National Defence / Défense nationale

ASSISTANT DEPUTY MINISTER (DEFENCE RESEARCH AND DEVELOPMENT CANADA)

CANADIAN ARMED FORCES / FORCES ARMÉES CANADIENNES

DRDC / RDDC

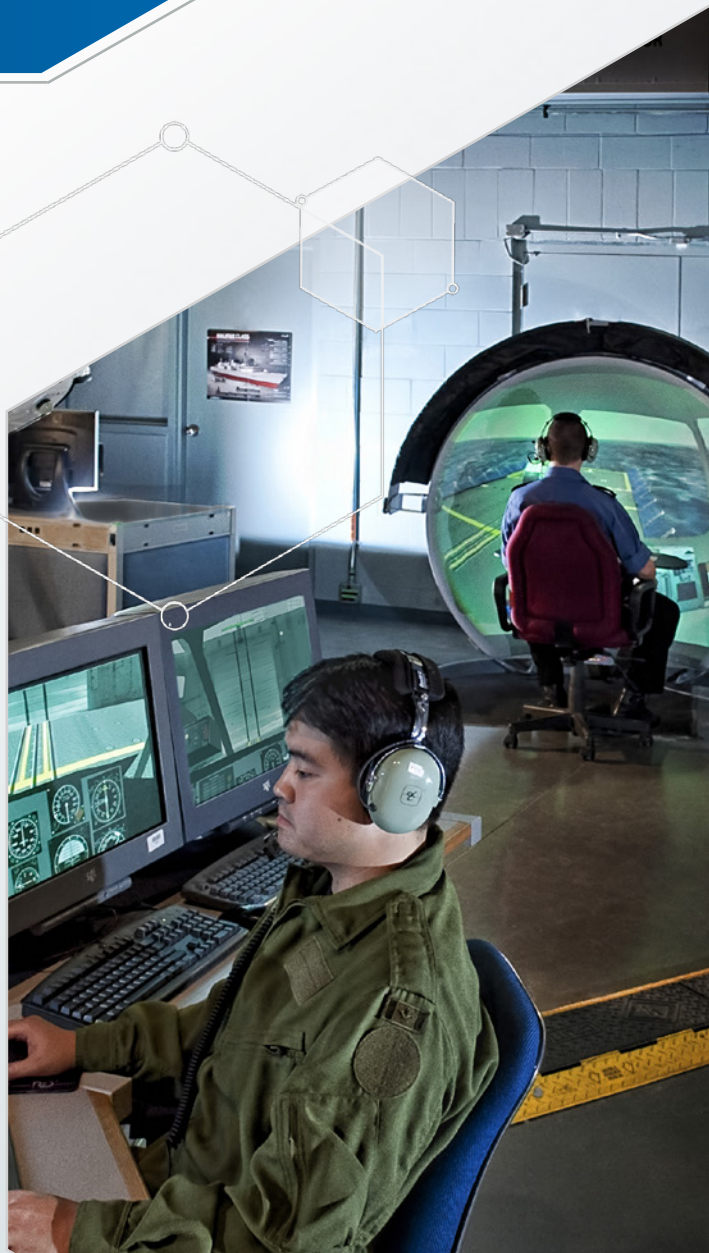
Defence Research and Development Canada (DRDC)

