Transforming Defense

- ***The Role of Defense in National Security***

- ***The Management of Defense***

- ***The Force***

> As National Strategy
>
> As Corporate Strategy
>
> As Risk Management Strategy

Vision: Broad and Sustained Competitive Advantage

Arthur K. Cebrowski, Director, Force Transformation

Transforming Defense

…A description

Elements of Transformation

- ☑ 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 strategic context
•Broadened threat context
•Technological threats facilitated by falling barriers to competition

•As National Strategy

•As Corporate Strategy

•As Risk Management Strategy

Vision: *Broad and sustained competitive advantage*

Transforming Defense

…Compelling need

New strategic context

New Theory of War based on information age principles and phenomena

New relationship between operations abroad and homeland security

New concept/sense of security in the American citizen

Broadened threat context

State/Non-State

Nodal/Non-nodal

Symmetric/Asymmetric

Traditional/Unrestricted

New technological threats facilitated by the falling barriers to competitive entry

Immediate accessibility to highly capable low cost IT

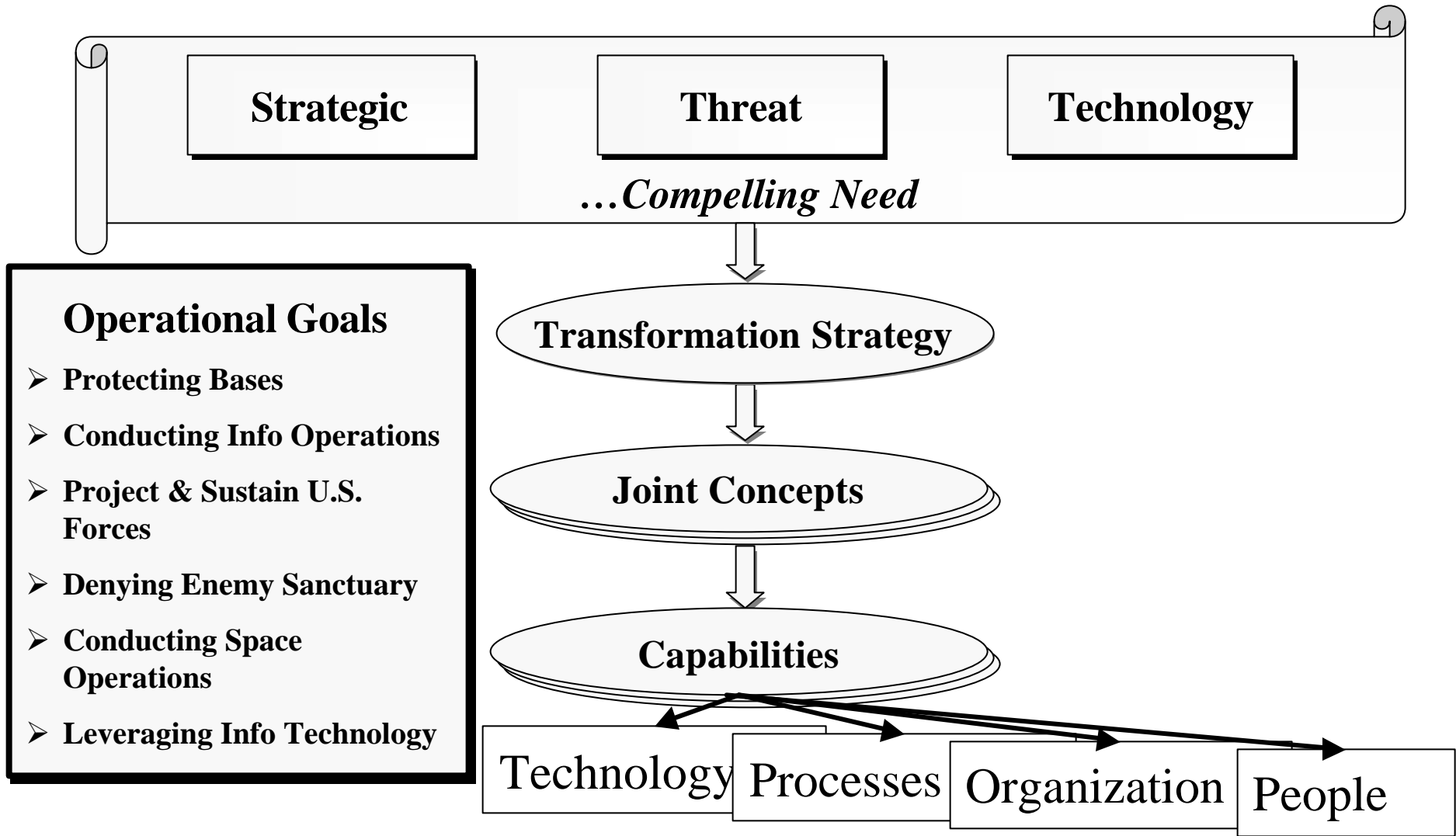*Opens key operational domains to competition: space, sea, cyberspace*

To the extent we do not transform, we are at risk
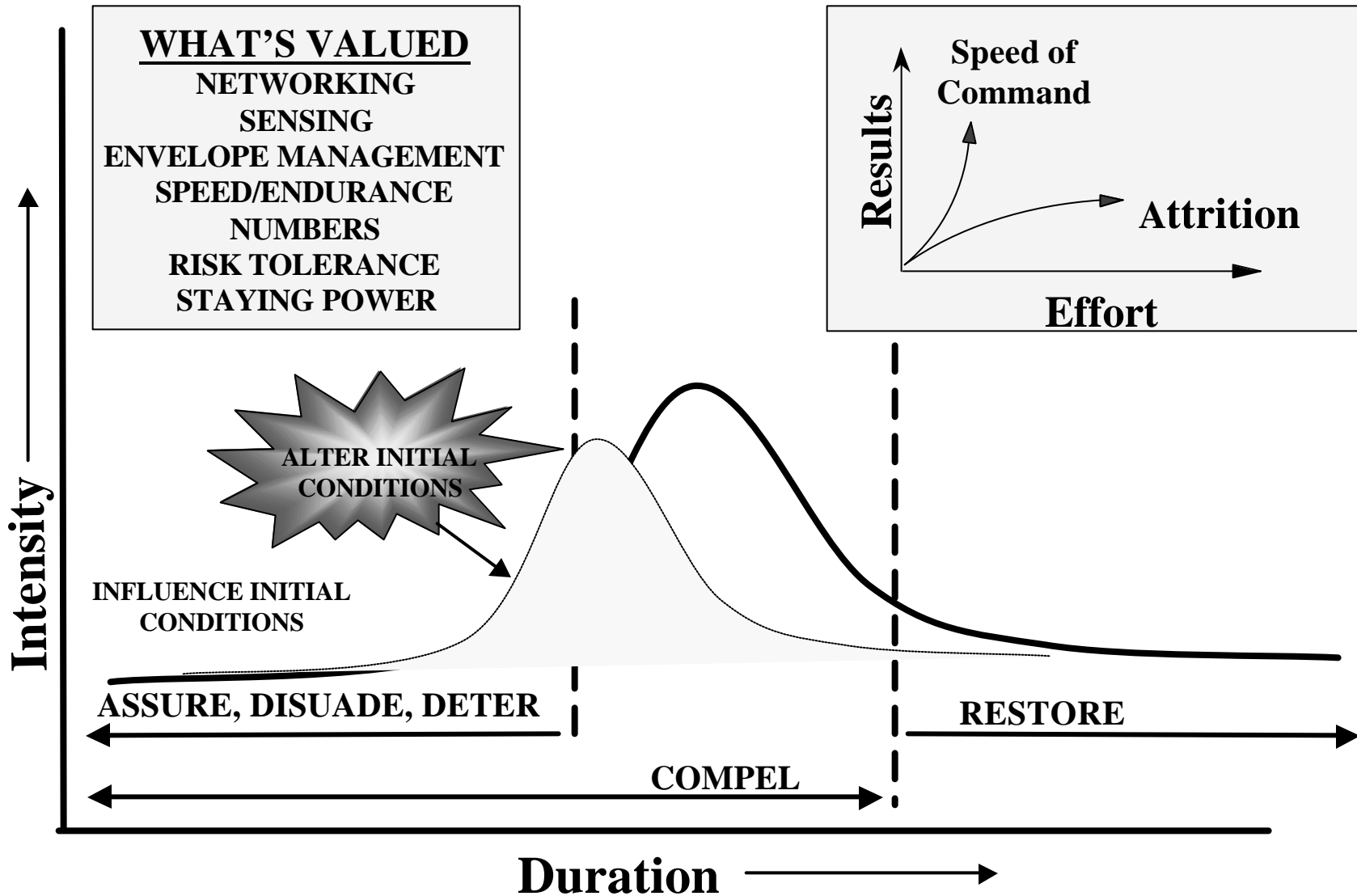
Transforming Defense

… Methodology

Strategic	Threat	Technology

…Compelling Need

Operational Goals

- ➢ **Protecting Bases**
- ➢ **Conducting Info Operations**
- ➢ **Project & Sustain U.S. Forces**
- ➢ **Denying Enemy Sanctuary**
- ➢ **Conducting Space Operations**
- ➢ **Leveraging Info Technology**

