During exercise Stellar Avenger, *Aegis*-class destroyer USS *Hopper* launches Standard Missile–3 Blk IA, successfully intercepting subscale short-range ballistic missile, launched from Kauai Test Facility, Pacific Missile Range Facility, Barking Sans, Kauai (U.S. Navy)

Seeing 2020

America's New Vision for Integrated Air and Missile Defense

By Geoffrey F. Weiss

On December 5, 2013, with the stroke of a pen, Chairman of the Joint Chiefs of Staff General Martin E. Dempsey profoundly altered the U.S. approach to the pressing problem of air and missile defense. On that date—coincidentally, 70 years to the day after the U.S. Army Air Corps began Operation *Crossbow*, the Anglo-American bombing campaign against Adolf Hitler's V-1 and V-2 missile forces and a missile defense milestone—General Dempsey signed the *Joint Integrated Air and Missile Defense: Vision 2020*.[1] This seminal document for air and missile defense (AMD) outlines the Chairman's guidance to the joint force and, by extension, to all the stakeholders that contribute to the air and missile defense of the U.S. homeland and its regional forces, partners, and allies. What makes the new vision both exceptionally timely and highly relevant is that it accounts for the volatility and reality of 21st-century strategic and threat environments characterized more often than not by rapid, enigmatic change.

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By crafting a holistic integrated air and missile defense (IAMD) vision—that is, one that encompasses a full range of integrated means including passive, nonkinetic, and left-of-launch—the Chairman has definitively departed from the previous paradigm that addressed an era of fewer, less capable threats. No longer can the United States reasonably expect to unilaterally defeat most air and missile threats with its own active defense systems or to outpace growing threat capabilities by outspending all of its potential adversaries. Instead, the new vision directs the joint force to embrace a broad spectrum of cost-informed options that enable greater IAMD adaptability and create flexibility to meet the challenges presented by proliferating air and missile threats across the global battlespace. The core of the Chairman's intent for IAMD is encapsulated in six key imperatives designed to guide the joint force in meeting these challenges in a logical and fiscally responsible manner. These include recognizing the need to leverage all forms of information to support IAMD detection, targeting, and engagement; enacting baseline joint and combined force employment to tap cooperative synergies; targeting IAMD system improvements to meet specific needs while ensuring affordability and interoperability; incorporating passive defense efforts to close seams and coordinate with other elements of IAMD; ensuring policies leverage partner contributions and burden-sharing; and fostering awareness across the Department of Defense (and beyond) of the benefits and proper use of the IAMD mission.[2] Clearly, these discerning directives to the joint force stand on their own; nevertheless, their significance and applicability are best understood by taking a closer look at IAMD and the factors and reasoning that gave birth to them.

A Brief History of Air and Missile Defense

Joint Publication 1-02 defines *IAMD* as "the integration of capabilities and overlapping operations to defend the Homeland and United States national interests, protect the Joint Force, and enable freedom of action by negating an adversary's ability to create adverse effects from their air and missile capabilities."[3] This is just a formalized way of saying AMD helps to win wars by defeating or mitigating enemy air and missile attacks. The origins of AMD can be traced back to the headwaters of war itself and the need to defend against ranged weapons. Throughout the history of warfare, there have been numerous so-called revolutions in military affairs, yet perhaps none as profound as the invention of ranged weapons, of which modern air and missile threats are currently the ultimate expression. Early ranged weapons, such as the bow and arrow, transformed war from a personal and highly risky affair to a less intimate one, enabling warriors to strike from safer distances that reduced the risk of immediate counterattack and the psychological consequences of face-to-face killing—an activity most people, even in ancient times, found abhorrent.[4] These weapons presented a new danger that compelled a Newtonian reaction to stave off a Darwinian fate—adapt or die. Early humans adapted by fashioning primitive defenses, which at the time consisted exclusively of passive measures such as shields or armor to survive an attack and movement, camouflage, concealment, and deception (CCD) to avoid an attack by confounding detection and targeting.

