



Transforming Defense



Office of Force Transformation

Information Age

“Trends in Security Competition”



Arthur K. Cebrowski
Director, Force Transformation
15 June 2004

Industrial Age



Trends in Security Competition



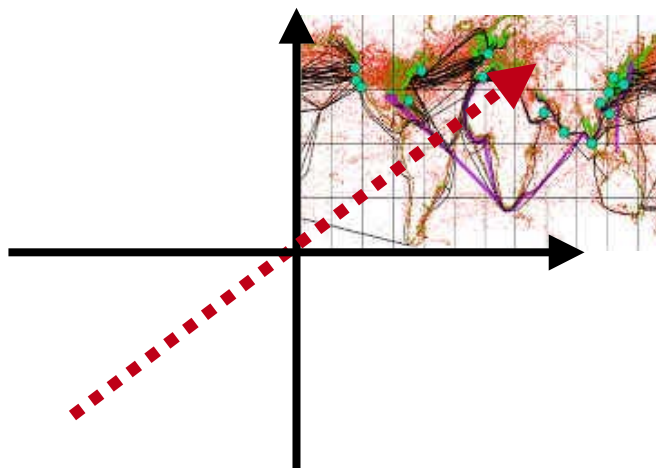
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Information Age

- 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

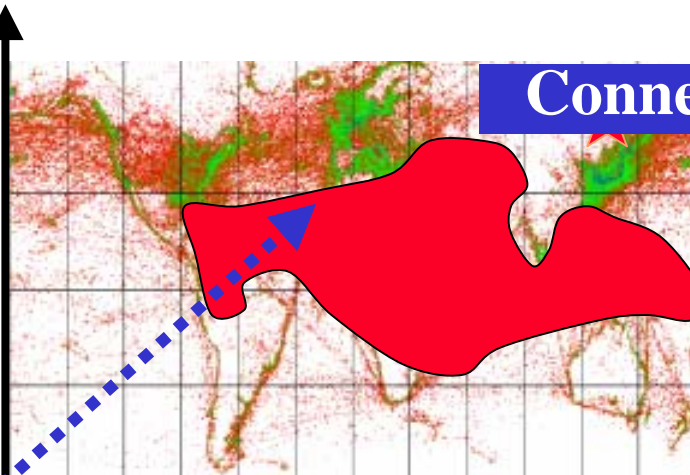
...Meeting the Challenges of the New Competitive Landscape



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Information Age

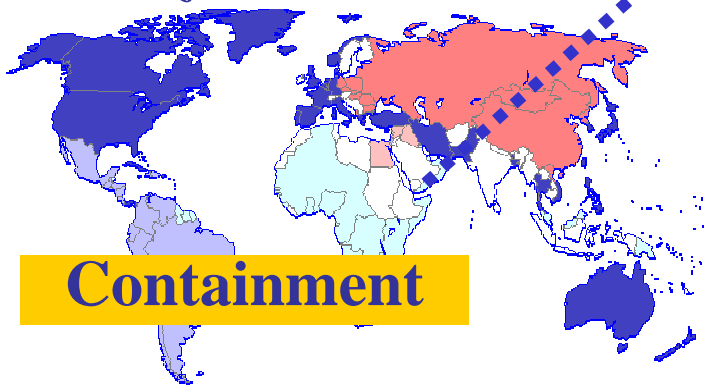
Connectedness



Globalization II

Globalization III

Containment



Industrial Age



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**

Maximum Complexity



Hegemonic Strategies



Denial Strategies



The Commons:

The Strategic Imperative

High Seas & Air Above
Space
Cyberspace

Global Stability

Local Stability

The Close Fight:

Decisive Operations

Land
Littorals
Low Altitude

Winning the War

Winning the Battle / Combat

Military Intelligence
Combat Power

**Domain of
Military
Victory**

**Domain of
Strategic
Primacy**



Security Environment

... Four Challenges





Security Environment

... Four Challenges



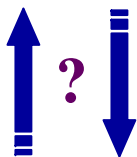
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VULNERABILITY

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



Higher

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



Lower

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

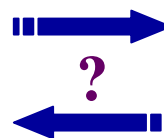
Lower

LIKELIHOOD

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



Higher



What Are the Issues?

...Resolving the Contradictions



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

Oleg Pop



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

- Defensive Orientation
- Social Intelligence vs Military Intelligence



*How Do We Avoid
Strategic Surprise?*



Identify Issues of Regret

... Candidates for Action Now



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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

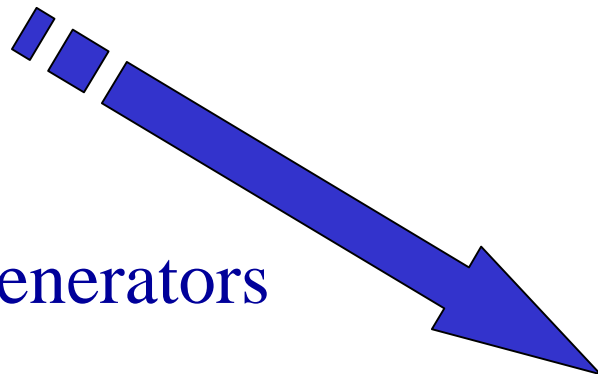
...Shifting value to outcomes



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Initial Metrics

- Networking
- Speed
- Numbers
- Information Generators
- Dispersal



Value of Time
vs.
Cost of Speed

New Basis for Competition

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

- Create and preserve options
- Employ higher transaction rates
- Achieve higher learning rates
- Create overmatching complexity

