

A large US Navy aircraft carrier is shown at sea, viewed from a low angle. The ship's complex superstructure, including radar masts and antennas, is prominent. Several fighter jets are visible on the deck. The ship is moving through the water, creating a white wake. The sky is clear and blue.

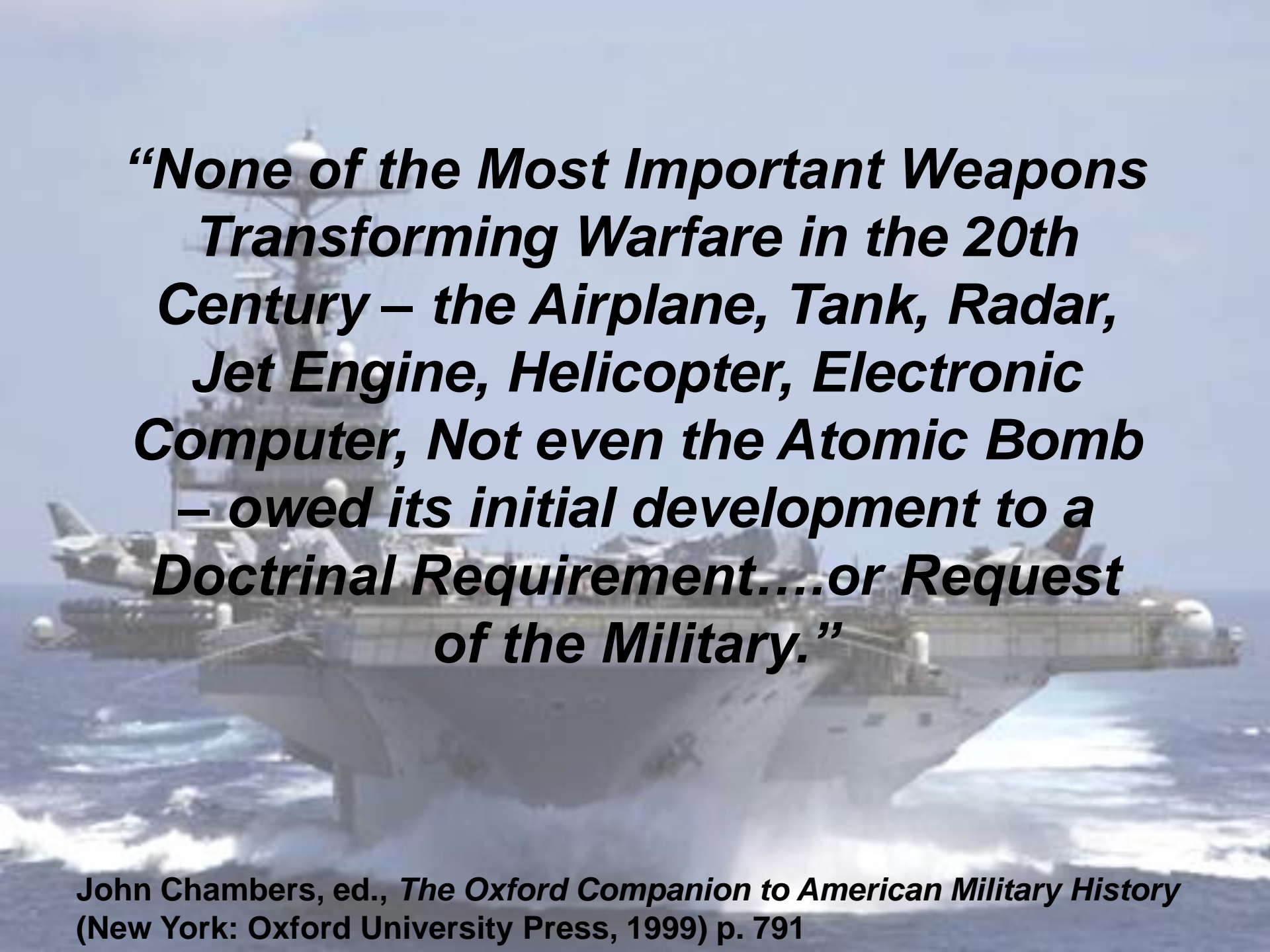
USN JFC Contributions

What the Navy Brings to the JFC

AWC Team Navy Briefing to Gen Elder

(Thomas, McElhannon, Pfeifle)