Over time, as the art and science of war and its weapons matured, the development of improved propulsion, guidance, and payloads in guns, artillery, rockets, mortars, aircraft, and missiles upped the ante, placing ever greater pressure on defenses to keep up in a high-stakes game of cat and mouse. The first use of a powered missile in war dates back to 13th-century China, but it was not until the early 19th century in Europe that these rockets gained the range and power to be of true military significance. The German V-2 missile holds the distinction of being the first true military *ballistic* missile.[5]

As the offense pursued weapons with greater speed, range, accuracy, stealth, and firepower, the defense, at least for most of war's history, has had a more limited menu of options. Of course, the first requisite element of any defense against air and missile threats is detection, tracking, and target discrimination. The target in question might be the aircraft, missile, its point or system of origin, or its guidance or command element. This part of the missile defense calculus began with human spotters, who have since evolved into expensive, technologically sophisticated land-, air-, and space-based sensors such as electronically scanned radars and infrared detectors. After the threat is detected, subsequent defensive options include movement and CCD (avoid the attack); shields, armor, or fortifications (survive the attack); and destroying or deterring the attacker (prevent the attack). With respect to countering aircraft, the theories of Generals Billy Mitchell and Giulio Douhet notwithstanding, a range of active measures, including surface-based and airborne guns, artillery, and missiles, has proved effective. However, ballistic missiles present a more daunting challenge because their speed and operating envelope make them nearly impossible to detect, track, and successfully engage. This is the problem often referred to as "hitting a bullet with a bullet."

Not until the mid-20th century did technology finally support a fourth option to address missiles—interception of the missile (neutralize the attack). This new, technology-assisted alternative ushered in the era of "active" missile defense—missiles could now kill missiles. Indeed, so much attention has been given to this new capability that the terms *active missile defense* and *missile defense* have become nearly synonymous. In 1996, the United States incorporated history's AMD lessons and added command and control to tie it all together within a doctrinal concept known as the "four pillars" of IAMD: passive defense (survive the attack), active defense (neutralize the attack), command, control, computers, communications, and intelligence (C4I) (detect and respond to the attack), and attack operations (prevent the attack).[6] Though no longer formally part of doctrine, the four pillars concept is still valid and useful for understanding the fundamental elements of AMD.

In the United States, modern active AMD programs began about the same time that long-range air and missile threats emerged. Defense against aircraft gained serious attention with the advent of combat aircraft in World War I and mainly relied upon other aircraft, antiaircraft artillery (AAA), and surface-to-air missiles (SAM), a paradigm that endures to this day. In countries with fewer resources, greater dependence is placed on AAA and SAMs, which are less costly to develop, man, and employ than manned aircraft. In this regard, missiles are something of a "poor man's air force," a fact that accounts for their proliferation throughout the world today.

U.S. ballistic missile defense efforts originated in response to the Nazi V-2 rocket program in World War II. Interestingly, the threat posed by Nazi missiles to the U.S. homeland was more significant than is usually recognized; the Germans actually had plans to attack the U.S. mainland with submarine-borne V-2s and had intercontinental ballistic missiles (ICBMs) on the drawing board.[7] After World War II, adversary air and missile threats, particularly from the Warsaw Pact countries, became more numerous and capable, and the United States began developing countermeasures in earnest. Direct threats to the homeland were limited initially to long-range aviation but later expanded to include ICBMs, submarine-launched ballistic missiles, and cruise missiles. Overseas, America's forward forces, partners, and allies faced a full range of threats to include short- and intermediate-range ballistic missiles, bombers, and tactical weapons such as artillery, rockets, and mortars. To address these threats, the Army and Air Force shared the initial burden of developing missile defenses. They tackled the thorny technical problem of creating viable active missile defenses for both the homeland and regional areas of responsibility. Early Air Force programs included Projects Wizard and Thumper in 1946 followed by the Army's Patriot in 1949.[8]