Transformation Strategy

Joint Concepts

Capabilities

Technology | Processes | Organization | People

Transforming Defense

…deter forward…or defeat with modest reinforcement

WHAT'S VALUED
NETWORKING
SENSING
ENVELOPE MANAGEMENT
SPEED/ENDURANCE
NUMBERS
RISK TOLERANCE
STAYING POWER

Speed of Command

Results

Attrition

Effort

ALTER INITIAL CONDITIONS

INFLUENCE INITIAL CONDITIONS

Intensity

ASSURE, DISUADE, DETER

RESTORE

COMPEL

Duration

Transforming Defense

Strategic Maneuver/Balance

    Forces forward

    Strategic deploy from home

    Allies

Operational Maneuver

    From forward garrison

    From the sea

    From strategic distances

Deter Forward

    2d derivative force

    Sustaining force

    Constabulary/Nation-building force

Network-Centric Warfare

Based on human behavior

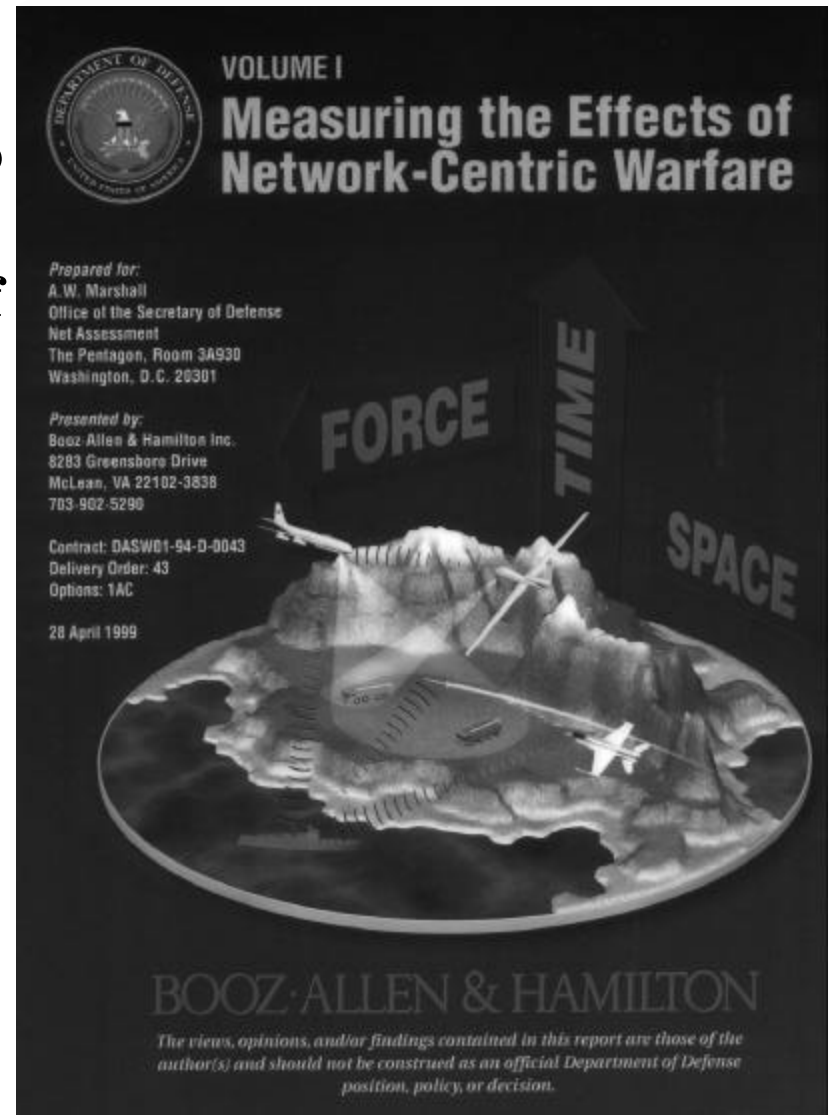Translates an information advantage into a competitive advantage.

Derives power from robust networking of geographically dispersed forces.

Characterized by:

Shared battlespace awareness,
Shared knowledge of commanders intent,
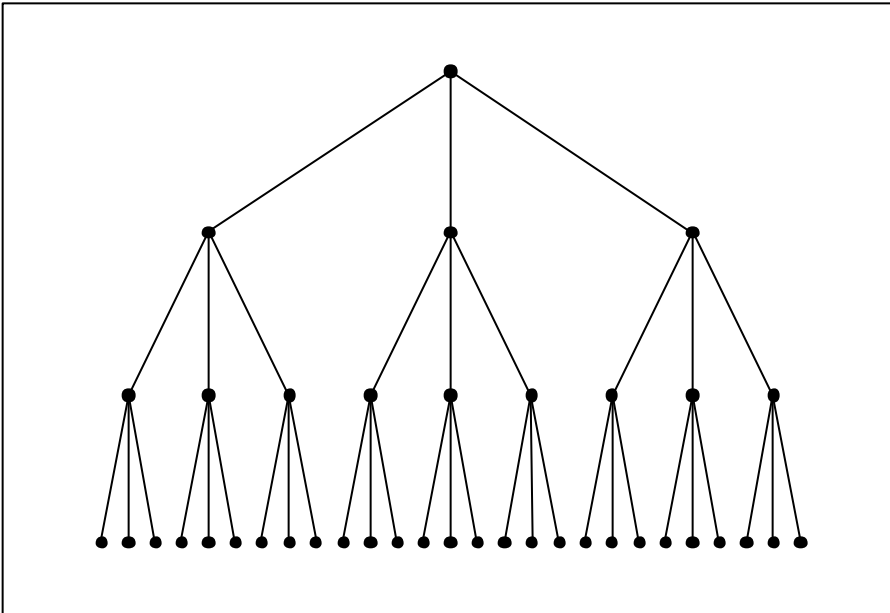Self-synchronization, speed of command, and rapid lock-out.

> *If you're not interoperable, you're*
> *not on the net*
> *not contributing*
> *not benefiting*
> *Not part of the information age!*

VOLUME I
Measuring the Effects of Network-Centric Warfare

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Office of the Secretary of Defense
Net Assessment
The Pentagon, Room 3A930
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FORCE TIME SPACE

BOOZ·ALLEN & HAMILTON

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Chains versus Networks

Chain

Too brittle, simple pattern, simple control, scaled

"business end" most poorly connected, hard to reconfigure or change flow
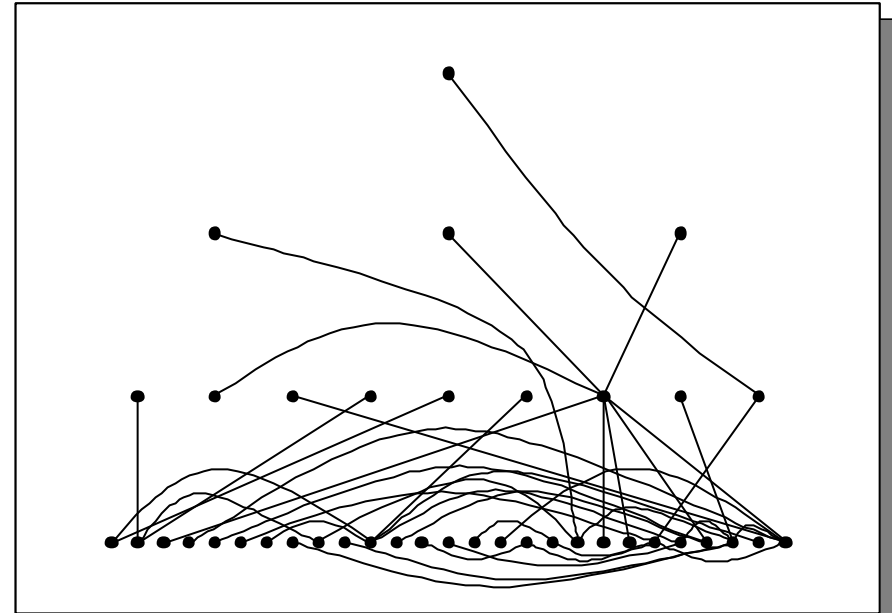
Network
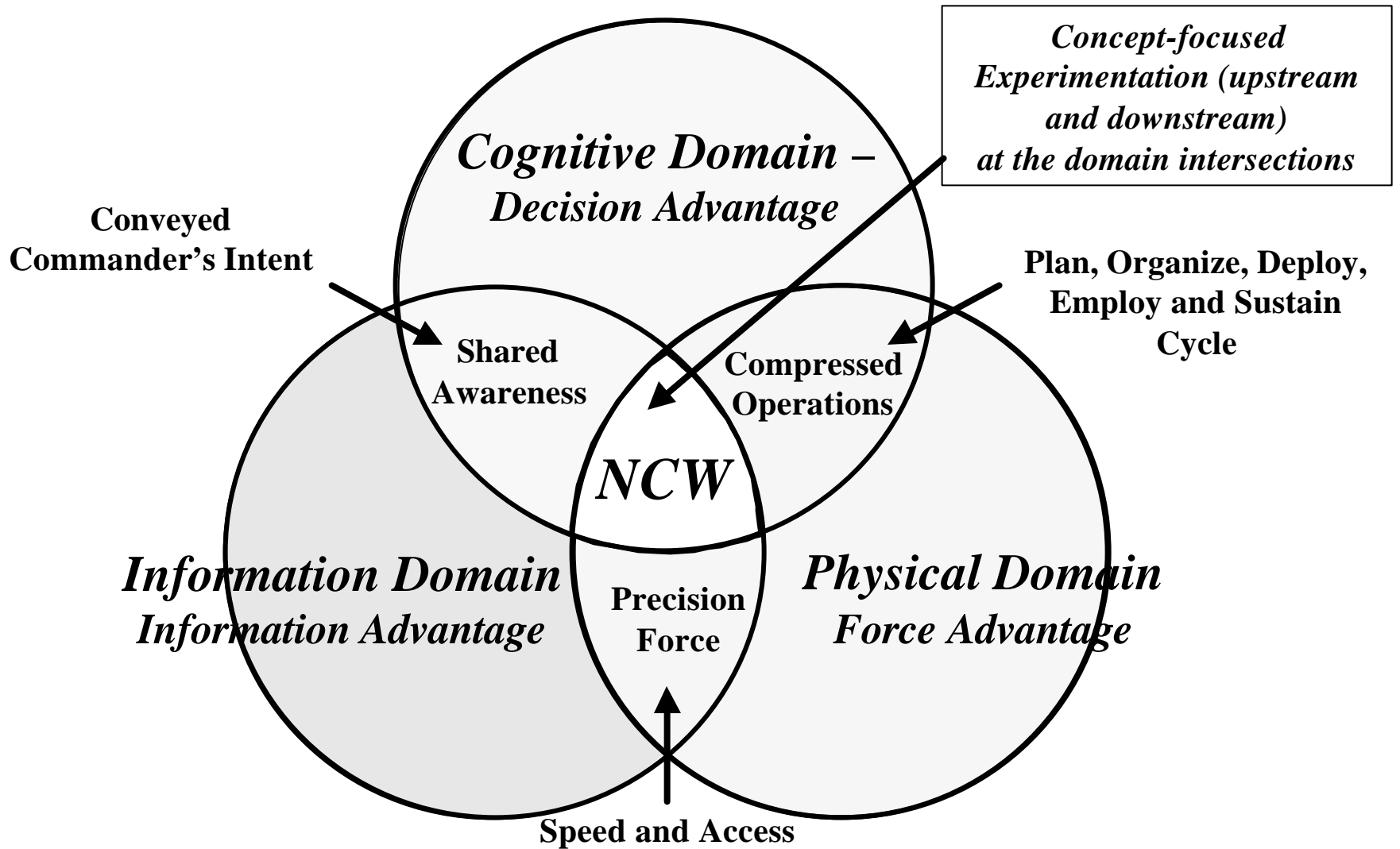
Very robust, complex pattern, complex control, scale free