November 2021

Canada

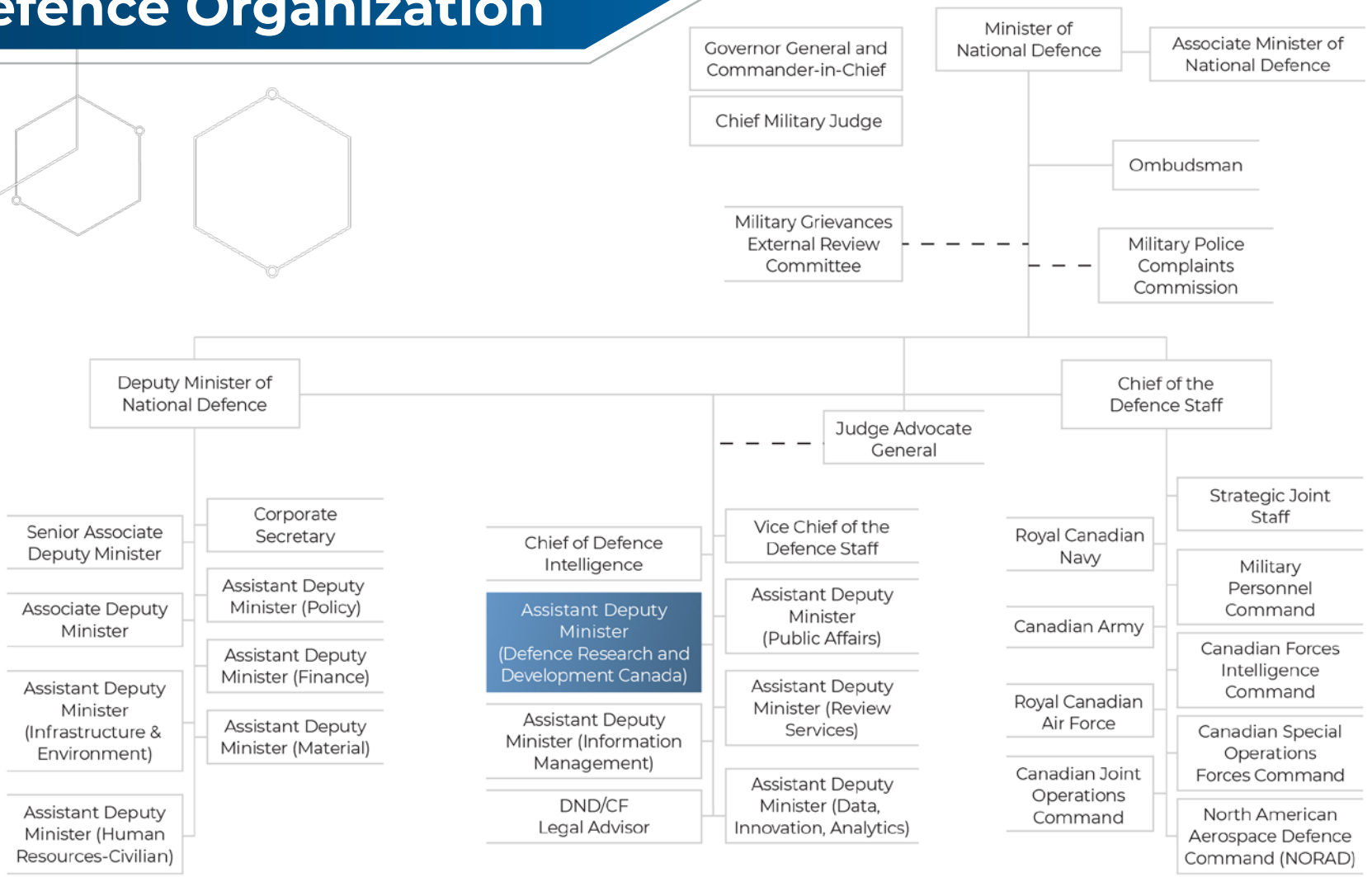
Outline

- Mission, Vision and Organization
- Defence and Security Science and Technology (DSST) Program
- Research and Development (R&D) Capabilities
- Department of National Defence(DND)/Canadian Armed Forces(CAF) Innovation Ecosystem
- Partnership and Collaboration



MISSION, VISION AND ORGANIZATION

Department of National Defence Organization



DRDC Organization

DRDC
RDDC

Assistant Deputy Minister (DRDC)
ADM(DRDC)

Chief of Staff (DRDC)
COS(DRDC)

