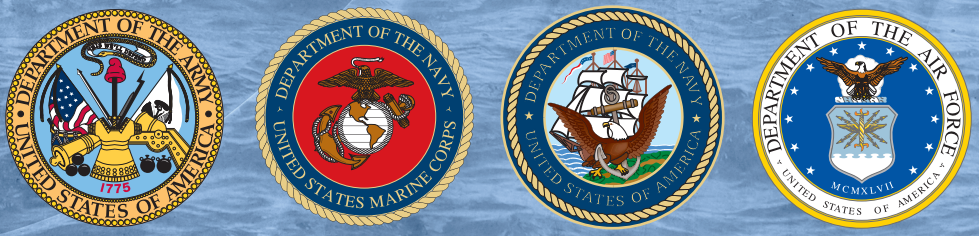
AIR- SEA BATTLE

Service Collaboration to Address Anti-Access & Area Denial Challenges



May 2013

This document is an unclassified summary of the classified Air-Sea Battle Concept, version 9.0, dated May 12 and the Air-Sea Battle Master Implementation Plan (FY13), dated Sep 12.

FOREWORD: The Air-Sea Battle Concept

From its inception, the U.S. military has continuously adapted itself to meet evolving threats. At its core, the Air-Sea Battle (ASB) Concept is about reducing risk and maintaining U.S. freedom of action and reflects the Services' most recent efforts to improve U.S. capabilities. Similar to previous efforts, the Concept seeks to better integrate the Services in new and creative ways. It is a natural and deliberate evolution of U.S. power projection and a key support component of U.S. national security strategy for the 21st century.

AirLand Battle was developed in the 1970s and 1980s to counter a Soviet backed combined arms attack in Europe. A key component of AirLand Battle was the degradation of rear echelon forces before they could engage allied forces. This mission was largely assigned to the Air Force and led to unprecedented coordination between the Army and Air Force. The ASB Concept is similarly designed to attack-in-depth, but instead of focusing on the land domain from the air, the Concept describes integrated operations across all five domains (air, land, sea, space, and cyberspace) to create advantage. The ASB Concept further differentiates itself from its predecessor in that the ASB Concept also strives to protect our rear echelon across the same domains. This defensive aspect of ASB helps the Joint Force reduce risk in the face of increasingly longer range and more precise weapons which could affect our space-based platforms, land forces, airbases, capital ships, and network infrastructure.

While ASB is not a strategy, it is an important component of DoD's strategic mission to project power and sustain operations in the global commons during peacetime or crisis. Implementation of the ASB Concept, coordinated through the ASB office, is designed to develop the force over the long-term, and will continue to inform institutional, conceptual, and programmatic changes for the Services for years to come. The ASB Concept seeks to provide decision makers with a wide range of options to counter aggression from hostile actors. At the low end of the conflict spectrum, the Concept enables decision makers to maintain freedom of action, conduct a show of force, or conduct limited strikes. At the low end of the conflict spectrum, the Concept enables decision makers to engage with partners to assure access, maintain freedom of action, conduct a show of force, or conduct limited strikes. At the high end of the conflict spectrum, the Concept preserves the ability to defeat aggression and maintain escalation advantage despite the challenges posed by advanced weapons systems.

The ASB Concept is a limited but critical component in a spectrum of initiatives aimed at shaping the security environment. Similar to other concepts, ASB makes important contributions in both peace and war. The improved combat capabilities advocated by the concept may help shape the decision calculus of potential aggressors. Additionally, continued U.S. investments in the capabilities identified in the concept reassure our allies and partners, and demonstrate the U.S. will not retreat from, or submit to, potential aggressors who would otherwise try and deny the international community the right to international waters and airspace. When combined with security assistance programs and other whole-of-government efforts, the ASB Concept reflects the U.S. commitment to maintaining escalation advantage during conflict and sustaining security and prosperity in the global commons.

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1 | INTRODUCTION

The Department of Defense recognizes the need to explore and adopt options that will preserve U.S. ability to project power and maintain freedom of action in the global commons. In July 2009, the Secretary of Defense directed the Departments of the Navy and the Air Force to address this challenge and to embark on a new operational concept called Air-Sea Battle (ASB). Since then, the U.S. Army, Marine Corps, Navy, and Air Force have collaborated in new and innovative ways to address the anti-access/area denial (A2/AD) military problem set. Then in January 2012, the President of the United States and the Secretary of Defense introduced new strategic guidance in *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* that specifically tasked the U.S. military to project power despite A2/AD. In Fall 2012, all four of the Services' Vice Chiefs signed a memorandum of understanding establishing a framework to implement the ASB Concept through the development of a joint force capable of shaping and exploiting A2/AD environments in order to maintain freedom of action in the global commons, and secure operational access to enable concurrent or follow-on joint operations.