"business end" best connected, natural to reconfigure or change flow

Information-Age Warfare

...Domains of conflict

Cognitive Domain –
Decision Advantage

Concept-focused Experimentation (upstream and downstream) at the domain intersections

Conveyed Commander's Intent

Plan, Organize, Deploy, Employ and Sustain Cycle

Shared Awareness

Compressed Operations

NCW

Information Domain
Information Advantage

Precision Force

Physical Domain
Force Advantage

Speed and Access

Transforming Defense

…The new American Way of War

The New Rules

- Fight first for ***information superiority***
- ***Speed*** of command
- Access to information-***shared awareness***
- ***Dispersed forces***-noncontiguous operations
- ***Demassification***
- Elimination of ***process lines***
    (eg. organize, deploy, employ, sustain,ops,
     intel, logistics)
- Elimination of ***structural lines***
    (eg. Joint ops at the small unit level)
- Dynamic ***self-synchronization***
- ***Alter*** initial conditions
- Develop ***high rates of change***
- ***Compression*** of levels of war

NETWORK CENTRIC WARFARE

**HIGH RATES OF CHANGE
CLOSELY COUPLED EVENTS
LOCK IN/OUT
SPEED OF COMMAND
SELF SYNCHRONIZATION**

WHAT'S VALUED

**NETWORKING
SENSING
ENVELOPE MANAGEMENT
SPEED/ENDURANCE
NUMBERS
RISK TOLERANCE
STAYING POWER**

The Emerging American Military:

- *More expeditionary (including lighter, more lethal)*
- *More networked (more interoperability at the JTF level)*
- *Designed to leverage the exterior positions (precision from distance as sensors move in)*
- *Leverages increasingly persistent ISR*
- *Tighter sensor-shooter timelines (sensing, C2, fly-out)*
- *Values Information Superiority (information operations)*
- *Expanded unmanned capabilities (UAV, UCAV, UUV, robotics)*

Transforming Defense
… What's needed

A Military Force which:

- *Is more preventative, and less punitive*

- *Can determine unambiguous warnings sooner*

- *Is ISR – intensive, especially for counter - WMD*

- *Is more SOF - like*

- *Develops extensive local knowledge*

- *Can down shift to match threat*

- *Is less reliant on guard and reserves for foreign wars*

Transformation Implementation
…Two-front Strategy

Program	Operations

Program

Long Timelines
Future Forces
Budgets

Processes

Efficiency (Optimization)

Consensus

Operations

Short Timelines
Current Ops
Capabilities

Actions

Effectiveness (Fitness)

Jointness

Transformation as a function of Programs and Dollars, Organization	Transformation as a function of Behavior and Capabilities, Teamwork/Training

Capability

Transformation

Backup

Enduring Freedom

…March 2 − 3
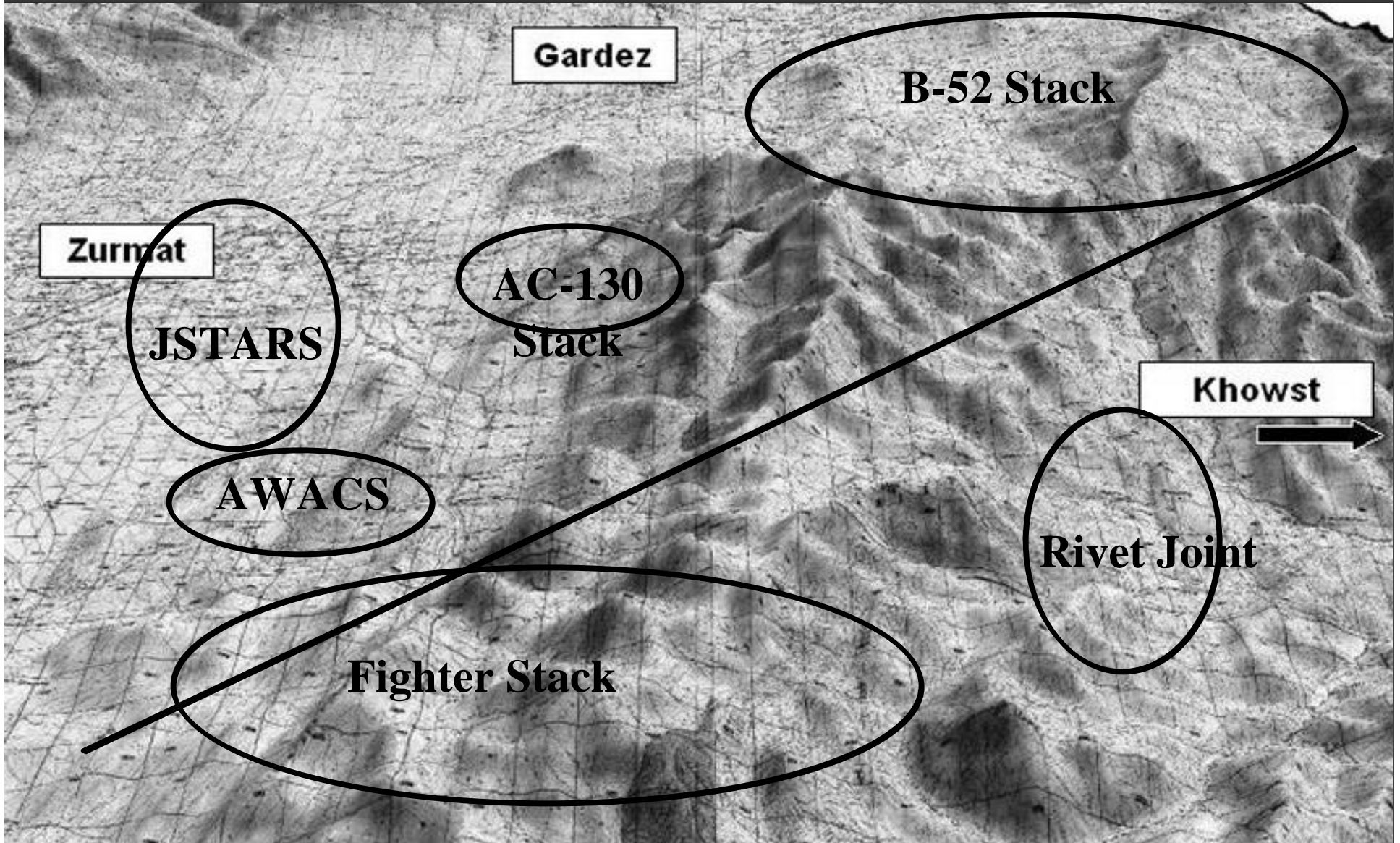
Area of Operations

…Aerial View

Area of Operations

…Ground View

Aerial View

Office of Force Transformation
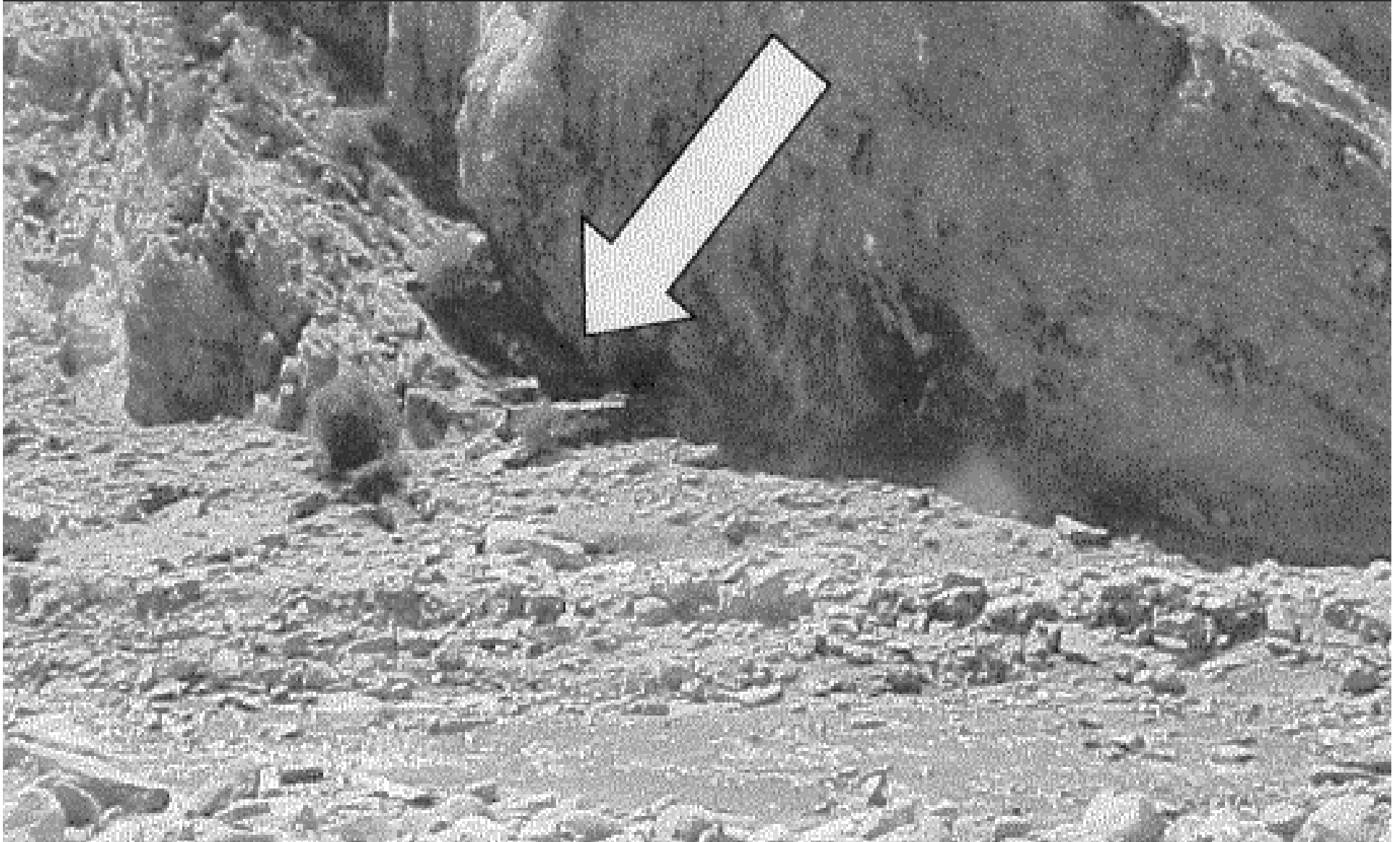
23.44.012