Commanding Officer Military Support Unit
CO MSU

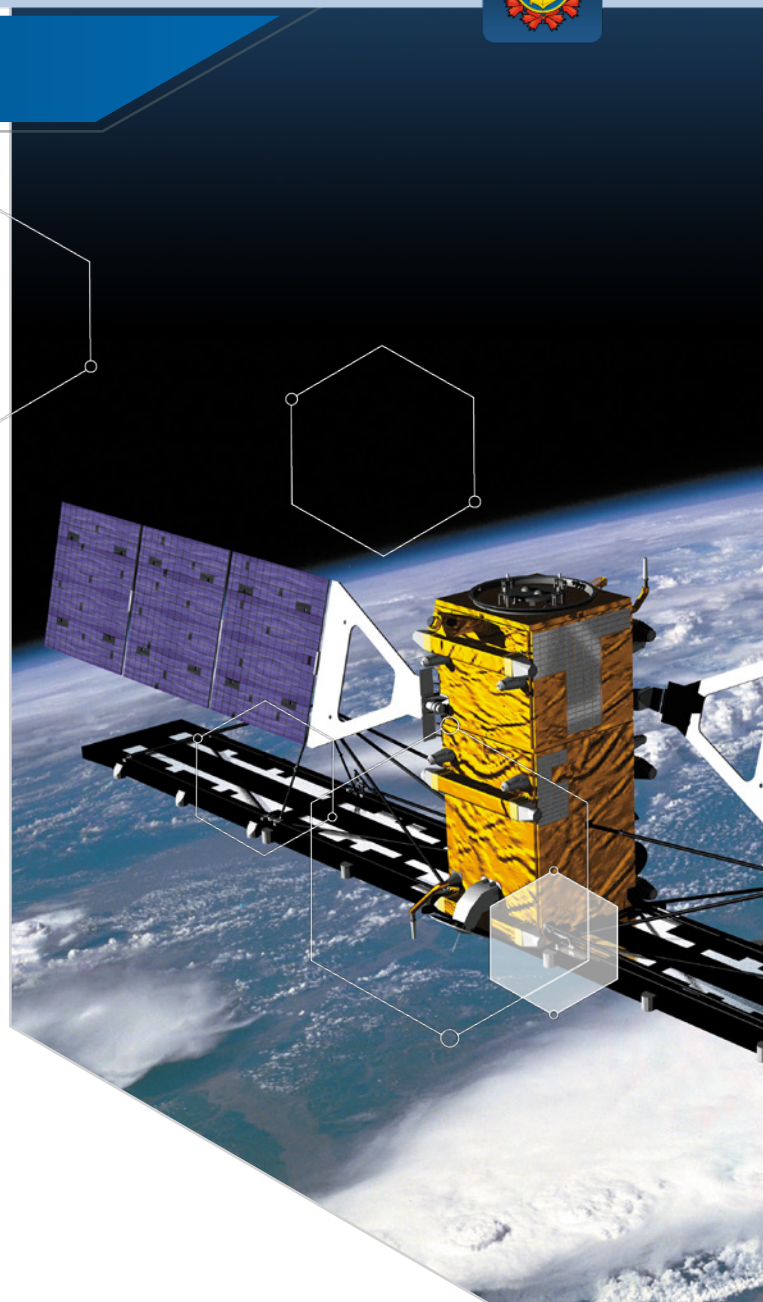
DG R&D Innovation
DGRDI

DG R&D Policy and Advice
DGRDPA

DG R&D Program
DGRDP

DG R&D Strategic Partnerships
DGRDSP

DG R&D Science and Engineering
DGRDSE



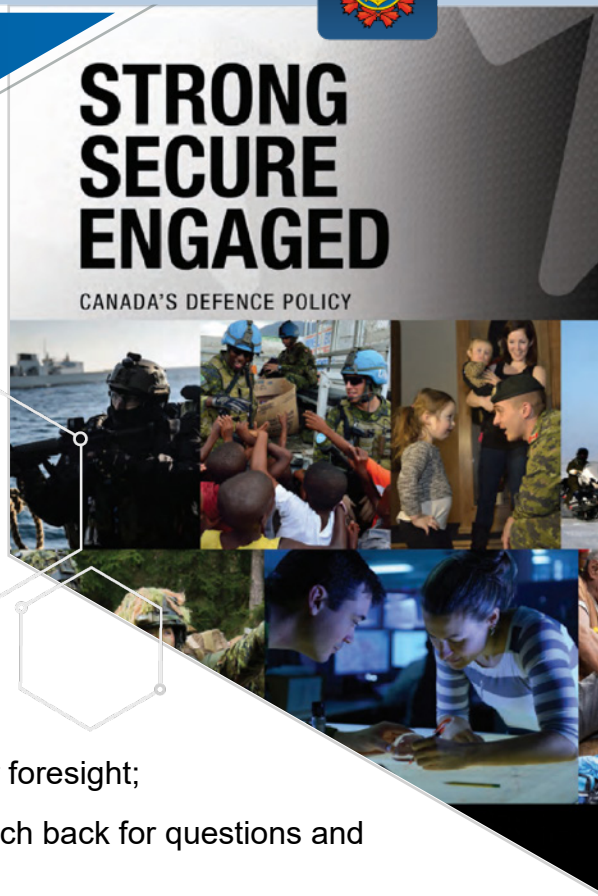
DRDC

Mission:

Enhance Canada's defence and security posture through excellence in science, technology and innovation.

Vision:

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



Our Role is to:

- **Provide strategic advice** – inform strategy direction, planning, and deliver foresight;
- **Address operational issues** – respond to problems in theater, provide reach back for questions and specialized training;
- **Assist with force development** – inform force design through research and analysis, and support procurement decisions;
- **Pursue leap-ahead capabilities** – generate know-how in sensitive areas and stimulate the Canadian innovation ecosystem;
- **Identify and bring to bear the best innovators** – anticipate technological trends, exploit technological advances and work with innovative partners.

OVER 70 YEARS OF SCIENTIFIC SUPPORT TO CAF

A Complex and Unpredictable Security Environment

SHIFTING BALANCE OF POWER

A NEW ERA OF CONFLICT

EVOLVING TECHNOLOGY

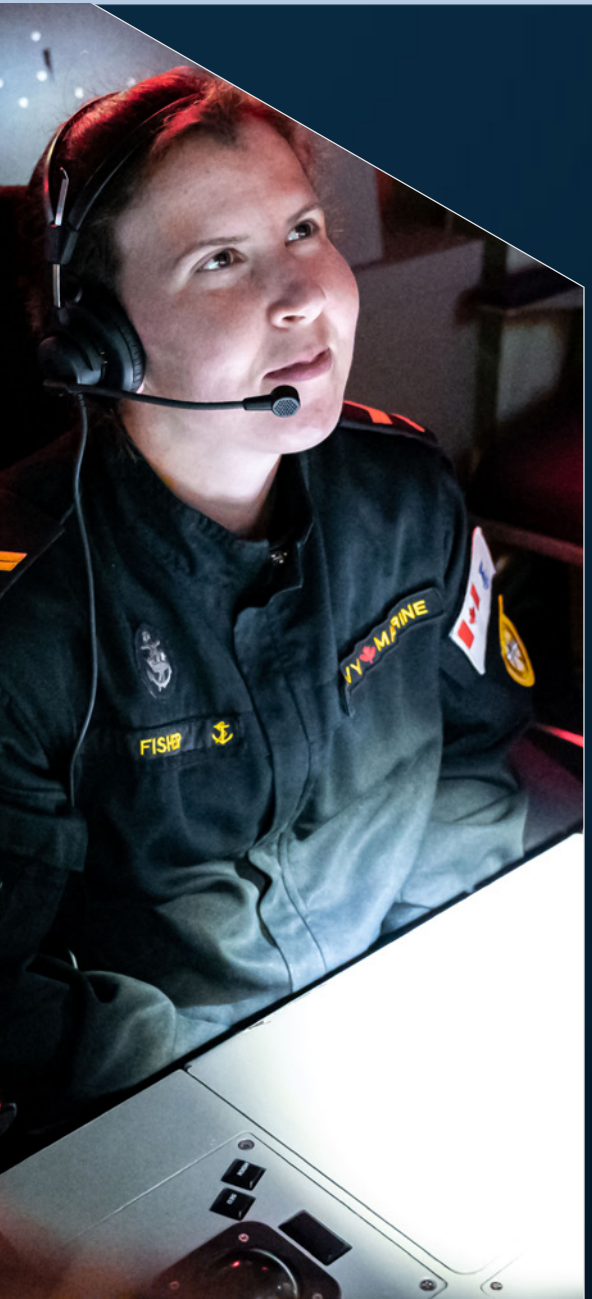
SCIENCE & TECHNOLOGY CAPABILITY

Many issues challenging the Canadian Armed Forces have a S&T nexus and emerge from a complex and unpredictable global security environment. DRDC's challenge is to preserve an S&T edge for the DND/CAF to allow us to mitigate public safety, security and defence risks to Canada.

DEFENCE AND SECURITY SCIENCE AND TECHNOLOGY (DSST) PROGRAM

Overview of the Defence and Security S&T (DSST) Program

- DND/CAF's integrated Defence and Security S&T Program, led by ADM(DRDC), S&T Functional Authority and Chief Scientific Advisor to DND/CAF.
- One interface to deliver S&T solutions to fulfill emerging defence security problems and provide technological advantages to build military superiority in the ever-changing defence security environment;
- Harnesses the expertise of DND/CAF S&T ecosystem elements through a prioritization, investment and delivery mechanism to ensure maximum innovation impact for DND/CAF:
  - Defence Research and Development Canada's (DRDC's) seven research centres;
  - Defence and Security Innovation Mechanisms (e.g., Innovation for Defence Excellence and Security [IDEaS], Canadian Safety and Security Program [CSSP], OGD partnerships etc.);
  - S&T and innovation cells in DND/CAF organizations;
  - Academic and industrial partnerships;
  - Alliance S&T organization partnerships.



DEFENCE AND SECURITY SCIENCE AND TECHNOLOGY (DSST) PROGRAM STRATEGIC FOCUS AREAS

- People
- Defend North America
- Combat in the Virtual and Physical Environment
- Enable Safety and Security
- Advance Platforms and Weapons
- The Institution
- Accelerate Command, Control and Intelligence
- Evolution of Science and Technology

2021/2022 DSST Program High-Level Priorities

The DSST Program has been designed to help ensure the DND/CAF is able to advance in the Strong, Secure, Engaged defence policy.

