

Soldier Systems TRM Visioning Workshop

CF Soldier Modernization Effort Global Market & NATO Framework

Gatineau, QC, June 16 2009

LCol MA Bodner
DLR 5

uniform, lightweight protective clothes, wearable rf/mic/opto/acoustic health sensors, fluidic sensors, tissue, nutraceuticals, flexible displays, smart textiles, membranes food/water/air, wireless network, position & motion sensors, pda tags, wearable power, solar cell in-foil, biometric identification, event dr info, digital identifi, μ-fue

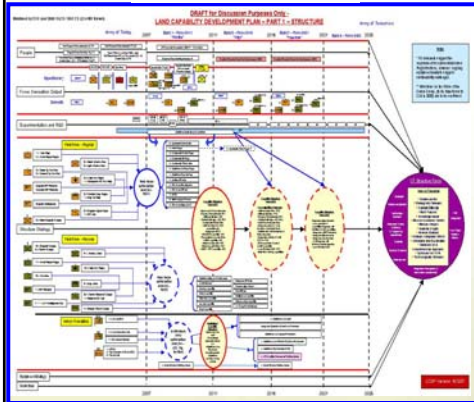
5 YRS

Government of Canada / Gouvernement du Canada

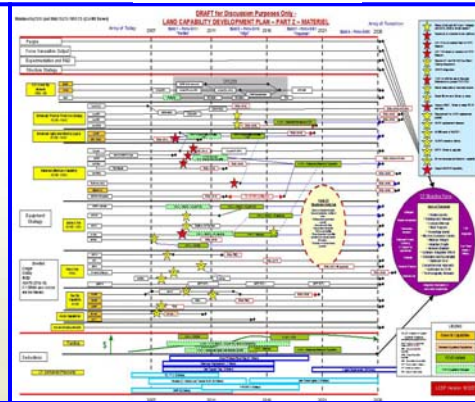


Land Capability Development Plan

LCDP Part 1 Structure



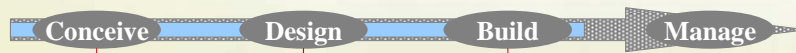
LCDP Part 2 Capabilities



Capability Development

- Capability development (CD) – the process by which Land capabilities are conceived, designed and built.
- Objective: the continuous improvement of capability to meet Canadian and CF defence requirements so that the Army remains strategically relevant and tactically decisive.

Force Employment Development Generation



Operating concepts are conceived and translated into capability requirements.

Selected capability requirements are translated into validated designs for force employment – develop how we would use a capability (doctrine) and the structures within which it would fit.

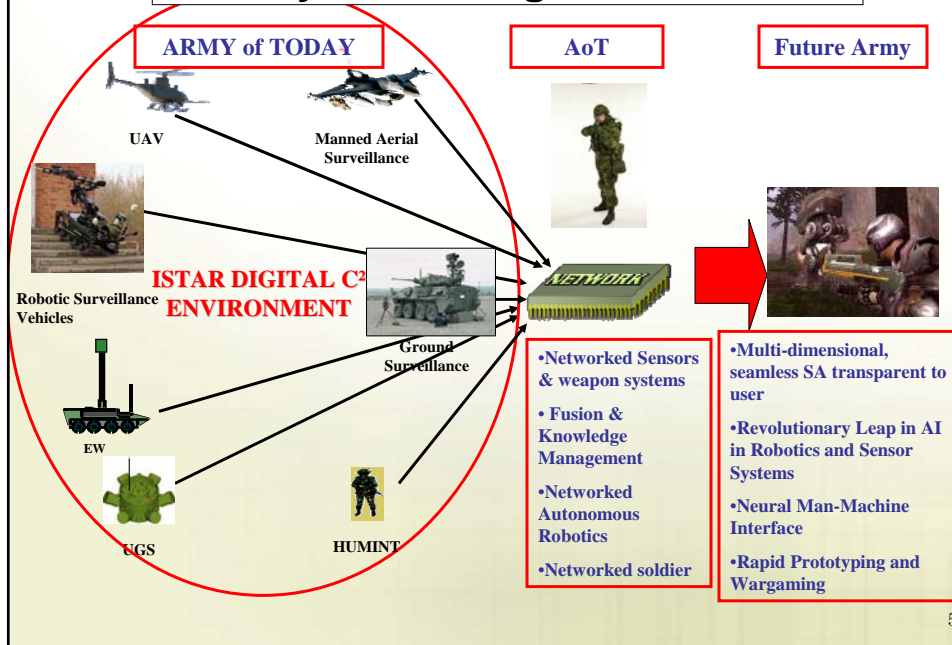
Integrates the PRICIE components to realize the capability in the field Army.