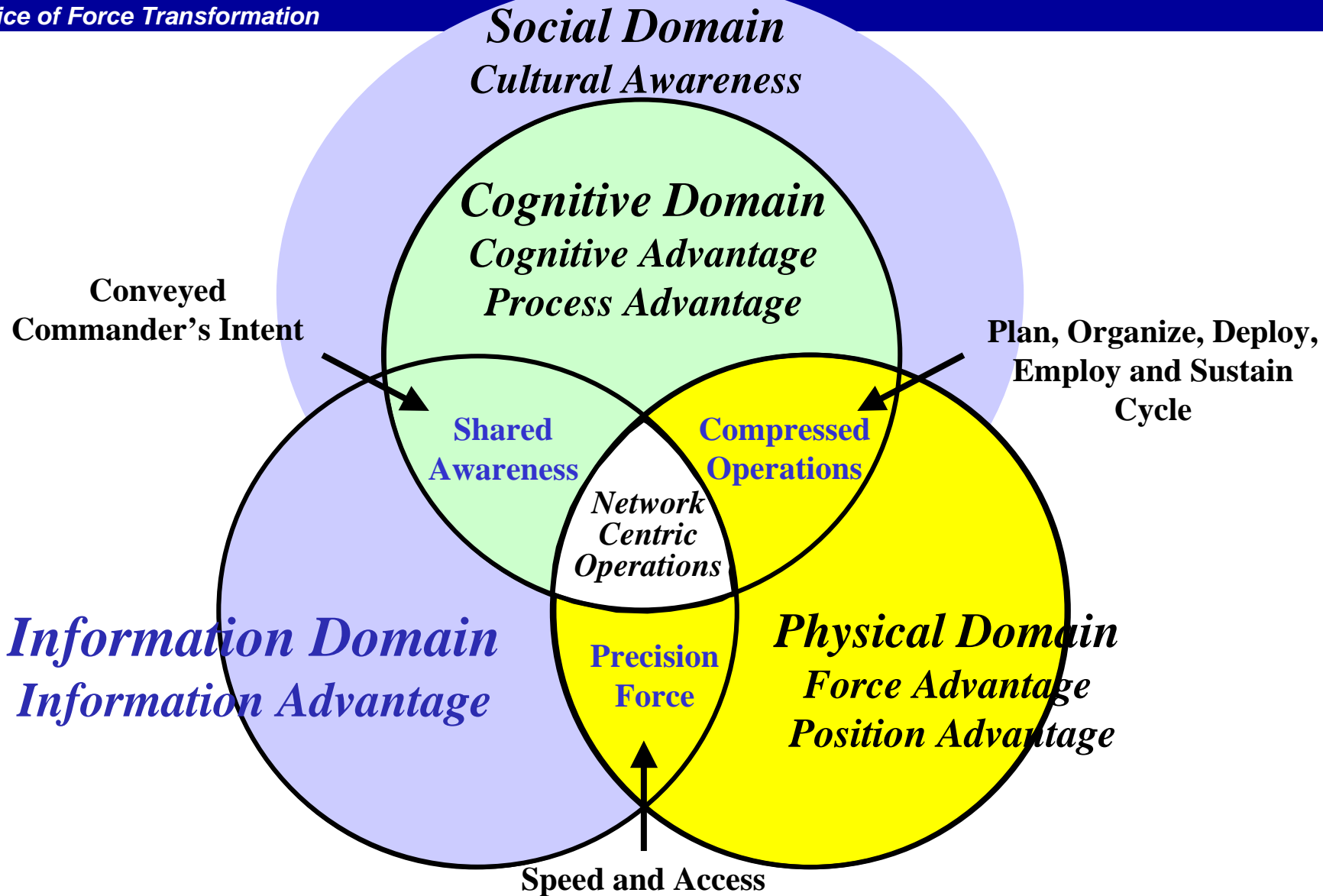


Competing in the Information-Age

...the power of Network-Centric Operations



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Trends in Security Competition



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Back-up Slides



Security Environment ... Four Challenges



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No hard boundaries distinguishing one category from another



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End Slide – Back-ups



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Transforming Defense



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“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*



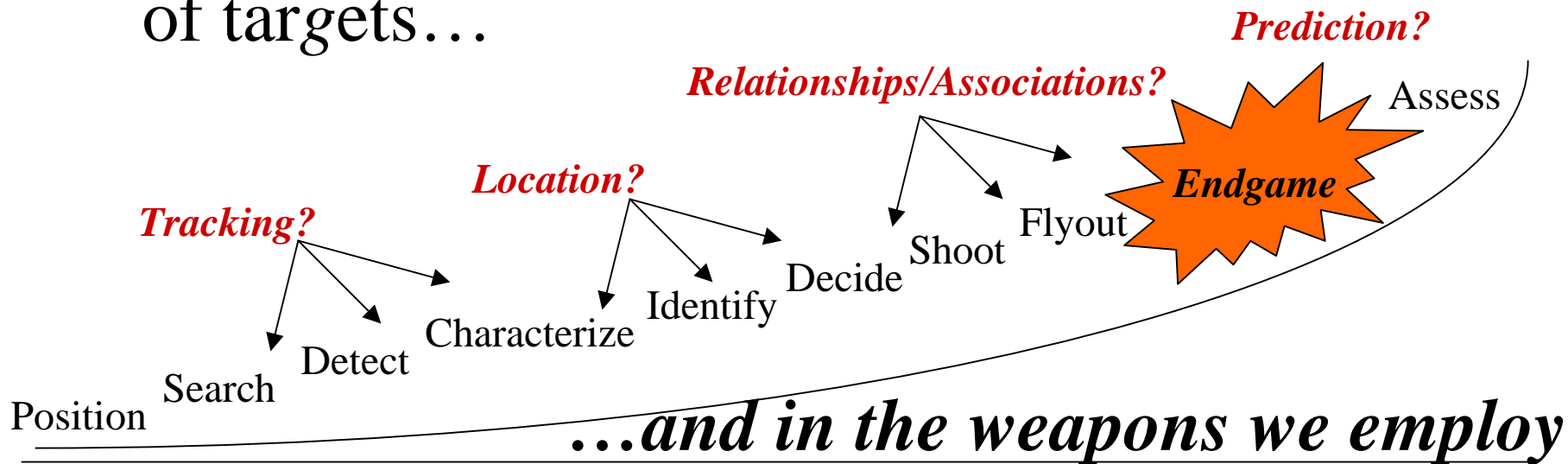
Next Generation Weapons



...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...



