The Advanced Hawkeye will be a critical node in the FORCEnet architecture and will provide a highly adaptive form of Airborne Command and Control. Using its data and information services capabilities, it will have the ability to gather large amounts of data from both onboard and offboard sensors and then fuse and exploit that data, transforming it into actionable knowledge. As the Navy’s only carrier-based battle manager, the Advanced Hawkeye will be able to provide increased situational awareness to warfighters on the ground, in the air, and on the surface. The Advanced Hawkeye’s FORCEnet architecture will make it a true catalyst for naval transformation in network enabled capability and the gateway to Chief of Naval Operations Admiral Michael G. Mullen’s vision for a “1,000-ship navy.”

Hawkeye Nation*
Global presence in support of sovereign power projection for national defense and security
*Currently operating E-2C configuration aircraft
E-2D Advanced Hawkeye
Battle Management Command and Control

Operating in the Littorals
Assured access
Providing access to the world’s littorals will be the primary responsibility of forward-deployed naval forces for the foreseeable future. Operating in the littoral environment presents both challenges and risks to our Joint Forces. Mitigating the risk posed by land-based missile threats is becoming extremely problematic; these low-flying, low-signature, high-speed missiles from enemy launchers concealed deep inland offer precious little reaction time after breaking the radar horizon. As proliferation of these advanced cruise missiles steadily increases, the need for a viable solution to counter the risk they pose to our coalition forces operating in the littorals becomes greater than ever.

Sea Shield
Extending our defenses
In the words of Admiral Vern Clark, former Chief of Naval Operations, Sea Shield is about “...extending our defenses beyond naval forces, to the joint forces and allies and providing a defensive umbrella deep inland.” To provide that umbrella, our naval forces need to share vast quantities of battlespace intelligence and information over a Global Information Grid (GIG) that connects each asset in the cruise missile kill-chain.

Within that umbrella, an asset capable of contributing both sensor information and situational awareness to the GIG while transforming available information into actionable knowledge is required to act as an airborne battle manager. This asset must be able to operate in a fully open and distributed network-centric architecture and connect the numerous assets responsible for providing the required level of cruise missile protection. But few platforms are capable of assuming this role; even fewer are capable of operating from a forward-deployed carrier at sea. Only the Hawkeye can fulfill this complicated role of airborne battle manager—and do it from the sea.

Advanced Hawkeye: The Heart of Sea Shield
Protecting the fleet
The Advanced Hawkeye’s two-generation leap in radar technology, enhanced surveillance, communications capability, onboard decision support systems, and ability to operate in a cluttered and electronically jammed environment makes it perfectly suited to assume this critical role. Operating from forward-deployed aircraft carriers and utilizing Cooperative Engagement Capability (CEC), the Advanced Hawkeye works in concert with CEC-equipped Aegis surface combatants to provide the unprecedented cruise missile detection necessary to establish robust forward defense against these modern threats. Coupled with its connectivity to other airborne assets, battlespace situational awareness, and rich sensor data, the Advanced Hawkeye is uniquely positioned to coordinate air strikes against hostile targets. These combined capabilities make the Advanced Hawkeye critical to the defense of our forces operating in the littoral and overland environment.
Mission Expansion

E-2C Hawkeye employment in Operation Enduring Freedom and Operation Iraqi Freedom has confirmed the critical capabilities a carrier-based airborne battle manager brings to the battlespace. Hawkeye command and control capabilities helped coordinate the dynamic flow of the air campaign, and increasingly, many aspects of the ground campaign.

U.S. Navy sea experiments are now focused on demonstrations that permit the direct feed of images, video, data, digital chat, and Internet Protocol communication into the Advanced Hawkeye. These sources of data, in addition to traditional track data, will allow the Advanced Hawkeye to build an even more complete picture of the battlespace.

