



Soldier Systems Technology Roadmap (SSTRM) An Overview

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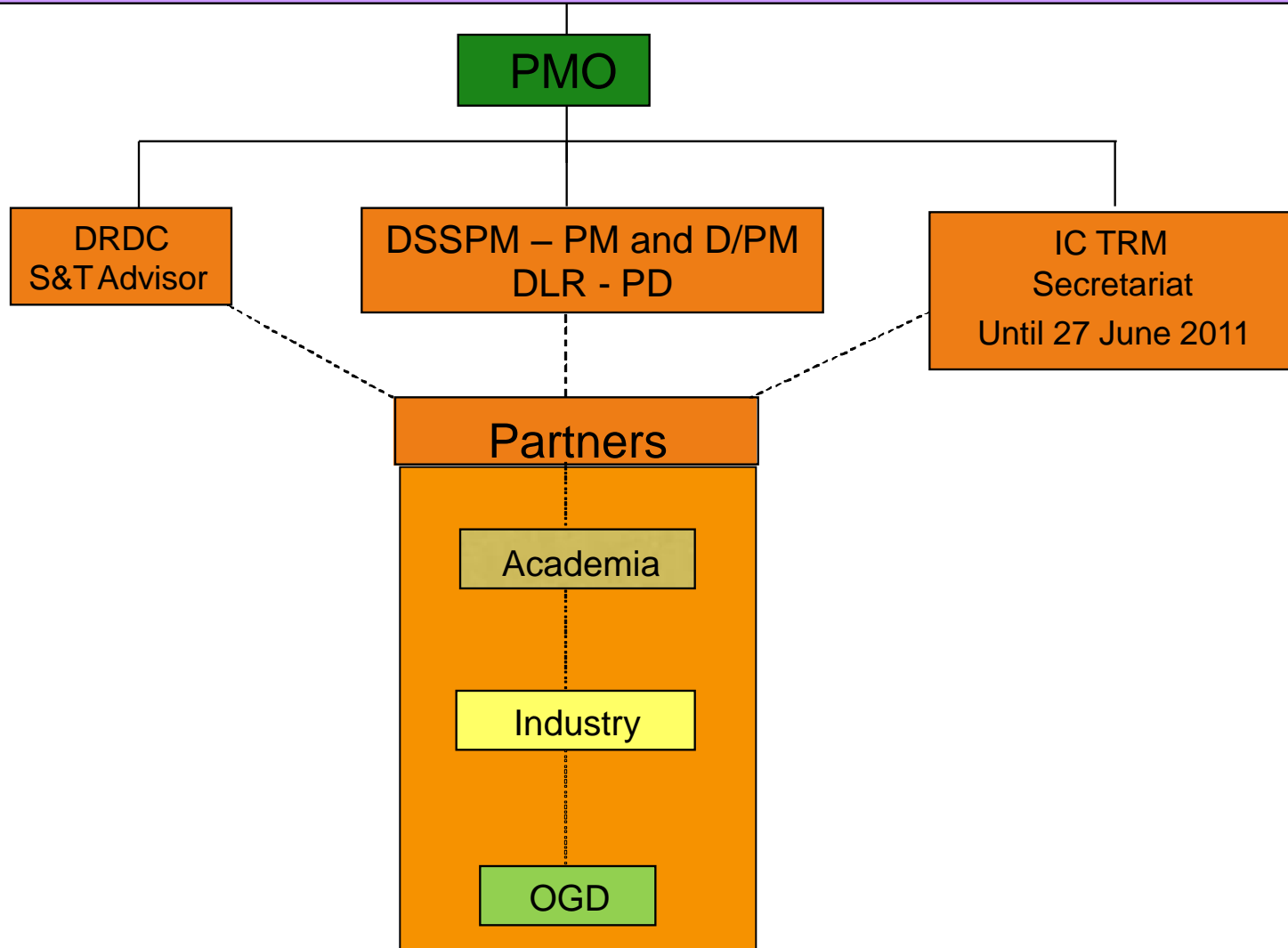
SSTRM History

- **Definition Phase 2007-2008**
 - **Planning the overall project**
- **Development Phase 2009 – 2011**
 - **Capstone Report and Action Plan**
- **Implementation Phase 2011-2014**
 - **SSTRM Project Management Office**



Senior Review Board

DSSPM (co-chair), DLR (cochair), DSTL, RMC, PWGSC, Industry Advisor





Implementation Phase Scope

Increase soldier capability by encouraging the availability of exploitable technologies

- Foster internal DND R&D initiatives in the identified priorities areas
- Assess and provide Letters of Support for innovation proposals aligned with the Capstone Report and Action Plan
- Provide a forum for Stakeholder collaboration (Industry, Academia and Government)
- Articulate medium (5-10 years) and long term (10+ years) Army Requirements to inform Government, Industry and Academia R&D decisions



Stakeholder Responsibilities

Department of National Defence

- Receive and coordinate response to proposals
- Provide administrative support to Technology Networks, Working Groups and the Project Oversight Committee composed of Government, Academia and Industry

Canadian Association of Defence and Security Industries

- Lead and coordinate the Soldier System Technology Network (s)
- Conduit to Industry community

Industry and Academia

- Initiate Proposals and participate in the Technology Network and Working Groups
- Conduit to Academic community and subject matter expertise as required
- Provide feedback to the SSTRM MO on the Implementation Phase process

PWGSC

- Procurement advice as required



Expectations and Outcomes

Government

- Improved alignment of DND's R&D and Procurement Program (new and in-service equipment)
- Opportunity to guide industrial effort and develop strategic capability to meet DND's requirements
- Synergies in government planning and funding to achieve greater effect
- Improved collaboration with and among Small and Medium Enterprise and Lead System Integrators
- Improved technology outlook
- Canada's Industrial Defence Base is stronger

Canadian Industry

- More knowledgeable and better positioned to compete for Canadian and International Defence procurement opportunities
- Companies of all sizes and from differing sectors will have a forum to demonstrate their novel technologies, products and services among themselves and to DND

Academia

- Improved opportunity to pursue knowledge in domains that positively contribute to Canadian Industrial, Economic and Security well-being



Did SSTRM Achieve Success?