The Engagement Timeline

...is not just about time

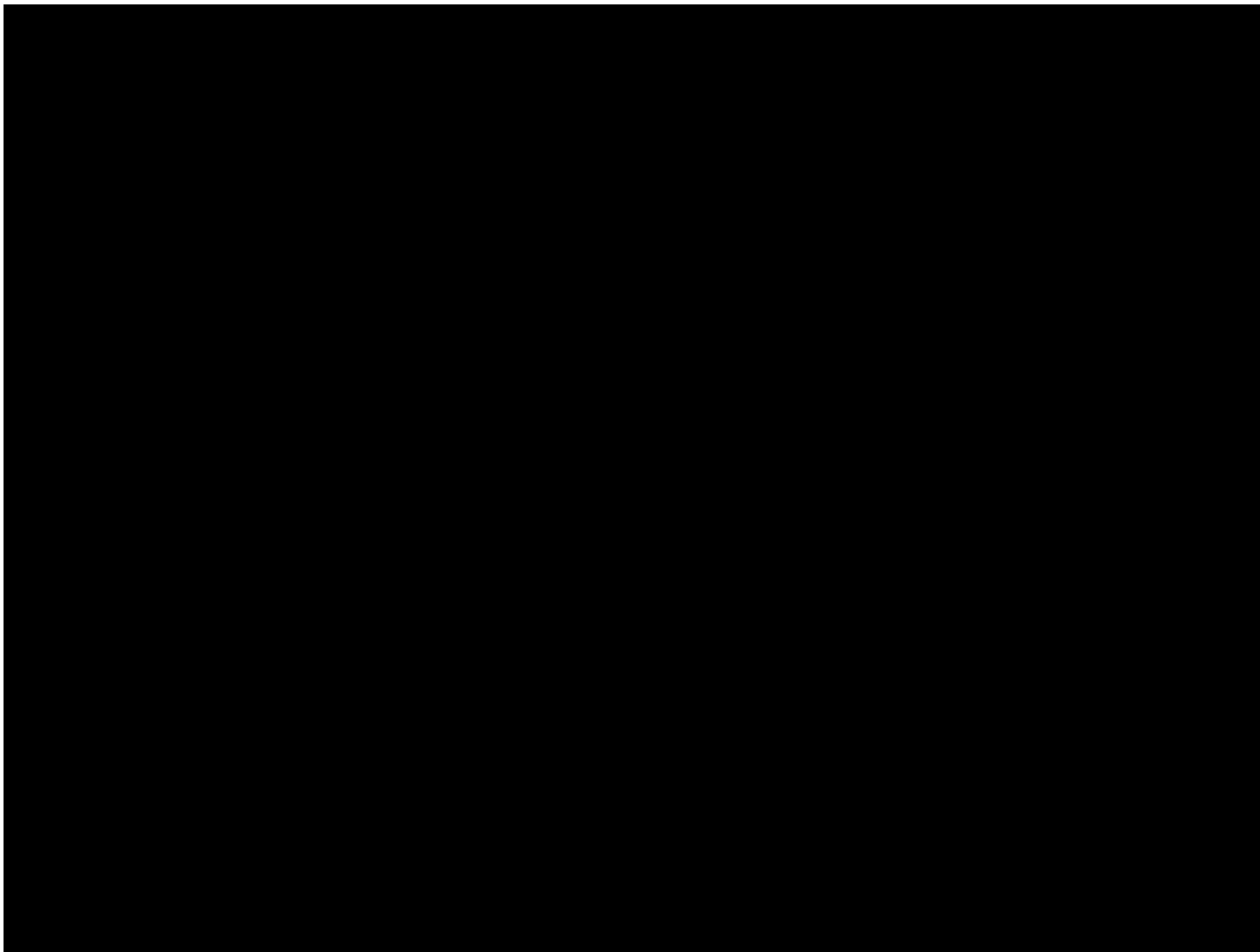


Shared Awareness

...The new competitive advantage



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Source: New York Times Television – The Perfect War, 2004

