Toward Army 2040: A Methodology to Address Capability Development in an Uncertain Future

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Background
The Canadian Army Land Warfare Centre (CALWC) advises the Commander Canadian Army (Comd CA) on the future security environment, the capabilities that will be required to operate in that environment and alternative concepts and technologies to achieve the required capabilities.
Hybrid Warfare

Net Wars

“Revolution in Military Affairs”

Virtual Wars

Asymmetric Warfare

Small Wars

Unrestricted Warfare

New Age Wars

Generation ? Warfare

[Canadian Army logo]
Three Army Model

Army of Today (now +5 yrs)

Army of Tomorrow (10-15 yrs)

Future Army (25-30 yrs)

HORIZON ONE 2013
Manage

HORIZON TWO 2016
Build

HORIZON THREE 2021
Design

Conceive

Army of Today

Army of Tomorrow

Future Army

Manage
Build
Design
Conceive
Dynamic Army Capability Development

Manage  Build  Design  Conceive
Methodology
Why 2040?
Future

Success

Failure

Procurement Decisions
Life Cycle Relevance?
Creativity
"THE" FUTURE
TOUGH DECISIONS AHEAD

Future Capabilities?
FORESIGHT
It never hurts to be prepared.
Conceive Methodology

Concept Pillar Framework

1. Identify focal issue and timeframe
2. Explore external world
3. Determine uncertainties and their polarities
4. Impact and uncertainty analysis
5. Develop alternate future frameworks
6. Write alternate futures
7. Test/assess
8. Implications and options
9. Communicate
10. Renew
Operating concepts are conceived and translated into capability requirements.

Selected capability requirements are translated into validated designs for force employment – doctrine and structures.

Integrates the PRICIE components to realize the implementation of the capabilities.

Manages the daily operation of the Land Force in keeping with the Managed Readiness Program.
Land Force Planning Horizons

Army of Today

Army of Tomorrow

Future Army

HORIZON ONE

HORIZON TWO

HORIZON THREE

2010

2015

2018

2021

2028

2033

2040
Conceive Methodology

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Concept Pillar Framework
1. Focal Issue and Time Frame

- A2040 aim is to establish a foundation for strategic dialogue based on key areas where Army senior leadership should focus attention today in order to remain relevant in 2040.
Conceive Methodology

Step 2: Explore External World

Development of Alternative Futures began by conducting a broad based assessment of the future landscape out to 2040 to identify defence and security implications for the Army.

Eight key dimensions researched:

- Physical (environmental)
- Social
- Political
- Science and Technology
- Economic
- Legal
- Security / Military
- Human dimension

Consider:

- **Trends** - discernable patterns of change;
- **Drivers** - factors that directly influence or cause change;
- **Shocks** - high impact low probability events; and
- **Key Uncertainties** - unknowns and controversies to be clarified in the future.

Emphasize social as well as technological.
3. Determine Uncertainties and their Polarities (Futures Wheel)

- Futures Wheel methodology is one of the most common methods among futurists
- A way of organizing thinking and questioning about the future - a kind of structured brainstorming
- Designed to show complex interrelationships between drivers
- Flexible and relatively easy and straightforward to use
3. Determine Uncertainties and their Polarities

- Impact of age & demographics on military composition
- Energy Security
- Exponential Technology Growth
- Human/Social response to technology
- Expansion of operating environments
- Global Environmental Change
- Globalization
- Conflicting / Shifting Identities
- Shifting Power Balance
- Resource Security
- Distribution of Wealth
- Weapons Proliferation
3. Determine Uncertainties and their Polarities

- Impact of age & demographics on military composition – Older vs. younger through immigration
- Energy Security – Sustainable vs. unsustainable
- Exponential Technology Growth – Set the pace vs. fall behind
- Human/Social response to technology – Reject technology vs. embrace technology
- Expansion of operating environments – defensive capability vs. exploitation
- Global Environmental Change – crisis reaction vs. proactive action
- Globalization – acceleration vs. deceleration
- Conflicting / Shifting Identities – global community vs. fragmentation
- Shifting Power Balance – cooperative: less friction vs. competitive: more friction
- Resource Security – sustainable supply vs. unsustainable supply
- Distribution of Wealth – uneven vs. even
- Weapons Proliferation – disarmament vs. proliferation
4. Impact and Uncertainty Analysis