By 1958, the dire threat from Soviet nuclear-armed ICBMs coupled with unproductive inter-Service squabbling over missile defense responsibilities led Secretary of Defense Neil McElroy to assign the task of active strategic defense solely to the Army and to establish the Advanced Research Projects Agency to explore innovative solutions to aid the effort.[9] Against the strategic backdrop of the Cuban missile crisis, the Army wasted little time in getting to work on new systems designed to intercept Soviet missiles. Examples included the Nike Zeus and Nike-X anti-ballistic missiles (ABMs), which used nuclear warheads to destroy incoming missiles (a practice the Soviets also explored) in their terminal phase of flight. Yet despite some successful tests, the Nike programs were never fully implemented due to the risks of nuclear detonations over the United States as well as technical challenges in computing, detection, and target discrimination. The failure of Nike did not deter the Army or the other Services from continuing to explore and debate active missile defense concepts right up until President Richard Nixon signed the Anti-Ballistic Missile Treaty with the Soviet Union in 1972. The ABM Treaty imposed limits on the number of ABM sites and interceptors each country could field, essentially rendering strategic missile defenses on both sides militarily ineffective due to the overwhelming advantages in numbers and capabilities enjoyed by the country using ICBMs offensively.[10]

Even so, the ABM Treaty did not induce the United States to abandon its quest for a viable defense against missile attack. Throughout the 1980s and 1990s, the United States created a series of organizations assigned to collaborate with the Services and private industry to develop concepts for directed energy and nonnuclear, hit-to-kill missile interceptors. These organizations included the Defense Advanced Research Projects Agency; President Ronald Reagan's Strategic Defense Initiative Organization (1984–1994); the Ballistic Missile Defense Organization (1994–2002); and today's Missile Defense Agency (MDA, 2002–present).[11] Some of their novel initiatives explored methods for interception in all phases (boost, mid-course, and terminal) of ballistic missile trajectories by means of a variety of air-, sea-, and space-launched weapons integrated with advanced sensors and C4I. Ultimately, America's efforts and investments in pursuit of practical active missile defense were vindicated when, in 1991 during Operation *Desert Storm*, the Army's Patriot interceptors became the first missile defense system to successfully engage a missile in real-world combat by destroying an Iraqi Scud mid-flight.[12]

Seeking to capitalize upon the proven success of Patriot and the end of the Cold War, President Bill Clinton directed greater attention to the problem of theater missile defense (TMD). It was during his tenure that many of today's most well-known active TMD systems matured, including Patriot Advanced Capability-3, Terminal High Altitude Area Defense (THAAD), and the Navy's Aegis-enabled Standard Missile-3 (SM-3).[13] As part of this initiative to improve integration of theater AMD, in 1997, the Secretary of Defense and Chairman of the Joint Chiefs of Staff established the Joint Theater Air and Missile Defense Organization (JTAMDO) as a Chairman's Controlled Activity reporting through the Joint Staff Director of Force Structure, Resources, and Assessment (J8). JTAMDO's initial charter was to work with all the Department of Defense (DOD) AMD stakeholders, especially the geographic combatant commands, to define requirements, architectures, and capabilities for joint force theater AMD.[14] Later, JTAMDO's role expanded to include leadership in the integration of *all* AMD requirements, capabilities, and architectures, a nod to its repository of IAMD expertise, its success in capabilities analysis and war-gaming, and its unique position within the Joint Capabilities Integration and Development System (JCIDS) process. Thus, JTAMDO became JIAMDO with *integrated* replacing the word *theater*. Today, JIAMDO remains the Chairman's lead agency for implementing the *Joint IAMD Vision 2020*, advocating for affordable solutions to warfighter IAMD requirements and integrating AMD equities among a diverse range of stakeholders, each with its own organizational culture and priorities.

U.S. Marines with Amphibious Assault Vehicle Platoon, Battalion Landing Team 3/2, 26th MEU, Marine Air-Ground Task Force prepare to splash at Arta Beach (DOD/Michael S. Lockett)

The final phase of U.S. AMD history began at the end of President Clinton's second term. Having reinvigorated TMD, the President and Congress collaborated on the National Missile Defense Act of 1999, which made it "the policy of the United States to deploy as soon as is technologically possible an effective National Missile Defense system capable of defending the territory of the United States against limited ballistic missile attack (whether accidental, unauthorized, or deliberate)."[15] This law paved the way for President George W. Bush to withdraw from the ABM Treaty in 2002 and pursue a national missile defense designed to negate a limited ballistic missile strike on the United States. That vision became a reality with the implementation of a ground-based midcourse defense system with ground-based interceptors (GBIs) in Alaska and California. Today's IAMD systems, due to the complementary efforts of DOD, the Services, MDA, combatant commands, private industry, and JIAMDO, consist of an array of advanced, strategically positioned radar and infrared sensors, layered active missile interceptors—such as Patriot, THAAD, SM-3, and GBI—and robust C4I that links it all together.