5Dec2007

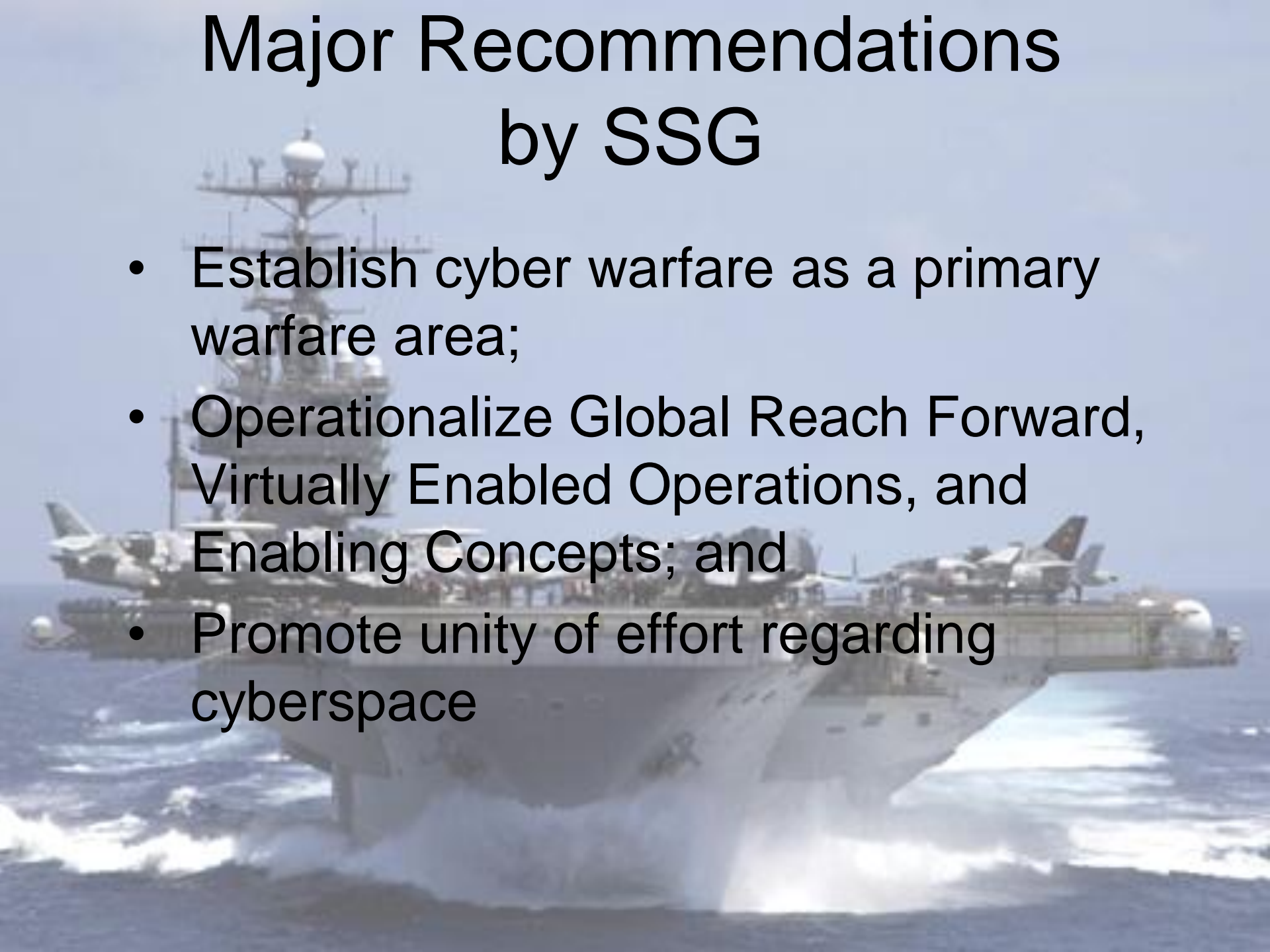
A large aircraft carrier is shown at sea, with several fighter jets on its deck. The carrier is moving through the water, leaving a white wake. The sky is clear and blue. The text is overlaid on the image in a bold, black, sans-serif font.

“None of the Most Important Weapons Transforming Warfare in the 20th Century – the Airplane, Tank, Radar, Jet Engine, Helicopter, Electronic Computer, Not even the Atomic Bomb – owed its initial development to a Doctrinal Requirement....or Request of the Military.”

John Chambers, ed., *The Oxford Companion to American Military History* (New York: Oxford University Press, 1999) p. 791

Major Recommendations by SSG

- Establish cyber warfare as a primary warfare area;
- Operationalize Global Reach Forward, Virtually Enabled Operations, and Enabling Concepts; and
- Promote unity of effort regarding cyberspace



Immediately Actionable Steps

An aerial photograph of a large aircraft carrier, likely a Nimitz-class carrier, sailing on the open ocean. The ship is viewed from a high angle, showing its complex superstructure, flight deck, and hull. The water is a deep blue, and the sky is a pale, hazy blue. The ship is moving towards the right side of the frame, leaving a white wake behind it.

- Establish cyber warfare as a primary warfare area
 - Establish an Unrestricted Line Cyber Warfare Community
 - Develop a continuum of cyber training
 - Enhanced cyber warrior training and expanded cyber education
 - Evolve the maritime strategy
 - Leadership in the new deterrence framework

Immediately Actionable Steps

- **Operationalize Global Reach Forward Virtually Enabled Operations and Enabling Concepts**
 - Establish Initial Cyber Regional Sub-Stations
 - Optimize regional alignment
 - Create fleet-wide language and cultural program
 - Initiate the Cyber Task Group
 - Develop a Navy virtual command and control environment
 - Identify, prioritize, and fund focused R&D
 - Assess the requirements for and capabilities of a “cyber ship”