Capability vs Effects vs Functions

- **Capability:** The condition of being capable derived through the fulfillment of... specific human, scientific, doctrinal, infrastructural, environmental, materiel, and institutional ...conditions necessary for successful service. An appropriate combination of components that execute or enable the accomplishment of tasks and the creation of effects
- **Effect:** The physical, functional, or psychological outcome, event or consequence that results from the execution of specific military or non-military tasks
- **Function:** A component to a capability that is integral to and is required for the capability but that may or may not be necessary for a given mission
- **Activity:** A set of actions that together make up a function

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Key Technological Trends

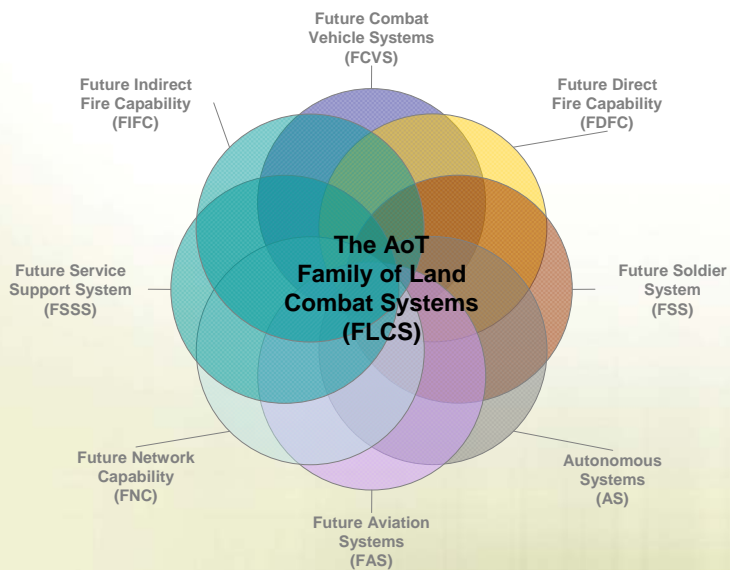


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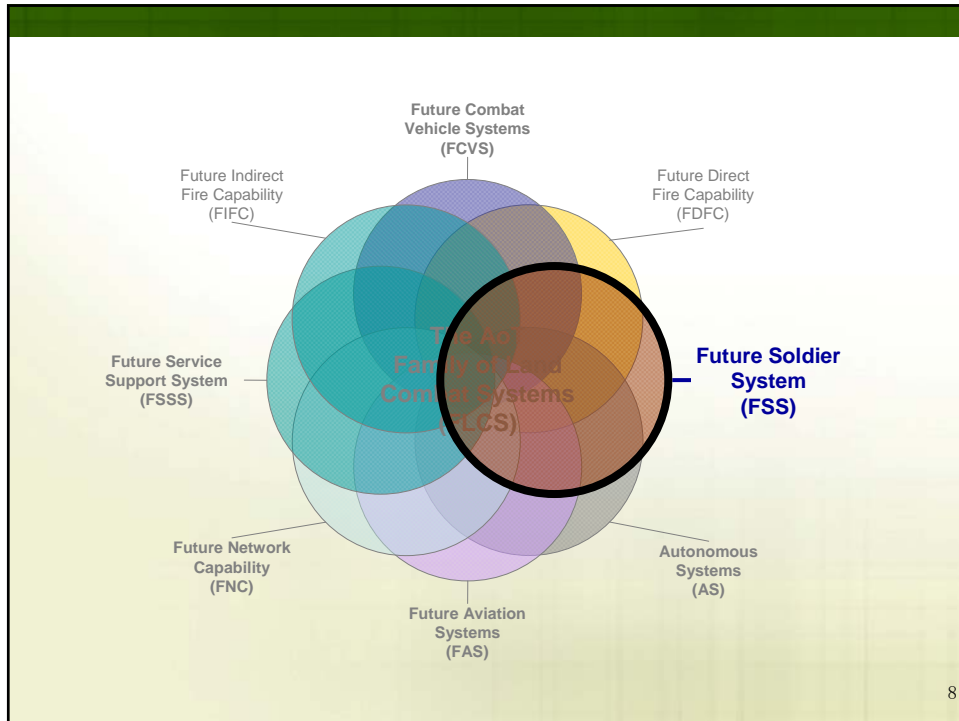
AoT Functions & Concepts