Today's Strategic Context

While the strategic context during the 20th century's formative period of missile defense was certainly dynamic, most of it could be defined within the rubric of the Cold War. During this epoch, defense priorities and resourcing could always be calibrated against the Soviet Union's existential threat. In contrast, the 21st century's strategic context is much harder to define and has proven far more volatile. As the recently released *2014 Quadrennial Defense Review* summarized, "The global trends that will define the future security environment are characterized by a rapid rate of change and a complexity born of the multiple ways in which they intersect and influence one another. As a result, despite the growing availability and flow of information around the world, it is increasingly challenging to predict how global threats and opportunities will evolve."[16] Indeed, though the prospect of global thermonuclear war has diminished, myriad other strategic challenges have cropped up, each having

Missile Defense Agency's Flight Test 06b Ground-Based Interceptor launches from Vandenberg Air Force Base, June 2014 (U.S. Air Force/Michael Peterson)

the potential to wreak havoc on U.S. national interests at home and abroad as well as upon the global economy. Among these are nonstate criminal and terrorist organizations and their enablers such as North Korea and Iran, who have also developed or sought to develop nuclear weapons. In the Far East, China is rapidly building more advanced weapons of all types as it grows bolder in flexing its might in the East and South China seas. In Europe, Vladimir Putin's Russia has overturned the post–Cold War order by posturing against the North Atlantic Treaty Organization (NATO), defying U.S. policy in Syria, annexing Crimea, invading Ukraine, and intimidating the other former Eastern Bloc nations along its borders. Africa continues to seethe with political unrest, terrorism, and humanitarian crises, and the Arctic promises to become a new battleground in the international race for greater access to food and energy resources.

The Chairman's vision outlines the implications of all this for IAMD. First, within this evolving security environment, AMD remains vital in supporting the U.S. ability to project power and have freedom of movement and access to the world's strategic thoroughfares. Today's geopolitical volatility means that IAMD must be more integrated and flexible than ever to respond to a wider array of less predictable and more capable threats. Moreover, potential adversaries have steadily improved their arsenals in terms of both quantity and quality, incorporating upgrades in range, accuracy, mobility, speed, stealth, and targeting.[17] Second, these advanced capabilities and the proliferating air and missile threat have further collapsed the old paradigm of separate IAMD domains—regional and homeland. Now, the entire globe is a seamless battlespace within which air and missile attacks can easily and rapidly cross area of responsibility boundaries, placing a premium on coordination and integration between combatant commands (including U.S. Northern Command).[18] Third, over a decade of war and the economic collapse of 2008 have led to record U.S. budget deficits and the political impetus to reduce those deficits with smaller governmental budgets. The coincidence of these economic pressures and the increasing combatant command appetite for more and better IAMD systems obliges the joint force and Services to use extra care in setting priorities. IAMD in 2020 must be versatile, responsive, decisive, and *affordable*.[19] Finally, the ominous strategic context has not been lost on America's partners

and allies around the world. Never has the demand for IAMD systems and the protection they provide been greater.[20] From Japan and the Philippines to Qatar and Lithuania, more nations are turning to the United States for assistance in protecting themselves against attack. The U.S. response to this situation will be watched closely, not only by our allies but also by our potential adversaries; though demand for a protective U.S. AMD umbrella is peaking, our financial ability to provide it is on the wane.