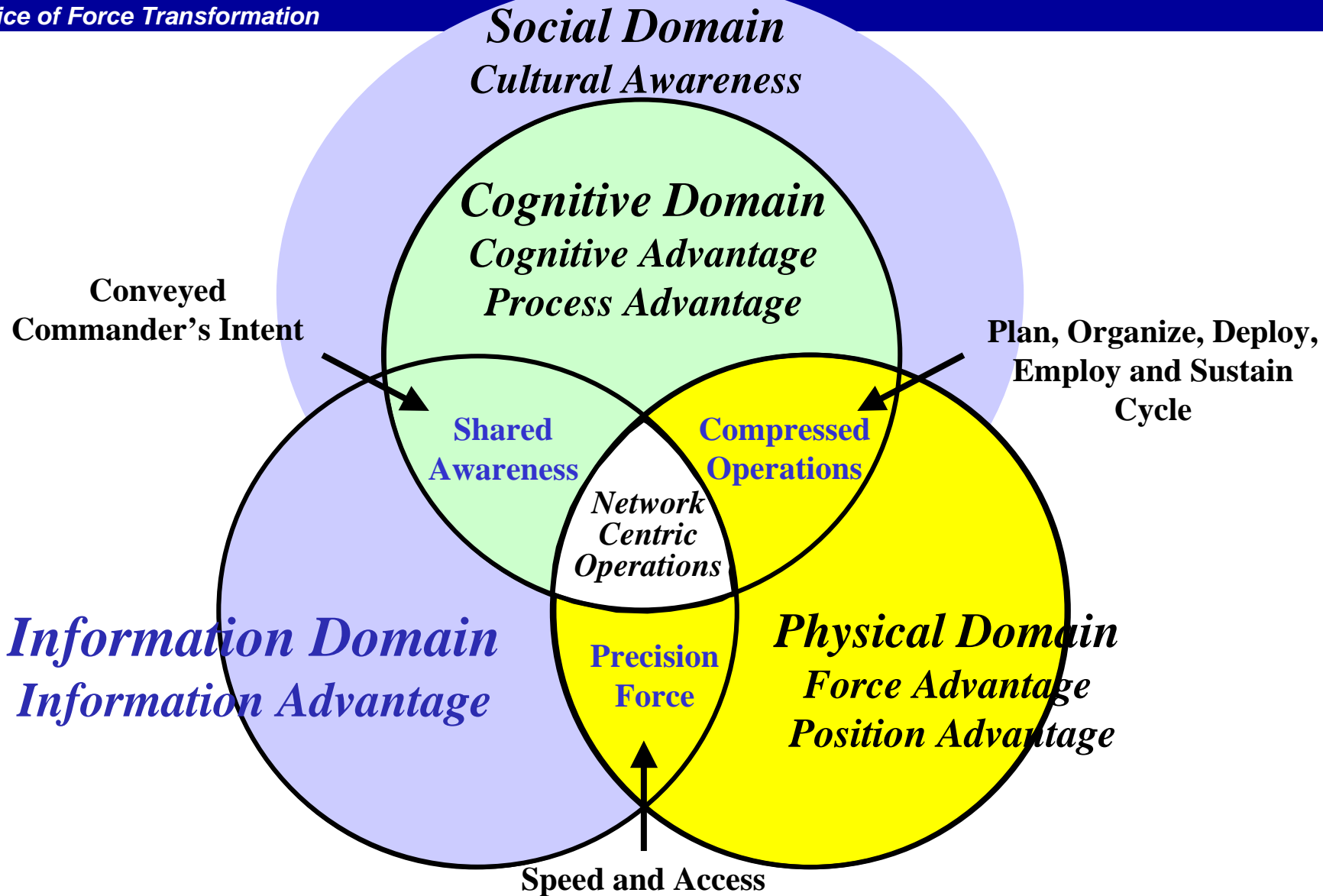


Competing in the Information-Age

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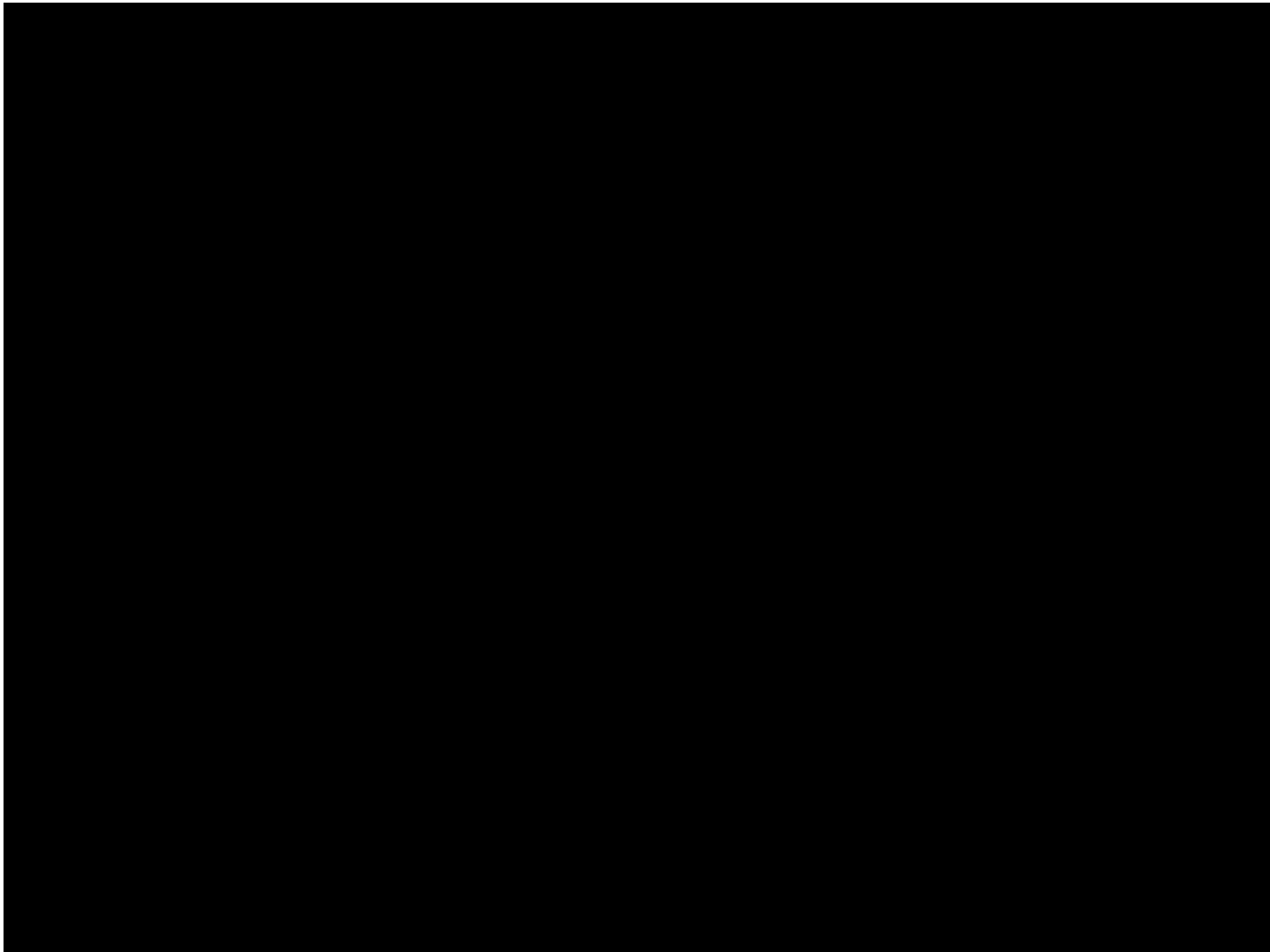