What follows is a fuller description of the military problem presented to U.S. and allied forces by A2/AD threats; how ASB addresses this problem; ASB's role in service and joint force development; and how ASB is being implemented. This reference is designed to provide an overview of the ASB Concept and what the Services are doing to operationalize or implement its tenets within their force development processes. At an unclassified level, this summary reference cannot wholly describe the concept or these actions. The original ASB Concept, its annexes, and the Fiscal Year 13 Implementation Master Plan (IMP) remain classified as they lay out the specific details of how the joint force should be developed to defeat A2/AD threats and how the Services are implementing those recommendations. These restricted documents are recommended reading for individuals with the requisite clearances and need to know. However, what is presented here is directly adapted from the ASB Concept and the FY13 IMP and exactingly represents the core ideas and activities of ASB and its implementation.

2 | ANTI-ACCESS/AREA DENIAL (A2/AD)

A2/AD capabilities are those which challenge and threaten the ability of U.S. and allied forces to both get to the fight and to fight effectively once there. Notably, an adversary can often use the same capability for both A2 and AD purposes. It is the effect of A2/AD on U.S. and expeditionary operations that matters.

A2/AD capabilities and strategies to employ them combine to make U.S. power projection increasingly risky, and in some cases prohibitive, while enabling near-peer competitors and regional powers to extend their coercive strength well beyond their borders. In the most challenging scenarios, the U.S. may be unable to employ forces the way it has in the past: build up combat power in an area, perform detailed rehearsals and integration activities, and then conduct operations when and where desired. By acquiring these advanced A2/AD technologies, potential adversaries are changing the conditions of warfare that the U.S. has become accustomed to in the past half century.

ANTI-ACCESS (A2)

Action intended to slow deployment of friendly forces into a theater or cause forces to operate from distances farther from the locus of conflict than they would otherwise prefer. A2 affects *movement* to a theater.

AREA-DENIAL (AD)

Action intended to impede friendly operations within areas where an adversary cannot or will not prevent access. AD affects *maneuver within* a theater.

While A2/AD ideas are not new—the desire to deny an adversary both access and the ability to maneuver are timeless precepts of warfare—technological advances and proliferation threaten stability by empowering potentially aggressive actors with previously unattainable military capabilities. A new generation of cruise, ballistic, air-to-air, and surface-to-air missiles with improved range, accuracy, and lethality is being produced and proliferated. Modern submarines and fighter aircraft are entering the militaries of many nations, while sea mines are being equipped with mobility, discrimination and autonomy. Both space and cyberspace are becoming increasingly important and contested. The pervasiveness and advancement of computer technology and reliance on the internet and usable networks are creating means and opportunity for computer attack by numerous state and non-state aggressors, and the domain of space is now integral to such military capabilities as communications, surveillance, and positioning. In certain scenarios, even low-technology capabilities, such as rudimentary sea mines, fast-attack small craft, or shorter range artillery and missile systems render transit into and through the commons vulnerable to interdiction by coercive, aggressive actors, slowing or stopping free movement. The range and scale of possible effects from these capabilities presents a military problem that threatens the U.S. and allied expeditionary warfare model of power projection and maneuver.

The A2/AD threat exceeds any single or specific theater of operations, and creates problematic consequences for international security. For example, an aggressor can slow deployment of U.S. and allied forces to a theater, prevent

coalition operations from desired theater locations, or force friendly forces to operate from disadvantageous longer distances. Effectively undermining integrated U.S. and allied operations, the aggressor is likely drive allies and partners to seek accommodation with potential aggressors, or to develop alternate means of self-defense with potentially destabilizing effects. Such an environment induces instability, erodes the credibility of U.S. deterrence, can necessitate escalation in U.S. and allied responses, and weakens U.S. international alliances including associated trade, economic, and diplomatic agreements.

