

Network Centric Operations: The Emerging Evidence

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Agenda

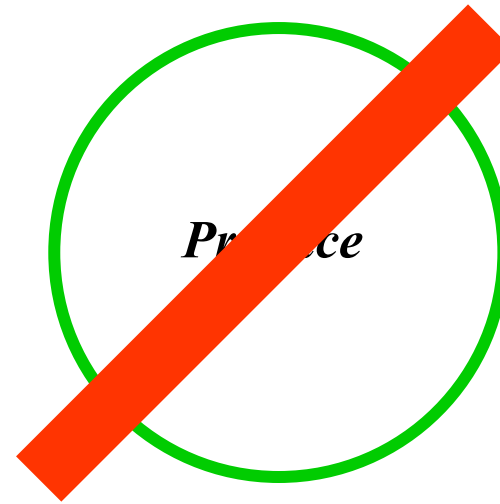
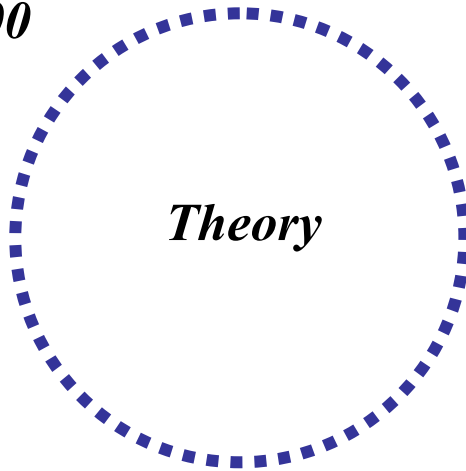
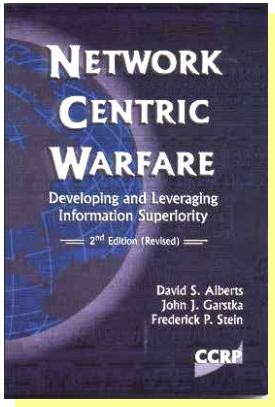


- Getting the Theory of NCO/NCW Right
- The Structure of the Network Centric Operations Conceptual Framework
- Case Studies: the Emerging Evidence
 - Scenarios
 - Hypotheses
 - Focus
 - Findings
- Future Case Studies
- Summary