Shared Awareness

...in the cognitive and social domains



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Source: New York Times Television – The Perfect War, 2004



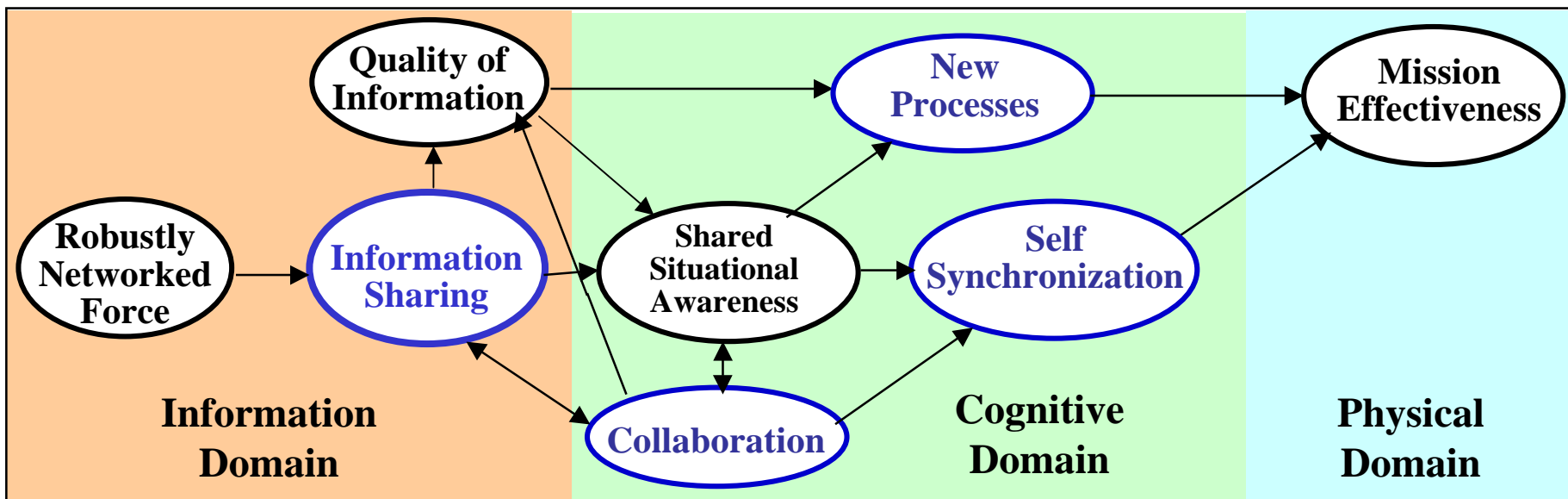
Tenets of Network-Centric Operations

...The new value chain



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- 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





Strategic Approach to Cost



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The Need:

Since this is the age of the small, fast, and many, we need organizations, processes, and a strategic approach 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

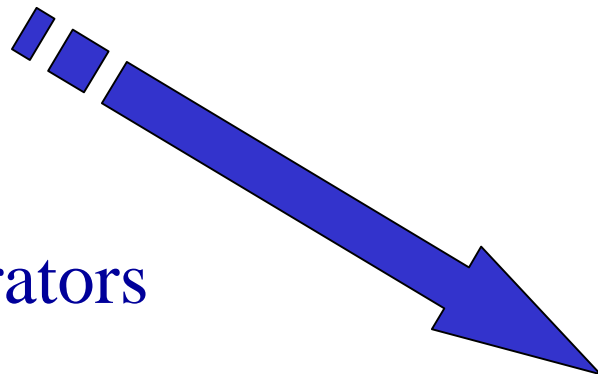
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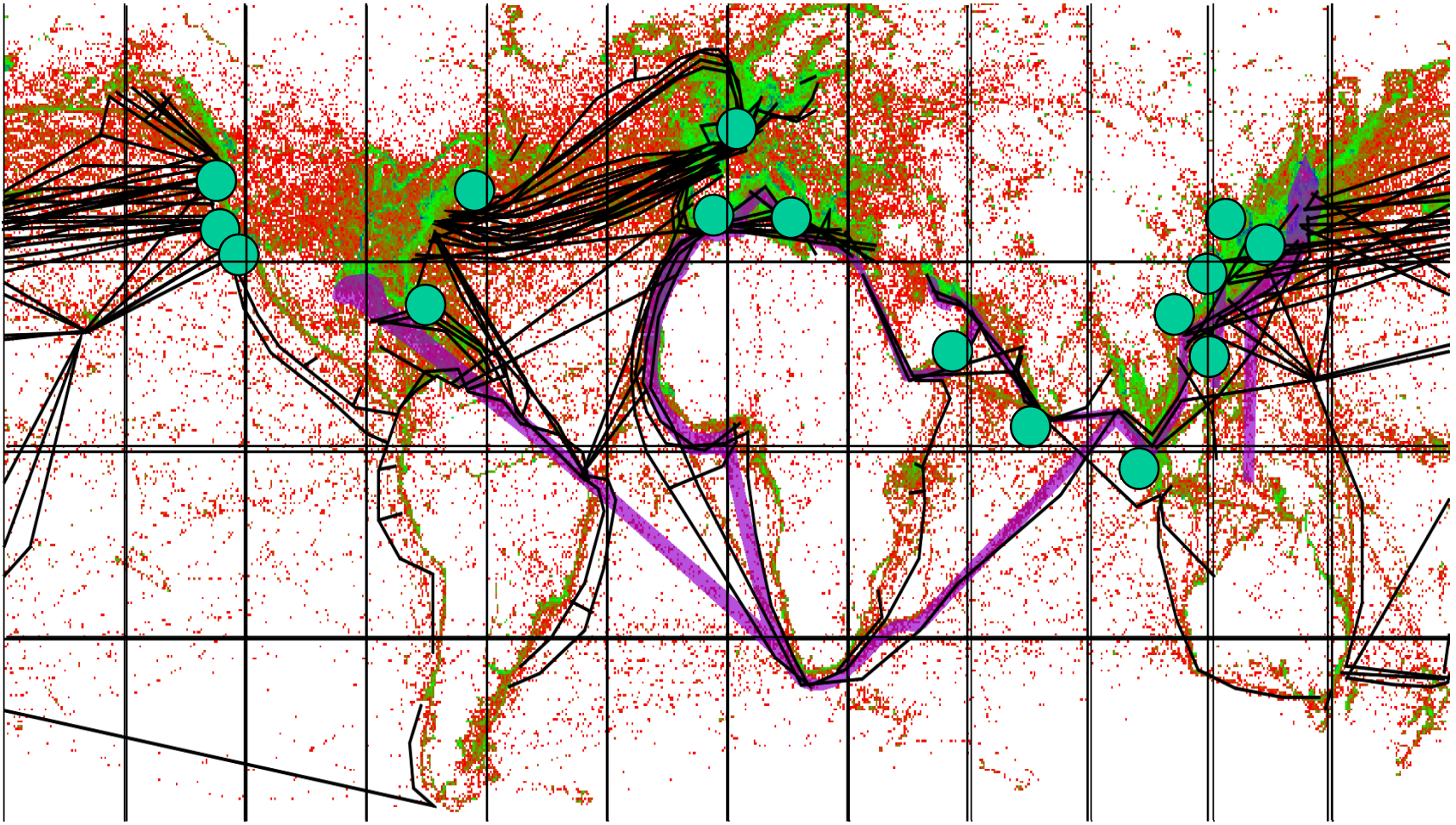
“Dissuasion” = f (present value of future capabilities, future value of present capabilities)