<table>
<thead>
<tr>
<th>Impact</th>
<th>Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low</td>
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<tr>
<td></td>
<td>Moderate</td>
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<td>High</td>
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</tbody>
</table>

1. Demographics
2. **Energy Security**
3. Exponential Technology Growth
4. Social Response to Technology
5. Expansion of Operating Environ
6. **Global Environmental Change**
7. Globalization
8. Conflicting / Shifting Identities
9. Shifting Power balance
10. Resource security
11. Distribution of wealth
12. Weapons proliferation
Conceive Methodology

- Step 5: Develop Alternate Future Frameworks

Alternative Future Space
(Energy & Environment)

- Sustainable – Supply Exceeds Demand
- Not so Good/Bad
  - Energy & Climate
  - Environment
  - Bad
- Good
- Not so Good/Bad
- Unsustainable – Demand Exceeds Supply

Crisis Reaction
Proactive Action
Conceive Methodology

- **Step 6: Write Alternate Futures**

![Alternative Future Space Diagram](image_url)
6. Write Alternate Futures

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>High-Octane, Green</th>
<th>Global Quagmire</th>
<th>Materialism Gone MAD</th>
<th>Recyclable Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Goal</td>
<td>Prosperity</td>
<td>Survival</td>
<td>Material Gain</td>
<td>Survival</td>
</tr>
<tr>
<td>Chief Means</td>
<td>Cooperation</td>
<td>Self-Help</td>
<td>Self-Help</td>
<td>Cooperation</td>
</tr>
<tr>
<td>Attitudes</td>
<td>When world prospers – I prosper.</td>
<td>World a jungle – look out for No. 1 – or die.</td>
<td>World is a producer &amp; consumer. I want more.</td>
<td>We sink or swim together.</td>
</tr>
<tr>
<td>Concept of Self-Interest</td>
<td>Broad</td>
<td>Narrow</td>
<td>Narrow</td>
<td>Broad</td>
</tr>
<tr>
<td>Rough Analogies</td>
<td>Concert of Europe, Early Post WWI &amp; II</td>
<td>Late Pre WW I &amp; II, Middle East 56, 67, 73</td>
<td>Late Roman Empire, Pre &amp; Post 9/11</td>
<td>Pre-Westphalian System</td>
</tr>
</tbody>
</table>
Futures Development Methodology

- Conceive the Future Army a 10 step foresight process.

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Describes output of steps 1-6
Why Alternative Futures?
Alternative futures speculate on what might happen in the future.
Future 1 – Dark Side of Exclusivity
Future 2 – Deceptive Stability
Future 3 – Clash of Modernities
Future 4 – New Power Politics

Strategic Surprises – The Challenge of Disruption
An alternative future should not be confused with a prediction of the future.
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Concept Pillar Framework
Conceive Methodology

- **Step 7: Test/Assess**

  - To test and assess the four Alternate Futures developed, a series of seminar wargames were developed to address the following three questions:
    - Given the world described within the alternative future, what defence and security implications are likely to affect Army 2040 and what missions and tasks are required for Army 2040?
    - Given the defence and security implications of the alternate future, what characteristics are required of Army 2040?
    - Given the defence and security implications of the alternate future, what capabilities are required of Army 2040?
8. Implications & Options

- Capabilities within each alternative future will be measured against Land Operations 2021 in order to highlight gaps requiring further evaluation and development. Leading to a new force employment concept.
9. Communicate

ARMY 2040
First Look

A Force Employment Concept
For the Future Army
Futures Development Methodology

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Concept Pillar Framework

Describes output of steps 1-6
Way Forward and Lessons
Army 2040 Seminar Wargame Activities

Seminar Wargames were conducted:

