



# Transforming Defense



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

*Globalization II*

*Globalization III*

*As National Strategy*  
*As Corporate Strategy*  
*As Risk Management Strategy*

*Vision: Broad and Sustained Competitive Advantage*

*Arthur K. Cebrowski*  
*Director, Force Transformation*  
*2 December 2003*

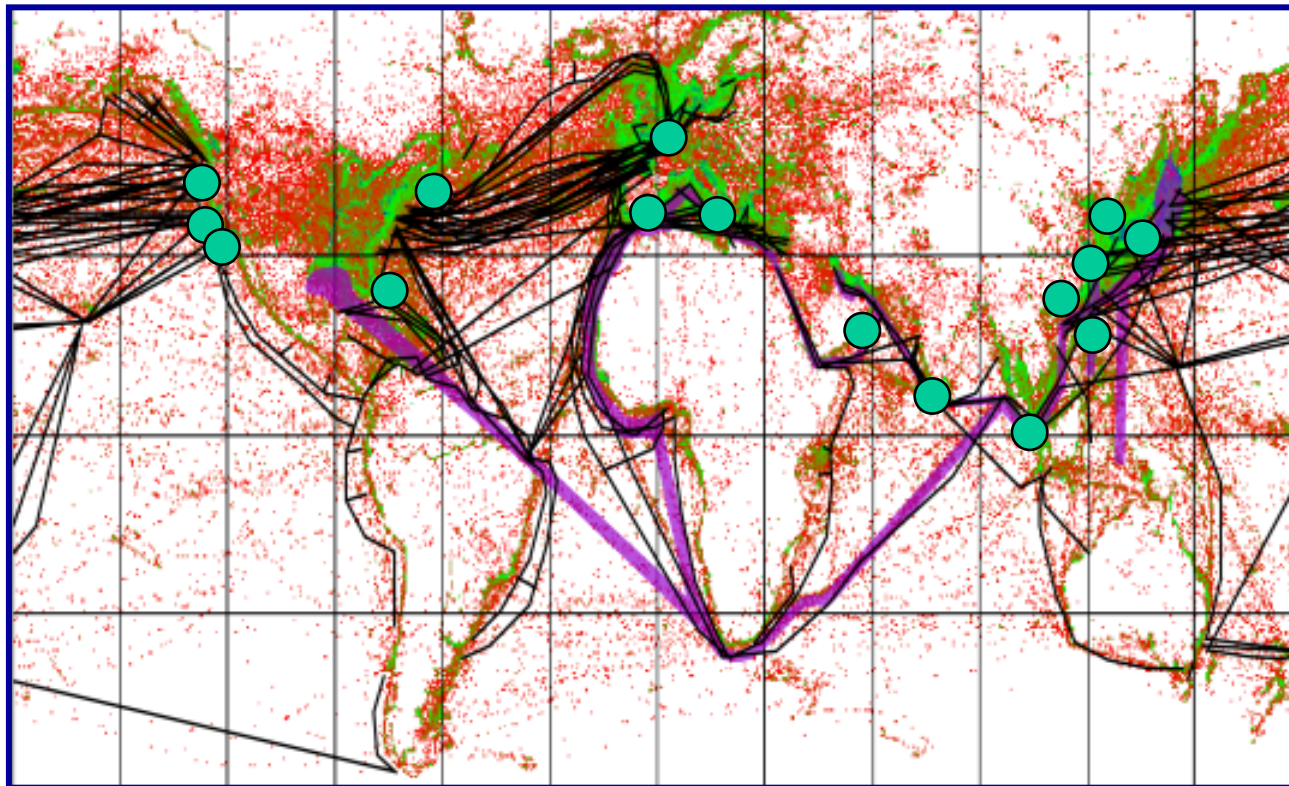
*Industrial Age*



# Global Trends

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Globalization II  $\longrightarrow$  Globalization III



Industrial Age  $\longrightarrow$  Information Age



# Global Trends



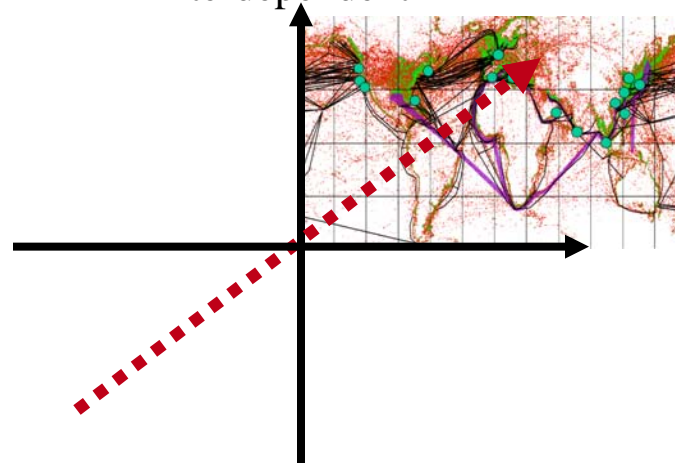
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## *Information Age*

- Short Cycle Time
- New Competencies
- Adaptive Planning
- Integrated Joint
- Interdependent

## *Globalization II*

- Developed Rules
- Mature Markets
- Narrowing Customer Base
- Security=Defense



## *Globalization III*

- Emerging Rules
- Market Opportunities
- New Customer Base Emerging
- Security=All Else+Defense

## *Industrial Age*

- Long Cycle Time
- Well Developed Tools/Processes
- Deliberate Planning
- Deconflicted Joint
- Tortured Interoperability



# Global Trends

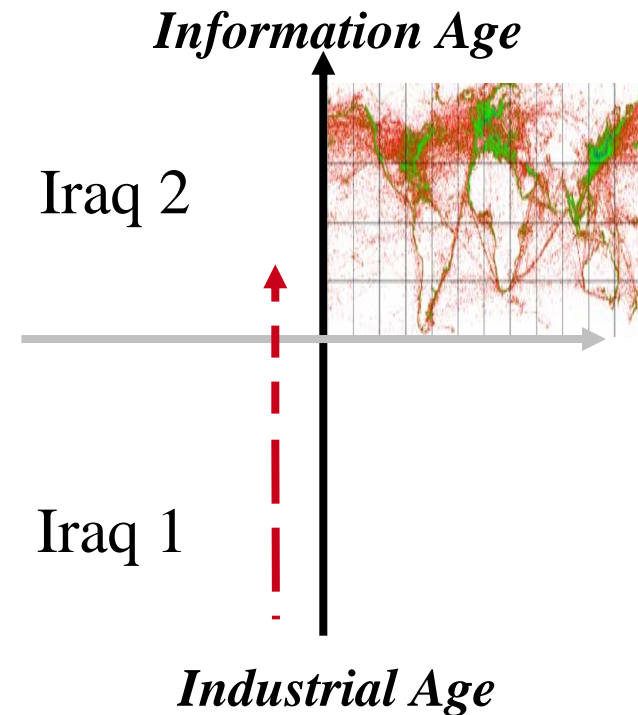
...*Military Response*



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## The Future Force:

- More expeditionary (including lighter, more lethal)
- More networked
- 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)