Global Trends

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Globalization II → Globalization III



Industrial Age → Information Age



Fundamental Question



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What do we mean by
Innovation in Defense?



Security Environment

... *Four Challenges*





Military Innovation: Historical Insight



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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.

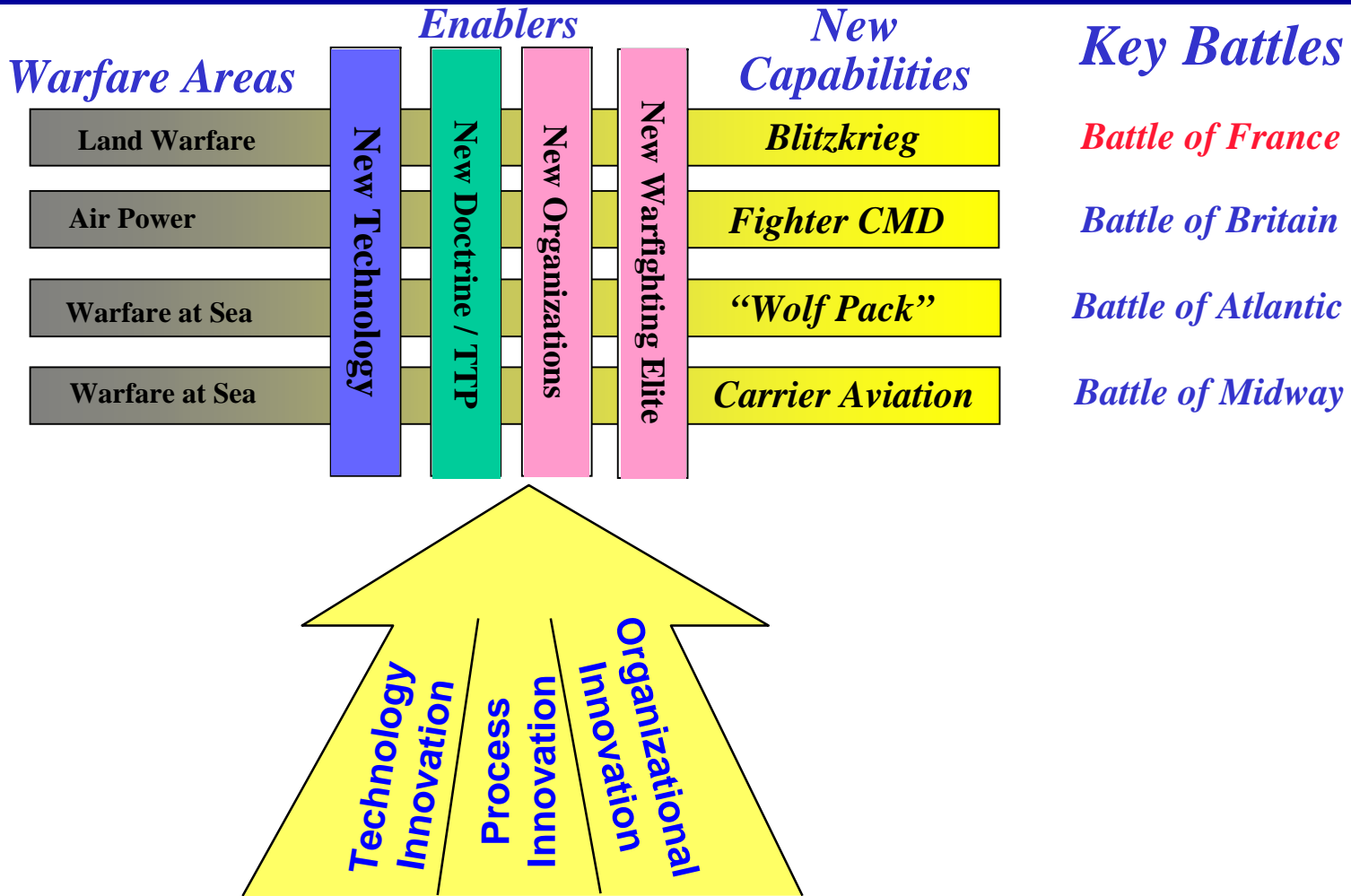
American & British Aircraft Carrier Development: 1914-1941