PROBLEM STATEMENT

Adversary capabilities to deny access and areas to U.S. forces are becoming increasingly advanced and adaptive. These A2/AD capabilities challenge U.S. freedom of action by causing U.S. forces to operate with higher levels of risk and at greater distance from areas of interest. U.S. forces must maintain freedom of action by shaping the A2/AD environment to enable concurrent or follow-on operations.

A concept to address this operational problem must be based on realistic assumptions regarding how an adversary will employ A2/AD capabilities. The assumptions that underpin the ASB Concept reflect a conservative view of what an adversary could do, and have direct implications for how the U.S. can and should respond.

First, the *adversary will initiate military activities with little or no indications or warning*. While the adversary may signal or threaten in an attempt to deter U.S. or allied actions to maintain access, the adversary gains no advantage by telegraphing the commencement of hostilities – and does not need to. Capabilities such as ballistic and cruise missiles will be used with little warning, and ambiguous or minimal warning will be received of air and maritime deployments. The implications are that a short warning timeline requires the U.S. to maintain ready forces that are routinely integrated and prepared to conduct high risk operations against very capable adversaries.

Second, given the lack of indications or warning, *forward friendly forces will be in the A2/AD environment at the commencement of hostilities*. As a result, the steady state posture and capabilities of forces must be able to provide an immediate and effective response to adversary A2/AD attacks through high tempo operations in the A2/AD environment. Additional forces introduced into the threat environment should be able to promptly integrate into the existing force posture.

Third, *adversaries will attack U.S. and allied territory supporting operations against adversary forces*. In addition to attacking American aircraft, ships, space assets, networks, and people, denying access to U.S. forces requires attacks on bases from which U.S. and its allies are operating, including those on allied or partner territory. The implication is that the defense of all bases from which U.S. forces operate must be addressed, whether on U.S. or partner/allied territory. Even the U.S. homeland cannot be considered a sanctuary, and real-time prioritization may be required between homeland defense and overseas operations.

Fourth, *all domains will be contested by an adversary* – space, cyberspace, air, maritime, and land. Cyberspace and space-based capabilities are essential for U.S. operations and are vulnerable to adversary capabilities with a

low barrier to entry such as computer network attack and electronic jamming. Since the adversary may employ a multi-domain approach, ASB must defend and respond in each warfighting domain.

Lastly, *no domain can be completely ceded to the adversary*. Each domain can be used to impact and deny access to the others, so to cede one domain to an adversary invites the eventual loss of the other interdependent domains. While U.S. forces may contest freedom of action in each domain, they are not likely to be required to achieve control in each domain simultaneously or to the same degree. As such, U.S. forces must take advantage of freedom of action in one domain to create U.S. advantage or challenge an adversary in another. This will require tightly coordinated actions across domains using integrated forces able to operate in each domain.

3 | THE AIR-SEA BATTLE CONCEPT

ASB is a limited objective concept that describes what is necessary for the joint force to sufficiently shape A2/AD environments to enable concurrent or follow-on power projection operations. The ASB Concept seeks to ensure freedom of action in the global commons and is intended to assure allies and deter potential adversaries. ASB is a supporting concept to the Joint Operational Access Concept (JOAC), and provides a detailed view of specific technological and operational aspects of the overall A2/AD challenge in the global commons. The Concept is not an operational plan or strategy for a specific region or adversary. Instead, it is an analysis of the threat and a set of classified concepts of operations (CONOPS) describing how to counter and shape A2/AD environments, both symmetrically and asymmetrically, and develop an integrated force with the necessary characteristics and capabilities to succeed in those environments. ASB is about building conceptual alignment, programmatic collaboration and institutional commitment in an integrated way, across the military Services in order to develop forces and capabilities that can jointly address A2/AD challenges. The purpose of ASB is not to simply conduct operations more jointly. It is to increase operational advantage across all domains, enhance Service capabilities and mitigate vulnerabilities. In addition to other joint and service concepts, ASB will help ensure the U.S.'s ability to gain and maintain freedom of action in the global commons, and to the conduct of concurrent or follow-on operations against a sophisticated adversary.

Central Idea. The ASB Concept's solution to the A2/AD challenge in the global commons is to develop networked, integrated forces capable of attack-in-depth to disrupt, destroy and defeat adversary forces (NIA/D3). ASB's vision of networked, integrated, and attack-in-depth (NIA) operations requires the application of cross-domain operations across all the interdependent warfighting domains (air, maritime, land, space, and cyberspace, to disrupt, destroy, and defeat (D3) A2/AD capabilities and provide maximum operational advantage to friendly joint and coalition forces.