▪ Materialism Gone Mad – 26-30 Nov 12
▪ High Octane Green World – 10-14 Jun 13
▪ Global Quagmire – 25-19 Nov 13
▪ Recyclable Society – 3-7 Mar 14
▪ Supporting Efforts
  ◦ Queen’s University Engagement – 3, 10 Feb 14
  ◦ Tactical Leaders Seminar Wargame (Gagetown) – 25-28 Mar 14
  ◦ Young and Seasoned - ??
Preliminary Results - Example

Missions and Tasks – High Octane Green World

Likelihood of Occurring in HOGW

- Disaster/humanitarian relief (HUMRO)
- Preserve the Global Commons including the virtual realm
- Assistance to Civil Authority
- Sovereignty operations
- Lead, contribute to and support expeditionary operations (MCO/PSO/stability operations)
- Lead, contribute to and support global standing security force
- Support to Counter-terrorism operations
- Aid to the civil power
- Evacuation operations (NEO)

Impact to Canada if Army Unable to Respond

- Sovereignty operations
- Aid to the civil power
- Assistance to Civil Authority
- Support to Counter-terrorism operations
- Preserve the Global Commons including the virtual realm
- Evacuation operations (NEO)
- Lead, contribute to and support global standing security force
- Lead, contribute to and support expeditionary operations (MCO/PSO/stability operations)
- Disaster/humanitarian relief (HUMRO)

Use of DRDC statistical tool (MARCUS) to analyze ratings of participants. Gap between missions and tasks indicates the preference of the participants. Large Gap indicates greater preference whereas a small gap indicates little preference or a tie.

DISCLAIMER
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Preliminary Results - Example

Missions and Tasks – High Octane Green World

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Way Ahead

Analysis

Missions and Tasks

**MGM**
- Domestic Disaster relief Humanitarian assistance (manmade/natural)
- Counter/Respond to Cyber-attack
- Search and Rescue
- Coop with CSEC, CSIS, RCMP, PSC
- Expeditionary Ops Humanitarian Assistance/Disaster Relief
- Personal safety of Cdns abroad (shared multi-national resp (NEO)
- Counter/Respond to Terrorism
- COIN
- Capacity building (Nation Building/Security Force Assistance)
- Peace Support Ops
- Counter/Respond to Organized Crime
- Territorial Defence of Canada
- Respond to Domestic internal conflicts
- Counter/Respond to Weapons of Mass Destruction
- Major Combat Operations

**HOGW**
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Way Ahead

Analysis

Domestic HUMRO
Counter Respond to Cyber-attack
Search and Rescue
Coop with CSEC, CSIS, RCMP, PSC
Expeditionary HUMRO
COIN
Counter Respond to Terrorism
Personal safety of Cdns abroad (shared multi-national resp (NEO)
Capacity building (Nation Building/Security Force Assistance)
Counter Respond to Organized Crime
Territorial Defence of Canada
Counter Respond to Weapons of Mass Destruction
Major Combat Operations

HUMRO
Lead, contribute to and support expeditionary operations (MCO/PSO/stability operations)

HUMRO
Preserve the Global Commons including the virtual realm

Sovereignty operations
Lead, contribute to and support expeditionary operations (MCO/PSO/stability operations)

Support to Counter-terrorism operations
Lead, contribute to and support global standing security force

Evacuation operations (NEO)
Aid to the civil power

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Army Futures Way Ahead

Further Investigation (Deep Dives)

- Cyber
- Arctic
- CBRNe
- Human Dimension/Doman
  - Ethics/Culture/understanding to prevent
  - Effectiveness and Resilience (incl augmentation/enhancement)
- Robotics/Autonomous/Automated systems.

Products:

- Army 2040 First Look (Volume 1 – Method, Trends, Scenarios):
  - Formatted by Oct 2014 (e-version)
  - Hard copies by Dec 2014
- Army 2040 First Look (Volume 2 – Implications):
  - Formatted by APS 2015 (e-version)
  - Hard copies by Fall 2015
Lesson/Observations

- Don’t under or over estimate the resources required to conduct a foresight method.
- Invest up front in getting participant to ‘live’ in the scenario.
- The devil is in the detail when it comes to responses to the questions.

- Benefit of a detailed and tailored future operating environment for each scenario.
- Benefit of more diverse key drivers
- Skeptics defeated and coverts gained by results.
Questions/Discussion