PEOPLE	COMBAT IN THE VIRTUAL AND PHYSICAL ENVIRONMENT	ADVANCE PLATFORMS AND WEAPONS	ACCELERATE COMMAND, CONTROL AND INTELLIGENCE	DEFEND NORTH AMERICA	ENABLE SAFETY AND SECURITY	THE INSTITUTION	EVOLUTION OF SCIENCE AND TECHNOLOGY
Cultural Change	Cyber Ops	Electronic Warfare	Intelligence Renewal	Continental Defence	Public Safety and Security S&T	Enterprise Resource Management	Quantum Sensing and Precision Navigation and Timing(PNT)
Diverse Force	Tactical C4ISR	Hypersonic				Greening Defence	
Mental Health	Chem Bio Def	AI Semi-Autonomous Systems				Digital Agenda	
	Counter Influence Ops						

2021/2022 DSST Program High-Level Priorities – cont'd

PEOPLE	Cultural Change	Enhanced knowledge of prevalence and behaviours to develop culture change products and inform policy development
	Diverse Force	Psychological understanding of how to attract, recruit and transition women, visible minorities and Indigenous persons into CAF careers
	Mental Health	Improved understanding of PTSD biomarkers and interventions, neuroinflammatory and neurodegenerative effects, and optimal R2MR delivery.
COMBAT IN THE VIRTUAL AND PHYSICAL ENVIRONMENT	Cyber Ops	Developed framework, tools and intelligence support for automatic cyber-attack detection, decision making and response
	Tactical C4ISR	Demonstration of risks and benefits of remote automation solutions for tactical C4ISR
	Chem Bio Def	Ongoing filling of knowledge gaps in ChemBio warfare, including stand-off detection and spectral libraries.
	Counter Influence Ops	Knowledge on user susceptibility to influence and adversary tactics and countermeasures to protect the Canadian information environment
ADVANCE PLATFORMS AND WEAPONS	Electronic Warfare	Advanced EW capability and EM spectrum management to protect against electronic attack and withstand operational impacts
	Hypersonic	Ability to safely employ, predict effects, and estimate collateral damage from high speed and hypersonic weapons
	AI and Semi-Autonomous Systems	Semi-autonomous platforms and systems with human/uninhabited interfaces, machine learning and intelligent decision making
ACCELERATE COMMAND, CONTROL AND INTELLIGENCE	Intelligence Renewal	Enhanced predictive analysis and modeling of strategic indications and warnings to support Defence Intelligence Enterprise Renewal

2021/2022 DSST Program High-Level Priorities – cont'd

DEFEND NORTH AMERICA	Continental Defence	Science-based advice on requirements, concepts and solutions to modernize NORAD and inform ecosystem of awareness, information dominance and decision superiority-including layered sensing, pan-domain C2, battle management and defeat technologies for deterrence
ENABLE SAFETY AND SECURITY	Public Safety and Security S&T	Strengthen Canada's ability to anticipate, prevent, mitigate, prepare for, respond to, and recover from acts of terrorism, crime, natural disasters, and serious accidents through the convergence of S&T with policy, operations, and intelligence
THE INSTITUTION	Enterprise Resource Management	Advanced analytics to improve decision-making for enterprise resource planning and management
	Greening Defence	Innovative technologies and practices including low-emission aircraft platforms and green aviation innovative surfaces
	Digital Agenda	Novel tools and methods to seamlessly and securely access, share, integrate, and analyze disparate data types and sources
EVOLUTION OF SCIENCE AND TECHNOLOGY	Quantum Sensing PNT	Scoped applications including position, navigation and timing for underwater navigation; magnetic sensing for underwater warfare, light sensing for high-performance imaging and RF sensing for target detection, covert communication and electronic warfare

People

People are central to everything we do to deliver on our mandate

DND/CAF needs to

- Reflect & leverage Canadian diversity
- Creatively attract & retain a tech-savvy generation amid a competitive milieu
- Ensure our people are trained & prepared for future operating environments

The DSST Program can:

- Provide tools to improve recruitment & retention & enable flexible career paths
- Reinvent training to prepare changing military demographics for the future operational context
- Prevent mental & physical injury & promote recovery when injury occurs
- Improve support for families & in transitions

Combat in the Virtual & Physical Environment

Conflicts will increasingly be waged above and below the threshold of armed conflict.

DND/CAF operators need to

- Use hybrid methods & influence operations in the grey zone
- Achieve desired non-kinetic & kinetic effects
- Withstand evolving hazards & threats such as cyber, deception, chemical, drones

The DSST Program can:

- Aid in force design for hybrid operations in future environments
- Leverage S&T advances to achieve desired material and cognitive effects
- Find ways to protect combatants, and neutralize adversaries
- Help procure operator capabilities that can keep pace with technological advances

Advance Platforms & Weapons

The age of automation and novel weapons changes how low- and high-intensity conflicts are waged.

CAF platforms & weapons need to

- Achieve the desired effects seamlessly across the land, sea, air, cyber & space domains
- Build on advances in autonomy, sensing, materials, and supply chain integrity
- Fight through attacks ranging from cyber to drone swarms

The DSST Program can:

- Help access, design & procure interoperable platforms & weapon systems
- Help leverage automation and keep operators out of harm's way
- Provide technical intelligence on threats, including novel weapons
- Inform force survivability, including signature and countermeasures management
- Protect investments by solving problems and extending the life of in-service systems

Accelerate Command, Control & Intelligence

Consequential tactical decisions will need to be taken quickly amid deception and cyber attacks.

DND/CAF command & control capabilities need to

- Decentralize & semi-automate decisions, and adjust the application of force & lethality pan-domains
- Factor in cyber attack, disruption, disinformation & deception
- Leverage dual-use technology, such as intelligent advisors, data integrity and ubiquitous computing
- Function in all relevant environments including the high Arctic

The DSST Program can:

- Exploit big data analytics approaches to enable robust pre-mission shaping
- Leverage innovation in dual-use technology and open-source information feeds
- Generate classified know-how on accelerating intelligence production

Defending North America

The return of near-peer state competitors outpaces North America's defences.