# Global Trends...Threats

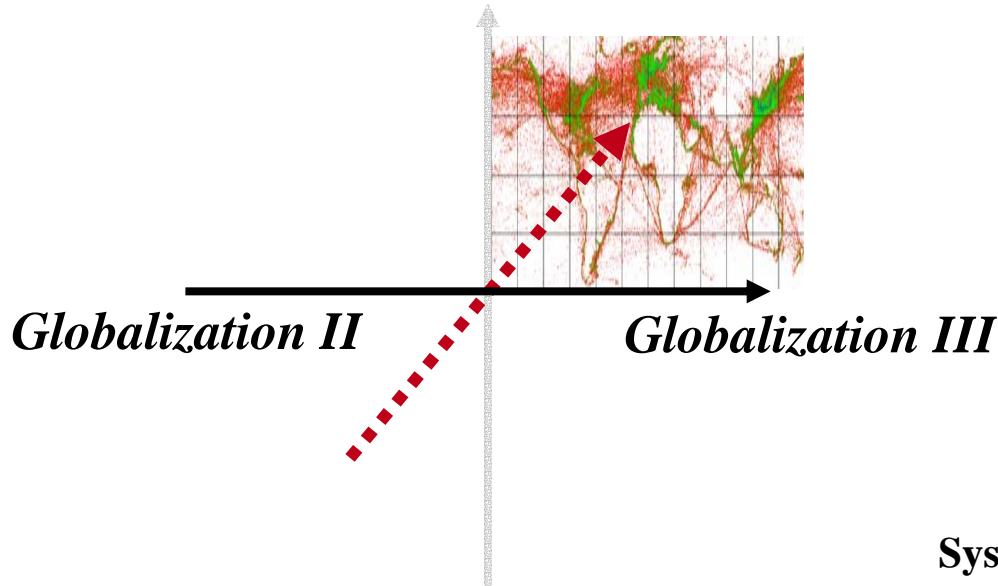
*...Strategic Response*



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## Strategic Capabilities:

- More Preventative- Less Punitive
- Achieve unambiguous warning earlier
- More SOF-Like characteristics
- A Deter Forward Force
- An Intel/Surveillance-based force
- Coping with systems perturbations



System	-----[Great Power War?]------			
State	Political Ideology	Hated Dictator	Hated Dictator w/Nukes	Nuclear Nationalists
Individual	Narco-terrorists	Regional Terrorists	International Terrorists	SEI w/Bugs



# Expanding Competition

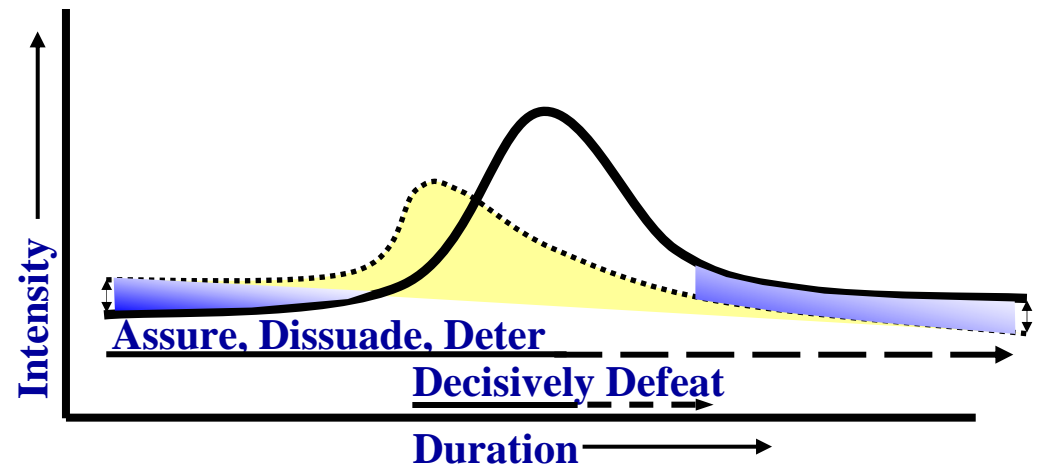


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$$\text{Policy Outcome} = f \{ \text{Power}, \text{Moral Principle} \}$$

## U.S. power is unmatched

- Therefore, U.S. policy will be attacked through its moral principles (legitimacy, international law, etc.)



## If the frontiers of National Security can be everywhere and are not territorial borders but fault lines within societies, then...

- The nexus of foreign and domestic security policy is intelligence
- We must be able to look and operate deeply within societies

## Assured Access includes the domains of political victory

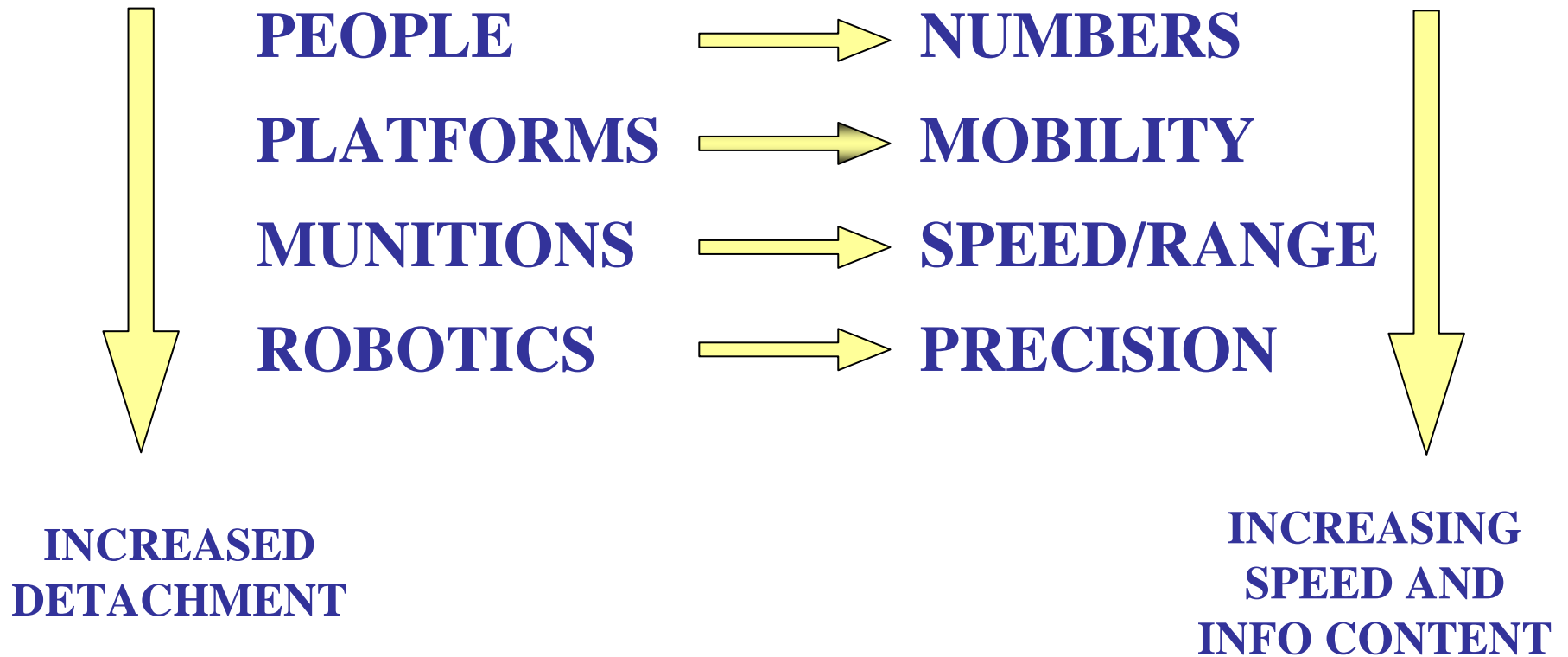
- Speed of modern warfare creates a continuum, not a succession of phases



# Warfare: The Big Trends



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*As armies get smaller, the number of people involved in war increases*



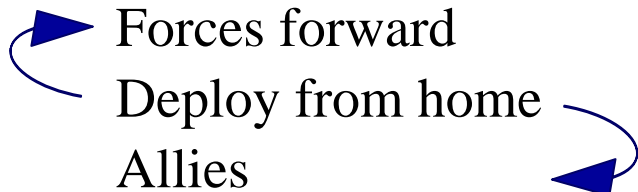
# Security System Balance?