The IAMD Threat Environment

While America contends with the difficulties of a dynamic strategic context, potential adversaries seek to capitalize on perceived opportunities. Countries such as Russia, China, North Korea, and Iran perceive U.S. fiscal burdens and political paralysis as promoting policies aimed at reducing and reapportioning its overseas presence. Thus, regional powers with goals inimical to U.S. interests are emboldened to strive for greater local influence as the tide of American power ebbs. This has caused a great deal of angst around the world; just ask the Ukrainians, Japanese, or Emirati. Moreover, global competitors have embraced an antiaccess/area-denial stratagem, backed by offensive air and missile weapons systems of greater capability and quantity, intended to keep the United States and its friends at bay. Complicating the threat picture even further is the prospect of rogue nations such as Iran and North Korea, against which traditional notions of deterrence are unreliable, developing weapons of mass destruction capable of delivery on ICBMs. Indeed, Iran possesses the "largest and most diverse missile arsenal in the Middle East," which it acquired in large part from foreign sources such as North Korea.[21] After a recent series of tests in early 2014, "Iranian Defense Minister Brig. Gen. Hossein Dehqan said [Iran's newest] long-range ballistic missile can evade enemies' anti-missile defense systems and has 'the capability of destroying massive targets and destroying multiple targets.'"[22] For its part, North Korea also has a huge missile arsenal, and its technology is advancing to the point where it could potentially threaten the U.S. mainland with nuclear warhead–armed ICBMs.[23] As the Chairman's vision warns, "The future IAMD environment will be characterized by a full spectrum of air and missile threats—ballistic missiles, air-breathing threats (cruise missiles, aircraft, UAS [unmanned aerial systems]), long-range rockets, artillery, and mortars—all utilizing a range of advanced capabilities—stealth, electronic attack, maneuvering reentry vehicles, decoys, and advanced terminal seekers with precision targeting."[24]

Never has the United States faced a more complex or comprehensive global challenge in this area, and the forecast for 2020 and beyond is no more optimistic. Threats will continue to progress, placing greater burdens on U.S. defensive capabilities and coverage as they become increasingly transregional and global. Additionally, air-breathing threats are experiencing a renaissance due to new technologies, many of which were pioneered in the United States but have now found their way into other hands. Unmanned aerial systems, stealthy cruise missiles, and hypersonic glide vehicles are becoming more common, threatening to exploit gaps and seams in traditional IAMD architectures. The challenge of detecting, tracking, and engaging these systems has compressed response times and decision cycles. Even at the tactical level, ground and maritime forces can be held at risk simply by sheer numbers of cheap, long-range rockets.[25] Without question, all of these facts indicate a dire and growing air and missile threat to the United States and its interests around the world. Success in negating it will take no less than a bold, holistic reimagining of America's IAMD.

A Forward Vision

Fortunately, *Joint IAMD Vision 2020* paints just the type of bold new picture that is required. It pulls no punches in assessing the threat, nor does it hold anything back in recommending solutions. Moreover, it rejects the notion that missile defense must equal *active*, kinetic missile defense. More must be done with passive, nonkinetic, C4I, and left-of-launch options. The document makes it clear that the first responsibility of joint IAMD is to deter adversaries by convincing them that attack is futile, then to prevent an attack in the first place by "killing the archer" rather than shooting down or absorbing his arrows. Should deterrence and prevention fail, joint IAMD melds active and passive defenses to mitigate and survive the assault. None of these actions is meant to be decisive alone. Joint IAMD is a necessary element within the broader context of the joint campaign intended to buy time and preserve the joint force during hostilities while imposing increasing cost and resource expenditure on the enemy, but it is neither intended nor able to afford victory by itself.[26] As the vision points out, "the link between offensive and defensive operations for IAMD is critical," and "all means, including penetrating assets" should be employed to "defeat large threat inventories."[27] Still, it is unreasonable to believe that offensive operations can wholly negate any sophisticated threat; therefore, the joint force must employ robust passive measures, such as CCD, dispersion, and hardening, as well as layered, complementary active defenses to survive air and missile attacks. Frankly, the failure of IAMD "risks suffering potentially devastating attacks" that could jeopardize an entire campaign.[28] Because of the extraordinarily high stakes, the integration of IAMD must extend beyond the joint force both horizontally and vertically to encompass "policy, strategy, concepts, tactics, and training" and will require the participation of interagency and international partners and allies.[29] Diplomacy, military-to-military engagements, officer exchanges, foreign disclosure of previously classified information, information-sharing, interoperability tests, and treaty negotiations are all vital features in this holistic approach to IAMD.