Immediately Actionable Steps

- **Promote Unity of effort regarding Cyberspace**
 - Communication the need inside and outside the Navy
 - Increase assignment of Navy personnel to partners and cyber stakeholders
 - Establish a Naval Cyber Warfare Center
 - Established Cyber Innovation Cells

Major Recommendations by SSG

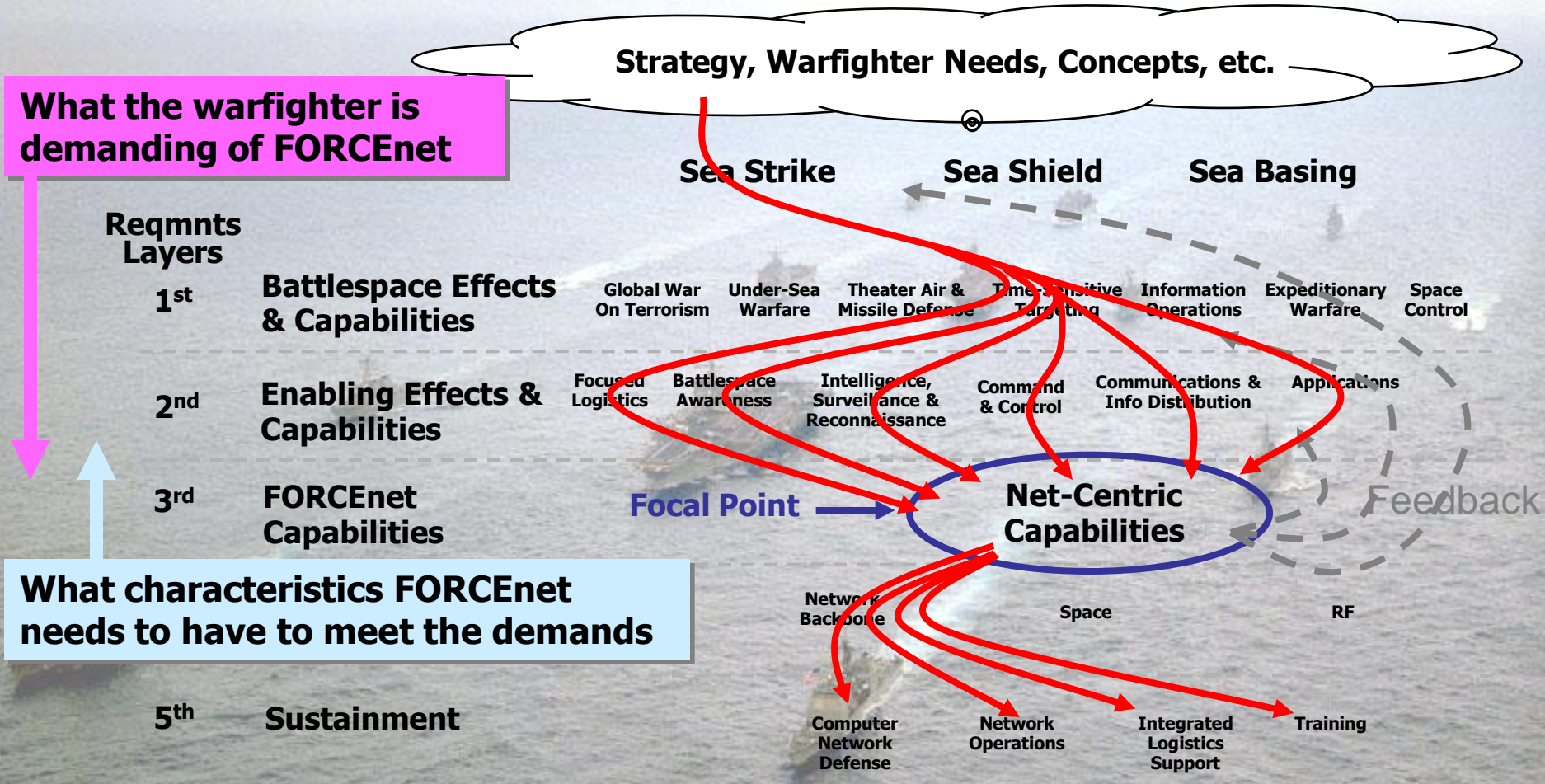
- Establish Cyber Warfare as a primary warfare area
- Operationalize Global Reach Forward, Virtually Enabled Operations, and Enabling concepts promotes
- Promote Unity of Effort regarding cyberspace

**To operate effectively at the
convergence of Sea Power and Cyber
Power**

Impact - Cyberspace Definition

- National Military Strategy for Cyber Operations and Joint Pub 1-02 refer to cyberspace as “a domain characterized by the use of electronics and the electromagnetic spectrum to store, modify and exchange data via networked systems and associated physical infrastructures.
- Definition used by CNO Strategic Studies Group:
 - *An unconstrained interaction space - for human activity, relationships and cognition; where data, information, and value are created and exchanged; enabled by the convergence of multiple disciplines, technologies, and global networks; that permits near instantaneous communication, simultaneously among any number of nodes, independent of boundaries.*

Operational Reqmnts Approach



In order to understand the desired capabilities of the enablers ...
 ... we need to understand the needs of the "enabled"