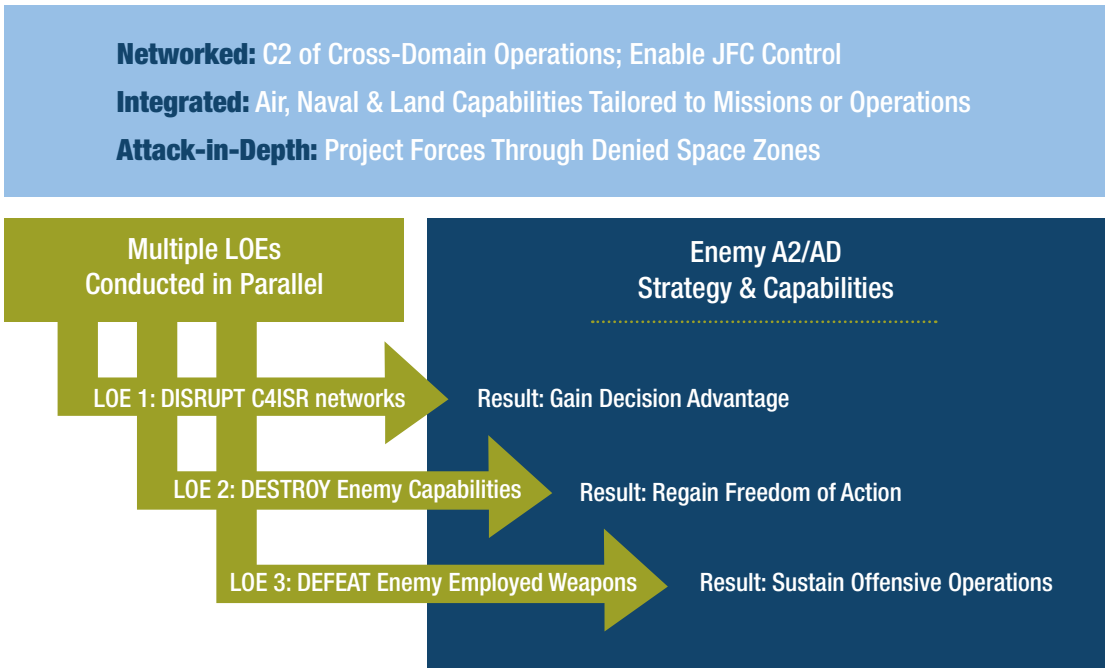

Figure 1. Components of ASB's Conceptual Design 'NIA/D3'

Cross-domain operations are conducted by integrating capabilities from multiple interdependent warfighting domains to support, shape, or achieve objectives in other domains. Cross-domain operations are those that can exploit asymmetric advantages in specific domains to create positive and potentially cascading effects in other domains. For cross-domain operations to be fully effective, commanders, whether defending or attacking, must have ready access to capabilities, no matter what domain they reside in or which commander owns them, to support or achieve operational objectives and create the effects required for advantage over an adversary. This interoperability may require multi-pathing, or the ability to use multiple, alternative paths from among all domain capabilities to achieve a desired end. While cross-domain operations are more complex than single domain or single Service options, their multi-pathing possibilities can provide distinct operational advantages over single domain or single Service solutions to operational problems.

The ability to integrate capabilities, equipment, platforms, and units across multiple domains and to communicate, interact, and operate together presents a joint force commander with more numerous and powerful options, which in turn, offer greater probability of operational success. For example, cyber or undersea operations can be used to defeat air defense systems, air forces can be used to eliminate submarine or mine maritime threats, or space assets can be used to disrupt adversary command and control. Put simply, traditional understandings of Service missions, functional responsibilities, or employment of capabilities from particular domains should not be barriers that hamper imaginative joint operations in an A2/AD environment. Each of the elements of ASB's construct offer joint force commanders increased flexibility and capability.

Networked. In the ASB Concept, networked actions are tightly coordinated in real time by mission-organized forces to conduct integrated operations across all domains without being locked into Service-specific procedures, tactics, or weapons systems. A networked force is people and equipment linked in time and purpose with interoperable

procedures; command control (C2) structures; and appropriate authorities capable of translating information into actions. These joint forces are able to attack the adversary A2/AD system-of-systems in depth and across all domains to create and exploit vulnerabilities.