At the same time, the joint force cannot lose sight of its traditional responsibilities in IAMD capability development, but all stakeholders must

Sea-based X-band radar, world's largest phased-array X-band radar carried aboard mobile, ocean-going semisubmersible oil platform, transits waters of Joint Base Pearl Harbor–Hickam (U.S. Navy/ Daniel Barker)

proceed in a cost-conscious manner. Hitting bullets with bullets will always be more expensive than just firing bullets—thus, the combatant commands need to maximize resources already in hand and pay special attention to prioritizing capability and capacity gaps responsibly. Meanwhile, DOD, the Services, MDA, research laboratories, and industry must work together to identify and pursue only the most promising, realistic, and affordable solutions to IAMD's problems. This methodology is the only way the joint force is going to get the surveillance, identification, discrimination, fire control, and battle management improvements it needs to deter and defeat current and future threats.[30]

The Chairman outlined six imperatives designed to facilitate creation of the joint IAMD force necessary to confront the challenges of the coming decades. The first is to "incorporate, fuse, exploit, and leverage every bit of information available regardless of source or classification, and distribute it as needed to U.S. Forces and selected partners."[31] Intelligence, surveillance, and reconnaissance (ISR) provides the eyes and ears that the IAMD force requires to operate. Joint force commanders must properly prioritize and allocate limited ISR resources to support IAMD, and no source of ISR, whether traditional or nontraditional, national or tactical, should be considered too sacred for the IAMD mission. The United States fields many highly capable detection and collection systems, but their information chains remain rigidly stovepiped; the joint force must ruthlessly seek out and eliminate technical deficiencies and organizational barriers to information-sharing and enable the free flow of ISR data from national systems directly to the warfighters who need it.

The second imperative is to "make interdependent Joint and Combined force employment the baseline."[32] It is no exaggeration to say there is no such thing as U.S.-only or single-Service IAMD. The Nation simply cannot afford to do this mission without the synergies provided by the joint force and the cooperation of its partners and allies with whom "interdependence and interoperability breed efficiency and economy of resources."[33] From the earliest stages of planning, exercising, and employment, IAMD must leverage the comparative advantages of joint force components and partner nations. Successful examples to build upon include exercises such as U.S. Central Command's Air and Missile Defense Exercise; U.S. Strategic Command's Exercise Nimble Titan, a 22-nation, future-focused tabletop wargame that investigates multinational, strategic IAMD concerns; U.S. Pacific Command's Exercise Keen Edge; as well as the 8-nation Maritime Theater Missile Defense forum and various combatant command IAMD Centers of Excellence.

The third imperative is to "target development, modernization, fielding, and science and technology efforts to meet specific gaps in IAMD capabilities, all the while stressing affordability and interoperability."[34] While seemingly self-explanatory, in this imperative the Chairman asks for "special focus" on "closing high-leverage technology gaps such as an adversary's emerging seeker or missile development, and the development of U.S. non-kinetic capabilities."[35] This last point holds great promise, since nonkinetic means such as cyber, directed energy, and electronic attack have the potential to turn an enemy's advancements in sophistication into vulnerabilities, and at greatly reduced cost relative to kinetic options. JIAMDO in conjunction with the entire IAMD community must work closely through the JCIDS and Warfighter Involvement Processes to ensure requirements for new capabilities are prioritized, feasible, and affordable and address valid threats so that acquisition decision authorities pursue programs with realistic cost, schedule, and performance parameters. While programs such as Patriot, THAAD, and Aegis have been successful, there is still room for improvement as the Services develop new technologies in sensors (such as the Three-Dimensional Expeditionary Long Range Radar), interceptors (the Standard Missile-6 and railgun), and C4I (Cooperative Engagement Capability).

Imperative number four requires the joint force to "focus Passive Defense efforts on addressing potential capability and capacity shortfalls in air and missile defense."[36] Passive defense is a pillar of IAMD that has been around for a long time, but its importance is not reduced in the 21st century. The notion that passive defense measures, which help joint forces survive an attack, are a separate problem from other IAMD pillars is not acceptable. The joint force commander must

be able to assess passive defense effects, along with active defense and offensive operations, within planning and execution cycles. Failure to fully integrate and coordinate offensive, active, and passive actions places joint force objectives and resources at unnecessary risk. There are positive signs that DOD is taking this to heart, especially with respect to dispersal and hardening considerations within the Asia-Pacific region.[37] However, DOD needs to extend these plans to other regions as well.