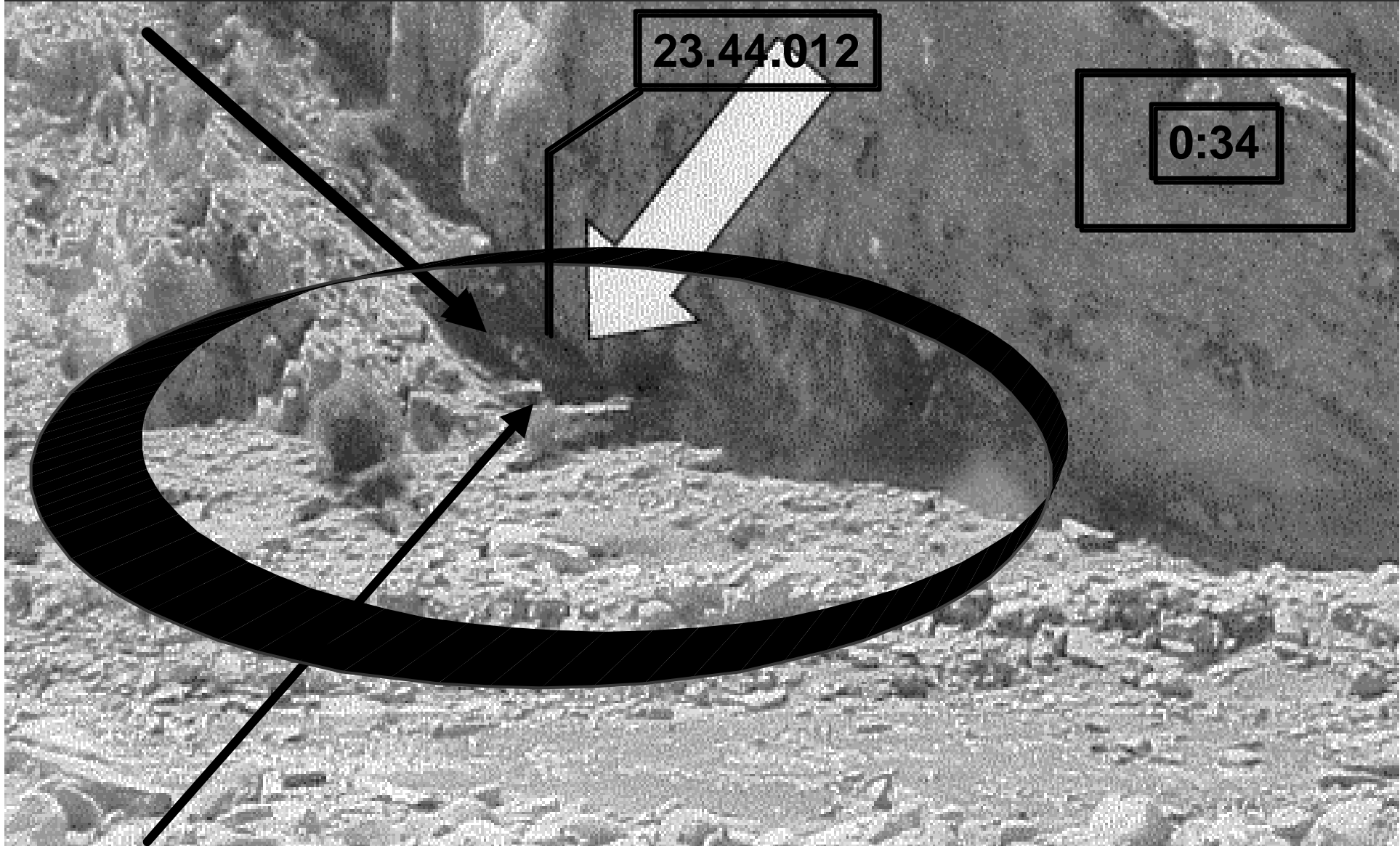# Ground View

…Overlay of Other Source Information

Office of Force Transformation

23.44.012

0:34

Transforming Defense

Office of Force Transformation

Transform from Industrial Age to the Information Age
Implement Network Centric Operations

Ensure sustained competitive advantage
Assure Allies
Dissuade competitive entry
Underwrite deterrence
Implement countervailing strategies

Broaden the capabilities base
Operational, Technical, Industrial
Create new competitive areas
Revalue competitive attributes for the information age
Decrease capabilities cycle time

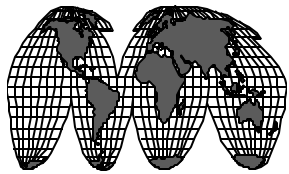## Leverage U.S. advantages and opportunities
Manage the devolution of "sunset" capabilities and processes

> *Achieve Speed and Agility vice Optimization*
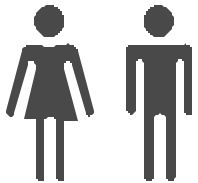
Violence in the Globalization Era

But most of system's power and competition are up here . . .

- Economics races ahead of politics
- Technology ahead of rules
- Potential threats ahead of realized
- Vulnerabilities ahead of robustness

Governance Gap

. . . and most of the violence and "threats" are down here

Transforming Defense

Global Interests — Homeland Security

MAD
Containment

1990

= Surrogate Wars

2000

Global Interests — Homeland Security
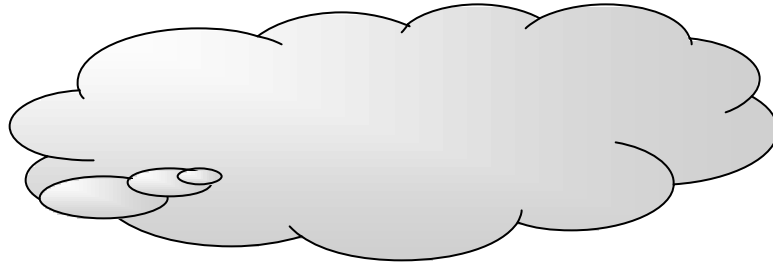
Projecting Defense?
Containment Globalized?