...Major Movements

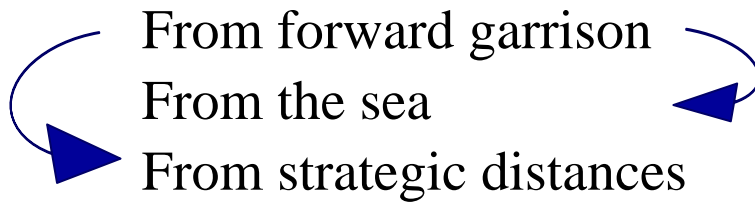


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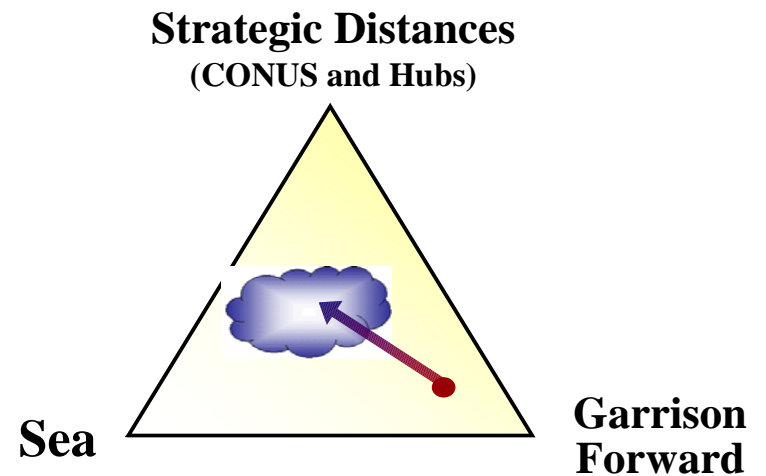
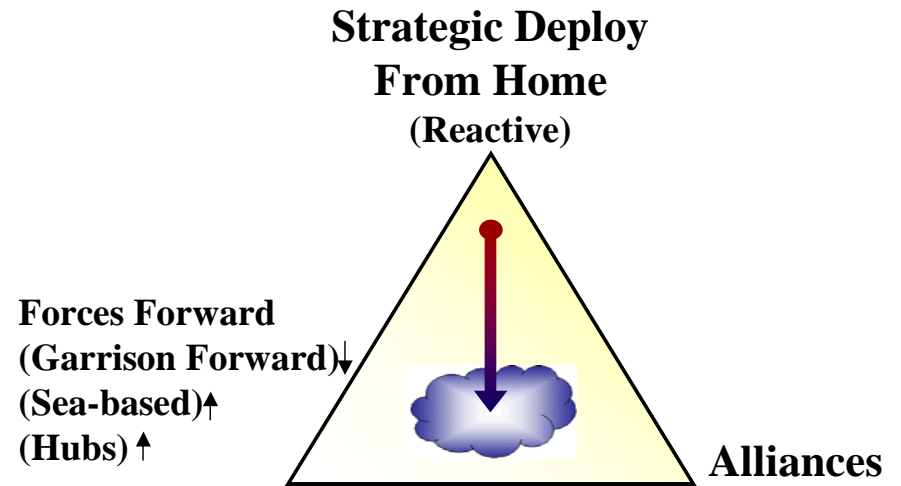
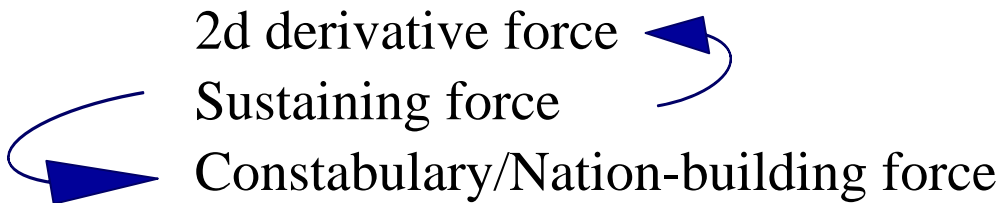
## Strategic Posture/Balance