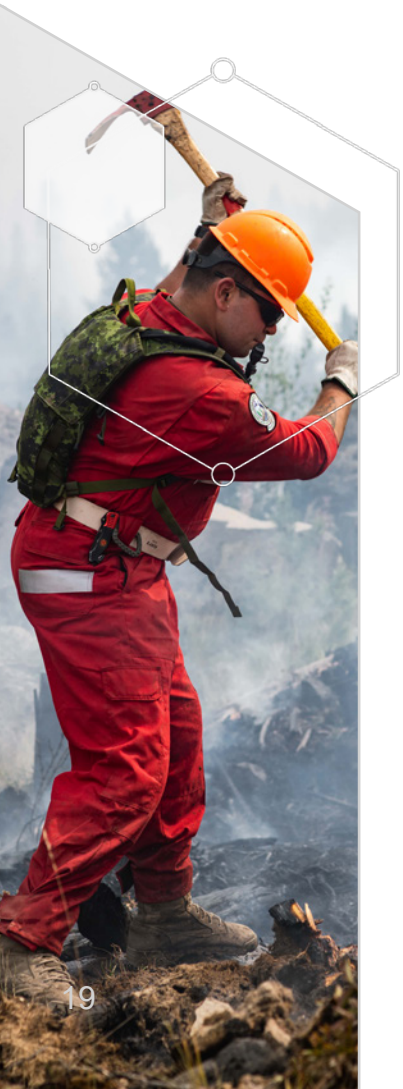
DND/CAF needs to

- Modernize with the US the air and maritime warning and air defence capabilities of NORAD
- Contribute to deter aggression in all domains
- Leverage geography including the high Arctic and Canada's approaches

The DSST Program can:

- Analyze the evolving threat and foresee capability gaps
- Provide, with the US, capability pathways for warning and active defence
- Advise on pan-domain architectures designed to survive escalating risks

Enable Safety & Security



Responding to evolving threats & hazards and complex safety & security demands

National security, emergency management and first responders need to

- Employ decision support, all-domain awareness and improved threat detection
- Benefit from robust physical equipment, information tools and resilient connectivity

The DSST Program can:

- Leverage Canadian advances in AI, analytics, automation, internet-of-things instrumentation, crowd-sensing, biometrics & robotics
- Find ways to increase community resilience, support first responders, protect critical infrastructure, enhance national security, and secure borders
- Exploit dual-use research & development synergies with defence

The Institution

Global trends compel the DND/CAF to renew itself.

The institution needs to

- Accelerate force development, procurement and capability updates
- Become more agile in reacting to and meeting the challenges of the future operating environment
- Embrace enterprise data analytics to inform management and procurement decisions

The DSST Program can:

- Produce operational research & analysis to inform longer-term force design
- Support more innovative approaches and tools for management
- Provide guidance on reducing environmental impacts

Evolution of Science & Technology

Globalization of S&T could diminish the dominance of the US and allies in warfare.

DND/CAF needs to

- Anticipate security changes sparked by the spread of S&T advances
- Harness S&T to modernize its institution, practices and capabilities
- Interoperate with allies' technologically-advanced forces
- Disrupt and surprise adversaries

The DSST Program can:

- Start investing in S&T capabilities in new fields ahead of DND/CAF needs
- Exploit defence-focused technological advances such as in directed energy, drone swarms, hypersonics, novel energetic materials
- Leverage innovation in dual-use S&T such as in advanced biology, embedded AI, machine learning, quantum sciences, space assets

POLICY AND ADVICE

Policy and Advice

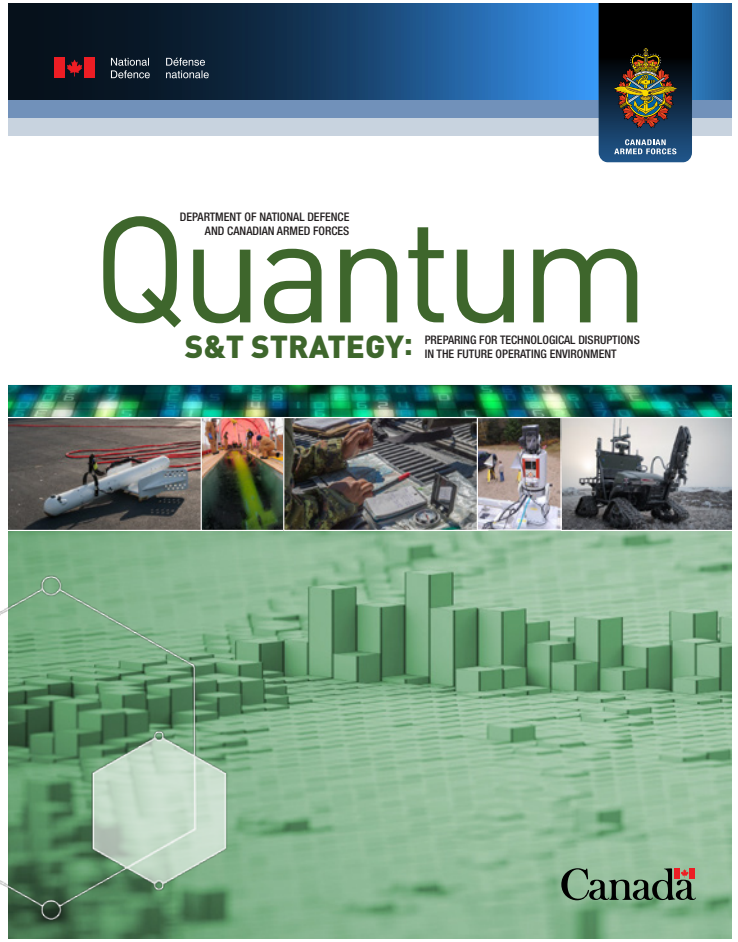
Mandate:

- Provide strategic S&T policy support and advice to ADM(DRDC), the CAF/DND, and Public Safety and affiliated agencies to assist in the overall achievement of government and departmental defence, security, and safety objectives
- Provides strategic analysis on science and technology issues to inform defence and security policy development and senior decision-making
- Provides integrated science policy advice to the DND/CAF and to public safety and security communities
- Provides a longer-term vision and advice on departmental strategic S&T investment that could impact both the future S&T program, and the S&T capabilities required to deliver it
- Has accountability for the Centre for Security Science and associated investments to provide safety and security knowledge and advice to safety and security partners and to support the ADM(DRDC)'s advisory role to Public Safety

Science Policy Integration

Provides research and analysis on science and technology issues to inform defence and security policy development and senior decision-making.