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SOLDIER CAPABILITY STATEMENT EXCERPTS

“The soldier is the **smartest** and most precise **weapon** the **Army** has in its **inventory**. He can apply force with extreme fidelity and precision, and he can control people and ground for long periods. His is a pre-eminent place in CF combat systems.”

MGen (retired) Alain Forand, ex-Colonel Commandant of the Infantry, Brigade Commander in Bosnia, Commander Secteur du Québec during the 1998 Ice Storm

USMC LESSON LEARNED

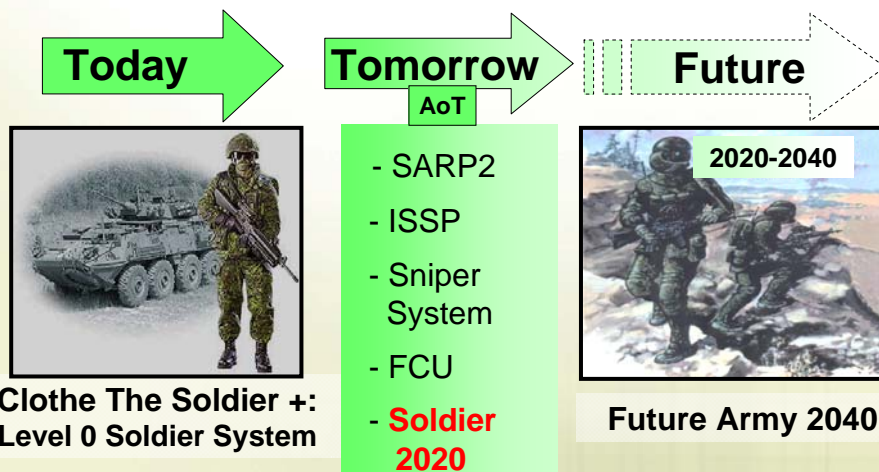
“One of the major lessons emerging from operations in Iraq and Afghanistan is that we must stop treating the Marine riflemen as a Christmas Tree and hanging equipment off him. We must appoint a single individual who will be accountable for every project that delivers equipment to the war fighter.”

BGen Michael Brogan, Commander Marine Corps System Command, on Friday 5 Oct 07 at a briefing to industry

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Soldier Systems Overview

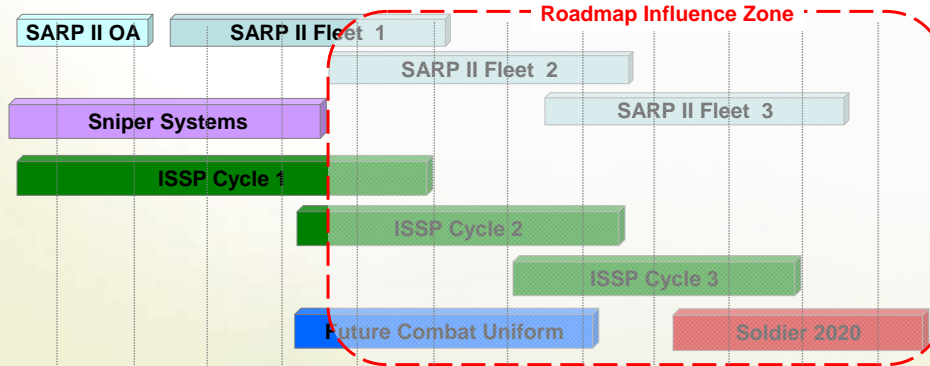
Vision: Enhance the capability of the future soldier to accomplish his mission and objectives for the Army of Tomorrow (AoT)



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Projects and Roadmap Timeframe