## Operational Maneuver



## Deter Forward



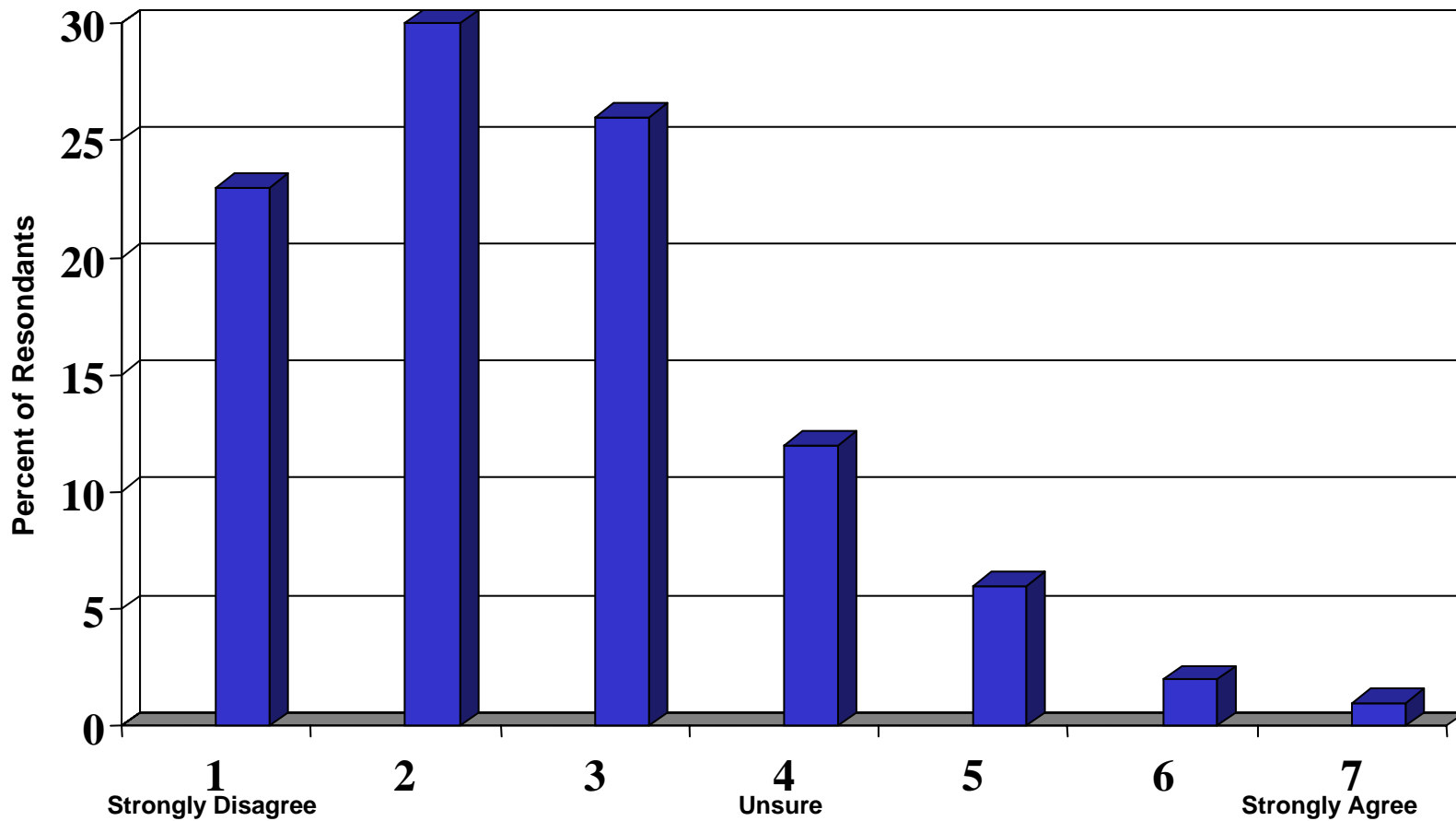




Within the next 10 years, some adversaries will likely have the ability to use long-range precision strike weapons such as ballistic and cruise missiles to deny our use of fixed military infrastructure, such as ports, airfields, and logistical sites.



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2000

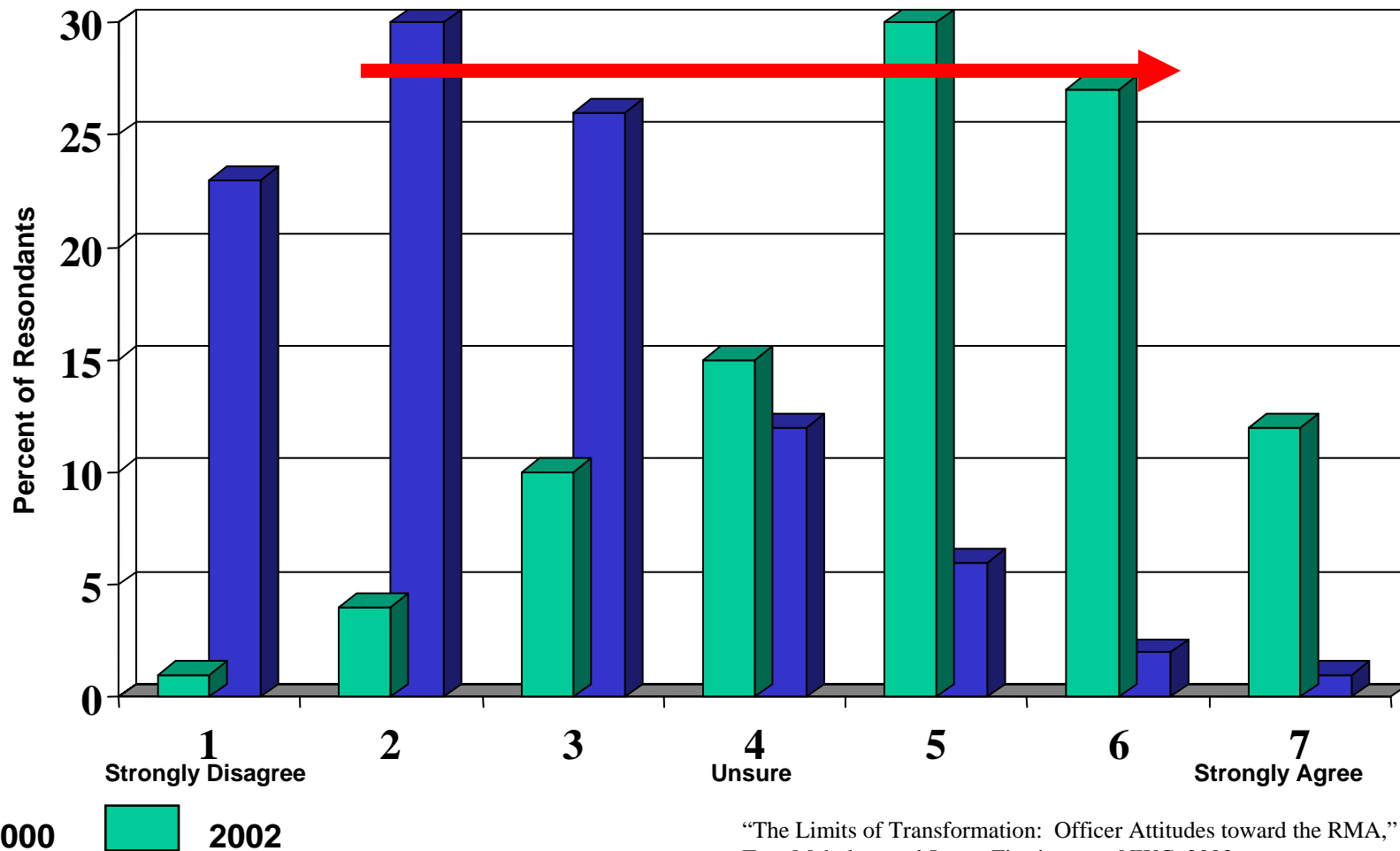
“The Limits of Transformation: Officer Attitudes toward the RMA,”  
Tom Mahnken and James Fitzsimmons NWC, 2003



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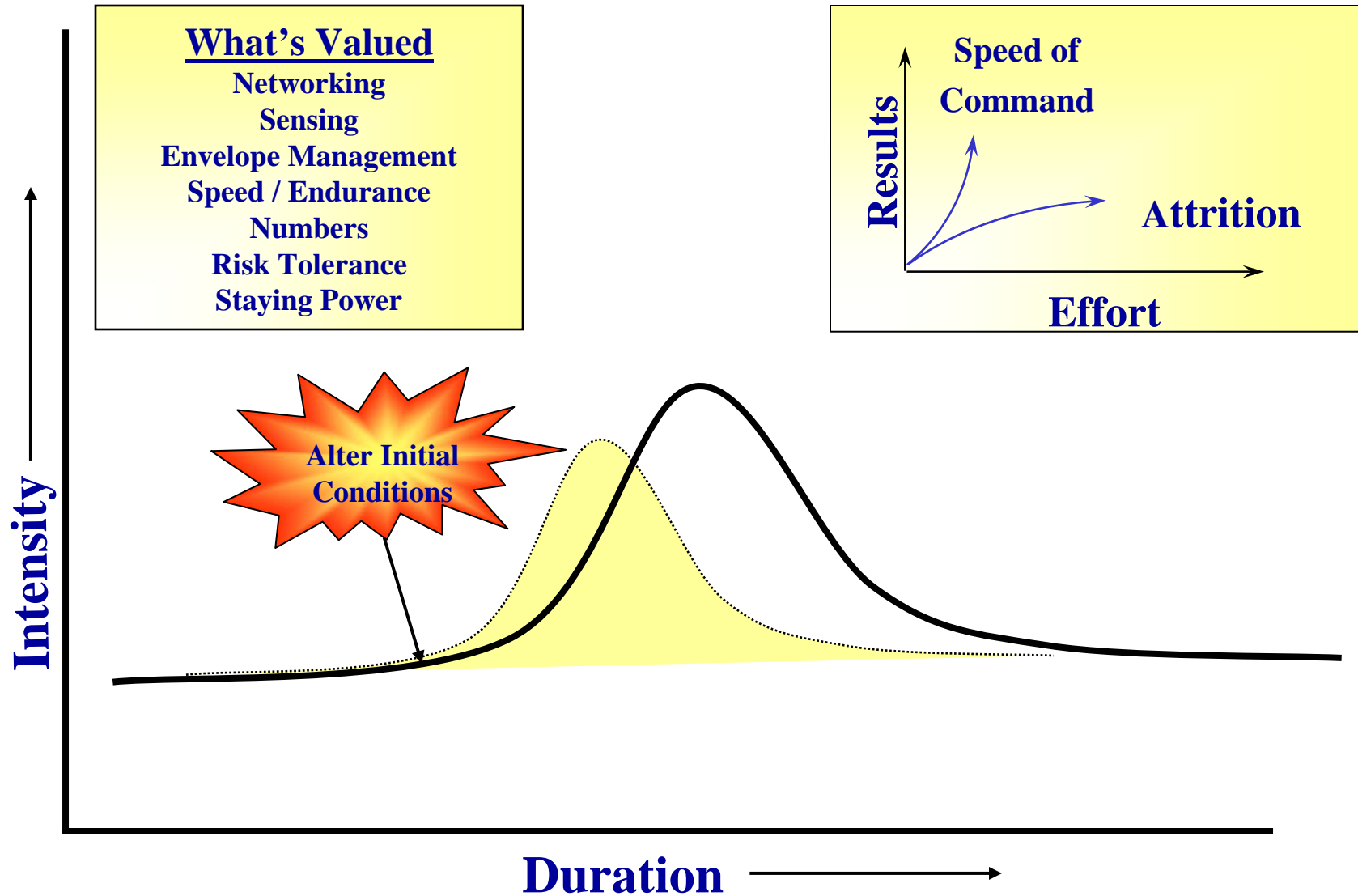