Measure of Success: *The Canadian Army is satisfied that Horizons 2 and 3 have been supported by SSTRM activities*

SSTRM Outcome: The Canadian Army is satisfied that Horizon 2 and 3 activities have been supported

- The Canadian Army using the Capstone Report and Action Plan to guide/align Soldier Systems R&D
- Industry awareness of the Capstone Report and Action Plan is high
- Industry providing innovative solutions to various Army requirements
- Layering concept in development



Did SSTRM Achieve Success?

Measure of Success- *Canadian Industry is more knowledgeable and better positioned to compete for Canadian and International defence procurement opportunities*

SSTRM Outcome: Canadian Industry is more knowledgeable and better positioned to compete domestically

- impacts on international capabilities are unknown and continue to be challenging
- 2 Industry-led Technology working groups established to discuss Power and Energy and Operational Clothing
- Horizon 1 procurements are resulting in increased capability



Did SSTRM Achieve Success?

Measure of Success: Canadian Academia have improved opportunities to pursue knowledge in Soldier Systems domains

SSTRM Outcome: Academia has improved knowledge and is pursuing R&D in the Soldier System Domain

- 25% of proposals are from academia
- University Industry Liaison Officers are engaged and familiar with the Capstone Report and Action Plan
 - University of Toronto has a dedicated webpage
- 6 academic proposals have applications in for funding:
 - 3 to Natural Sciences and Engineering Research Council (NSERC)
 - 2 through the Industrial and Regional Benefits program (IRB)
 - 1 to the Canadian Safety and Security Program (CSSP)



Did SSTRM Achieve Success?

Measure of Success: The number of R&D and technology development projects for Soldier Systems involving Industry, Academia, and/or Government that obtain successful funding

SSTRM Outcome:

- 60 proposals received
 - Power and Energy -14
 - Weapons Effects - 5
 - C4I -10
 - Sensing -7
 - Survivability/Sustainability/Mobility - 22
 - Human Systems Integration - 2
- 11 Letters of Support provided to companies
- 48 proposals received a positive response from SMEs
- 10 proposals received negative response (TRL level, viability)



Did SSTRM Achieve Success?

Measure of Success: *Novel capabilities and capacity developed by industry that support Soldier Systems*

SSTRM Outcome: Industry is advancing capability in the Soldier System Domain

- Panacis. Lithium battery technologies that could lighten a soldier's load by as much as nine kilograms. Panacis, through the SSTRM, has also partnered with Solace Power to allow the battery packs to be charged wirelessly
- Bionic Power. The Power Walk (energy harvesting)
- Mawashi Inc.
 - The Exoskeleton for injury prevention and the improvement of soldier capabilities
 - Cooling vest - study on cooling and heating systems for the dismounted soldier
- B-Temia. The Dermo Exoskeleton for enhanced soldier mobility
- HIT Dynamics. Ceramic armour for the dismounted and mounted soldier



Did SSTRM Achieve Success?

Measure of Success: *Novel capabilities and capacity developed by industry that support Soldier Systems*

SSTRM Outcome: Industry is advancing capability in the Soldier System Domain

- Solace Power. Wireless power transmission for the recharging of batteries for dismounted soldiers
- Paradigm Shift. Advanced EPVD Coatings for small calibre weapon systems
- AirBoss Defense. Carbon monolith filtration technology platform
- Helios Defense and Security. BATSCAN: Ultrawide Band Penetrating Radar
- Ballard Power. Fuel Cell backup power for military applications



Did SSTRM Achieve Success?

Measure of Success: Internal S&T efforts aligned with Capstone Report

SSTRM Outcome: Alignment more focused

- Army Science & Technology Board –(ASTB) using the Capstone Report / Action Plan as a guide to internal R&D
- DRDC Soldier System R&D projects aligned with Capstone Report and Action Plan
 - Future Small Arms Research Project
 - Soldier System Effectiveness Project
- DRDC Subject Matter Experts fully engaged in innovation proposal reviews



Proposal Review Process

Proposal Template Completed and Submitted to DND

- All proposals are recorded and tracked.

Subject Matter Experts from Army, DSSPM, and DRDC Evaluation

- Relevancy to needs
- Time Horizon identification concurrence
- Potential collaboration in similar offers for synergy
- Funding requirements and potential funding avenues relevant to the offer
- Horizontal application of the proposal; potential broader application across the economy

If Supported

- face to face meetings are arranged to clarify the proposals and provide advice on potential funding programs
- Letter of Support provided to Applicant

If not supported

- Applicant is formally advised

**Evergreening of SSTRM
On-going Process**



Innovation Funding Recipients

Soldier System Innovation Funding Recipients

- MDA Systems (CICP and DIR)
- B-Temia (CICP)
- Solana Networks
- Biokinetics and Associates Ltd.
- Stedfast Inc
- Allen-Vanguard Corp. Inc.
- Ballard Power Systems Inc.
- B-Temia Inc.
- ComDev International Ltd.
- Mawashi Protective Clothing
- AirBoss Defense (IRAP)

Non-Soldier System Innovation Funding Recipients

- Larus Technologies (DIR funding)
- Corvus Energy Ltd. (CICP funding)
- MDA Systems (CICP & DIR funding)
- Paradigm Shift (CICP funding)
- Hit Dynamics (IRB funding)



QUESTIONS?