Networked capabilities are both the physical means by which forces communicate and exchange information and the relationships, protocols, and procedures used by warfighters to complete their assigned missions. To be effective, networked forces need interoperable procedures, (C2) structures, and equipment. Authorities must also be provided at the appropriate C2 level in order for joint and coalition forces to gain and maintain decision advantage. In the ASB

> *Air-Sea Battle mitigates access challenges by moving beyond simply de-conflicting operations in each war fighting domain, toward creating the level of domain integration necessary to defeat increasingly varied and sophisticated threats.*
>
> *Secretary of Defense Leon Panetta*
> *20 February 2012*

Concept, networked does not only mean having assured communications and access to data; it also means having a force trained to conduct operations using mission-type orders and being able to operate even in the absence of continuous connectivity. The joint force can achieve that ability in part by establishing habitual relationships across Service, component, and domain lines so that forces can be effectively trained to operate together in a contested and degraded environment.

Integrated. Integration is the arrangement of military forces and their actions to create a force that operates networked across domains as a whole. An integrated joint force is better able to combine capabilities across multiple domains to conduct specific missions. The basic concept of integration has further evolved into seeking the development of pre-integrated joint forces. In order to maintain an advantage over potential adversaries, air, naval, and land forces must fully integrate their operations. Integration, traditionally viewed as strictly the combatant commander's job, needs to begin across Service lines as part of force development.

Forces should be integrated prior to entering a theater. Effective integration requires enhanced joint and combined training against A2/AD capabilities, including training and exercise for cross-domain operations before deployment. In some cases, pre-integration will also require Services' collaboration in materiel programming to ensure interoperability to avoid overly redundant or incompatible systems.

Attack-in-depth to Disrupt, Destroy and Defeat. The attack-in-depth methodology is based on adversary effects chains, or an adversary's process of finding, fixing, tracking, targeting, engaging and assessing an attack on U.S. forces. Attack-in-depth is offensive and defensive fires, maneuver, and command and control with the objective of disrupting, destroying, or defeating an adversary's A2/AD capabilities, conducted across domains in time, space, purpose, and resources. Attack-in-depth seeks to apply both kinetic and non-kinetic means to address

adversary critical vulnerabilities without requiring systematic destruction of the enemy's defenses (e.g., a rollback of an adversary's integrated air defense system).

D3 represents the 3 lines of effort of the ASB Concept:

- **Disrupt** Adversary Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR or C4I);
- **Destroy** adversary A2/AD platforms and weapons systems; and,
- **Defeat** adversary employed weapons and formations.

Disrupting these effects chains includes impacting an adversary's C4ISR or C4I capabilities, ideally precluding attack on friendly forces. **Destroying** or neutralizing adversary weapons platforms enhances friendly survivability and provides freedom of action. **Defeating** employed weapons post-launch defends friendly forces from an adversary's attacks and allows sustained operations.

Due to the nature of A2/AD threats and potentially short indications and warning timelines posed by adversaries, joint forces must be capable of effective offensive operations as soon as conflict begins, while simultaneously defending or re-positioning deployed forces, protecting land and sea bases, and bringing forces forward from garrison with acceptable levels of risk. The ability to attack and defend through the entire depth of the desired battlespace, in all the interdependent warfighting domains, is critical to establishing joint freedom of action.

4 | ROLE IN JOINT FORCE DEVELOPMENT

The ASB Concept is focused on joint force development. As a service concept, it falls under the Services' Title 10 responsibilities to man, train, and equip forces for employment by the combatant commands. Accordingly, the objective of the ASB Concept is to inform force development to ultimately provide combatant commanders' joint forces with the aforementioned NIA-D3 capabilities that will help ensure freedom of access in the global commons. The ASB Concept is intended to foster future capabilities that directly support several of the U.S. Armed Forces primary missions described in the DoD's Strategic Guidance (DSG): *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*. These include missions to Deter and Defeat Aggression, Project Power Despite Anti-Access/Area Denial Challenges, and to Operate Effectively in Cyberspace and Space.