# Altering Conditions

...2<sup>nd</sup> derivative force



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# Candidates for Action Now

*...Identify issues of regret*



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## Warfare Elements

- *Fire* - Non-lethals, Directed Energy, Redirected Energy
- *Maneuver* - Sea basing, vertical battlefield, lift for operational maneuver
- *Protection* - Urban Operations, “Bug-to-Drug” Cycle Time
- *C2&C* – Joint Interdependency vs. Interoperability
- *ISR* - Demand-centered Intel, Tactically Responsive Space
- *Logistics* - Joint demand-centered logistics

***Policy Outcome = f {Power, Moral Principle}***

## Risk Management Areas (creating on-ramps)

- Joint S&T
- Joint Experimentation
- Modern Warfare Modeling Tools
- People: cost or resource

# Approaches to Logistics

## Mass-Based



- More is better
- Mountains of stuff measured in days of supply
- Uses massive inventory to hedge against uncertainty in demand and supply
- Mass begets mass and slows everything down

Prime Metric:  
Days of Supply

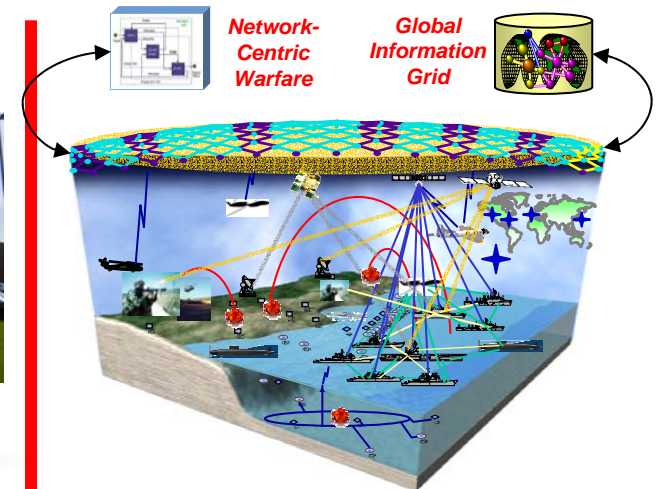
## Just-in-Time



- On-time is better
- Inventory is reduced to a minimum and kept moving
- Uses precise demand prediction and static optimization to purge uncertainty
- Works great, except when it doesn't

Prime Metric:  
Flow Time

## Sense and Respond



- Adaptive is better
- Inventory is dynamically positioned throughout
- Uses transportation flexibility and robust IT to handle uncertainty
- Initial S&R models look promising
- Supports distributed, adaptive ops

Prime Metric:  
Speed/Quality of Effects



# SRLC Attributes Present in Operation Iraqi Freedom



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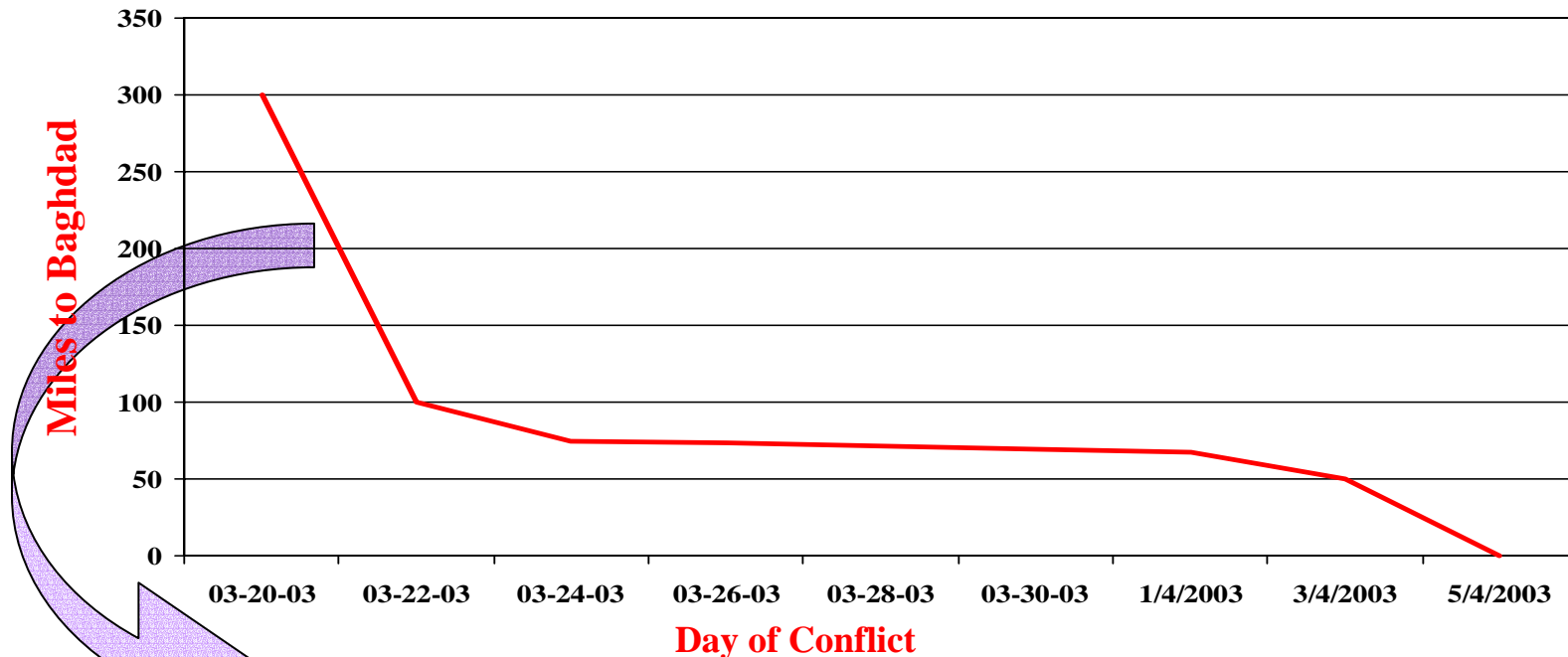
Attribute		Present in OIF
<b>Supply from:</b>	Any unit, any Service	✓
<b>Transport From:</b>	Any source in theater	✗
<b>Supply Push From:</b>	Analysis of SoM; real-time unit status; demand signals	✓
<b>Logistics Staff:</b>	Operators who collaborate closely with Ops staff in production and support of SoMs	✓
<b>IT Requirements:</b>	Extensive cross-Service, electronic order, asset and inventory visibility, decision support tools	✓
<b>Focus:</b>	Operational availability of warfighter (satisfy demand, provide continuous sustainment)	✗
<b>Metrics:</b>	Readiness to execute when needed	✓
<b>Supported Strategy:</b>	Adaptive, dispersed, network-centric, asymmetric threat, joint, on-the-fly force reconfiguration, continuous operations	✓
<b>Battlespace:</b>	Non-contiguous, no ISBs / FSBs, no RSOI	✗
<b>Organizations</b>	Functional, capability-based, joint, fleeting, no established infrastructure	✗
<b>Supply and Assets Belong To:</b>	Theater commander, for use by any unit to give greatest operational benefit	✗