Creating Competitive Advantage: Warfighting Innovation



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Warfighting Innovation → Competitive Advantage



Creating Competitive Advantage

...Historical Insights



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- Land Warfare: Sustained Rate of Fire
 - Rifle (1.8×10^1 rounds per minute)
 - Machine Gun (6×10^2 rounds per minute)
- Air Warfare
 - Precision Weapons + Precision Targeting
 - Sorties per Target \longrightarrow Targets per Sortie
- Warfare at Sea: Range of Engagement
 - Battleship: 1.8×10^1
 - Carrier Aviation: 1.8×10^2



Globalization III



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U.S. Military Responses to Situations, 1990-2002

-  Evac's
-  Peace/Relief
-  Contingency Positioning
-  Show of Force
-  Combat

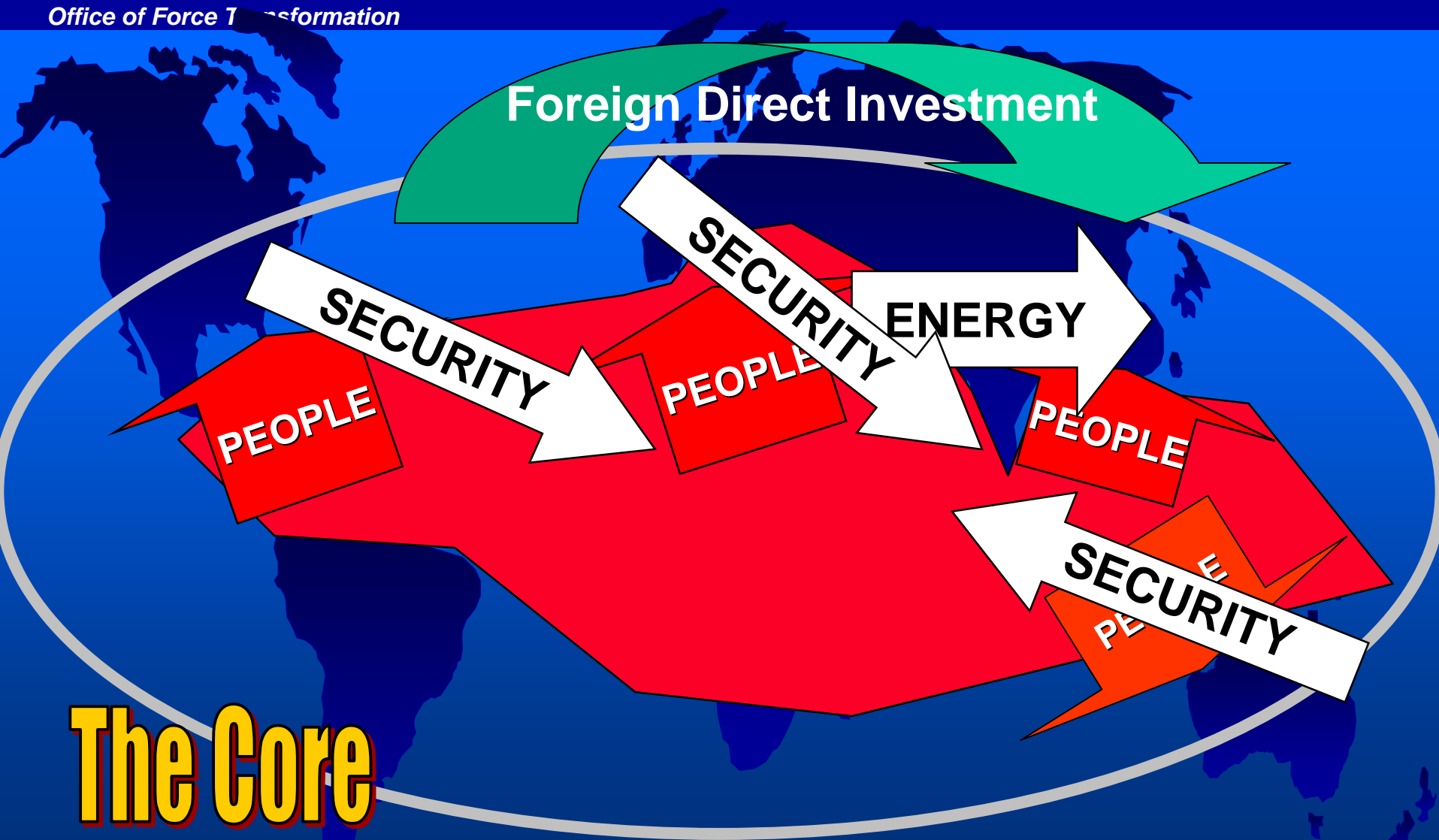


Globalization III

...Major Flows



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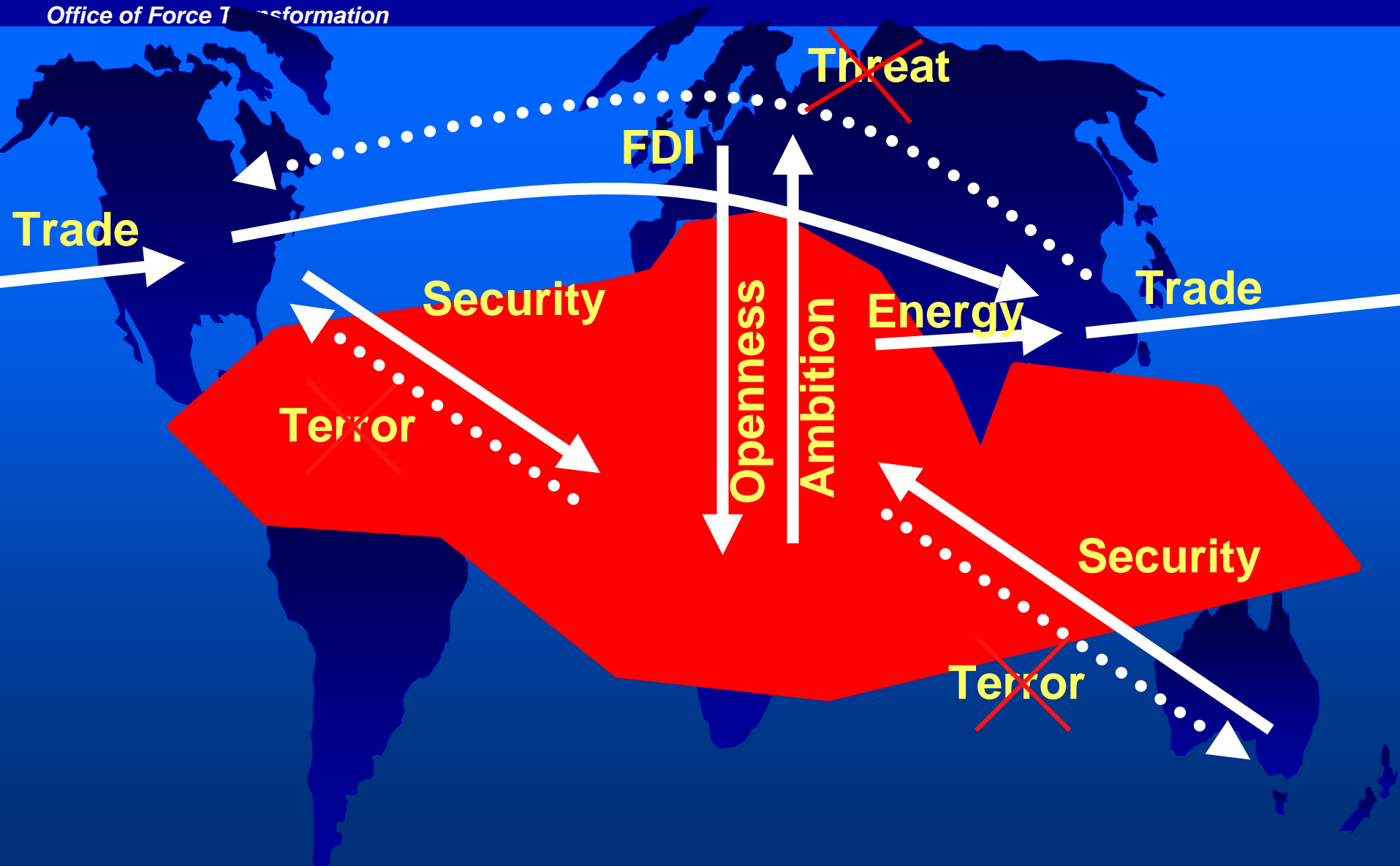


Globalization III

...Major Transactions