= System Perturbations and Consequences

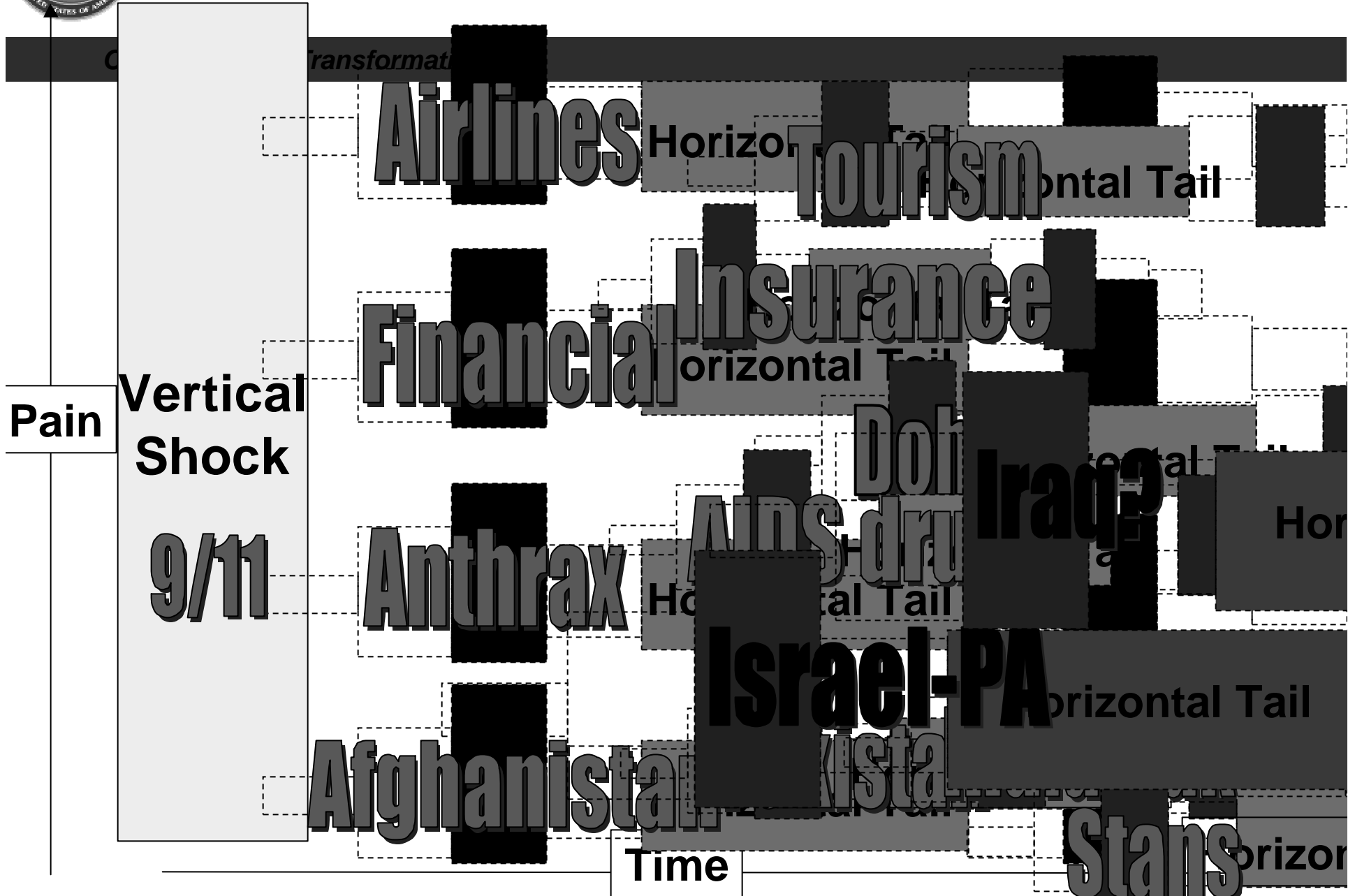# System Perturbation

- An international security order thrown into a state of some confusion by a perversely shocking development centered somewhere in the globalized economy.

- This "vertical" shock generates an outflow of "horizontal" waves whose cascading effects cross sectoral boundaries, which may not dampen but amplify

- In this outflow process, seemingly every rule set is somehow disturbed, knocked out of equilibrium, or intrinsically rearranged.

- This *fluxing* of the system is temporary, but path dependent and chaotic.

- Endstates encompass the return of old rules, the rise of entirely new rule sets, and the merging of old and new.

The System Perturbation

Pain

Vertical Shock

9/11

Time

Airlines   Horizontal Tail   Tourism   Horizontal Tail

Financial   Insurance   Horizontal Tail

Doha   Iraq?   Horizontal Tail

Anthrax   Ains-dru   Horizontal Tail

Israel-PA   Horizontal Tail

Afghanistan   Pakista   Stans   Horizon

The System Perturbation

Pain

Vertical Shock

9/11

Time

Airlines

Tourism

Horizontal Tail

Financial

Insurance

Horizontal Tail

Doha

Iraq?

Anti-drug

Anthrax

Horizontal Tail

Israel-PA

Horizontal Tail

Afghanistan

Pakistan

Stans

Horizontal

Transformation

On 9/11, A Map Redrawn

Office of Force Transformation

The Core

Functioning

Functioning

Functioning

Functioning

Mostly Non-Integrating Gap

Functioning

Functioning

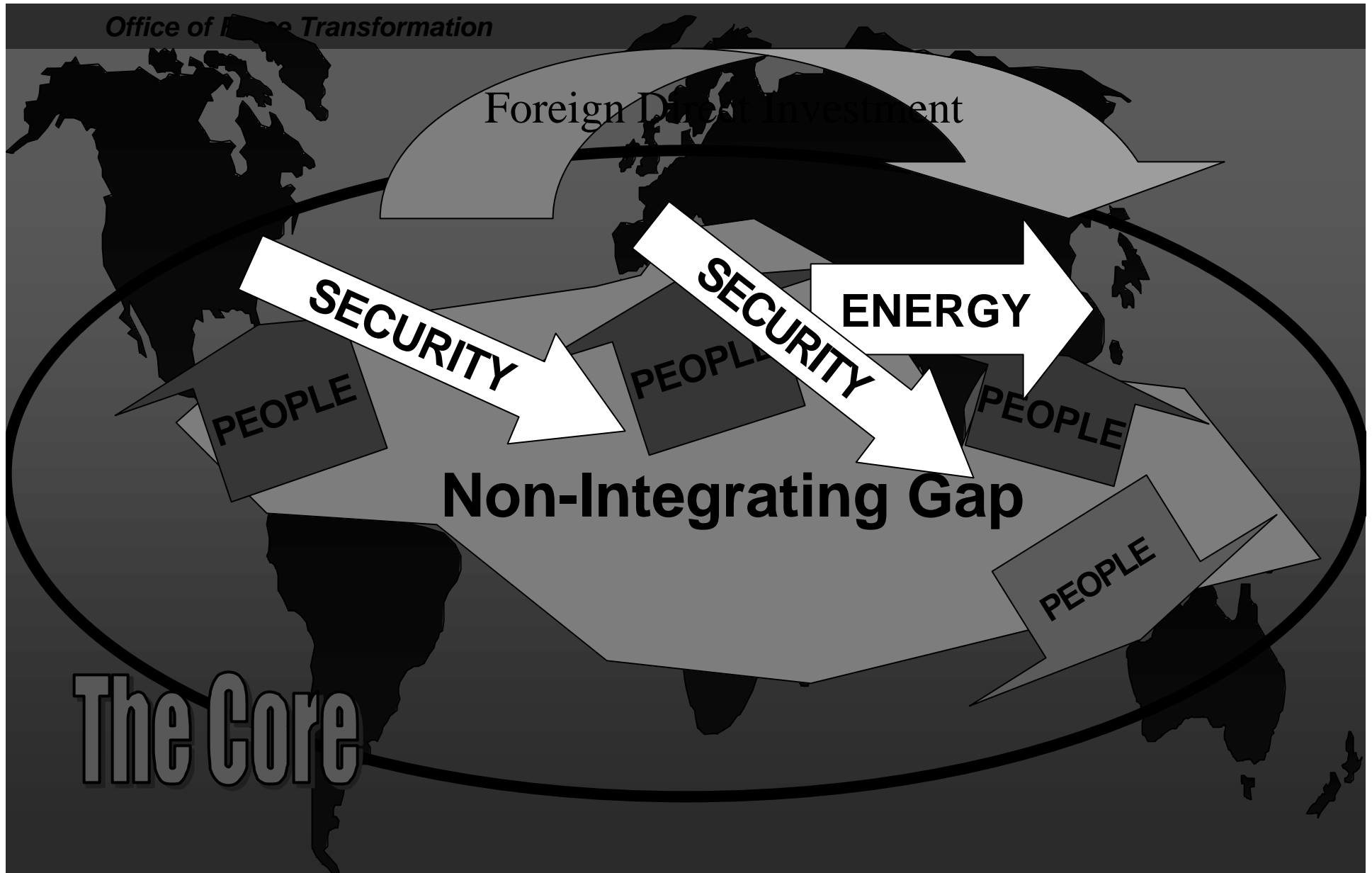**U.S. Naval Responses to Situations, 1990-1999**

