19th ICCRTS

C2 Agility: Lessons Learned from Research and Operations

Statement A: Approved for Public Release
Outline

• The Legacy of Change and Ideas
• Secretary Hagel’s Six Criteria –
• Criteria Implications and Options
• Options Common Factors
• Change Legacy and Complexity
• Implications Summary and Where As . . .

The So What Factor

• The New Global Common – Population Resource

A Collective Management Task
Legacy of Changes & Ideas

A Cooperative Strategy for 21st Century Seapower

OCTOBER 2007
Legacy of Changes & Ideas

• The Global Commons
  – Air/Atmosphere; Oceans; Space; Artic/Antarctic Areas; and ‘Internet/World Wide Web’
  – ¿ Other Candidate(s) ?

• Understanding Broken Window Policing/Theory
  – Allocation of resources through detailed analysis and understanding of data/information

• Balance of Will-Ways-Means with Threats-Objectives-Constraints
The Need for Alignment and Balance

• While discussing President Obama’s policy style in their American Interest article—Leading from Behind: Third Time a Charm?—Owen Harries and Tom Switzer argue that Obama understands the "most important sentence ever written about American foreign policy."

Walter Lippmann's formulation:

• "Without the controlling principle that the nation must maintain its objectives and its power in equilibrium, its purposes within its means and its means equal to its purposes, its commitments related to its resources and its resources adequate to its commitments, it is impossible to think at all about foreign affairs."

Secretary Hagel’s Six Criteria

• reform (R) and planning (P)
  – “we will continue to focus on institutional reform” &
  – “we will re-evaluate our military’s force planning construct . . .”

• readiness (R) and capabilities (C)
  – “will be preparing for a prolonged military readiness challenge” &
  – “will be protecting investments in emerging military capabilities . . .”

• balance (B) and policy (P)
  – “. . . balance. Across the services . . . capacity and capability, between: active and reserve . . . forward stationed and homebased . . . conventional and unconventional . . . capabilities” &
  – “personnel and compensation policy.”

What underlies all these criteria ???
What can be done ‘without money’ ???

# The Health of Cities
(By Extension – of Nations/Regions)  
(and Organizations)

<table>
<thead>
<tr>
<th></th>
<th>Government</th>
<th>Economy</th>
<th>Services</th>
<th>Security</th>
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<tbody>
<tr>
<td><strong>Healthy</strong></td>
<td>Enacts effective legislation, directs resources, controls events in all portions of the city all the time. Not corrupt.</td>
<td>Robust. Significant foreign investment. Provides goods and services. Possesses stable and adequate tax base.</td>
<td>Complete range of services, including educational and cultural, available to all city residents.</td>
<td>Well regulated by professional, ethical police forces. Quick response to wide wide spectrum of requirements.</td>
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<td>(“Green”)</td>
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<td><strong>Marginal</strong></td>
<td>Exercises only “patchwork” or “diurnal” control. Highly corrupt.</td>
<td>Limited/no foreign investment. Subsidized or decaying industries and growing deficits.</td>
<td>Can manage minimal level of public health, hospital access, potable water, trash disposal.</td>
<td>Little regard for legality/human rights. Police often matched/stymied by criminal “peers.”</td>
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<tr>
<td>(“Yellow”)</td>
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<tr>
<td><strong>Going Feral</strong></td>
<td>At best has negotiated zones of control; at worst does not exist.</td>
<td>Either local subsistence industries or industry based on illegal commerce.</td>
<td>Intermittent to non-Existent power and water. Those who can afford to will privately contract</td>
<td>Nonexistent. Security is attained through private means or paying protection.</td>
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<tr>
<td>(“Red”)</td>
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A Metaphor for Agility - Nimbleness - Adaptability

Source: EDS – ‘Running of the Squirrels’ 2001 Super Bowl Advertisement
The Strategic Transformation as Manifested in 2006 QDR
The Opportunity for Interaction and Effects