PRIMARY MISSIONS OF THE U.S. ARMED FORCES

- Counter Terrorism & Irregular Warfare
- **Deter & Defeat Aggression**
- **Project Power Despite Anti-Access/Area Denial Challenges**
- Counter Weapons of Mass Destruction
- **Operate Effectively in Cyberspace and Space**
- Maintain a Safe, Secure, & Effective Nuclear Deterrent
- Defend Homeland & Provide Support to Civil Authorities
- **Provide A Stabilizing Presence**
- Conduct Stability & Counterinsurgency Operations
- Conduct Humanitarian, Disaster Relief & Other Operations

The ASB Concept is also a supporting concept to and thus complements the overarching Chairman of the Joint Chiefs of Staff's force development vision detailed in the *Capstone Concept for Joint Operations: Joint Force 2020 (CCJO)*, JOAC, and the emerging Joint Concept for Entry Operations (JCEO). As a capstone document, the CCJO describes the future operating environment and the high-order vision for how the future force will need to conduct *Globally Integrated Operations* across the Range of Military Operations (ROMO). ASB is aligned with this operating environment and several of the key elements required to achieve the Chairman's vision – specifically concerning the need for developing cross-domain synergy in the future force.

JOAC is a component under the CCJO that broadly describes how U.S. joint forces will overcome opposed access challenges. It establishes guiding precepts and capabilities necessary to assure access and for the joint forces to overcome A2/AD threats. At the next level, ASB supports JOAC by identifying more specific means and requirements by which the joint force may defeat those adversary threats in order to maintain freedom of action in the global commons.

JCEO, at the same level as ASB, will focus on guiding force development to enable joint force entry operations in an A2/AD environment. ASB can be seen to support JCEO by covering that freedom of action and access requirements in the global commons that ultimately support the joint force's ability to conduct concurrent or follow-on entry operations.

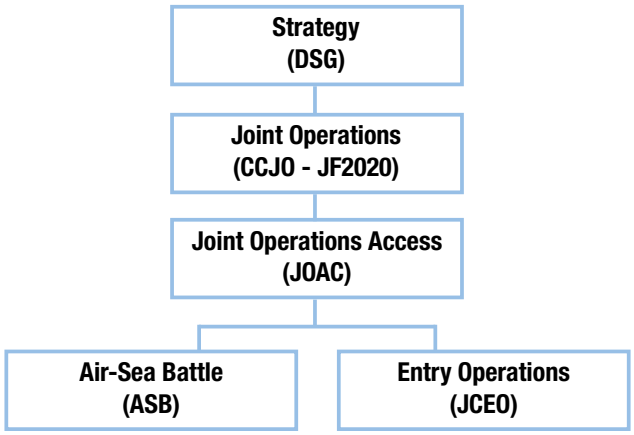

Figure 2. Relationship between Strategy, CCJO, JOAC, JCEO & ASB

Like other joint concepts, ASB does not seek to create a new force, as in one with wholly new equipment or capabilities, but instead endeavors to unify Service Title 10 efforts to develop forces that fight together more effectively. The Concept is a natural evolution of joint coalition warfighting toward more networked and integrated operational employment. It is an example of how the separate Services can formally collaborate, yet still protect, develop, and maintain unique Service capabilities, equities, and culture.

The ASB Concept views the joint force in a holistic way to include doctrine, organization, training, materiel, leadership, personnel, and facilities (DOTMLPF) within the Services' purview to organize, train, and equip. The ASB Concept specifically addresses a range of threats, such as ballistic and cruise missiles, sophisticated integrated

air defense systems, anti-ship capabilities from high-tech missiles and submarines to low-tech swarming boats, electronic warfare, and counter-C4ISR capabilities. Yet, the ASB Concept differs from other concepts because, while it contains the operational details needed in a limited objective concept, it is about fostering institutional change, conceptual alignment, and materiel change in and among the Services.

- Institutional Service and joint cooperation is enhanced through enduring organizational collaboration relevant to A2/AD environments as they evolve over time. Over the long term, the Concept envisions closer collaboration and integration of the Services' organize, train, and equip activities across the DOTMLPF spectrum. This will be done by expanding integration efforts through collaborative planning and increased liaison to emphasize more joint training at the operational and tactical levels.
- Conceptual alignment, perpetuated through the ASB conceptual design, which describes how capabilities and forces are integrated to accomplish combatant commander-directed operational objectives in A2/AD environments. Conceptual alignment actions fall into three broad categories: concept development, wargaming, and experimentation.
- Materiel solutions and innovations are collaboratively developed and vetted to ensure they are complementary where appropriate, redundant when mandated by capacity requirements, fully interoperable, and fielded with integrated acquisition strategies. ASB advocates for a process with expected products with a specific timeline to better facilitate Services' programmatic collaboration. The process is not intended to supplant existing Service activities, but to benefit from those activities and act as a focal point for improving inter-Service collaboration.