FY 08/09 09/10 10/11 11/12 12/13 13/14 14/15 15/16 16/17 17/18 18/19 19/20



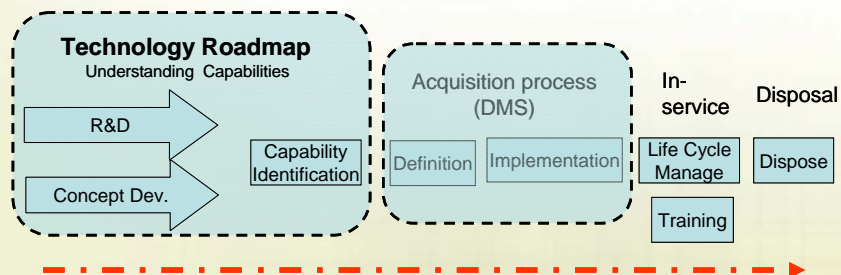
Roadmap:

- Focus on future capabilities **and not projects** (i.e. capability pull)
- Emphasis on technologies maturing in 3-15 years (i.e. technology push) & leading to potential significant capability increases

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The Roadmap Is About Better Planning, *Not Procurement*

Project or sub-projects in the definition and implementation phases of the acquisition process are not covered by the Soldier Systems TRM



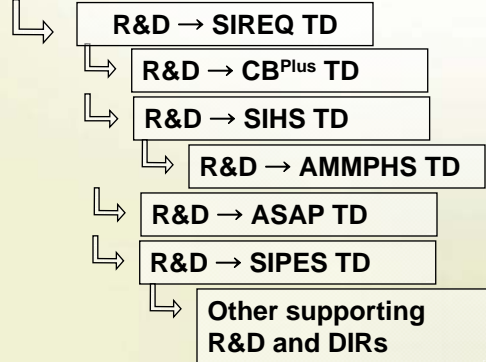
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SOLDIER MODERNISATION PROGRAM HISTORY

1995 – IPCE (Integrated Protective Clothing and Equipment)

↳ Contract Award - \$\$\$\$ for IPCE TD

WHY not WHAT?



WHEN not WHAT?

R&D Roadmap

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World Stage - Soldier Systems



Germany
IDZ-BS
IDZ-ES



USA
Land Warrior
GSS



France
FÉLIN



UK
FIST



Norway
NORMANS










Israel
IAS



Italy
Combattente
2000

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Interoperability Challenge

National Soldier System Programs			Dev	In Contract	Fielded
Germany	- IdZ BS - IdZ ES			Production - EADS Definition - Rheinmetall	Afghanistan Oct 2005
USMC	- MERS		Main project		UORs Iraq 06-07
US Army	- Land Warrior - Ground Soldier System		Tendering process	Production - GD C4S	Iraq May 07- Apr 08
UK	- FIST			Definition - Thales UK	UORs Iraq Early 2008
France	- FÉLIN			Production - SAGEM	Summer 2009
Spain	- COMFUT			Defn-Production - EADS	
Switzerland-	IMESS			Defn-Production - EADS	
Italy	- Soldato Futuro			Definition - Finmeccanica	
Canada	- ISSP		Definition	Contracting in 2010	
Australia	- Land 125		Development		
Belgium	- BEST		Development		
Israel	- DOMINATOR		Development	Elbit	In fielding
NLD	- VOSS		Development	Defn-Production - Thales NLD	
Sweden	- MARKUS		Development		
Norway	- NORMANS		Development		

Levels of Standardization (AAP 6, 01 Apr 2008)

- **Standardization:** The development and implementation of concepts, doctrines, procedures and designs in order to achieve and maintain the compatibility, interchangeability or commonality which are necessary to attain the required level of interoperability, or to optimise the use of resources, in the fields of operations, materiel and administration
- **Compatibility:** The suitability of products, processes or services for use together under specific conditions to fulfil relevant requirements without causing unacceptable interactions (04 Oct 2000).
- **Interchangeability:** The ability of one product, process or service to be used in place of another to fulfil the same requirements (04 Oct 2000).
- **Commonality:** The state achieved when the same doctrine, procedures or equipment are used (04 Oct 2000).
- **Interoperability:** The ability to operate in synergy in the execution of assigned tasks (22 Jun 2004)