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Commander in Chief's Perspective



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“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***



CNO's Perspective

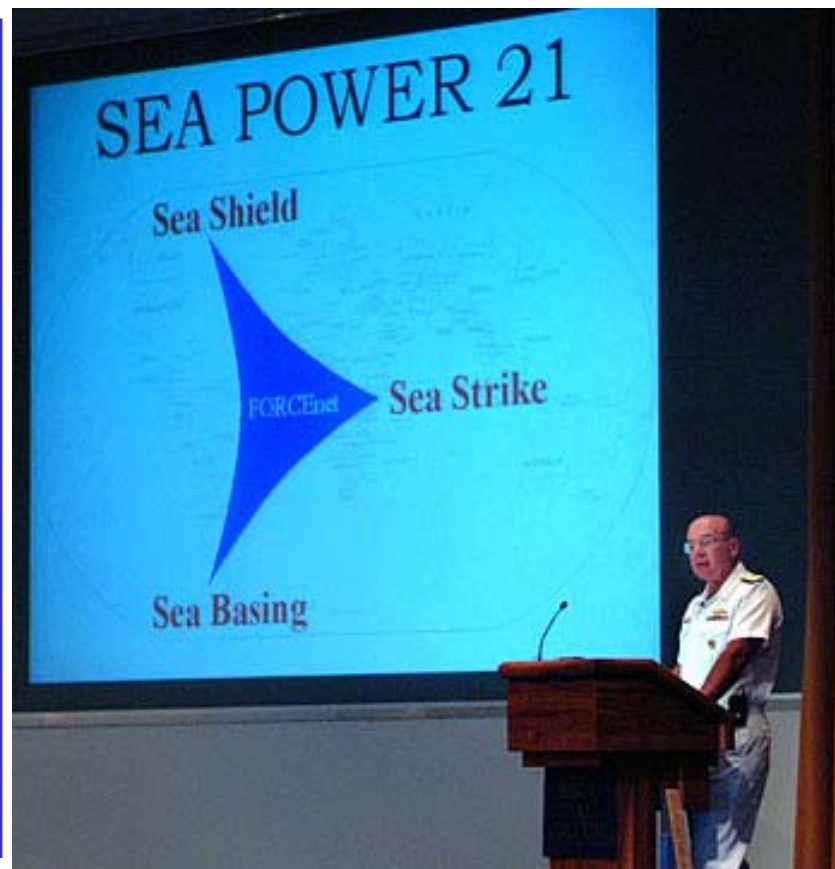


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“The key now is to accelerate this progress through a culture of innovation. ...*Aggressive innovation, experimentation, and education are fundamental to meeting the challenges of an uncertain future.*”

- CNO Admiral Vern Clark

Remarks at Current Strategy Forum 2002
Naval War College, Newport, RI





Transformation

...Elements



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- ✓ 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

- *New technology context*
- *Broadened threat context*
- *New strategic context*

A Broad and Sustained Competitive Advantage



Meeting the Challenges of the New Competitive Landscape



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