The fifth imperative is to "establish and pursue policies to leverage partner contributions."[38] This is similar to the second imperative, but it merits additional emphasis because of how important it is to IAMD. While the second imperative speaks to warfighting operations, this one outlines the significance of long-term preparation running the gamut from political relationships to technology. Before combined employment can be brought to bear in a conflict, diplomats and warriors have a great deal of legwork to do. Regional IAMD architectures are not built in a day or on a whim. Painstaking establishment of bi- and multi-lateral agreements forged through cooperation and communication will pave the way to more effective regional IAMD. Moreover, a network of interoperable air and missile defenses comprised of a complementary mix of U.S. and partner nation weapons systems sends a clear message of deterrence to any would-be aggressor and offers assurance to international allies. In this vein, the United States should continue its full engagement with NATO to develop a viable air and missile defense strategy, building on its commitment to the European Phased Adaptive Approach while also encouraging greater burden-sharing by NATO and non-NATO nations in the region. Beyond NATO, the United States must work with the Gulf Cooperation Council countries to bolster AMD in Southwest Asia, via foreign military sales, information-sharing, and exercises, while also exploiting opportunities for trilateral cooperation and IAMD technology development with South Korea and Japan in the Asia-Pacific.

This article exemplifies the spirit of the sixth and final imperative, which directs the joint force to "create an awareness of the IAMD mission and the benefits of its proper utilization across the Department of Defense to include the development of the enabling framework of concepts, doctrine, acquisition, and war plans that support full integration of IAMD into combat operations."[39] Here, the Chairman recognizes that great ideas are useless if they are not communicated to the forces that will be called upon to implement them. This is a directive to the joint force and all IAMD stakeholders to move out smartly and educate each other on the IAMD mission and the way forward articulated in the vision. Commanders at every level need to understand how IAMD is supposed to work for the joint force and to train their people to effectively execute. The Joint Functional Component Command for Integrated Missile Defense and the Joint Staff J7 Joint Force Development could help lead the way here. In particular, the J7's December 2013 release of the *U.S. Planning Guide for Multinational Air and Missile Defense* along with JIAMDO's forthcoming *IAMD Roadmap* and revision of Joint Publication 3-01, *Countering Air and Missile Threats*, are positive steps forward.

The Chairman's *Joint IAMD Vision 2020* comes at a critical juncture in U.S. military history. As the Nation wraps up more than a decade of war in Southwest Asia, it must contend with new strategic challenges and air and missile threats, growing in both capability and quantity, from a variety of potential adversaries. Against this backdrop, success in deterring and, if necessary, winning future wars will require a robust, global IAMD architecture that incorporates affordable, innovative capability improvements to all four pillars of IAMD—active, passive, C4I, and attack operations—as well as a holistic approach to joint and combined planning, training, and employment. There is simply too much at stake to cut corners or leave anything on the table. Without question, IAMD is and must remain a cornerstone of U.S. national defense, for as the Chairman aptly asserts, "The effectiveness with which we field competent Joint IAMD capabilities will help prevent catastrophic attacks on the U.S. Homeland; secure the U.S. economy and the global economic system; and build secure, confident, and reliable Allies and partners."[40] The Chairman's *Joint IAMD Vision 2020* points the way. Now it is up to the joint force and the entire IAMD community to make it happen. **JFQ**

Notes

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Joint Publications (JPs) Under Revision (to be signed within 6 months)

JP 1-0, *Joint Personnel Support*

JP 1-04, *Legal Support to Military Operations*

JP 3-02.1, *Amphibious Embarkation and Debarkation*

JP 3-09, *Joint Fire Support*

JP 3-09.3, *Close Air Support*

JP 3-13.2, *Military Information Support Operations*

JP 3-61, *Public Affairs*

JP 6-0, *Joint Communications System*

JPs Revised (signed within last 6 months)

JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment* (May 21, 2014)

JP 3-02, *Amphibious Operations* (July 18, 2014)

JP 3-05, *Special Operations* (July 16, 2014)

JP 3-10, *Joint Security Operations in Theater* (November 13, 2014)

JP 3-12(R), *Cyberspace Operations* (February 5, 2013)

JP 3-26, *Counterterrorism* (October 24, 2014)

JP 3-40, *Countering Weapons of Mass Destruction* (October 31, 2014)

JP 3-52, *Joint Airspace Control* (November 13, 2014)

JP 3-63, *Detainee Operations* (November 13, 2014)

JP 4-10, *Operational Contract Support* (July 16, 2014)