Evac's   Relief   Contingency Positioning   Show of Force   Combat

Globalization's Major Flows

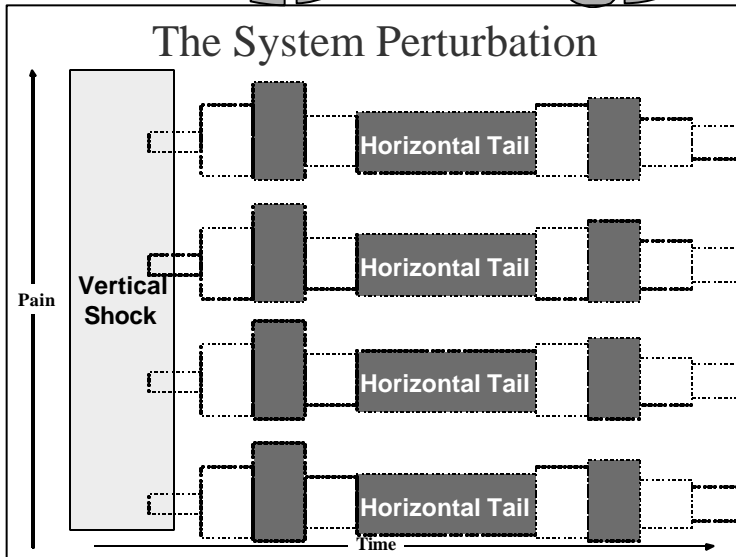Foreign Direct Investment

SECURITY

SECURITY

ENERGY

PEOPLE

PEOPLE

PEOPLE

PEOPLE

Non-Integrating Gap

The Core

Globalization's Major Transactions

The Transaction Strategy

We master

The System Perturbation

Pain

Vertical Shock

Horizontal Tail

Horizontal Tail

Horizontal Tail

Horizontal Tail

Time

to enable

Globalization's Major Transactions

Threat

FDI

Trade

Security

Trade

Openness

Ambition

Energy

Terror
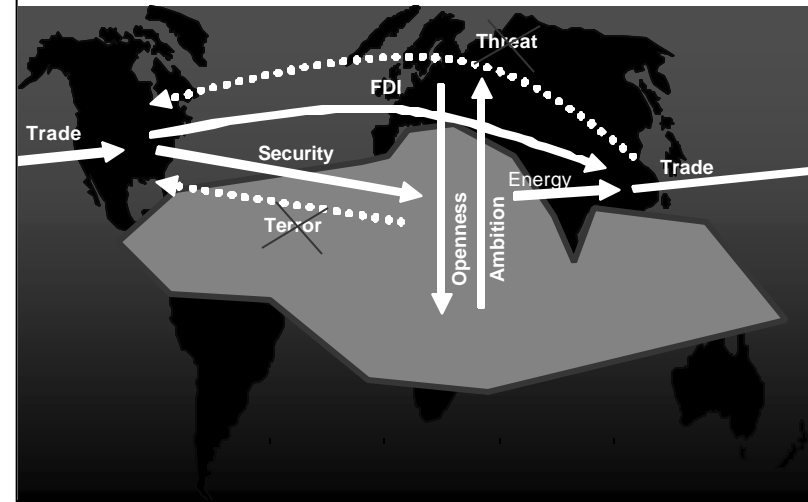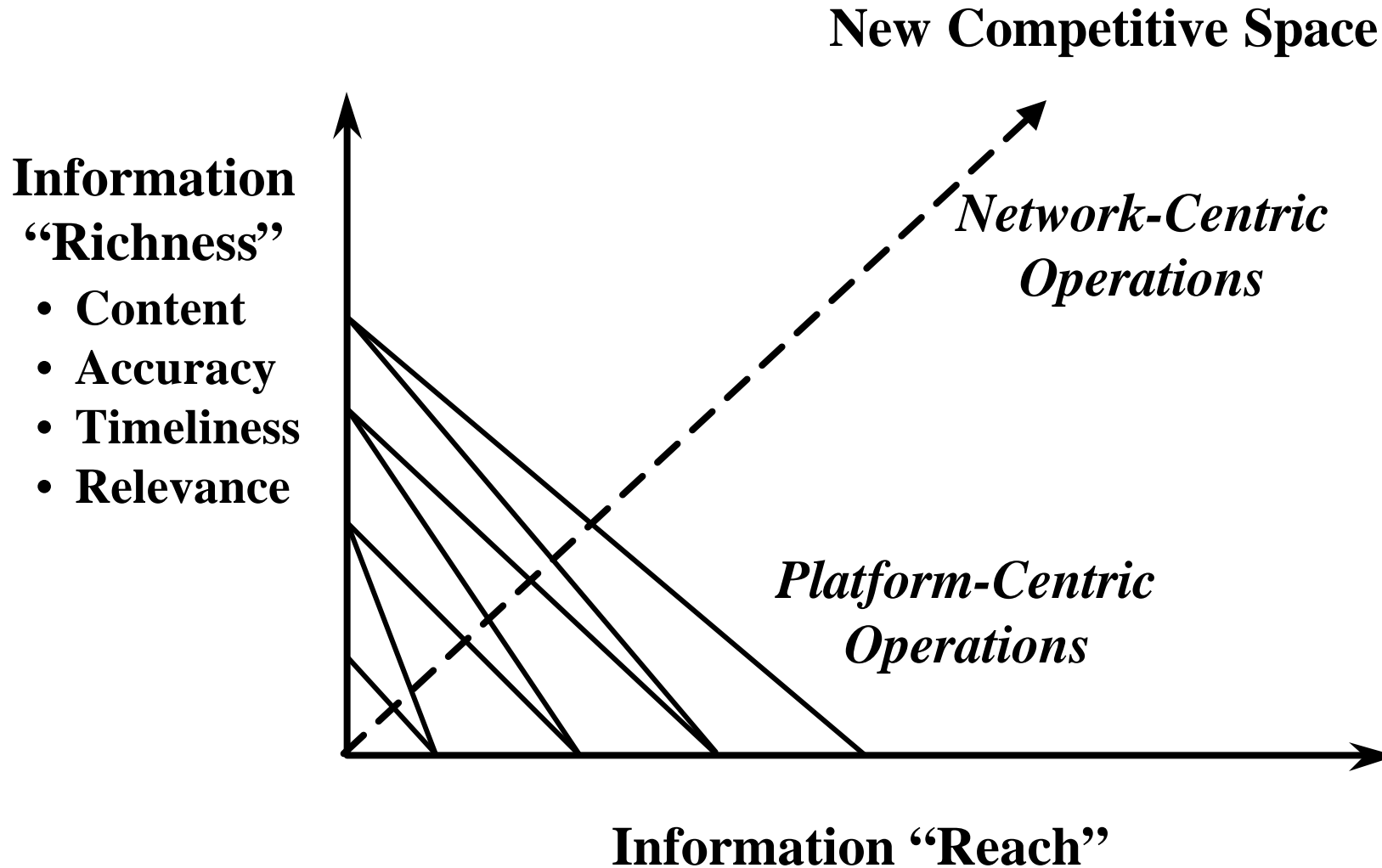
The Leviathan as System Administrator

- Determinism: Markets rule!
- Realism: We protect our privileged position
- Idealism: We shrink the Gap over time

Competitive Advantage

…New sources of power

New Competitive Space

Information "Richness"
- **Content**
- **Accuracy**
- **Timeliness**
- **Relevance**

Network-Centric Operations

Platform-Centric Operations

Information "Reach"

The Power of the Collective

Network Power = N^2 (Metcalf's Law)

Network Robustness = N!

Architectural Choices:

A → B
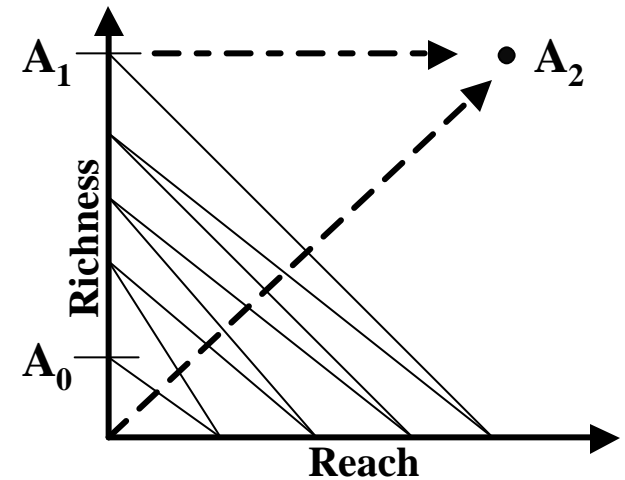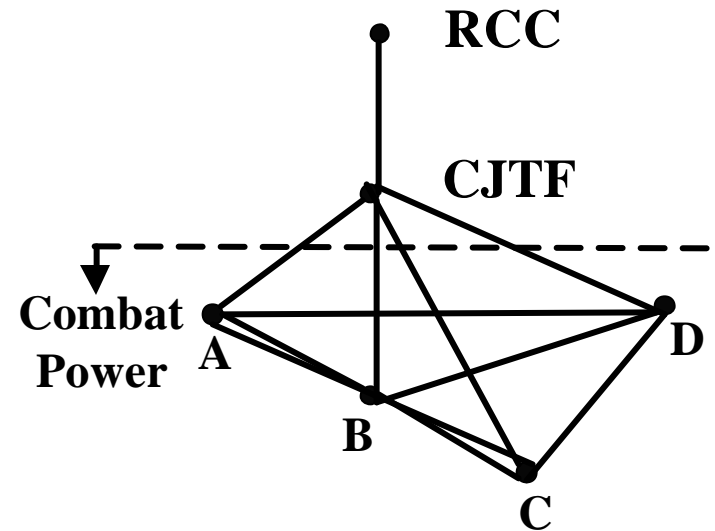A → C → B
A → D → B
A → D → C → B
A → C → D → B
.
.
.

Maximize "N"

"Peer-to-Peer"

"Power to the Edges"

As information goes down echelon, power follows!