Provides integrated science policy advice to the Defence Team and public safety and security communities.



R&D CAPABILITIES

DRDC Across Canada

TORONTO RESEARCH CENTRE

Centre of excellence for human effectiveness R&D in the defence and national security environment.

SUFFIELD RESEARCH CENTRE

Offers expertise in unique and sensitive R&D domains to enhance defence capabilities. Sole provider of chemical/ biological threat defensive based research to DND/CAF. Suffield offers a unique Experimental Proving Ground facility allowing for a large array of experiments and trials to DND/CAF.

ATLANTIC RESEARCH CENTRE

Centre of excellence for maritime defence R&D: R&D capabilities in Underwater Warfare, Maritime Information Warfare and Naval Platforms. World- leading expertise in Arctic trials and experimentation

VALCARTIER RESEARCH CENTRE

Renowned expertise in the areas of Information, Optronics and Weapon Systems with a unique capability for prototype development and experimentation to demonstrate/ validate novel echnologies under realistic conditions.

OTTAWA RESEARCH CENTRE

Conducts science research to support defence and security solutions in the Radio Frequency Sensing and Data Integration, Electronic Warfare, Space and Cyber domains.

CENTRE FOR OPERATIONAL RESEARCH AND ANALYSIS (CORA)

Provides Operational Research Analysis (ORA) S&T decision support across the DND/CAF.

DIRECTORATE OF SCIENTIFIC AND TECHNICAL INTELLIGENCE (DSTI)

Provides all-source threat assessments of weapons and threat systems and their technologies

CENTRE FOR SECURITY SCIENCE (CSS)

DRDC science advisor in the defence, public safety, and security domains.

Facts & Figures

Approximately
1,300
Employees

$332.5M
Annual Budget for FY 2020/2021 including
$1.6B
over 20 years for the Innovation for Defence Excellence and Security (IDEaS) program

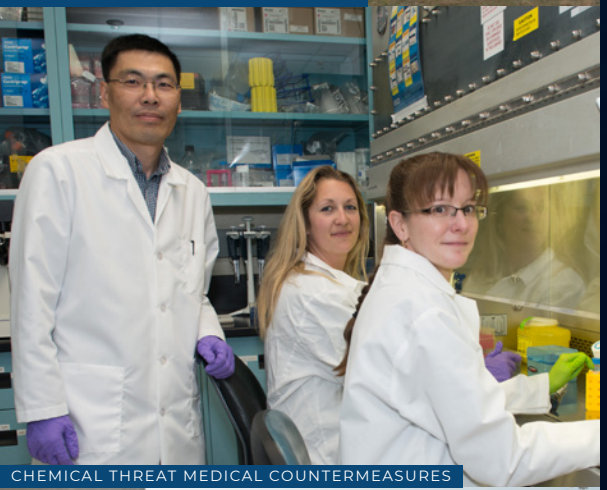
7 Research Centres across Canada
each with unique S&T expertise and networks

Direct Support
to the Canadian Armed Forces and has active agreements with more than
150 external entities,
including Academia, Industry, OGDs, and Allies

AUTONOMOUS UNMANNED GROUND & AIR SYSTEMS FOR LAND OPERATIONS

ELECTRO-OPTICAL (EO) MEASUREMENT AND SIGNATURE INTELLIGENCE

AUTONOMOUS UNMANNED GROUND & AIR SYSTEMS FOR LAND OPERATIONS



CHEMICAL THREAT MEDICAL COUNTERMEASURES

INTEGRATED WARSHIP SURVIVABILITY & PERFORMANCE

EXPLOSIVE SYSTEM PERFORMANCE & DEFEAT

MARITIME SYSTEMS EXPERIMENTATION AND ANALYTICS

SCIENCE VISUAL DOCUMENTATION

UNDERWATER WARFARE & SURVEILLANCE

ATLANTIC

Underwater Warfare and Surveillance

Performs leading scientific and engineering research to enhance Department of National Defence (DND) and CAF underwater situational awareness and to enhance the Royal Canadian Navy(RCN) and Royal Canadian Air Force ability to detect and counter underwater threats.

34 Science Positions

Maritime Systems Experimentation and Analytics

Contributes scientific and technical expertise to enhance command team effectiveness through better information exploitation.

22 Science Positions

Underwater Signatures, Survivability and Materials

Develops R&D advice and solutions for materials aspects of underwater signatures, platform survivability, through-life materiel management, and emerging materials technologies.

19 Science Positions

Integrated Warship Survivability and Performance

Enables the delivery of R&D solutions to manage the signature and enhance the survivability, operational capability, maneuverability and sustainability of Royal Canadian Navy ships and submarines.

22 Science Positions

Power and Energy

Provides R&D advice in the power and energy domain for defence applications such as soldier systems, fixed infrastructure and deployed camps, arctic and naval platforms. Includes energy storage, modelling and simulation, as well as renewable energy.

3 Science Positions

Development, Engineering Experimentation (DEE)

Coordinates the planning and execution of development, engineering and experimentation, on land, as well as in the air, at sea, and in the Arctic.

38 Science Positions

Indicated science positions reflect the approved positions as of April 1, 2021 whether filled or not.

CORA / DSTI

Joint Targeting

Offers direct, timely support to the DND/CAF Joint Targeting enterprise to support leadership in operational R&D.