- Irregular Challenges
  - Defeat Terrorist Networks

- Traditional Challenges
  - Prevent Acquisition Or Use Of WMD
  - Defend Homeland In Depth

- Disruptive Challenges
  - Shape Choices Of Countries At Strategic Crossroads

- Catastrophic Challenges
  - Today’s Capability Portfolio

Source: 2006 Quadrennial Defense Review Report, Figure, p. 19.
THE UN-CERTAIN ENVIRONMENT FOR TOOLS OF NATIONAL POWER – THE COMPLETE SET

Security Environment: Four Challenges

<table>
<thead>
<tr>
<th>Higher Likelihood</th>
<th>Lower Likelihood</th>
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<tbody>
<tr>
<td>Those seeking to <strong>erode</strong> American influence and power by employing <strong>unconventional</strong> or <strong>irregular</strong> methods (e.g., terrorism, insurgency, civil war, and emerging concepts like “unrestricted warfare”) <strong>Likelihood:</strong> Very high, strategy of the weak <strong>Vulnerability:</strong> Moderate, if not effectively checked</td>
<td>States seeking to <strong>challenge</strong> American power by instigating <strong>traditional</strong> military operations with <strong>legacy</strong> and <strong>advanced</strong> military capabilities (e.g., conventional, air, sea, and land forces, and nuclear forces or established nuclear power) <strong>Likelihood:</strong> Decreasing (absent preemption) due to historical capability overmatch and expanding qualitative lead <strong>Vulnerability:</strong> Low, only if transformation is balanced</td>
</tr>
<tr>
<td>Those seeking to <strong>paralyze</strong> American Leadership and power by employing WMD and WMD-like effects in <strong>Unwarned attacks</strong> on symbolic, Critical, or other high-value targets (e.g., 9/11. terrorist use of WMD, Rogue missile attack) <strong>Likelihood:</strong> Moderate and increasing <strong>Vulnerability:</strong> Unacceptable; single Event could alter American way of life</td>
<td>Those seeking to <strong>usurp</strong> American influence and power acquiring <strong>breakthrough capabilities</strong> (e.g., sensors, information, biotechnology, miniaturization on the molecular level, cyber-operations, space, directed-energy, and other emerging fields) <strong>Likelihood:</strong> Low, but time works against U.S. <strong>Vulnerability:</strong> Unknown; strategic surprise puts American security at risk</td>
</tr>
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**Source:** Flournoy, Michele A., “Did the Pentagon Got the Quadrennial Defense Review Right?”, The Washington Quarterly, Vol 29, No 2, Spring 2006, MIT Press, Figure 1, p. 71.
The C2 Problem Space – One Style

Source: Alberts & Hayes, *Understanding Command and Control*, 2006, Figure 11, p. 75.
Command Coordination (C2) Approach Space – Styles

Source: Moffat, Adapting Modeling & Simulation for Network Enabled Operations, 2011, Figure 2.4, p. 24; 4.2, p. 85.
Alberts, Huber, & Moffat, NATO NEC C2 Maturity Model, 2010. Figure 16, p. 66.
X-Walking
Perrow Quadrants & Chaos Bifurcation Points

Source: Derived from Czerwinski, *Coping with the Bounds – Speculations on Nonlinearity in Military Affairs*, 1998.
Figures 7-3 & 7-4. p. 104. statement
HISTORICAL CHOICES AMONG C2 SYSTEM PHILOSOPHY

<table>
<thead>
<tr>
<th>Directive Specificity</th>
<th>C2 Philosophy</th>
<th>Historical Example</th>
<th>Theater HQRs Capacity</th>
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<tbody>
<tr>
<td>Mission Specific</td>
<td>Control Free</td>
<td>German WW II</td>
<td></td>
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<tr>
<td></td>
<td>Selective Control</td>
<td>Israeli</td>
<td></td>
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<tr>
<td>Objective Specific</td>
<td>Problem Bounding</td>
<td>UK</td>
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<td></td>
<td>Problem Solving</td>
<td>US</td>
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<td>Order Specific</td>
<td>Interventionist</td>
<td>Modern Soviet</td>
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<td></td>
<td>Cyclic</td>
<td>Chinese</td>
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</table>