# The Advance to Baghdad



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1. Rate of Advance outruns logistics  
Communications

2. Logisticians shift to “push” system – use  
models, SitReps, to “sense” supply needs

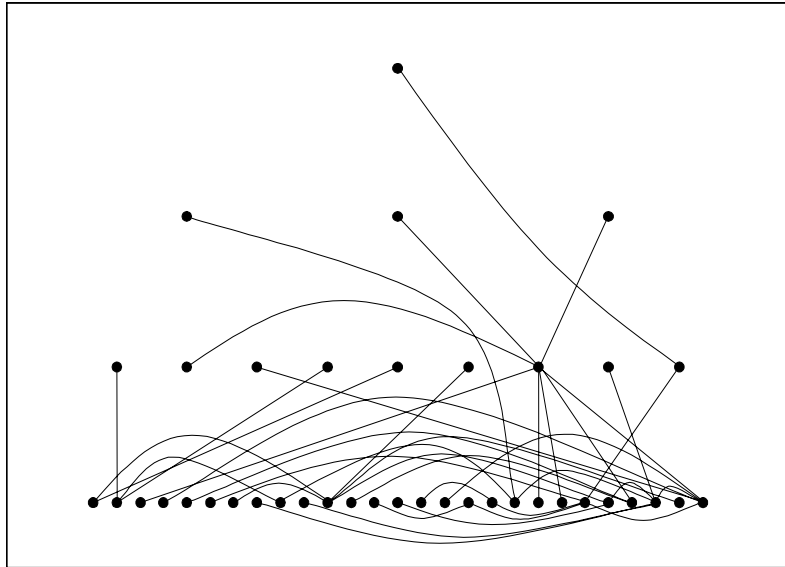
3. Tactical Units shift to cross supply to  
fill gaps



# Sense and Respond Logistics Concept



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## Network

**Very robust, complex pattern,  
complex control, scale free**

**'business end' best connected,  
natural to reconfigure or change flow**

- Support network is dynamic
  - **Support doctrine anticipates event-driven, reconfigurable support nets**
  - **Emphasizes distribution flexibility and support network responds to need**
- Negotiation-based relationships
  - **All entities use commander's intent, planned effects, and detailed situation awareness to negotiate and synchronize**
  - **Roles and commitments of entities are dynamically defined within a specific context**
  - **All entities are described in terms of current capabilities, not as static forces**
- Networks are robust and difficult to analyze and attack
  - **More robust to node failure**
  - **Adapts to real-time demand signals**
- Supports distributed, adaptive operations
  - **Network adaptivity allows logistics decisions to be made continuously and anticipatorily**
  - **Emphasis on information and distribution allows a greater degree of operational flexibility and risk management**
  - **No pause—log does not constrain ops speed**
  - **Mechanisms are transparent to warfighters; but results are very apparent**

*S&RL is a source of operational advantage and a capabilities multiplier*





# Warfighting Advantage



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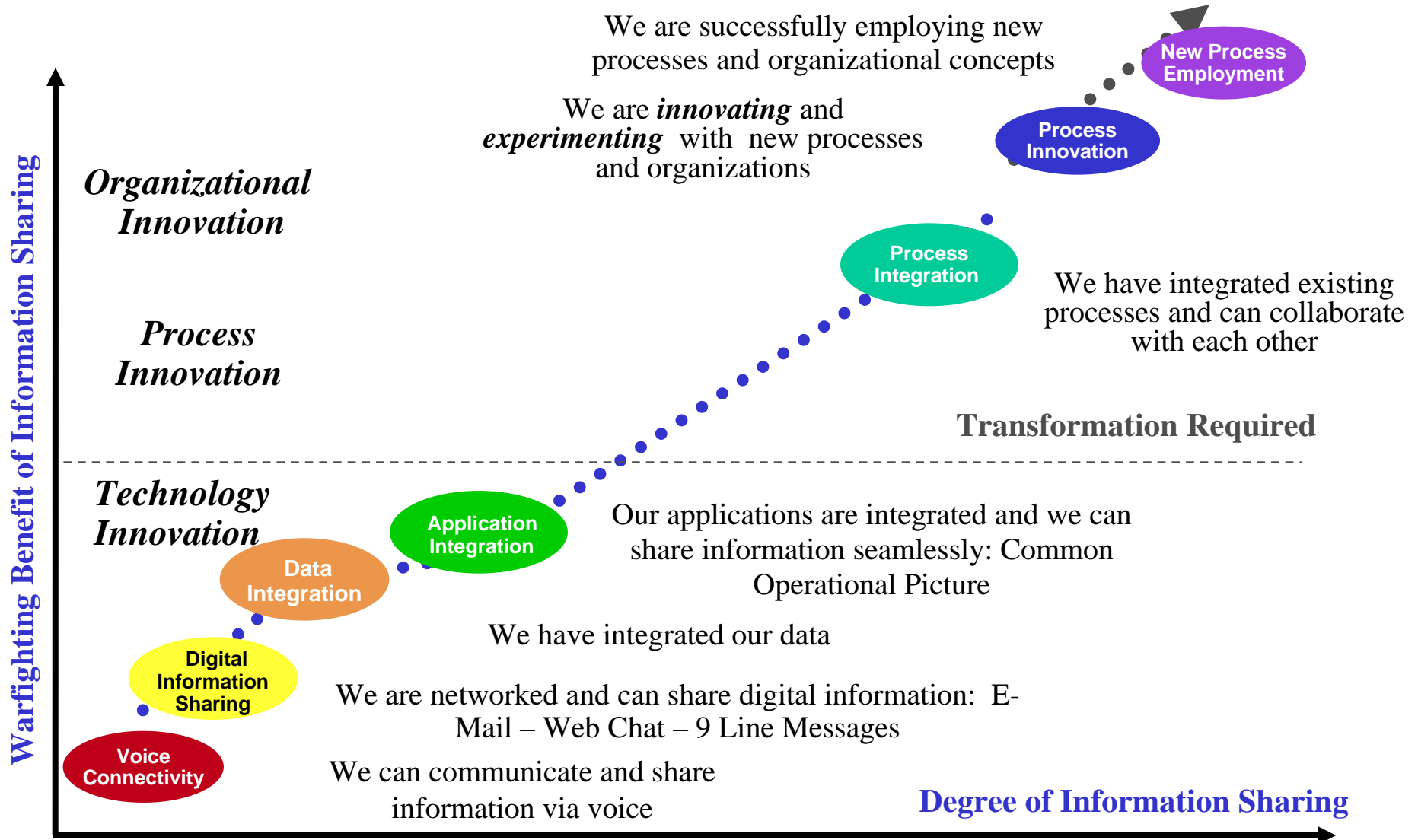
*Networked Forces*  
*Outfight*  
*Non-Networked Forces*