Unless …

RCC

CJTF

Combat Power

A   D

B

C

A_1 A_2

A_0

Richness

Reach

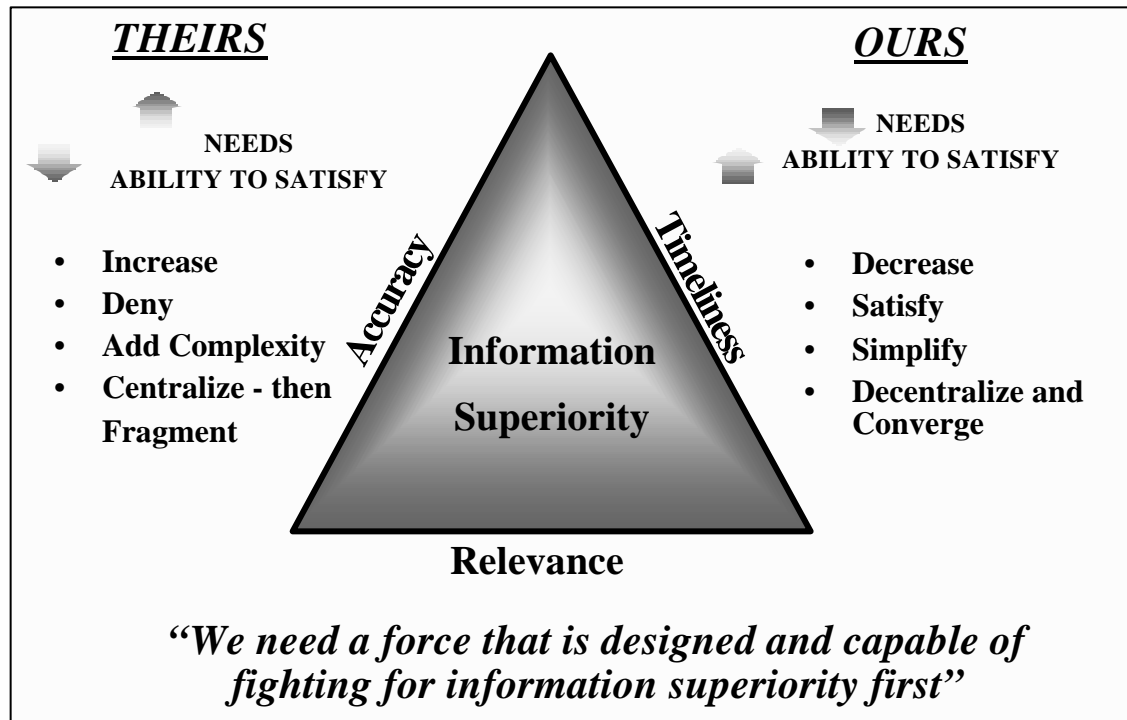# Competitive Advantage

…New sources of power

Information Advantage – Create *new source of power* with order of magnitude improvements in information sharing (Common Relevant Operational Picture)
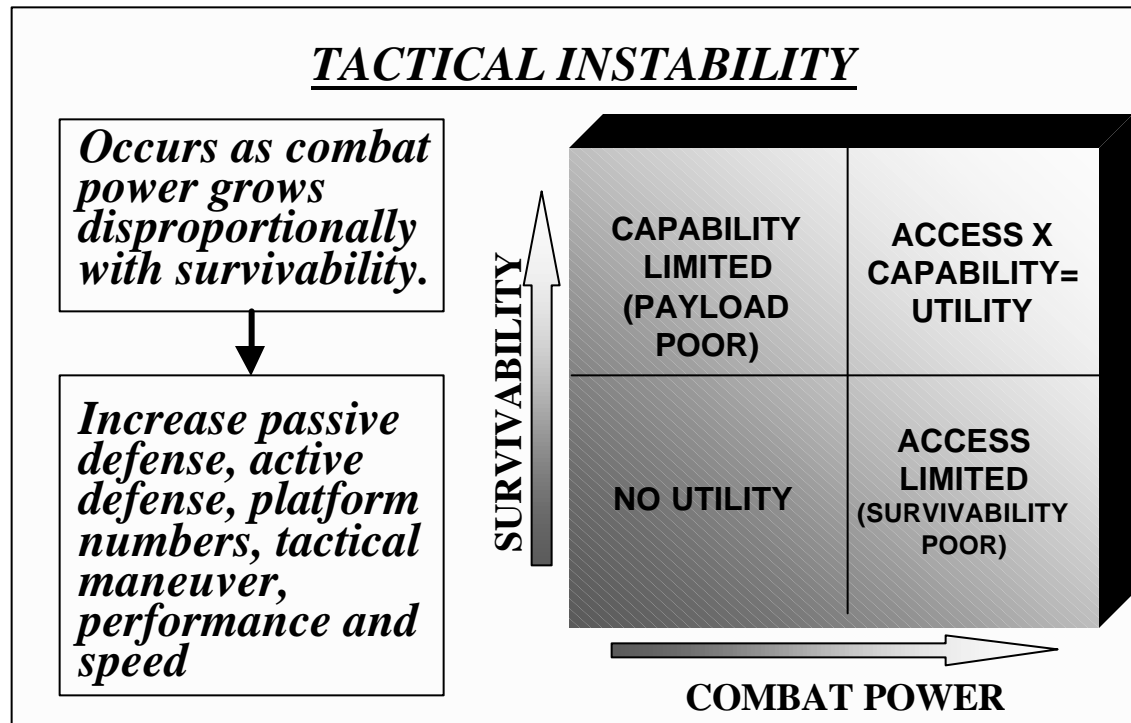

THEIRS

OURS

NEEDS
ABILITY TO SATISFY

NEEDS
ABILITY TO SATISFY

- Increase
- Deny
- Add Complexity
- Centralize - then Fragment

- Decrease
- Satisfy
- Simplify
- Decentralize and Converge

Accuracy

Timeliness

Information Superiority

Relevance

"We need a force that is designed and capable of fighting for information superiority first"

Competitive Advantage

…New sources of power

Physical Advantage – Gaining Advantage in force, space and time (physical expression of the impact of the information-age)

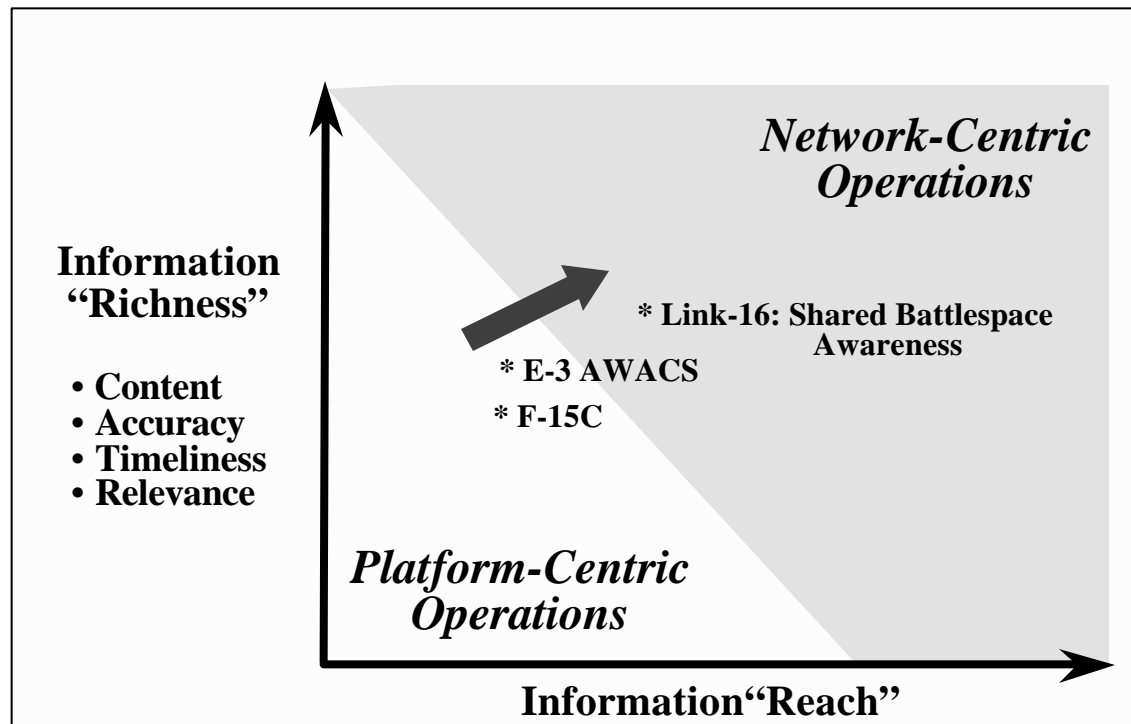TACTICAL INSTABILITY

Occurs as combat power grows disproportionally with survivability.

Increase passive defense, active defense, platform numbers, tactical maneuver, performance and speed

SURVIVABILITY

CAPABILITY LIMITED (PAYLOAD POOR)

ACCESS X CAPABILITY= UTILITY

NO UTILITY

ACCESS LIMITED (SURVIVABILITY POOR)

COMBAT POWER

Competitive Advantage

…New sources of power

Decision (Cognitive) Advantage – Self-synchronization, collaboration, coordination, precision of desired effects, "lock-out" to deny adversary the opportunity to compete, speeding up the "kill chain" to strike time-critical targets, enabling new TTP
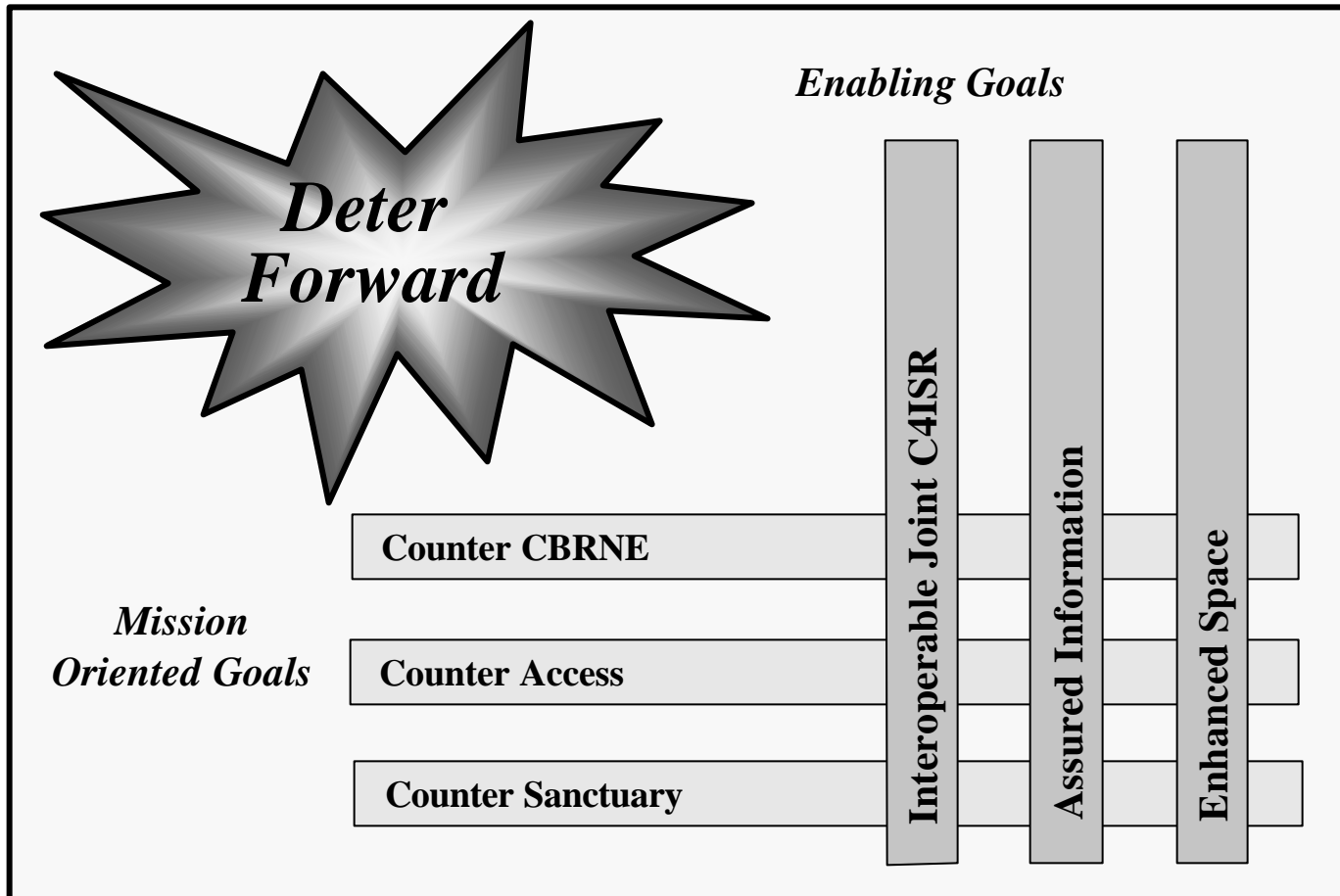
Network-Centric Operations