These key objectives guide the Services' efforts to develop the networked, integrated forces able to attack and defend where and when required—throughout any contested domain. Through these objectives, the Concept strives to develop a pre-integrated joint force ready to meet the A2/AD challenges. Such a pre-integrated joint force is built from the aforementioned habitual relationships, interoperable and complementary cross-domain capabilities. It benefits from realistic, shared training, enhancing the flexibility to develop new tactics, techniques, and procedures (TTPs) on the fly as operational conditions dictate. Such forces will provide the strategic deterrence assurance and stabilizing effects of a force in being and be ready at the outset of a contingency to avoid delays for buildups or extensive mission rehearsal.

5 | IMPLEMENTATION

SPECIFIC EXAMPLES OF ACTIONS BEING TAKEN BY THE SERVICES TO IMPLEMENT AIR-SEA BATTLE:

- Incorporating contested & denied environments into Service training & education
- Incorporating characteristics of contested environments into Service and Joint exercises
- Continuing subordinate concept development in support of CCJO, JOAC, and Air-Sea Battle
- Conducting engagement activities to ensure conceptual alignment with partners, build necessary partner capacity, and to strengthen relationships to assure access
- Conducting various studies and experiments to determine the validity of specific counter-A2/AD capabilities and concepts
- Conducting war games to explore future structures and policies for cross-domain operations command and control (XDO C2) and experiments to integrate and enable XDO C2 at the tactical level in A2/AD environments
- Developing multi-service tactics, techniques & procedures (TTPs) that address the A2/AD environment
- Conducting Service wargames focused on the Air-Sea Battle Concept's application in realistic operational scenarios
- Collaborating on Service resource planning and programming
- Incorporating Air-Sea Battle's and counter-A2/AD ideas into Joint and Service doctrine
- Establish & strengthen habitual relationships among Service organizations with complementary or similar operational purposes

In late 2011, the Secretary of Defense endorsed the ASB Concept as a necessary first step to address the anti-access, area denial challenge and directed the Services to work further to develop the Concept. To this end, the Services established a multi-service, flag-level ASB Executive Committee (EXCOM), Senior Steering Group (SSG), and supporting staff charged with implementing the Concept. Composed of representatives from each of the four Services, the role of the ASB Office is to foster the development and adoption of the related conceptual, institutional and material solutions through coherent implementation of the Concept's NIA/D3 construct. The ASB Office advocates for ASB initiatives, monitors their progress, and coordinates with various stakeholders within each Service.

The ASB office has established subject matter expert working groups and held implementation workshops to further validate, refine, and expand the original ASB Concept work as well as to lay out a plan for multi-Service implementation. This plan describes the recommended processes and actions to develop forces and enhance military capabilities necessary to counter current and future A2/AD challenges, using 2020 as the objective year. Accordingly, ASB is expected to be a multi-year process, as advanced capabilities come on line and the Services strengthen and enhance their habitual relationships and closely integrate their organize, train, and equip actions.

Following are examples of the actions being taken by the Services to implement the ASB Concept.

Incorporating contested & denied environments into Service training & education. In order to produce forces that can operate in, and counter an A2/AD environment, the Services must train to an increasingly challenging A2/AD environment and more fully integrate tactics, techniques, and procedures across service, functional, and domain lines. The Services will incorporate contested, degraded operations into their training and education programs, from the individual and unit level through integrated training in the deployed environment. Required training focus will

include both active measures, such as integrating capabilities to neutralize advanced adversary air defenses, and passive measures, such as comprehensive emissions control training. Education will include teaching the ASB Concept and JOAC precepts and ideas in Service professional military education courses and war colleges.

Incorporating characteristics of contested environments into Service and Joint exercises. The nature of heavily defended A2/AD capabilities makes attacking them, either kinetically or non-kinetically, far more challenging. Cross-domain solutions are required in order for manned or unmanned weapons systems to be able to penetrate and survive in contested environments. Cross-domain and multi-service training will be the focus in both defensive and offensive operations.

Continuing subordinate concept development in support of CCJO, JOAC, and ASB. CCJO, JOAC, and ASB have attempted to outline the current and future threat, however the nature of warfare dictates the threat will evolve in unpredictable ways. Continued development of the ASB Concept's ideas, in more detail, will be needed as the threat and operational scenarios change. Subordinate or complementary concepts will be developed, both to support the operationalization of the ASB Concept and to support the JOAC and the CCJO.