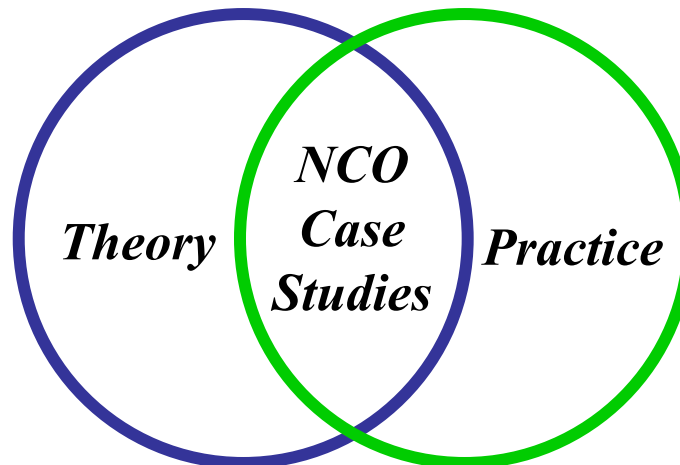
Getting the Theory Right

...Role of NCO Case Studies

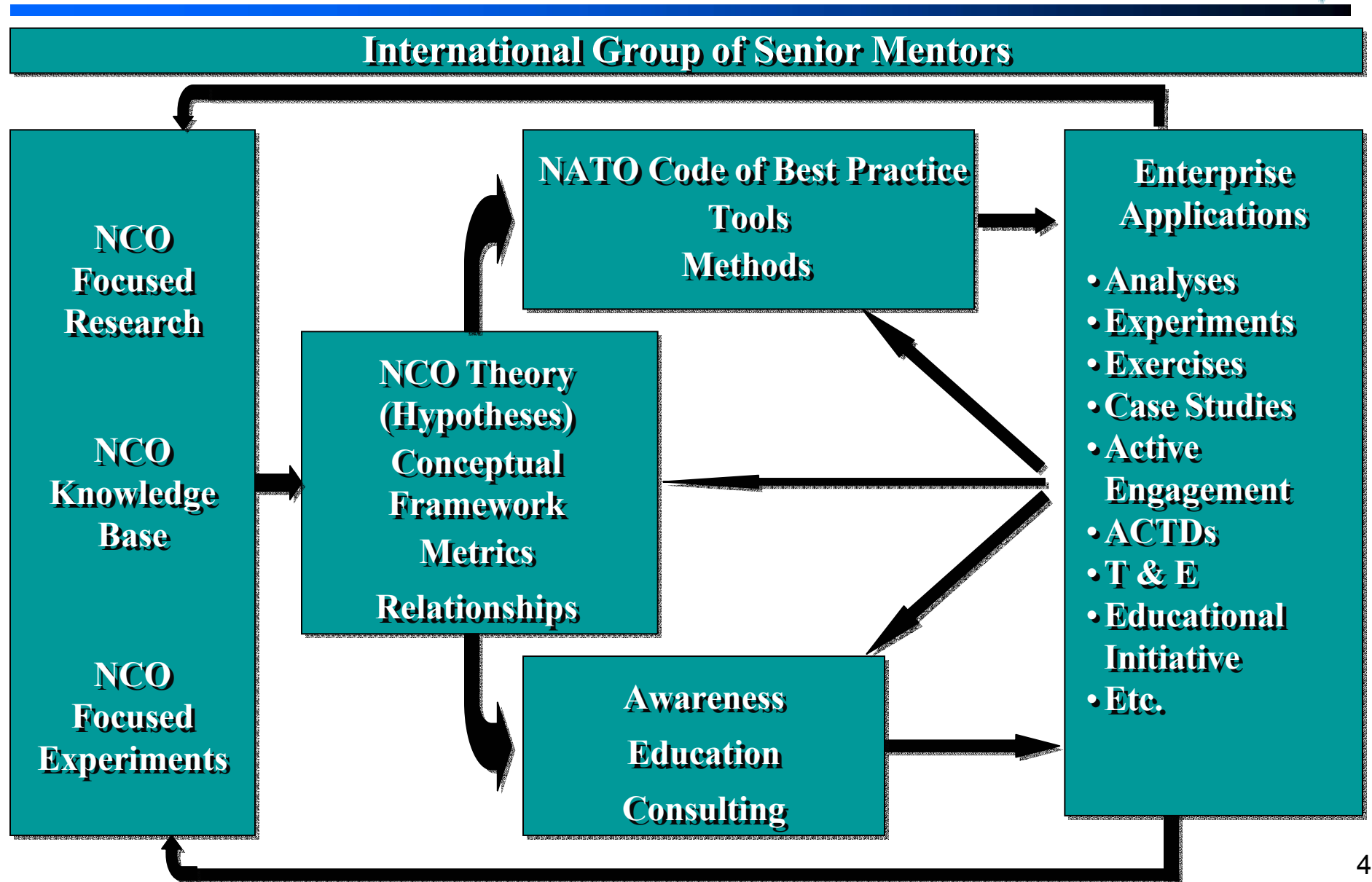
2nd Edition: 2000



2004



The NCO Framework Research Program



The NCO Value Chain

A Robustly Networked Force Enables...

**Robust
Physical and
Information
Networks**

Better Quality Networking and Information Sharing

Which leads to ...

**Robust Social
Networks
(People,
Organizations
and Processes)**

Improved Situation Awareness/Understanding

Enhanced Collaboration/Interactions

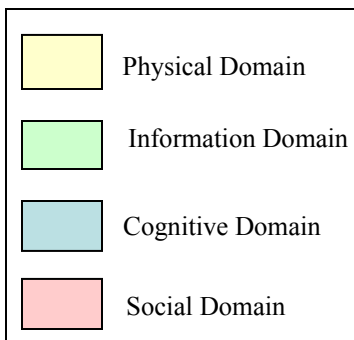
More Agile Command and Control

Which contributes to...