Information "Richness"

- Content
- Accuracy
- Timeliness
- Relevance

* Link-16: Shared Battlespace Awareness

* E-3 AWACS

* F-15C

Platform-Centric Operations

Information "Reach"

Transforming Defense

…as national security strategy(QDR)

Office of Force Transformation

Enabling Goals

Deter Forward

Interoperable Joint C4ISR

Assured Information

Enhanced Space
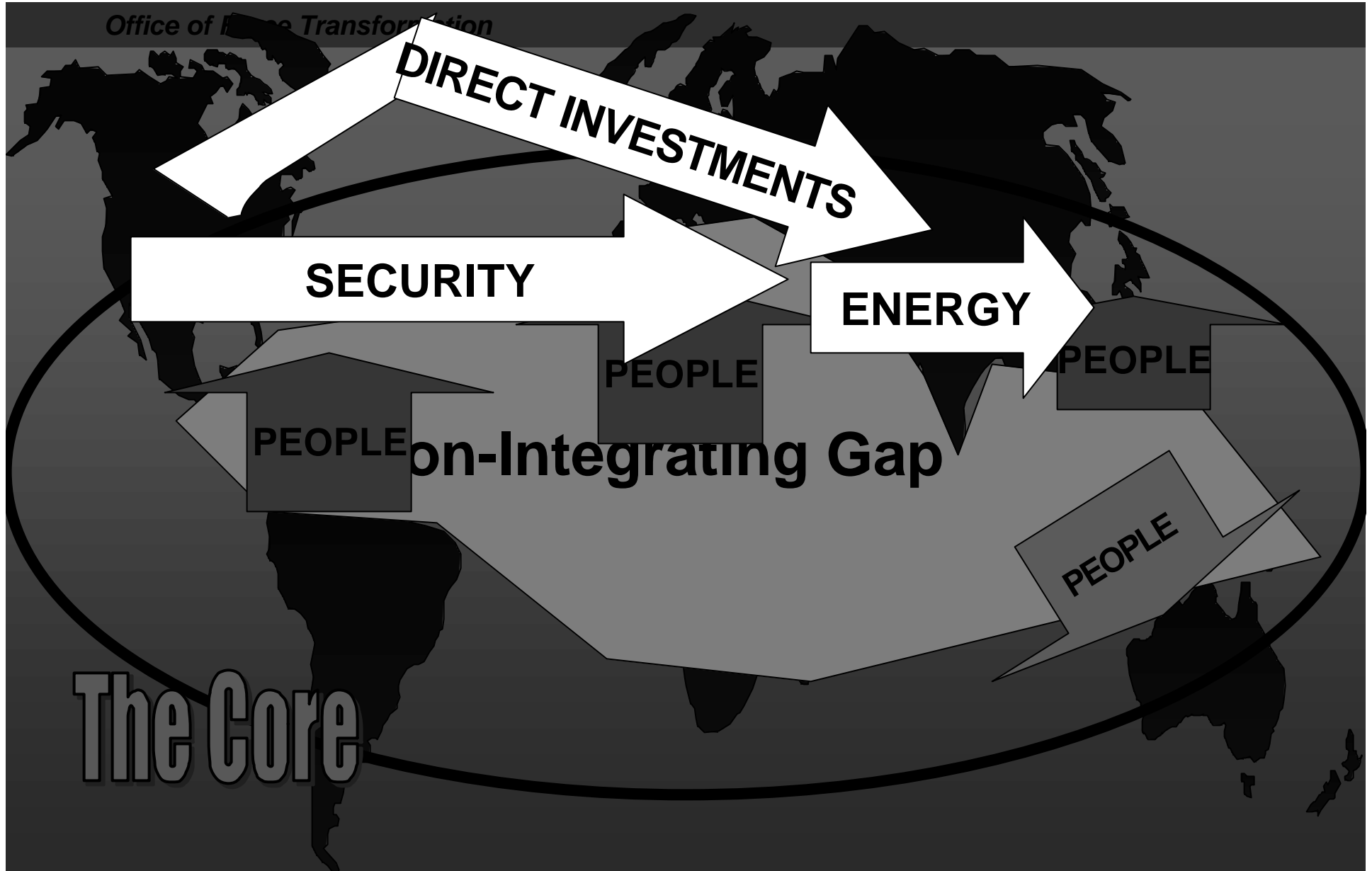
Counter CBRNE

Mission Oriented Goals

Counter Access

Counter Sanctuary

Transformation must…be focused on emerging strategic and operational challenges and the opportunities created by these challenges. Six operational goals provide the focus for DoD's transformation efforts."
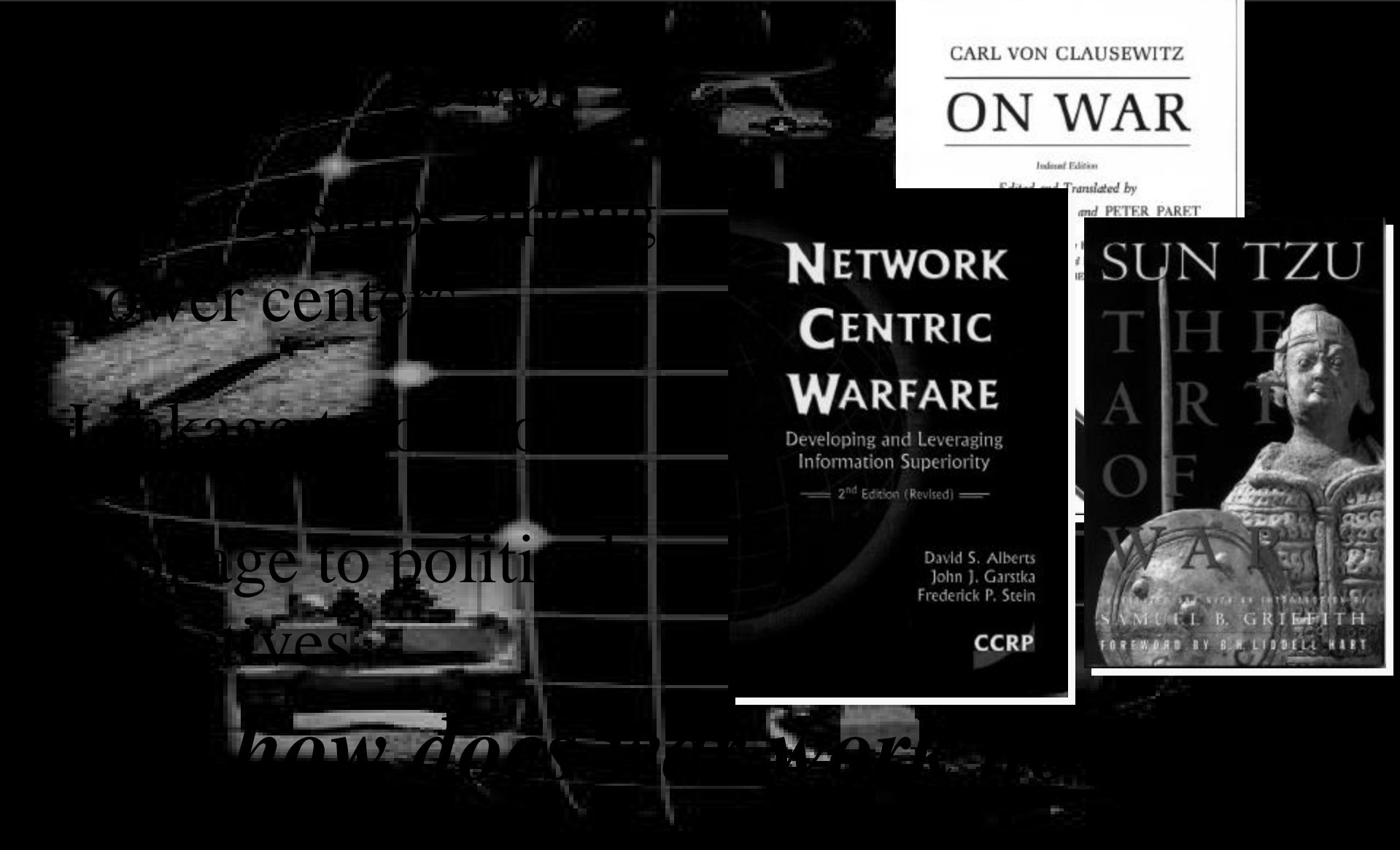
On 9/11, A Map Redrawn

Office of Force Transformation

The Core

Functioning

Functioning

But if you are not against globalization, then you should join the solution set

Functioning

If you are fighting against or losing to globalization, you are likely a problem for the U.S.

Mostly Non-Integrating Gap

Functioning

Functioning

U.S. Naval Responses to Situations, 1990-1999

Evac's · Relief · Contingency Positioning · Show of Force · Combat

Globalization's Major Flows

Transforming Defense

…To the Information-Age

Integrated systems ⟹ *Networking components*

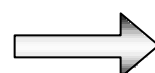**Precision weapons** ⟹ *Precision Effects*

Weapons reach ⟹ *Sensor reach*

Dispersed Offense ⟹ *Networked Force*

High volume strike force ⟹ *Full service maneuver force*

Securing the sanctuary ⟹ *Assuring Access*

Transforming Defense

Office of Force Transformation

The Department's efforts fall into three categories

- *<u>Incremental</u> capability enhancements generally termed "modernization"*

- *<u>Significant</u> capability improvements within the current American Way of War (medium jumps)*

- *<u>New</u> rule sets that leverage new sources of military power creating a new American Way of War (big bets)*

Create a new game with new rules

Wither Transformation?

- Rest of the world changes more than the U.S.

- Private sector changes more than the public sector

- Rest of U.S. Government changes more than DoD

- DoD changes more in the way it relates to the rest of the world than how parts within DoD relate to one another *(the new "jointness" is inter-agency and beyond)*

- DoD operations change more than the stuff we buy