Network-Centric Warfare

Creating a Decisive Warfighting Advantage

Force Transformation and Network-Centric Warfare

Transformation lies at the heart of U.S. defense strategy. As one of the seven interconnected tenets of the strategy, it supports the four major defense policy goals:

- Assuring allies and friends;

- Dissuading future military competition;

- Deterring threats and coercion against U.S. interests;

- If deterrence fails, decisively defeating any adversary.

The concepts of network-centric warfare (NCW) and the growing network-centric capabilities of U.S. forces, evident during Operation Iraqi Freedom, are transforming how we fight. **Clearly, NCW is at the very heart of force transformation and the emerging way of war.**

The New Rules

- Fight first for *information superiority*
- *Speed* of command
- Access to information: *shared awareness*
- *Dispersed forces:* noncontiguous operations
- *Demassification*
- *Self-synchronization*
- *Deep sensor reach*
- *Alter initial conditions* at higher 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
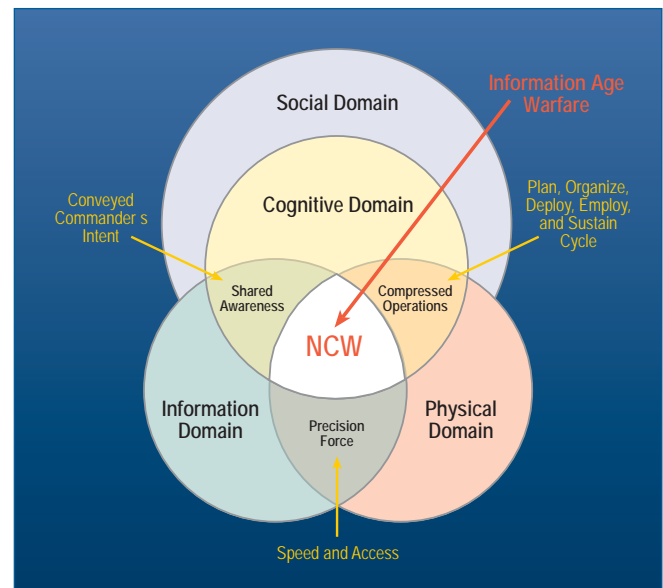Numbers
Risk Tolerance
Staying Power

The development of network-centric organizations and the growing capability of U.S. forces to conduct network-centric operations are not ends in themselves. Instead, they provide an essential means to an end, the conduct of effects-based operations (EBO). Unless U.S. forces can apply their network-centric capabilities to achieve strategic, operational, and tactical objectives, these capabilities will be of little value.

"U.S. forces must leverage information technology and innovative network-centric concepts of operations to develop increasingly capable joint forces. New information and communications technologies hold promise for networking highly distributed joint and multinational forces. . . ."

Secretary of Defense Donald H. Rumsfeld

The powerful combination of network-centric capabilities in the form of an effects-based approach to planning and execution provides U.S. forces with the potential to achieve the desired effects on an adversary's behavior.

The Joint Operations Concepts (JOpsC) and their subordinate Joint Operating Concepts (JOCs) reflect the vision of a transforming, network-centric joint force. The required capabilities of this force are expressed in terms of the four domains of warfare: physical, information, cognitive, and social.

The domain intersections represent dynamic and vital areas of information age warfare.

- The precision force vital to the conduct of successful joint operations is created at the intersection of the information and physical domains.

- Shared awareness and tactical innovation occur at the intersection between the information and cognitive domains.

- The intersection between the physical and cognitive domains is where the time compression and lock-out phenomena occur, where tactics achieve operational and even strategic effects, and where high rates of change are developed.
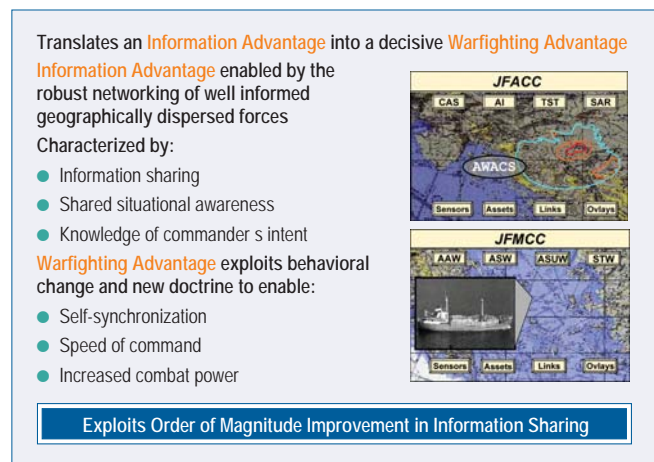
NCW exists at the intersection of the four domains of warfare.