- Amenable to information system support
- Requires inherently creative and therefore capable people

Source: Alberts, et al., Understanding Information Age Warfare. CCRP, Washington DC, 2001; Figure 64, p. 170.
FRAMEWORK FOR STRATEGIC PLANNING

PHASE I: WHERE ARE WE?
- MISSION
- PERSONAL RESPONSIBILITIES
- LEADERSHIP STYLE
- PERSONAL VALUES
- ENVIRONMENT
  - EXTERNAL
  - INTERNAL

PHASE II: WHERE DO WE WANT TO GO?
- VISION
- ORGANIZATIONAL VALUES
- KEY PROCESSES
- GAP
- OBJECTIVES
  - GOALS
  - KEY VARIABLES

PHASE III: HOW WILL WE GET THERE?
- IMPLEMENTATION
  - WHAT
  - HOW
  - WHO
  - WHEN
- DO THE OBJECTIVES SUPPORT THE VISION?
- DO THE GOALS SUPPORT THE OBJECTIVES?
- IS THE PLAN MEETING THE GOALS?

PHASE IV: ARE WE GETTING THERE?
- MONITOR PERFORMANCE
- MEASURE PERFORMANCE
- FEEDBACK ANALYSIS
- REVIEW
- EVALUATE
- HAS THE ENVIRONMENT OR MISSION CHANGED?
- IS THE MISSION BEING SUPPORTED?

S T R A T E G I C   L E A D E R S H I P

Opportunities & Implications

• Several Wicked Problem ‘Solution’ Points:
  – a) Solutions to wicked problems are not true-or-false, but good-or-bad;
  – b) Every wicked problem can be considered to be a symptom of another problem;
  – c) There is no immediate and no ultimate test of a solution to a wicked problem; and,
  – d) Every solution to a wicked problem is a “one-shot-operation”, because there is no opportunity to learn by trial-and-error, “every attempt counts significantly.” (Rittel and Webber, 1973, Dilemmas in a General Theory of Planning)

Paths to results are not always direct, they can be very indirect and complex

Implication from Connections by James Bourke
WILL ‘DEVELOPING COUNTRIES’ POPULATION GROWTH OR THE ‘VIRTUOUS CYCLE’ PREDOMINATE?

MAYBE A COMBINATION?

Developed countries
Developing countries

Country 1998 population → 2050 population (in millions)

Average number of births per woman
Percentage of teenage girls (15-19) giving birth each year
Infant mortality per 1,000 births

Derived from National Geographic, October 1998
So What ! & Recommendation

• World community continues to change
  – Not Static – Detailed Data and Analysis is Required
• All organizations <= Communities (of Interest)
  – How are they aligned and interacting ?
  – Communities Interact in Complex Patterns – Wicked Problem
  – Provides Challenges/Opportunities for Understanding
• All Communities are Groupings of Individuals
• Individuals learn and adapt – And Their Communities/Groups
  – Can this be facilitated
• Individuals are the Solution Resource – Human Capital
• When to Start the Preparation of the Individuals ?

Combination of Nature and Nurture
Starts Early – Never completely Ends – Individual & Group Responsibilities
Summary - Review

- Secretary Hagel’s Criteria - reform (R) & planning (P); readiness (R) & capabilities (C); balance (B) & policy (P)
  - All require extensive network of qualified people . . .
  - A class of ‘wicked problem’ – detailed analysis (BWT/P)

- Qualified People = > Educated & Adaptable
- Educated & Adaptable People < = > Talented Population
- Talented Population starts very early – Education & Health

- The Population is the Resource to be Managed & Cared For

The Population <==> A New Global Common
To be developed, managed, and cared for collectively
Communities’ Strategic Opportunities Through Broken Window Repair and Global Commons Improvements

¿ QUESTIONS ?

Russell E. Bryant, Jr.
russell.bryant@navy.mil
(202) 781-1973