16 Science Positions

ORA (Navy and Air Force Employment)

Delivers on operational research and strategic analysis using a combination of mathematical methods, practical problem solving skills, and historical and political analysis to address complex issues within the Royal Canadian Air Force (RCAF) and Royal Canadian Navy (RCN). This improves decision-making and contributes to a more productive use of DND resources.

24 Science Positions

ORA (Army and Force Employment)

Conducts operational research and data science using quantitative, social and strategic research and analysis in order to support the DND defence enterprise while providing advice to the Canadian Army.

21 Science Positions

Joint and Strategic Analysis

Provides advice based on an in-depth knowledge of the strategic environment and provides decision support to major strategic decisions across all timelines, DND force posture and readiness, program investment and portfolios, and future joint capabilities.

18 Science Positions

Operational Research and Analysis (ORA) for Enterprise Resource Management

Conducts operational research and data science to support evidence-based decision making across the defence enterprise.

18 Science Positions

Scientific and Technical Intelligence

Provides all-source threat assessments of weapons and threat systems and their technologies.

11 Science Positions

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OTTAWA

Cyber Operations

Works on developing techniques to sense, analyse, influence and exploit communications networks, and strategies to secure and defend the CAF wired and wireless networks.

18 Science Positions

Communications Electronic Warfare

Focuses on R&D in detection, geolocation, and countermeasures against communications signals, force protection, and ensuring the CAF has unimpeded access to the electromagnetic spectrum.

13 Science Positions

Radar Electronic Warfare

Delivers expert advice and technology solutions to improve the protection of military personnel and platforms against radar electronic threats.

23 Science Positions

Defensive Space Operations

Enables space mission assurance and electronic warfare insights into threat characterization and resilient space systems to defend and protect vital military space capabilities.

10 Science Positions

Space Domain Awareness

Enables the development of technology and techniques to characterize and understand an evolving and contested space domain to effectively conduct space operations and enforce responsible behaviour in space.

5 Science Positions

Radar Systems for ISR and C2

Empowers the CAF and modernizes defence capabilities with advanced research in radar systems to provide defence intelligence, surveillance and reconnaissance (ISR), thereby accelerating command and control (C2).

26 Science Positions

Space Radio Frequency (RF) Intelligence

Supports the advancement of exploitation technology, techniques, collection planning and integrated data fusion for space-based RF intelligence sensors to provide a strategic advantage to senior decision-makers.

14 Science Positions

Continental Defence Modeling

Enables the development of Intelligence, Surveillance and Reconnaissance (ISR) system-of-systems concepts, modelling and analysis for all-domain situational awareness to defend North America.

6 Science Positions

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SUFFIELD

Explosive System Performance and Defeat

Conducts research in advanced, new and improvised explosives and systems. This includes blast/fragment threat assessments and Counter-Improvised Explosive Device (C-IED).

26 Science Positions

Chemical Hazard Assessment and Protection

Enables the provision of support and solutions to CAF operations and intelligence capabilities through the application of science, engineering and knowledge in chemical defence.

25 Science Positions

Combat Casualty Care

Conducts research and provides technical advice to prevent, mitigate, and treat combat-related injuries.

12 Science Positions

Radiological and Nuclear Threat Defence

Contributes research and technical advice on hazard assessment, detection, identification, monitoring and protection strategies for defence against radiological and nuclear threats.

9 Science Positions

Autonomous Unmanned Ground and Air Systems for Land Operations

Provides research and technical advice on the emerging capabilities and threats of autonomous systems in support of military operations.

15 Science Positions

Biological Hazard Assessment and Medical Countermeasures

Researches and provides technical advice on hazard assessment, detection, identification, and monitoring, as well as medical countermeasures, in defence against biological threats.

21 Science Positions

Chemical Threat Medical Countermeasures

Conducts research and provides technical advice on medical countermeasures for defence against chemical threats.

8 Science Positions

Advanced Chemical, Biological, Radiological, Nuclear, Explosives (CBRNE) and Medical Training

Offers live agent, material and tissue training to enhance individual and collective operational readiness.

10 Science Positions

Development, Engineering and Experimentation (DEE)

Coordinates the planning and execution of development, engineering and experimentation, on land, as well as in the air, at sea, and in the Arctic.

20 Science Positions

Indicated science positions reflect the approved positions as of April 1, 2021 whether filled or not.

TORONTO

Warfighter and System Effectiveness

Develops human effectiveness R&D to support the development, evaluation, acquisition, and employment of technical systems and operational training of the CAF.

27 Science Positions

Warfighter Performance and Health

Researches the psychological and physiological mechanisms underpinning conditions of high cognitive load, or high emotional stress, and develops tools and techniques to improve resilience.

28 Science Positions

Influence and Information Warfare

Supports the development of tools, technologies and frameworks to enhance CAF effectiveness in complex information environments and to understand, assess and influence the intent and will of adversaries.

21 Science Positions

Indicated science positions reflect the approved positions as of April 1, 2021 whether filled or not.

VALCARTIER

Weapons Effects and Protection

Contributes R&D advice and solutions in the sciences of Terminal Effects of weapons, pertaining to vehicle and personnel protection, and lethality.

20 Science Positions

Platform Cyber Warfare

Delivers R&D advice and solutions in the cyber security of military platforms and force superiority in a cyber physical environment.

19 Science Positions

Electro-Optical Surveillance and Reconnaissance

Provides R&D advice and solutions regarding electro- optical technologies and systems for surveillance, reconnaissance and intelligence.

18 Science Positions

Electro-Optical Measurement and Signature Intelligence

Contributes R&D advice and solutions for the study, characterization and remote sensing of optical signatures by terrestrial and aerospace sensors.

28 Science Positions

Command, Control and Intelligence

Develops R&D advice and solutions in data, information and decision sciences to improve the Intelligence and Command Control of Military Operations.

24 Science Positions

Electro-Optical Warfare

Enables the development of R&D advice and solutions toimprove the protection of military personnel and platforms against electro-optically guided threats.