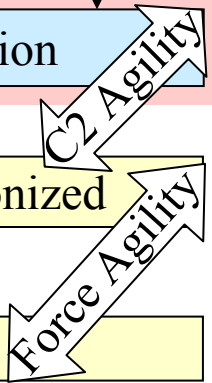
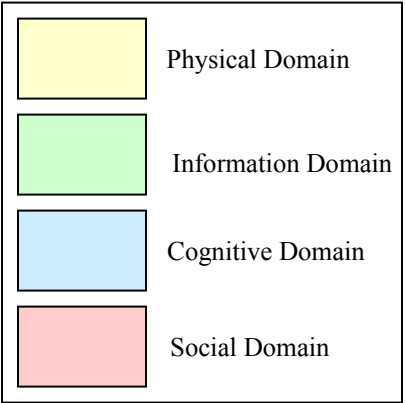
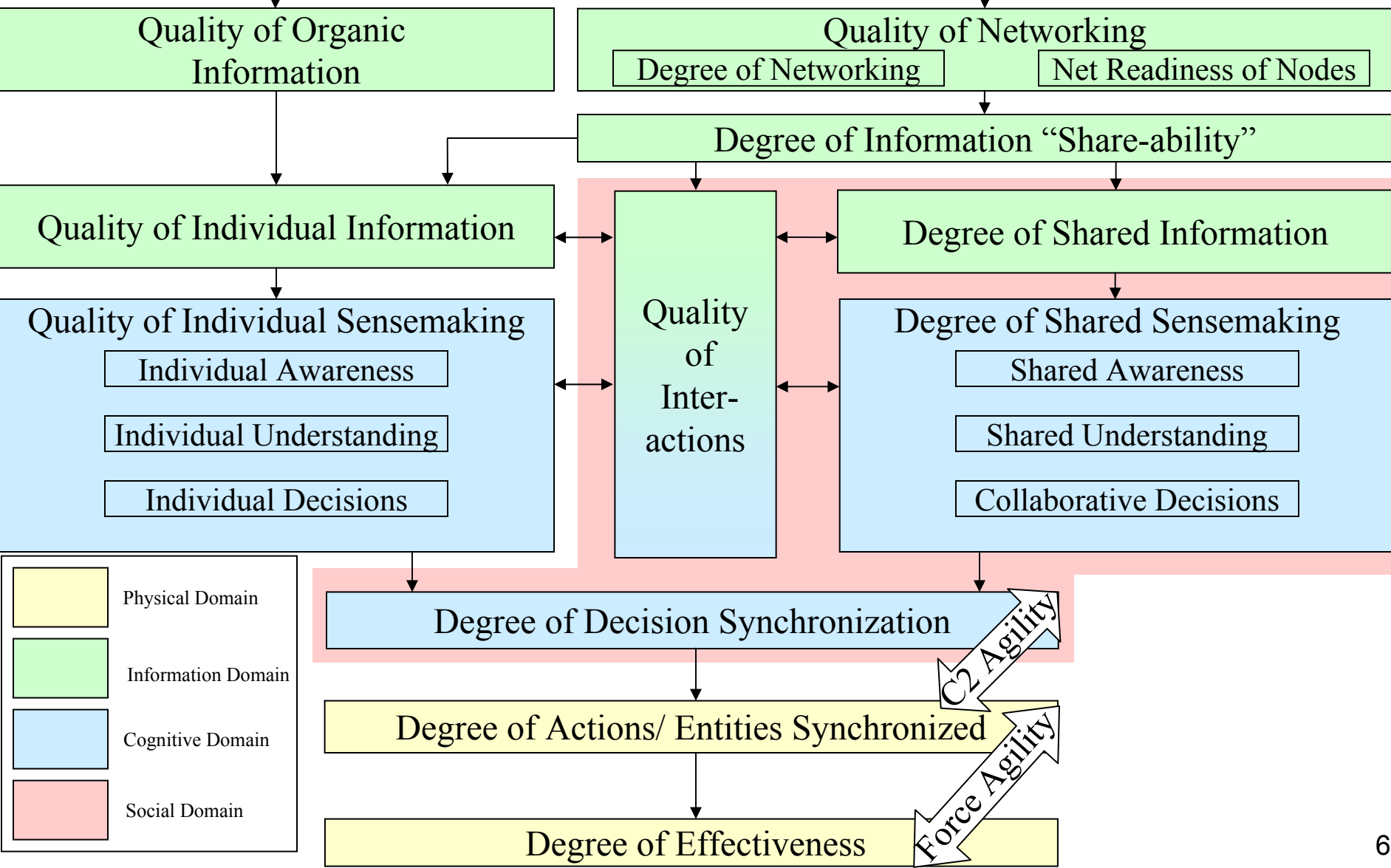
More Agile Force Elements/MCPs