Conducting engagment activities to build conceptual alignment and partner capacity and to strengthen relationships to assure access. Shaping and engagment activities during implementation ensures conceptual alignment with our partners and allies, builds necessary partner capacity and stengthens our relationships which facilitate and assure access to multiple domains in the event conflict occurs.

Conducting various studies and experiments to determine the validity of specific counter-A2/AD capabilities and concepts. Studies and experimentation are critical for the evolution of concepts in to doctrine. Continued study and assessment of ASB's operational solutions will be conducted, as will experimentation into innovative capabilities and processes to defeat A2/AD threats and enhance joint integration and interdependence.

Conducting experiments with integrated command and control of cross-domain operations. Command and control is the heart and soul of joint operations; fighting in a multi-domain environment against a capable adversary will require innovative methods to ensure decision advantage and operational success. The Services will review and better integrate the existing C2 structures to allow for ease of cross-domain operations.

…future Joint Forces will leverage better integration to improve cross-domain synergy—the complementary vice merely additive employment of capabilities across domains in time and space. While the U.S. military maintains unique advantages in every domain, it is our ability to project force across domains that so often generates our decisive advantage.

Capstone Concept for Joint Operations

Developing multi-service TTPs that address the A2/AD environment. Current Joint and Service TTPs still largely reflect an operational environment where U.S. and coalition operational access is unchallenged. During the multi-year implementation process of ASB and JOAC, Service-level and combatant commander-level organizations must review, revise, and (in some cases) develop the necessary TTPs based on the results of wargaming, experimentation, tactics development, and exercises/cross-domain training events. Joint TTPs are already developed collaboratively by the Services; ASB will seek closer, earlier, and more ubiquitous collaboration on how best to operate, share information, and train the force to proficiency.

Conducting Service wargames focused on the ASB Concept's application in realistic operational scenarios. Service Title 10 wargames are key shaping events for force development. All four Services will address various aspects of the evolving A2/AD environment. They will be informed by and build on each other's work. This will include collaborative support of sister Service wargames with subject matter experts.

Collaborating on Service resource planning and programming. The joint force ultimately ends up with the capabilities it invests in; ASB will seek closer integration of resource planning and programming. This will begin with mutually developed capability gaps and integrated solution sets; these are followed by collaborated, integrated priorities provided to Service resource sponsors and programmers.

Incorporating ASB and counter-A2/AD ideas into Joint and Service doctrine. Once best practices and TTPs are validated, the Services will reflect these in their doctrine. This includes reviewing existing doctrine and, where applicable, advocating the use of suitable doctrine for emerging and future environments.

Establishing & strengthening habitual relationships among Service organizations with complementary or similar operational purposes. The ASB Concept will largely be implemented by the Fleet and Field; encouraging and facilitating the establishment of habitual relationships between operational level and tactical level units is critical to the long-term success of the ASB Concept's ideas. This includes Echelon 2 and 3 organizations such as the USAF's Air Combat Command (ACC), the Navy's Fleet Forces Command (FFC), the Army's Training and Doctrine Command (TRADOC), and the Marine Corps' Combat Development Command (MCCDC).

6 | CONCLUSION

Successful implementation of the ASB Concept will require unprecedented levels of joint and combined integration founded on comprehensive and habitual relationships that span from the fleets and forces in the field to the headquarters' staffs in the Pentagon. Substantial aspects of joint force development, operations, training, acquisition, and modernization will be involved in order to meet the challenge and be ready. Given the proliferation of advanced A2/AD technologies, NIA/D3 solutions will be a necessary component for the U.S. military's ability to continue to confidently operate forward and project power throughout the world. The ASB Concept is a natural evolution of the joint force and relations with allies toward more networked and integrated operational solutions. In a changing world that demands continued U.S. leadership, concepts such as ASB are essential to sustaining America's military freedom of action and ability to project power.

> *The reality of force development is that about 80% of Joint Force 2020 is programmed or exists today. We do however; have an opportunity to be innovative in two ways. We can significantly change the other 20% of the force, and we can change the way we use the entire force. While new capabilities will be essential, many of our most important advancements will come through innovations in training, education, personnel management, and leadership development.*
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> Capstone Concept for Joint Operations