methods to the test in the COVE testing facility in Halifax, Nova Scotia.
- Navy experts will participate to provide feedback throughout the demonstrations.
- The Call for Applications for this event was postponed to November 17, 2020, with the event itself scheduled to take place in Halifax, Nova Scotia, in Spring 2021.



## TEST DRIVE

Test Drive is an opportunity for innovators to offer their product or services and get them assessed in a real world environment. Defence personnel acquire and evaluate their solutions in a realistic test environment as part of a DND/CAF-designed test plan. DND/CAF will acquire use of the solutions for the test/evaluation via a purchase, lease, rent, loan or other arrangement with the innovator.

### FUNDING

\$ WILL VARY PER **TEST DRIVE**  
(CAF will provide operational evaluations)

### ELIGIBLE RECIPIENTS

**EVERYONE!** Except government employees and Crown corporations

### SRL LEVEL

**INPUT: 7-8    OUTPUT: 7-9**

## TRANSITION

IDEaS has worked to create an extensive innovation ecosystem throughout the country which will contribute to the success of military operations through solutions that improve support, knowledge, protection and response to real and potential threats. As the IDEaS program matures, we are currently developing our capacity to transition these industry solutions to DND/CAF for utilization and exploitation.

This process will do this by managing the challenges from cradle to contract completion.

As we progress in 2021, we will continue our efforts of bolstering the transition process to work towards establishment of cohesive, integrated offerings for DND/CAF end users in a particular challenge area. In order to optimize investments and deliver suitable solutions that could be employed we will be working collaboratively with PSPC partners to investigate flexible, innovation-driven procurement to better address DND/CAF needs at the end of the IDEaS continuum. We will also position ourselves to aid with broader innovation efforts and results across DND/CAF by working with innovation hub partners to optimize Science, Technology and Industry solutions and the associated return on Science, Technology and Industry investment.



**IDEaS** 2019 - 2020