Eventually, offboard images and video from unmanned air vehicles under Hawkeye control may be processed onboard the aircraft for immediate weapon-target pairing and strike assignment. Thus, the Advanced Hawkeye will fulfill an ever-expanding role in Sea Strike in addition to its preeminent role in Sea Shield.
Our Mission - Our Commitment
Enable and integrate
We are the premier integrator of Joint Battle Management Command and Control–Navy (JBMC2-N) weapon systems and the prime contractor for the Hawkeye aircraft. Our mission is to be the enabler, architect, and integrator of system-of-systems solutions for future knowledge-based, open-architecture/non-proprietary military networks that allow precise, purposeful application of lethal power. Northrop Grumman Integrated Systems’ AEW & EW Systems business area is fully committed to understanding the underlying operational needs and requirements of both our military and civilian customers around the world. Applied leadership in management and technology innovation enable us to develop complex system-of-systems solutions that harness the richness and reach of sensor and information technologies to optimize the effectiveness of network centric warfare architectures.

Our Industry Team
Orchestrating a revolutionary system
A superior team of more than 170 world-class suppliers from around the country has been assembled to bring the finest manufacturing, engineering, avionics, and weapons systems development experts to the Advanced Hawkeye program with a special focus on migrating to commercial off-the-shelf components. These industry leaders are working together to support the Advanced Hawkeye program throughout the transition from systems development, integration, and testing to successful fleet introduction of the Advanced Hawkeye.

Radar System and Rotodome
Antenna
Represented by Lockheed Martin, Northrop Grumman Electronic Systems, Raytheon, and L3 Communications Randtron. Key technological developments to the Advanced Hawkeye include:
• Modular Systems Development
• High Dynamic Range Receivers
• Advanced Solid State Transmitters
• Space-Time Adaptive Processing
• Electronically Scanned Array Technology

Mission Systems
Represented by Northrop Grumman, Lockheed Martin, and BAE SYSTEMS, in conjunction with key avionics and mission systems suppliers, the following upgrades to the Advanced Hawkeye will be included:
• Fully Integrated “All Glass” Tactical Cockpit
• Advanced Identification Friend or Foe System

Propulsion and Aircraft Systems
Represented by Rolls-Royce, Hamilton Sundstrand, and numerous other aircraft electrical, mechanical, component, and structure suppliers. Improvements to the Advanced Hawkeye include:
• Engine and Propeller Modifications
• High Capacity Electrical Generating System
• Equipment Cooling and Pressurization Elements
• Aircraft Wiring, Composites, and Structures
Advanced Hawkeye: At the heart of the distributed missile defense network; a true cornerstone of Sea Shield

The Advanced Hawkeye is the first platform in the distributed missile defense network to detect a cruise missile launched from a ground-based mobile platform. Responding to this time-critical threat, the Advanced Hawkeye, utilizing FORCEnet-enabled communications, alerts an Aegis missile cruiser of the launch and provides continuous cueing information until the Aegis can destroy the missile. Simultaneously, collaborating with satellite intelligence, surveillance, and reconnaissance assets, the Advanced Hawkeye directs an unmanned aerial vehicle to precisely locate and identify the launch platform. As the airborne battle manager, the Advanced Hawkeye relays this information to strike aircraft, which deliver precision-guided weapons to eliminate the launcher before it can reposition or launch a second attack.

With a two-generation leap in radar technology and improved data processing and communications, the Advanced Hawkeye will be the foundation for Theater Air Missile Defense, a key element of the U.S. Navy's Sea Power 21 Sea Shield. In addition, the system will fulfill an ever-expanding role in Sea Strike, with improved detection and tracking capability in littoral and overland operations. Utilizing its open-architecture network connectivity, it will be a key FORCEnet enabler and will provide the ability to coordinate Time-Critical Targeting and Time-Critical Strike operations.

The Hawkeye's performance in Operation Enduring Freedom and Operation Iraqi Freedom demonstrated how dynamic and flexible the weapon system is in a joint force battle engagement. When fielded in 2011, Advanced Hawkeye will be critical in the transformation to a fully networked joint combat force, providing airborne battlespace command and control well into the 21st century!