What is Network-Centric Warfare?

The term "network-centric warfare" broadly describes the combination of emerging tactics, techniques, and procedures that a fully or even partially networked force can employ to create a decisive warfighting advantage.

- NCW is an information superiority-enabled concept of operations that describes the way U.S. forces organize and fight in the information age.

- NCW generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, high tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization.

- NCW translates information superiority into combat power by effectively linking friendly forces within the battlespace, providing a much improved shared awareness of the situation, and enabling more rapid, effective decision making.

Translates an Information Advantage into a decisive Warfighting Advantage

Information Advantage enabled by the robust networking of well informed geographically dispersed forces

Characterized by:
- Information sharing
- Shared situational awareness
- Knowledge of commander s intent

Warfighting Advantage exploits behavioral change and new doctrine to enable:
- Self-synchronization
- Speed of command
- Increased combat power

Exploits Order of Magnitude Improvement in Information Sharing

As a new source of power, NCW has a profound impact on the planning and conduct of war by allowing U.S. forces to get inside an adversary's decision cycle, changing the rules of warfare, and dictating the pace of military operations. NCW provides an edge at all three levels of military operations:
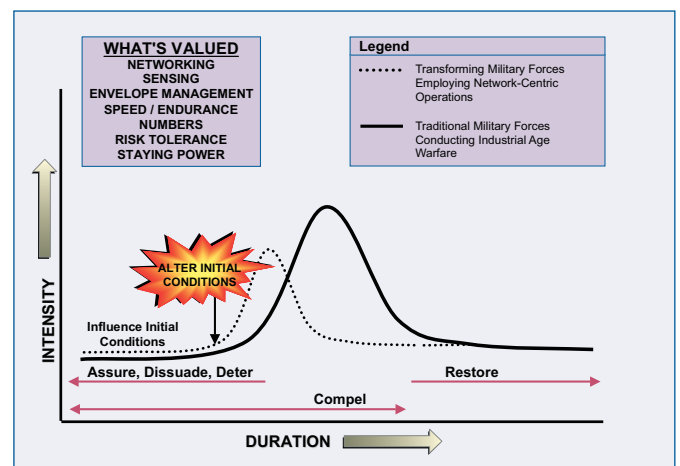
- **Strategy:** Selects a competitive space and determines the scope, pace, and intensity of the competition.

- **Operations:** Determines the key competitive attributes and applies / masters them.

- **Tactics:** Executes in the battlespace (as described above).

Benefits of Network-Centric Warfare?

Forces that are networked outfight forces that are not, everything else being equal. Evidence of the power of NCW, collected from a wide range of U.S. military activities (combat operations, training events, tests, exercises, demonstrations), strengthens and reinforces the four major tenets of NCW.

- A robustly networked force improves information sharing

- Information sharing 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

Recent operational experience has repeatedly shown that only forces that are truly joint, with comprehensively integrated capabilities and operating according to the principles of NCW, can fully exploit the highly path-dependent nature of information age warfare. They do so by altering initial conditions, developing and sustaining high rates of change, and repeatedly creating new operational realities that "lock out" an opponent's ability to cope effectively.