# Meeting Warfighter Information Needs: Levels of Network-Centricity



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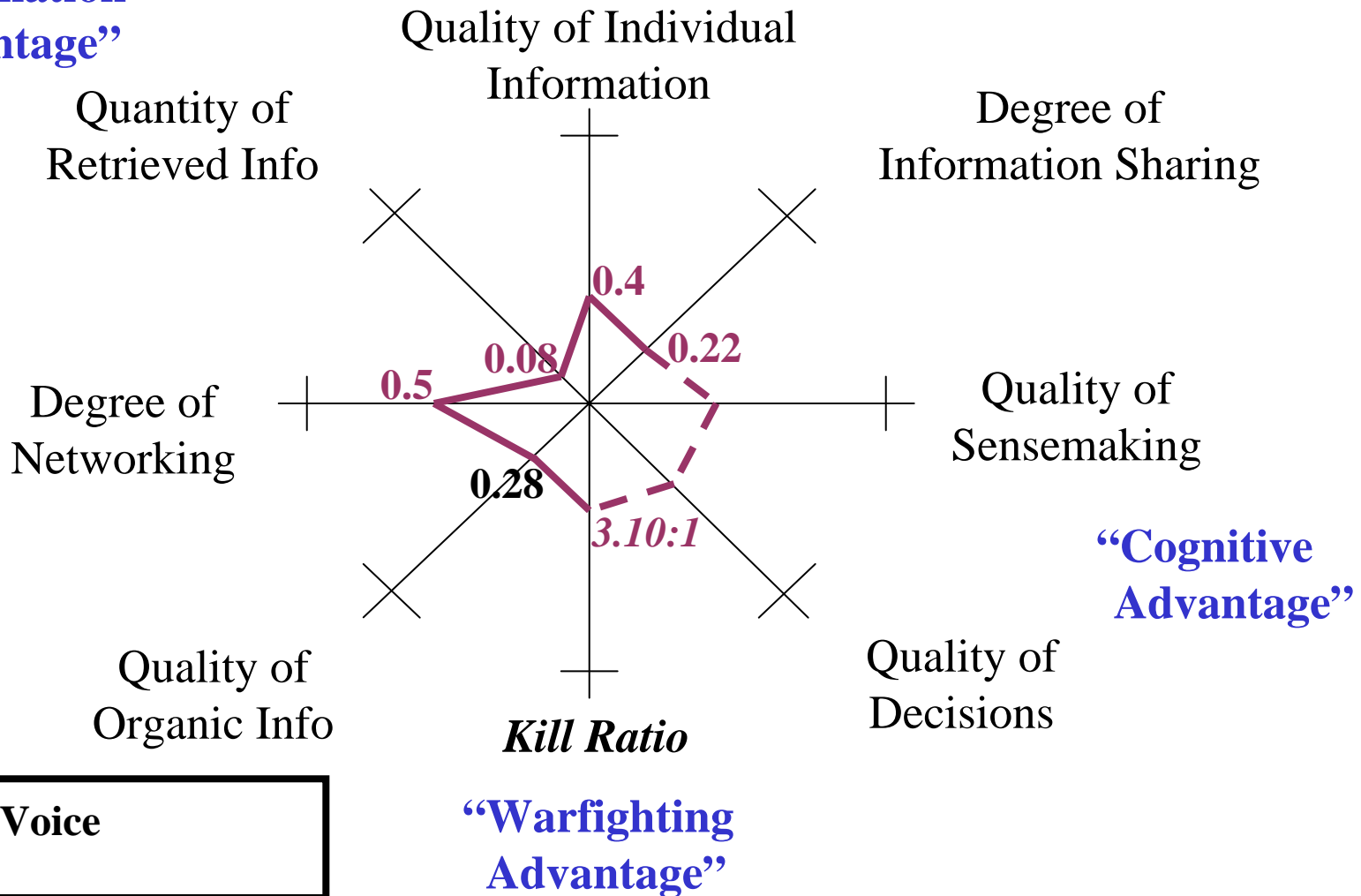


# Air-to-Air Combat: Value of Information + Cognitive Advantage



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## “Information Advantage”