29 Science Positions

Development, Engineering and Experimentation (DEE)

Coordinates the planning and execution of development, engineering and experimentation, on land, as well as in the air, at sea, and in the Arctic.

23 Science Positions

Weapons Systems and Ammunition

Provides R&D advice and solutions on energetic materials, pyrotechnics, propulsion technologies, and precision weapons systems.

31 Science Positions

Design and Prototyping

Offers a world-class prototyping service to meet Science, Technology and Engineering deliverables.

21 Science Positions

Indicated science positions reflect the approved positions as of April 1, 2021 whether filled or not.

CANADIAN SAFETY AND SECURITY (CSS)

In 2006, CSS was established as the coordinating body for federal public safety and security S&T by a MoU between the Department of National Defence (DND) and Public Safety Canada (PSC). CSS is also implemented through an interdepartmental MoU with 19 participating departments and agencies, signed in 2008.

The Centre:

- Provides S&T advice and knowledge,
- Executes and implements domestic and international safety and security partnerships,
- Leads and participates in safety and security networks and communities, and
- Manages the Canadian Safety and Security Program.

DND/CAF INNOVATION ECOSYSTEM

The DND/CAF Innovation Ecosystem

The innovation agenda in DND/CAF is growing and serves tactical to strategic needs

DRDC Innovation

- National leadership on science and technology to enhance Canada's defence and security posture
  - 6 Research Centres and the center for Security Science
- Innovation programs: Innovation for Defence Excellence and Security (IDEaS), Canadian Safety Security Program (CSSP)
- New Innovation Centre of Expertise
- Leveraging federal innovation programs:
  - Since 2018, $32M over 45 projects through the Build in Canada Innovation Program
  - $11.4M through the Innovative Solutions Canada program as of the end of FY 20/21

Multiple nascent innovation hubs in CAF to promote innovation scouting and testing (more exist):

- Naval Technical Innovation Program
- Navy Innovation Cell
- CANSOFCOM Prometheus Initiative
- Innovation Cell RCAF Aerospace Warfare Centre

Assistant Deputy Minister (Data, Innovation, Analytics) supports digital and data innovation for DND/CAF

Innovation for Defence Excellence and Security Program (IDEaS)

Announced in the fall of 2017 in *Strong, Secure, Engaged: Canada's Defence Policy*, IDEaS officially launched on April 9, 2018 as DND/CAF's access to external innovation program.

- Mission: Deliver innovative solutions to DND/CAF's defence and security challenges to improve and advance Canada's defence capabilities.
- Budget: $1.6B over 20 years (Fiscal Year 2018/19 to 2036/37), amounting to roughly $85M annually.
- Managed by: ADM(DRDC)

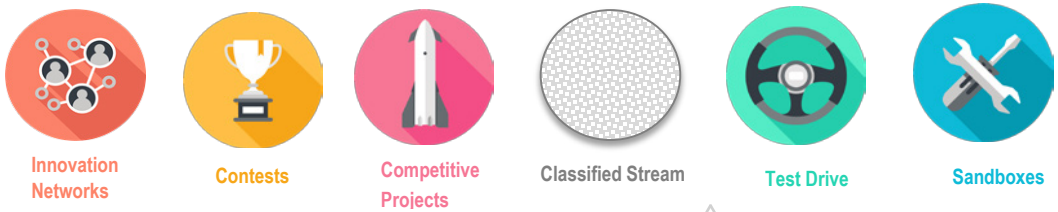
IDEaS contributes to DND/CAF's broader DSST program by connecting DND/CAF stakeholders with innovation that supports their ability to address priorities and requirements within DSST's eight Strategic Focus Areas.

In this way, IDEaS also uses the direction and guidance of DND/CAF leadership to tap into and support the growth of Canada's innovation community.

Website: www.Canada.ca/Defence-ideas

IDEaS
INNOVATION FOR DEFENCE EXCELLENCE AND SECURITY

How IDEaS develops solutions: Funding program Elements



- Since its launch in 2018, 63 challenges have been issued.
- 59 through regular call for proposals, and 4 under a special COVID-19 CFP.
- Across all challenges, IDEaS has committed and spent $180M*

- The program has funded over 500 projects with over 260 unique Canadian organizations:

IDEaS Successes and Solution Generation

Ready for Acquisition

- Cyber attrition to identify the source of cyber attacks:
  $1.2M Competitive Project, 18 month development,
  $7.5M Test Drive for a solution.
- Detection Identification of Objects of Interest:
  $1.2M Competitive Project, 18 month development,
  $5.0M Test Drive for a solution.
- Identification and characterization of space objects:
  $1.2M Competitive Project, 18 months development,
  5 procured solutions by CSA.

Knowledge Transfer

- Understand the threat of UAS on CAF mission delivery:
  Ideation workshop of 100+ SMEs, Sandbox of 12 companies from 5 countries.
- Address Enduring Issues Affecting Personnel:
  $9.2M Competitive Project, 18 month development,
  Improved PTSD diagnostic accuracy and treatment

In 20/21, IDEaS contributed to the GoC's pandemic response:

Funded 48 proposals ($8.7M total)

Directly invested a further $4M across Canadian innovators identified by the NRC to develop rapid anti-viral kits.

Canadian Safety and Security Program (CSSP)

The Centre for Security Science (CSS) manages the Canadian Safety & Security Program (CSSP) in partnership with Public Safety Canada (PSC).

- The CSSP is a federally-funded program fostering innovative S&T advancements at federal, provincial, and municipal levels of government that contribute to the safety and security of Canadians.
- Launched in 2012, the CSSP's funding mechanisms deliver high impact S&T innovations and research that address key safety and security challenges.
- CSSP engages government departments to meet their S&T needs in collaboration with industry and/or academia.

PARTNERSHIP AND COLLABORATION

Strategic Partnership

- Industry
- Academia
- Other Government Departments
- International Allies
- Non-Traditional

Connect to world class scientific networks performing cooperative Research, Development, Test Engineering;

Strengthen alliances through shared burden that increase quality and relevance of science advice and outputs for DND/CAF objectives.

Contact Us

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