Which ultimately leads to ...

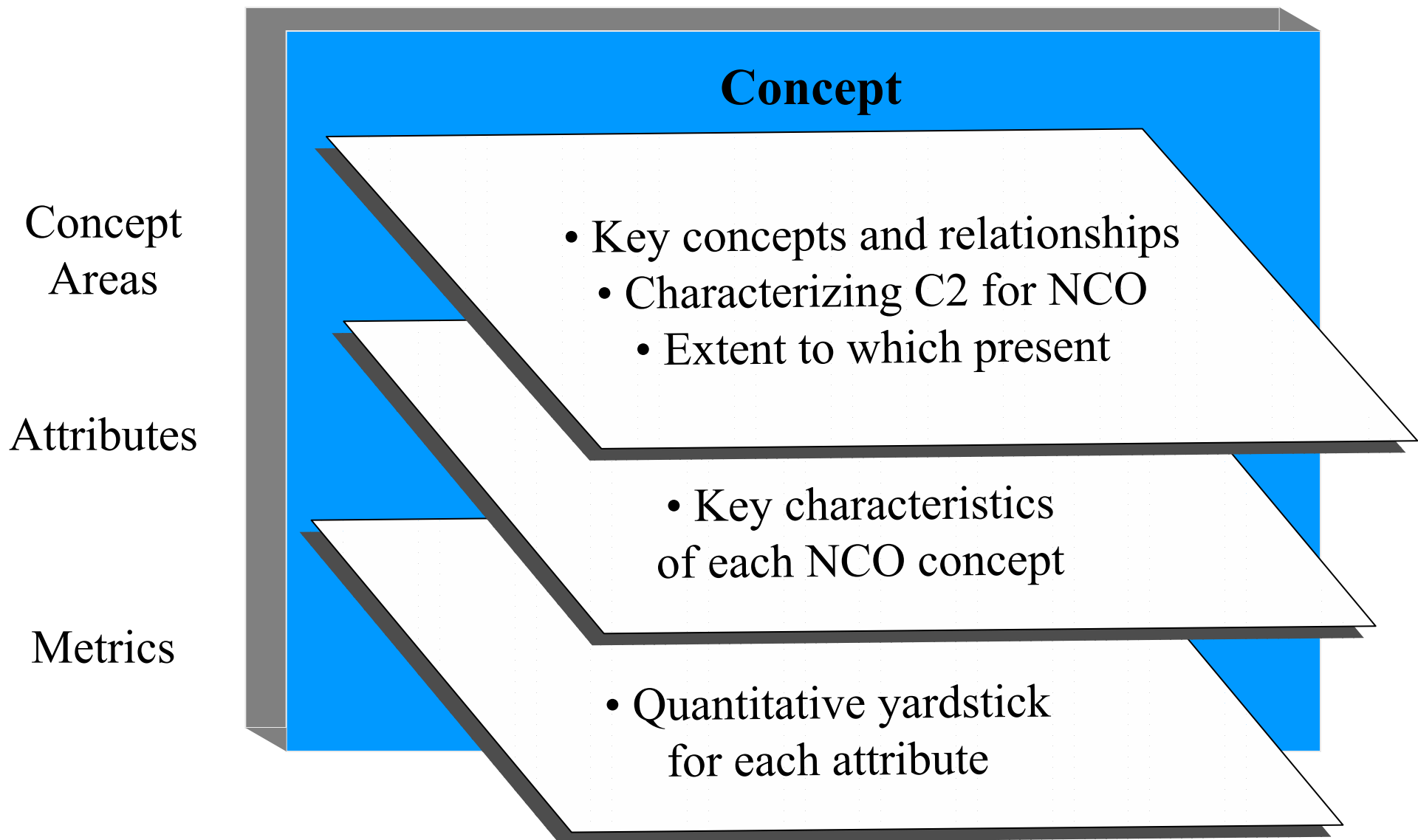
Dramatically Improved Effectiveness



NCO Conceptual Framework



General Structure for Measuring the Degree to which NCO Concepts are Realized in the Force



- Multinational Operations: Amber Fox
- Joint US/ UK Combat Operations in Operation Iraqi Freedom
- Navy Special Warfare Group One (NSWG1) in Afghanistan and Iraq
- Air to Ground Operations: DCX (Phase 1), OEF and OIF
- Stryker Brigade: Certification Exercise (JRTC 2003)
- C2 for Networked Forces: Commander Task Force-50 in OEF

Multinational Operations



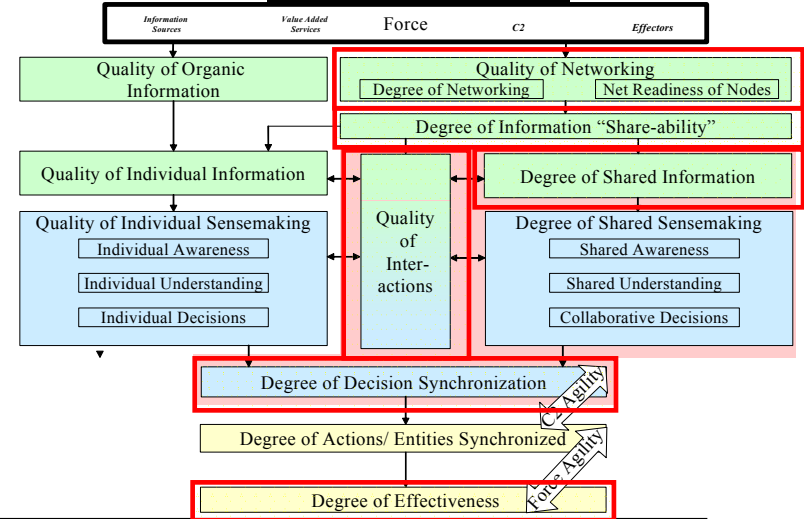
Scenario

- C2 experiment (IRTF (L)) and Operation Amber Fox in Macedonia (NATO)
- Involved: ACE Mobile Force (Land) (AMF (L)), and Task Force Fox (TFF)
- Use of ISIS (an Information Management tool) in IRTF (L) and TFF

Hypotheses

- NCO capabilities applied during multinational operations increases:
 - information sharing
 - shared situational awareness
 - mission effectiveness
- ... relative to previous missions/exercises with traditional approaches

Area of Focus



Findings

- Information sharing improved dramatically (CROP provided by ISIS)
- Collaboration and Trust across multinational participants increased
- Leadership essential for adoption and effective use of NCO technologies and practices
- Cultural and organizational differences still remain obstacles to NCO

