“Trends in Security Competition”
Trends in Security Competition

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**Information Age**
- Short Cycle Time
- New Competencies
- Adaptive Planning
- Interdependence

**Globalization II**
*(1947 – 199X)*
- Developed Rules
- Mature Markets
- Narrowing Customer Base
- Security = Defense

**Globalization III**
*(199X – 20XX)*
- Emerging Rules
- Market Opportunities
- New Customer Base Emerging
- Security = All Else + Defense

**Industrial Age**
- Long Cycle Time
- Well Developed Tools / Processes
- Deliberate Planning
- Tortured Interoperability
Transformation
...Meeting the Challenges of the New Competitive Landscape

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Global Force Balance

... Security = All Else + Defense

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Domain of Cooperative Engagement

Winning / Maintaining the Peace
Social Intelligence
All Sources of Power

Domain of Political Victory

The Commons: The Strategic Imperative
High Seas & Air Above
Space
Cyberspace

Hegemonic Strategies

Global Stability

Local Stability

Winning the War

Winning the Battle / Combat
Military Intelligence
Combat Power

Domain of Strategic Primacy

Domain of Political Victory

Maximum Complexity

The Close Fight: Decisive Operations
Land
Littorals
Low Altitude

Domain of Cooperative Engagement
Security Environment

... Four Challenges

Irregular: Those seeking to erode American influence and power by employing unconventional or irregular methods (e.g., terrorism, insurgency, civil war and emerging concepts like "unrestricted warfare")
Likelihood: very high; strategy of the weak
Vulnerability: moderate, if not effectively checked

Traditional: Those seeking to challenge American power by instigating traditional military operations with legacy and advanced military capabilities (e.g., conventional air, sea and land forces and nuclear forces of established nuclear powers)
Likelihood: decreasing (absent preemption) due to historic capability-overmatch and expanding qualitative lead
Vulnerability: low, only if transformation is balanced

Catastrophic: Those seeking to paralyze American leadership & power by employing WMD or WMD-like effects in unwarned attacks on symbolic, critical or other high-value targets (e.g., 9/11, terrorist use of WMD, rogue missile attack)
Likelihood: moderate and increasing
Vulnerability: unacceptable; single event could alter American way of life

Disruptive: Those seeking to usurp American power and influence by acquiring breakthrough capabilities (e.g., sensors, information, biotechnology, miniaturization on the molecular level, cyber-operations, space, directed-energy and other emerging fields)
Likelihood: Low, but time works against U.S.
Vulnerability: unknown; strategic surprise puts American security at risk

No hard boundaries distinguishing one category from another
Security Environment
... Four Challenges

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Likelihood and Vulnerability

- **Lower**
- **Higher**

B/U
What Are the Issues?
...Resolving the Contradictions

Where is the Convergence Between “Effects” and Political Victory?

- Defensive Orientation
- Social Intelligence vs Military Intelligence

How Do We Pre-empt When We Can’t Find Targets Hiding in Plain Sight?

How Do We Avoid Strategic Surprise?
Warfare elements

- **Fire** – non-lethals; directed energy; redirected energy
- **Maneuver** – lift for operational maneuver; vertical battlefield; seabasing
- **Protection** – urban operations; biomedical countermeasures
- **C2&C** – joint interdependency
- **ISR** – demand-centered intelligence; tactically responsive space
- **Logistics** – joint demand-centered logistics

Risk management (*creating on-ramps*)

- **Joint concept development & experimentation** – short cycle time / rapid iteration
- **Joint training** – advanced distributed training
- **Joint S&T** – strengthen joint / combined warfighting; transform joint force; optimize intel; combat WMD proliferation; fulfill homeland defense duties
- **People** (*global trends and implications of exporting security*) – policy choices
Next Generation Weapons

...Do We Have the Right Weapons For the Right War?

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• Are we making enough investment in physics and energy transfer – the potential for leap vs step technologies?
• What is the development direction for critical materials?
• Do we have the networked communication and sensors necessary to support the degree of discrimination required in the future conflict environment?
• When will we start thinking of targets per weapon vs weapon per target in Land Warfare?
• When will we see speed of light weapons on the battlefield?
Transforming the Metrics
...Shifting value to outcomes

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Initial Metrics
• Networking
• Speed
• Numbers
• Information Generators
• Dispersal

Value of Time vs. Cost of Speed

“Dissuasion” = f (present value of future capabilities, future value of present capabilities)

New Basis for Competition
• Create and preserve options
• Employ higher transaction rates
• Achieve higher learning rates
• Create overmatching complexity
Competing in the Information-Age
...the power of Network-Centric Operations

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Social Domain
Cultural Awareness

Cognitive Domain
Cognitive Advantage
Process Advantage

Conveyed Commander’s Intent

Information Domain
Information Advantage

Compressed Operations

Physical Domain
Force Advantage
Position Advantage

Plan, Organize, Deploy, Employ and Sustain Cycle

Shared Awareness

Network Centric Operations

Precision Force

Speed and Access
Trends in Security Competition

Back-up Slides
Security Environment

... Four Challenges

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Irregular

Traditional

Catastrophic

Disruptive

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Next Generation Weapons

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End Slide – Back-ups
“Networked Forces Outfight Non-Networked Forces”

…it allowed us to make decisions and execute those decisions faster than any opponent.”