## “Warfighting Advantage”

Source: RAND/EBR Case Study

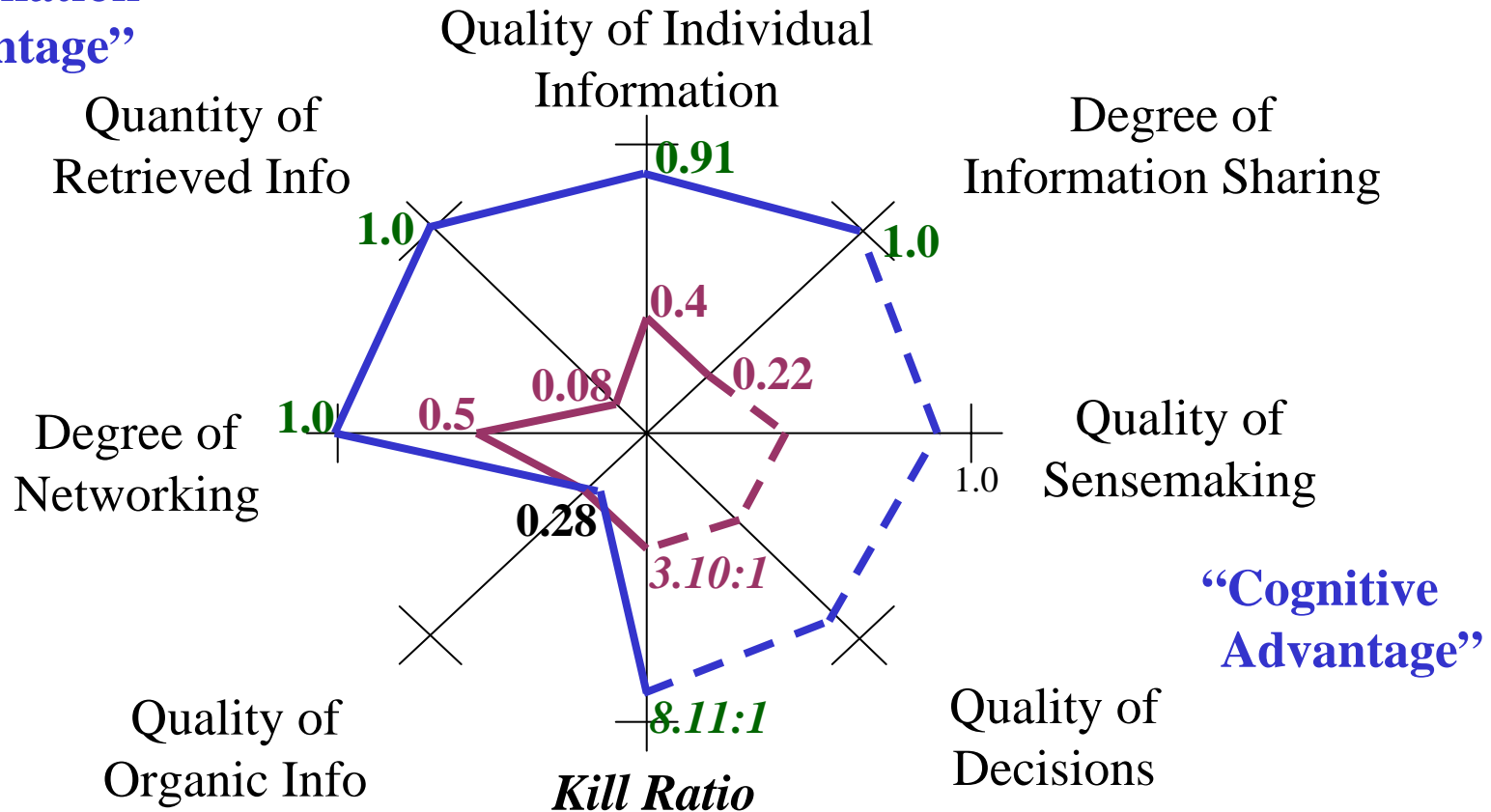


# Air-to-Air Combat: Value of Information + Cognitive Advantage



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## “Information Advantage”



— \* Voice  
— \* Voice + Link 16

## “Warfighting Advantage”

Source: RAND/EBR Case Study



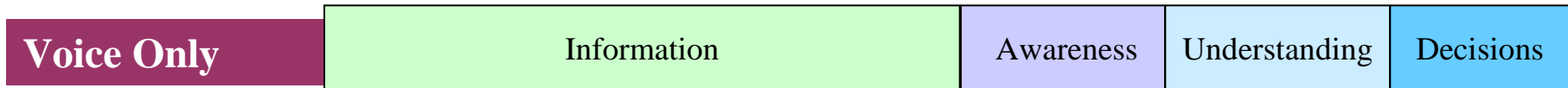
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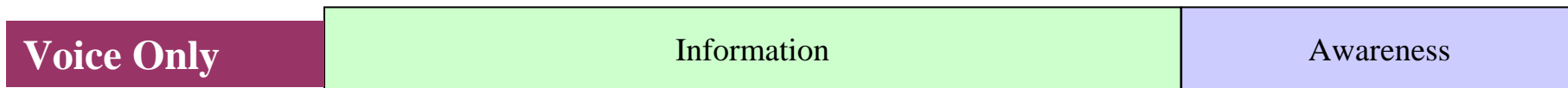
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## *Superior Ability to Observe – Orient - Decide - Act*

### B11 (Flight lead)



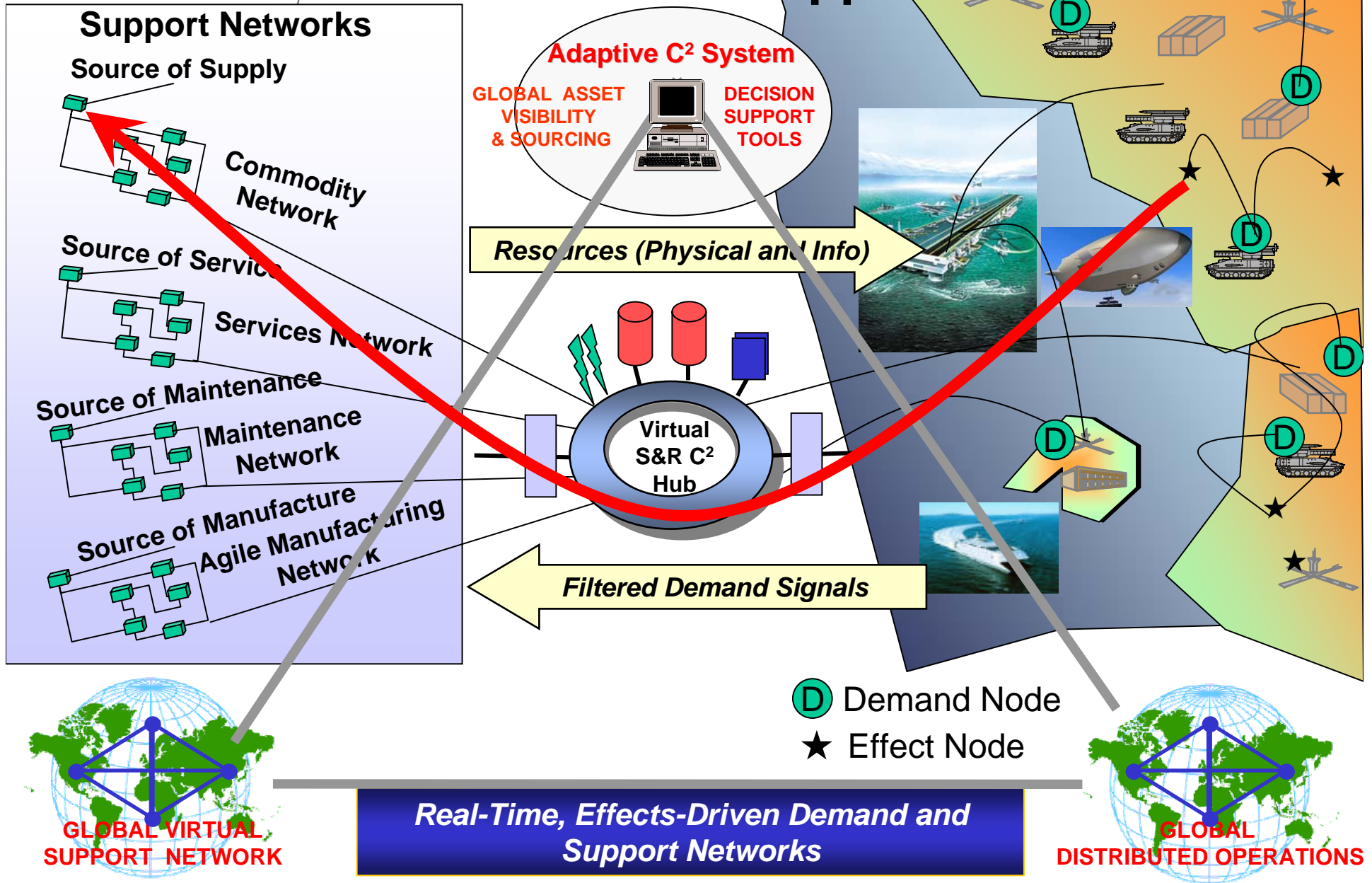
### B12 (Wingman)



Time

Source: RAND/EBR Case Study

# End-to-End S&R Point-of-Effect to Source of Support



D Demand Node  
★ Effect Node

**GLOBAL VIRTUAL SUPPORT NETWORK**

**GLOBAL DISTRIBUTED OPERATIONS**

**Real-Time, Effects-Driven Demand and Support Networks**




# Next Steps



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- Move *now* towards a joint, adaptive logistics capability based on the S&R concept
- Charter a joint effort to co-evolve a network-centric capability rapidly from the bottom up
- Lead disruptive change
  - Force cross-enterprise behavior
- Create rapid pathways into concepts, programs, and cross-enterprise venues driving evolution of new Joint capabilities
- Foster an innovative public-private partnership
  - Industry
  - Academia

# Transformation



Down at the grange  
they're teachin' a  
new way of plowin'  
Ya' goin'?

Nope!  
I already don't plow as  
good as I know  
how ...





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# Backup