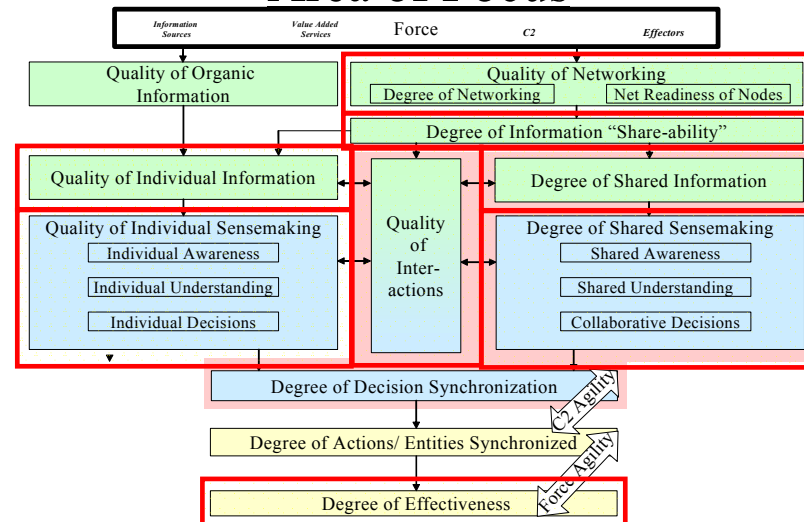
Joint US/ UK Combat Operations in Operation Iraqi Freedom



Scenario

- Initial Combat Ops in Operation Iraqi Freedom focusing on the UK 1 Armored Division and US 3 Infantry Division

Area of Focus



Hypotheses

- During Operation TELIC/IRAQI FREEDOM, the direct accessibility to FBCB2/BFT by UK and US units provided:
 - Improved individual sense-making
 - Enhanced the quality of interactions
 - Improved shared sense-making
 - Increased mission effectiveness
 ... relative to previous operations and training without FBCB2/BFT.

Findings

- FBCB2/BFT provided nearly 60% of US forces tactical SA compared to 10% in UK
- Enabled US forces to do “command on the move” unprecedented speed of maneuver
- UK forces did not exploit the capabilities of BFT because of gaps in deployment, training, and leadership
- US forces attributed significantly higher confidence to FBCB2/BFT-provided information than their UK equivalents

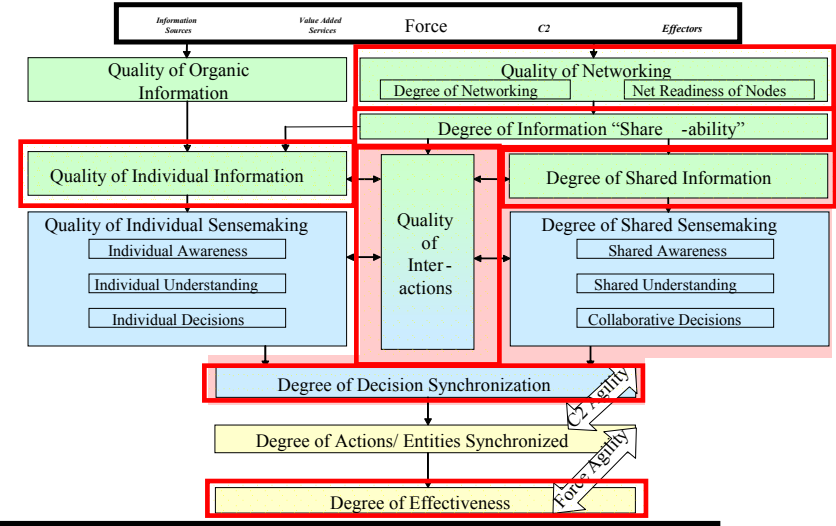
Scenario

- NSWG1 mission support center's application of new technologies (i.e. MSC, A3, WEBBE, GBS) in OIF and OEF added greater capability to the planning and execution of special operations
- Missions: Cave Clearing Ops., Khairullah Capture, ALfaw Oil Field, GOPLAT Operations, Maritime Interdictions, etc.

