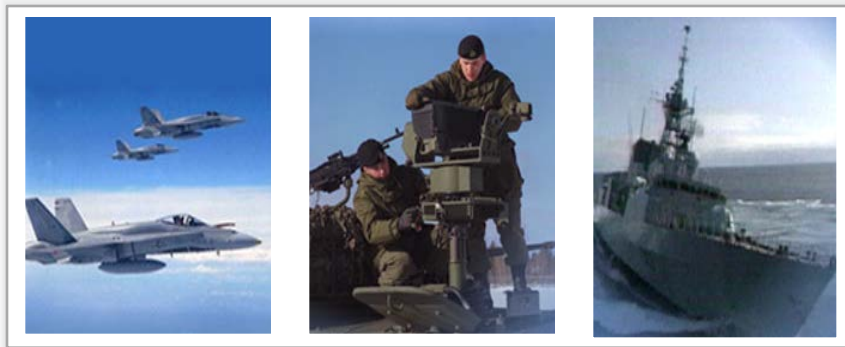# Cyber S&T Program Overview
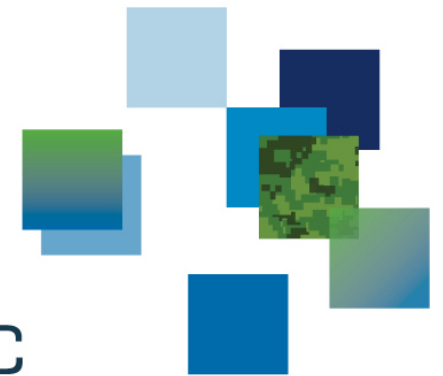
Dr. Julie Lefebvre

Director S&T Joint Force Development

2013 DHS S&T CSD PI Meeting
16 September, 2013

Defence Research and Development Canada (DRDC)

SIX STRATEGIC PRIORITY AREAS:

1) Build agile forces to carry out missions in complex and hostile environments.

2) Protect and support Canadian Armed Forces members before, during and after operations.

3) Enable the acquisition, sharing and use of critical information in support of situational awareness and decision-making.

4) Develop and implement solutions to ensure an affordable, sustainable and effective Department of National Defence (DND) and Canadian Armed Forces (CAF).

5) Support public safety and security practitioners in their mission to protect Canadians.

6) Anticipate, prepare for, and counter the emergence of future threats.

DRDC supports innovation and S&T as an engine for generating solutions.

Cyber S&T Program Resources

- 5-8 M$/year
- 40+ researchers with Cyber Defence expertise across 3 Research Centres
- DRDC accesses external capacity in other government departments (OGDs), industry and academia; collaborates with international & domestic partners

Cyber S&T Program Outcomes

CANADIAN ARMED FORCES (CAF) HAVE FREEDOM OF ACTION IN THE CYBER ENVIRONMENT, WHILE DENYING THE SAME TO THEIR ADVERSARIES

Resilient Architectures and Interoperable Networks

CAF have increased resiliency in deployed operational and tactical networks and systems in contested environments

Trust and Confidence

CAF gain trust in their ITI to achieve missions and confidence in their decision-making ability for conducting cyber operations
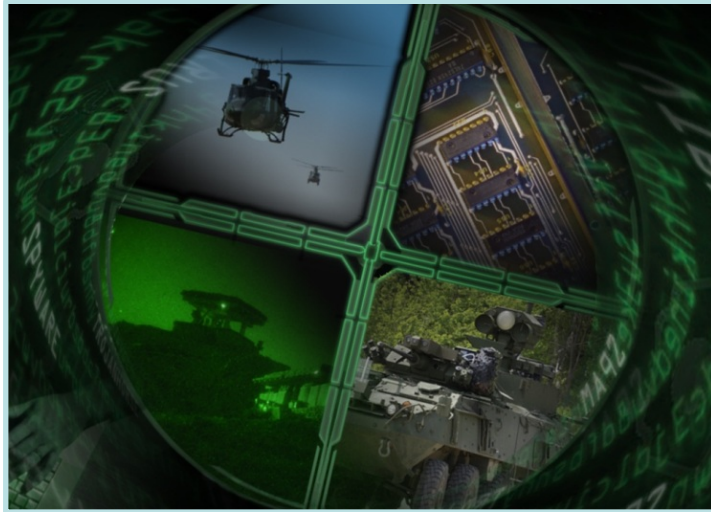
Cyber Operations Capabilities

CAF have improved capabilities for operating in a cyber environment

CRITICAL ENABLER

Cyber Network Operations (CNO) Experimentation and Training Capability
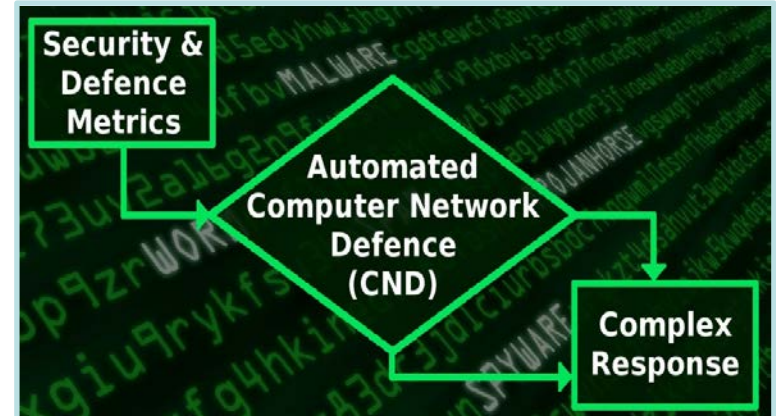
Cyber S&T Program – Projects

Platform-to-Assembly Secured Systems

- Platform risk analysis
- Improve cyber defence and resilience at host and platform levels
- Advanced tools for vulnerability analysis and reverse engineering

Cyber Decision Making & Response

Support cyber decision making and defensive courses of action through

- Automated cyber defence capability
- Security & defence metrics for risk analysis
- Advanced cyber operations tools and methodologies

Cyber S&T Program – Projects (cont'd)

Tactical Network Operations

Securing next-generation tactical networks.

- Situational awareness and command & control enabling full-spectrum cyber operations in a tactical edge network
- Cross-layer security in distributed networks including physical layer effects

Cyber Capability Development Centre

An agile and effective Cyber Network operations (CNO) S&T infrastructure and service capability for research, experimentation, testing, validation, demonstration and training.

E- Security: Policy and Strategic Drivers

- NCSS - National Cyber Security Strategy

Specific Initiatives

Canada's Cyber Security is built on three pillars
- ❑ **Securing Government systems**
- ❑ **Partnering to secure vital cyber systems outside the Federal Government**
- ❑ **Helping Canadians to be secure online**

Canada Safety and Security Program (CSSP)

The CSSP scope is to deliver S&T solutions, support and advice to respond to Canada's public safety and security imperatives.

Some of the new investments (2013-14)

- Canadian SCADA-Smart Grid Industry/Academia/Government Workshop

- Data Centric Security Approaches for SCADA CYBER

- Collaborative Identification and Localization of Wireless Security Threats and Intelligent Countermeasure Deployment

- Data Mining Algorithms for Advanced Persistent Cyber-Threat Detection

Canadian Safety
and Security Program