NAAG and LCG1 Mission

- **NATO Armament Handbook (20 May 2008)**
 - Foster exchange of Information
 - Promote technical Standardization, Interoperability and Integration
 - Identify and promote Technical advancements
 - Plan/direct/coord subordinate groups
 - Liaise with all relevant organizations
 - Within NATO – RTO, IMS, NIAG, ACT, NSA, JALLC, etc
 - Outside – EU, MD, ICI, NGOs, Industry, etc

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Soldier Capability and Analysis Group

- **Serve as oversight and provide operational direction to LCG/1**
- **Provide rationale for work – link to other WGs and TOEs**
- **Completed 3 Dismounted Coalition Scenarios**
Approved by ACT Feb 2007
- **Updating an Overarching Definition and Capabilities document**
- **New NATO Soldier Capability Analysis out for comment**
- **Address Dismounted BCID - STANAGs 4630 and 2129**
- **Address the lack of NATO Soldier Symbology**
- **Address report on Lessons Learned from Ops with JALLC Monsanto**

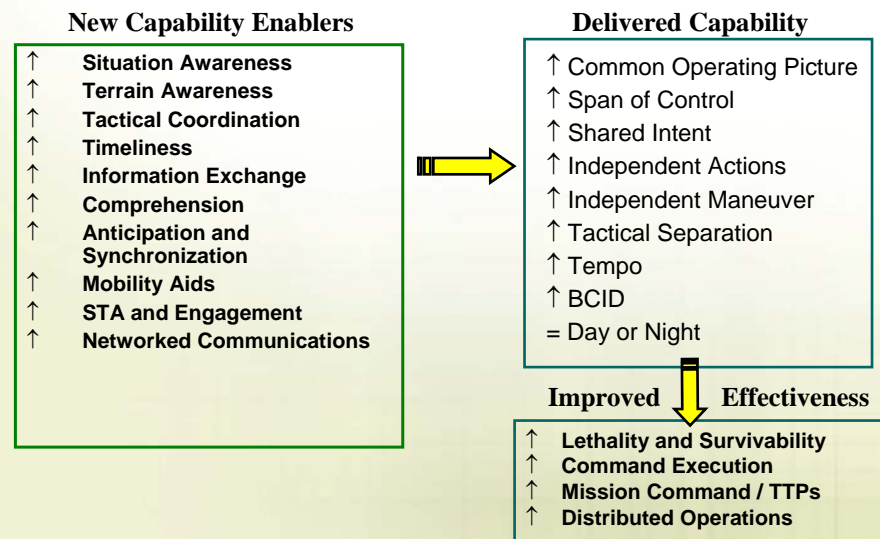
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Soldier Future Capabilities

C4I	<ul style="list-style-type: none"> * Network enabled from the soldier to the fire team/assault group/section/platoon/company and higher via the TCCCS backbone to improve command execution, target acquisition and situational awareness * Enhanced Battlefield Combat Identification (BCID) through increased Situational Awareness * Linkage to output from the Integrated Surveillance, Target Acquisition and Reconnaissance (ISTAR) assets for soldier as a sensor
Lethality	<ul style="list-style-type: none"> * Connectivity to provide Direct and Indirect Joint fires on selected targets for an intended, appropriate and precise effects based engagement in order to reduce the sensor to shooter link
Mobility	<ul style="list-style-type: none"> * Navigational aids for complex terrain to support Adaptive Dispersed Operations (ADO)
Survivability	<ul style="list-style-type: none"> * Integrated protection against threats such as blast, fragmentation, projectiles, flame and CBRN
Sustainability	<ul style="list-style-type: none"> * Integrated load carriage for combat supplies balancing weight, volume, protection and power needs
Deployability	<ul style="list-style-type: none"> * Deployable to all environmental areas where CF soldiers conduct Land Operations

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Future Capability Outcomes



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Future Soldier Systems Challenges

- **Capability trade-offs**

- Enhance, Integrate and Balance: C4I, Lethality, Mobility, Survivability, and Sustainability

- **Human dimension is integrated**

- **Technology insertion and obsolescence**

- **Incremental vs “Big-Bang”**

- Can lead to “Christmas Tree” effect
- Can have limited future growth

- **Key Performance Parameters**

- Size, Weight, Power, and Cost

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Questions?



For more information, please consult:
<http://soldiersystems-systemesdusoldat.collaboration.gc.ca>

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