Hypotheses

- The application of NCO capabilities in the NSWG1 Mission Support Center improves:
 - Mission planning (timeliness and quality of plans)
 - Mission execution (more successful missions supported)

Area of Focus



Findings

- Increased number of operations possible
- 70-75% reduction in forward footprint
- Dramatically improved mission planning process: more timely mission planning, better quality plans
- Improved mission effectiveness – situational awareness (BFT) of SOF elements provided to COP

Air to Ground Operations: DCX (Phase 1), OEF and OIF



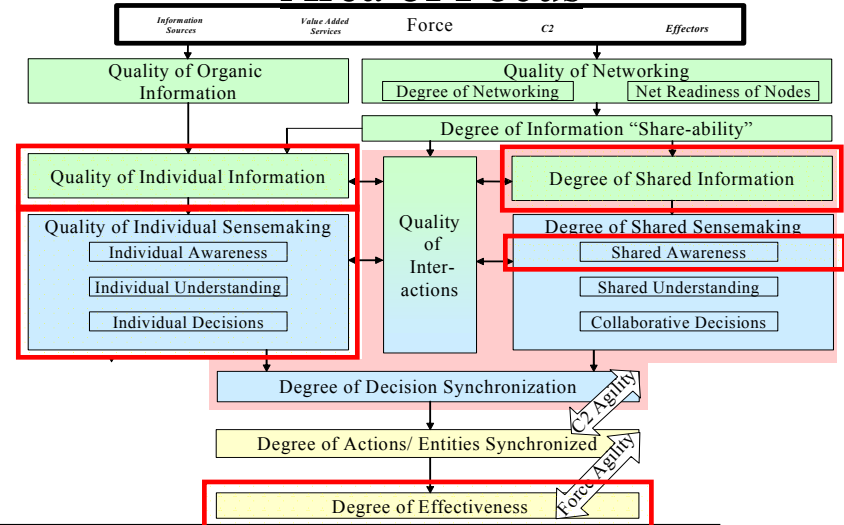
Scenario

- Air-Ground Interaction (focusing on Close Air Support) using the DCX1 Exercise, and operations in OEF and OIF
- Involved USAF, USA, SOF and/or USMC
- Technology used included: SADL, GBU-12, and AGM-65D equipped F-16's/ A/OA-10, pioneer video system, ...

Hypotheses

- Networked systems (voice plus data links) improves:
 - shared situational awareness
 - trust between air and ground elements
 - mission execution

Area of Focus



Findings

- The use of digitized technologies resulted in the first ever defeat of an OPFOR at night in DCX(1)
- Shared digital display technologies between air and ground (both seeing same picture in real time) was rarely used in OIF but had dramatic impact in a few instances
- Other digitalization systems facilitated CAS, especially Western Iraq

Stryker Brigade Certification

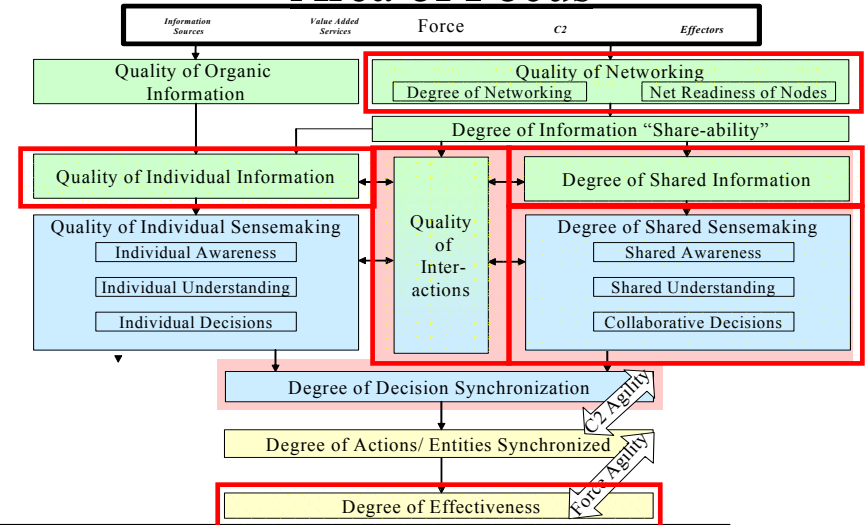
Scenario

- Stryker Brigade Combat Team (SBCT) attack on Shughart-Gordon
- Certification Exercise (CERTEX) at Joint Readiness Training Center, May 2003