Lt. Gen. David D. McKiernan
Combined Forces Land Component Commander, OIF
Next Generation Weapons

...Do We Have the Right Weapons For the Right War?

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- There is a need for more discrimination, flexibility and response in the determination of targets...

- ...and in the weapons we employ

The Engagement Timeline

...is not just about time
Shared Awareness

...The new competitive advantage

Competing in the Information-Age
...the power of Network-Centric Operations

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Shared Awareness

...in the cognitive and social domains

Tenets of Network-Centric Operations

...The new value chain

- A robustly networked force improves information sharing
- Information sharing and collaboration enhances the quality of information and shared situational awareness
- Shared situational awareness enables collaboration and self-synchronization, and enhances sustainability and speed of command
- These in turn dramatically increase mission effectiveness

Diagram:

- Robustly Networked Force
- Information Sharing
  - Quality of Information
  - New Processes
  - Mission Effectiveness
- Shared Situational Awareness
- Self Synchronization
  - Cognitive Domain
  - Physical Domain
- Collaboration
  - Information Domain
The Need:
Since this is the age of the small, fast, and many, we need organizations, processes, and a strategic approached to cost, capable of delivering the requisite capabilities.

An Approach:
- Strategies for divestiture and devolution of capabilities
- Suppressing the monetary cost of war
- Cost imposing strategies
- Mitigation of cost imposing strategies
- Reversing the current trend of paying more for decreasing returns

New metrics create opportunities for new cost dynamics!
Transforming the Metrics
...Shifting value to outcomes

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Global Trends

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Globalization II  →  Globalization III

Industrial Age  →  Information Age
Fundamental Question

What do we mean by Innovation in Defense?
Security Environment

... Four Challenges
The history of innovation in carrier aviation says something of great importance about military innovation generally: it is not a process that usually proceeds in a linear way. But hindsight tends to make us think that it does. Because we try to compose coherent histories of innovation, we may actually overlook the uncertainty and chance that inevitably exist.

American & British Aircraft Carrier Development: 1914-1941
Creating Competitive Advantage: Warfighting Innovation

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Warfare Areas
- Land Warfare
- Air Power
- Warfare at Sea
- Warfare at Sea

Enablers
- New Technology
- New Doctrine / TTP
- New Organizations
- New Warfighting Elite

New Capabilities
- Blitzkrieg
- Fighter CMD
- “Wolf Pack”
- Carrier Aviation

Key Battles
- Battle of France
- Battle of Britain
- Battle of Atlantic
- Battle of Midway

Technology Innovation
Process Innovation
Organizational Innovation

Warfighting Innovation → Competitive Advantage
• Land Warfare: Sustained Rate of Fire
  – Rifle ($1.8 \times 10^1$ rounds per minute)
  – Machine Gun ($6 \times 10^2$ rounds per minute)
• Air Warfare
  – Precision Weapons + Precision Targeting
  – Sorties per Target $\rightarrow$ Targets per Sortie
• Warfare at Sea: Range of Engagement
  – Battleship: $1.8 \times 10^1$
  – Carrier Aviation: $1.8 \times 10^2$
Globalization III

...Major Flows

Foreign Direct Investment

The Core

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Globalization III

...Major Transactions
“Building tomorrow's force is not going to be easy. Changing the direction of our military is like changing the course of a mighty ship -- all the more reason for more research and development, and all the more reason to get started right away.

Yet, building a 21st century military will require more than new weapons. It will also require a renewed spirit of innovation in our officer corps. We cannot transform our military using old weapons and old plans. Nor can we do it with an old bureaucratic mind set that frustrates the creativity and entrepreneurship that a 21st century military will need.”

President George W. Bush
Graduation Address
U.S. Naval Academy, May 25, 2001
“The key now is to accelerate this progress through a culture of innovation. ...Aggressive innovation, experimentation, and education are fundamental to meeting the challenges of an uncertain future.”

- CNO Admiral Vern Clark
Remarks at Current Strategy Forum 2002
Naval War College, Newport, RI
Transformation

...Elements

- Continuing process
- Creating/anticipating the future
- Co-evolution of concepts, processes, organizations and technology
- New competitive areas / competencies; revalued attributes
- Fundamental shifts in underlying principles
- New sources of power
- Broadened capabilities base

A Broad and Sustained Competitive Advantage

- New technology context
- Broadened threat context
- New strategic context
Meeting the Challenges of the New Competitive Landscape

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Information Age

Globalization II

Globalization III

Industrial Age