Speed is critical to the successful execution of the "deter forward" concept – speed of deployment, speed of organization, speed of employment, speed of sustainment. The ability to decide and act faster than our opponent allows us to define or alter the initial conditions on terms favorable to our interests. **Networking is the key enabler of the battlespace transparency necessary for speed.**
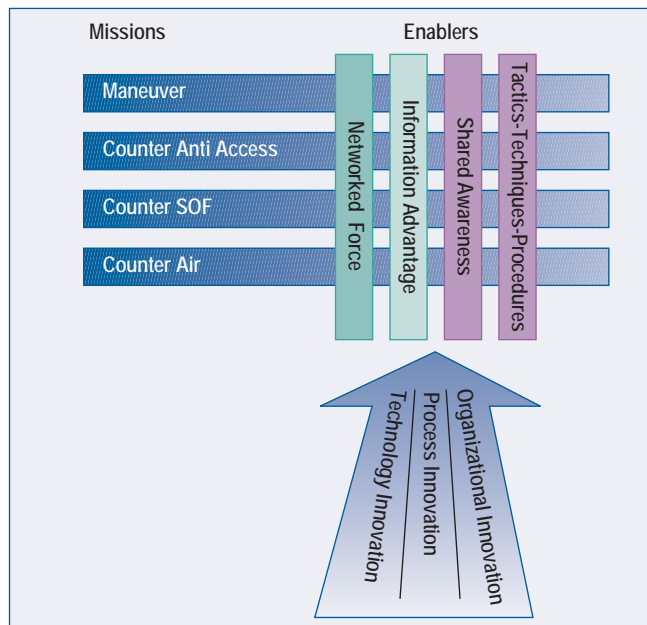
Source of NCW Warfighting Advantage?

Forces that are networked enjoy dramatically improved capabilities for sharing, accessing, and exchanging information compared to those that are not. This improved capability for operating in the information domain provides warfighters with a significant advantage over forces that are not networked, or are less networked than U.S. forces.

The implementation of NCW is providing a warfighting advantage for U.S. forces. For example, the combination of digitization and networking can be employed to develop a common operational picture that reduces the ambiguity and confusion of combat to clearly identify the positions of friendly forces and the known positions of the enemy.

Evidence collected to date across a broad spectrum of mission areas indicates that the development of a common operational picture significantly increases the warfighter's awareness and understanding of tactical and operational situations.
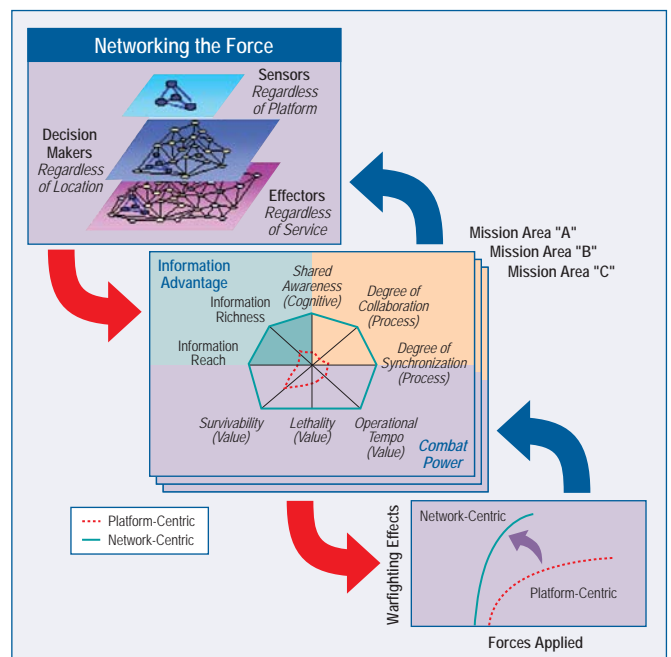

The ability to develop a higher level of situational awareness, in less time than an adversary, combined with an ability to act on it, is a source of significant warfighting advantage.

In the conduct of information age warfare by networked forces, the relative information advantage of U.S. forces, as compared to our opponents, will be a key to deterring threats and coercion against U.S. interests, or if deterrence fails, to decisively defeating the enemy.

Implementation of Network-Centric Warfare.

Key elements of the strategy for implementing NCW in the Department of Defense (DoD):

- Refine the new rules of information age warfare and the theory of NCW through simulation, testing, experimentation, and actual combat experience.

- Apply the NCW theory enterprise-wide in DoD.

- Accelerate networking of the joint force at the tactical level, as well as at the strategic and operational levels.

- Accelerate deployment and employment of new network-centric concepts and capabilities.

- Experiment with network-centric concepts and capabilities to develop new and better ways to conduct network-centric operations (NCO).

- Address challenges of allied and coalition NCO.

- Develop doctrine and tactics, techniques, and procedures for NCO.

The new rules of information age warfare and NCW are impacting on key force development and investment decisions by the Department of Defense.