Hypotheses

- Stryker Bde NCO capabilities provide:
 - significant information superiority
 - significant decision superiority
 - increase force effectiveness
- .. and combine to create more combat power

Area of Focus



Findings

- Friendly :Enemy casualty ration decreased from 10:1 to 1:1
- Increase in Individual/ shared information quality from about 10% to ~80%
- Acceleration of speed of command from 24 to 3 hours in key engagement
- Bottom line result: allowed CMD ability to control the pace of decisions
- SBCT accomplished the mission which has₁₃ never been done before

Commander Task Force-50



Scenario

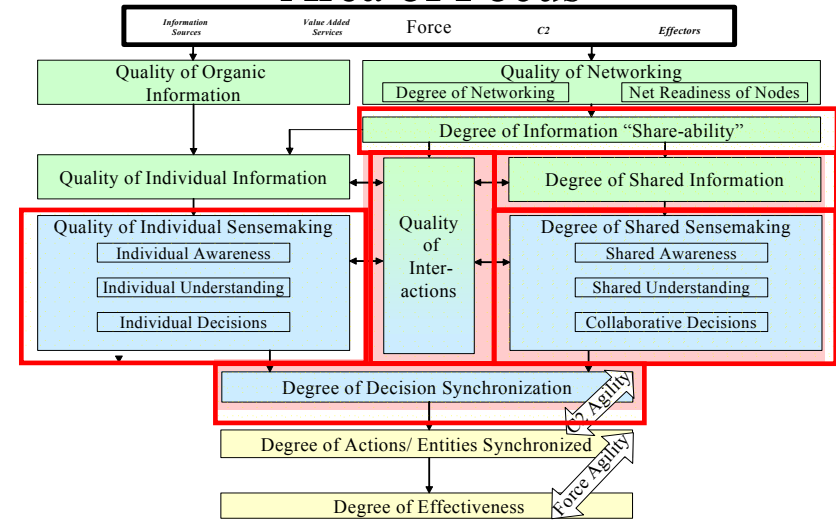
- U.S. Navy's Commander Task Force Fifty (CTF-50) aboard the USS Carl Vinson (CVN 70) during Operation Enduring Freedom, July 2001 – January 2002
- Exploration of the use of the Knowledge Web

Hypotheses

Application of NCO capabilities improves:

- Information sharing
- Shared Situational Awareness
- Self-synchronization
- Speed of command
- Mission effectiveness

Area of Focus



Findings

- Over 59 coalition ships were able to coordinate decision making and actions
- Knowledge Web facilitated extensive shared situational awareness
- Dramatic changes to the standard operating procedures (no briefings, info was available on the network)
- Increased confidence and trust throughout
- Leadership and training were central for success

Future Case Studies



- Recently Initiated:
 - Ground Maneuver: V Corps and 3rd ID in OIF
 - Networked Air-Ground Ops: OIF Western Iraq
 - Application of NCO to Stability and Restoration Operations
 - Communications, Information Sharing, and Collaboration in OIF
 - Exploratory Phase:
 - Application of NCO Concepts during the SARS Crisis in Asia
 - Network Based Defense: A Strategic Perspective on NCO
- Possible Future Case Study:
 - Multinational Humanitarian Exercise (Strong Angel II)

Summary

- NCO concepts have a central role in Force Transformation
- Development and application of the underlying theory is a key enabling objective
- The NCO Conceptual Framework is being evolved and applied as part of an international initiative
- Application of the Conceptual Framework requires a disciplined analytical approach
- Valuable lessons are being learned about the Framework and NCO operations
- Much more remains to be done. If you have ideas for case studies, your participation is encouraged!

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