

**Joint Integrated  
Air and Missile Defense:  
Vision 2020**



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## JOINT INTEGRATED AIR AND MISSILE DEFENSE: VISION 2020

The vision for 2020 Joint Integrated Air and Missile Defense (IAMD) is one where all capabilities—defensive, passive, offensive, kinetic, non-kinetic (e.g., cyber warfare, directed energy, and electronic attack)—are melded into a comprehensive Joint and combined force capable of preventing an adversary from effectively employing any of its offensive air and missile weapons. IAMD systems are expensive by nature—we simply will not be able to afford everything we need. As a result, the approach for IAMD in 2020 will be balanced, taking into account a full range of opportunities including diplomacy, a robust approach to passive defense both left and right of enemy launch, electronic warfare, active defense, and increased cooperation with our friends and allies.



IAMD Operational Concept (OV-1)

### IAMD STRATEGIC ENVIRONMENT

As the U.S. transitions from more than a decade of war, several new constants are emerging that will shape the approach to IAMD.

#### First: an evolving global security

environment that features increasingly capable air and missile threats among potential adversaries and rogue states. This includes not only the quantity of threats but also the quality of those systems with improvements in range, accuracy, mobility, speed, stealth, and targeting.



Second: an expanding battlespace requiring plans and operations to range across Regional, Trans-Regional, and Homeland domains.

#### Third: an era of declining defense budgets

but an increasing demand for more and better IAMD from our Combatant Commands. Importantly, IAMD will need to be even more Joint—advancing interdependence and integrating new capabilities. The vision for IAMD 2020 should be a versatile, responsive, and decisive Joint Force that is also affordable.

Fourth: an increasing Allied and partner appetite for air and missile defense systems and the protection they provide.

***“We better be prepared to dominate the skies above the surface of the earth or be prepared to be buried beneath it.”***

***-- General Carl A. “Tooe” Spatz***

## IAMD THREAT ENVIRONMENT

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), 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.



These threats will continue to evolve, increasing the stress on all areas of our defenses and expanding the scope of IAMD operations. Ballistic missile and cruise missile ranges and launch platforms will drive IAMD operations beyond the theater level, exposing all regions to attack.

In this environment, U.S. Forces should be prepared to face adversaries that will attack ground forces engaged in combat operations, bases, ships, and other territories, including the Homeland. The regional and intercontinental reach of ballistic missiles alters the strategic and operational decision space. IAMD forces will be expected to be able to plan and allocate forces for a specific theater with the awareness that

adjustments may be required to accommodate Regional, Trans-Regional, and Homeland operations.



Air-breathing threats' use of stealth and electronic warfare will make them much more difficult to detect and track. As a result, the range at which IAMD forces can engage a threat may be reduced, and the number and type of defensive systems, or tiers with shot opportunities, may decrease. Large numbers of comparatively low-cost, long-range rockets will threaten ground forces, and in some theaters maritime forces, increasing both the number and complexity of attacks that have to be defeated. The sophistication and numbers of threats will force IAMD assets to achieve new levels of effectiveness and efficiency in surveillance, identification, and targeting.

## IAMD IN PERSPECTIVE

Joint IAMD is primarily designed to first deter an adversary, and failing that, prevent an adversary from effectively employing air and missile assets.

IAMD can provide a Combatant Commander time and space to bring other capabilities to bear, but it cannot alone prevail in a conflict and should be considered within the context of the overall Joint campaign. Both active and passive defenses and offensive actions against air and missile threats should be part of the initial focus of every war plan. Developing and fielding credible and effective defensive capabilities may not only protect our forces during hostilities, but deter an adversary from attempting an air or missile attack. Robust active and passive defenses increase the cost to adversaries by requiring them to spend more on inventory and performance with no comparable increase in their chances of success.

If deterrence fails, neutralizing an adversary's offensive air and missile assets prior to use continues to be the preferred method to negate them, and with the increasing growth in numbers, is the only practical means to defeat large threat inventories. This link between offensive and defensive operations for IAMD is critical. Initial offensive operations should place a priority on attacking air and missile systems and their supporting command and control structures, employing all means, including penetrating assets, to execute the mission.



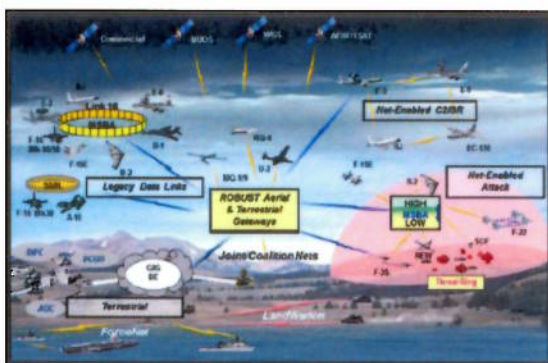
While these offensive actions can attrite portions of the air and missile threat, they cannot assure complete negation. Combatant Commanders will always rely on both active and passive IAMD capabilities to survive air and missile attacks. A mission failure in IAMD risks suffering potentially devastating attacks that could affect the outcome of the entire campaign.

Joint IAMD 2020 will require the horizontal integration of these capabilities, and the vertical integration of policy, strategy, concepts, tactics, and training. Frequently this will require us to reach outside the Department of Defense (DoD) to interagency partners and allies, and can require significant lead time, such as for diplomatic efforts, partnership building, or treaty negotiation. Moreover, our partners should be encouraged to invest in their own IAMD systems that are interoperable with U.S. and allied systems.

Joint IAMD 2020 will leverage ongoing efforts to improve the air picture (wide-area surveillance), combat identification, discrimination (for ballistic missiles), integrated fire control, and improved battle management. However, in a fiscally constrained environment, Joint IAMD 2020 will require Combatant Commanders to maximize every ounce of capability from their assets. U.S. weapon systems' costs are becoming prohibitively high. Therefore, solutions to current and future capability gaps must be aligned with fiscal realities. We must find ways to avoid scenarios where adversaries launch large numbers of relatively cheap rockets, ballistic and cruise missiles, or unmanned air

systems and our only response option is to intercept them with highly complex and expensive weapons. To meet these demands, the following imperatives should be considered:

**1. 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.** The need for timely, accurate, and plentiful detection and targeting data is as crucial in IAMD as any mission area, if not more so. Tapping into and cross-utilizing all-source information wrings maximum utility from every dollar spent on intelligence, surveillance, and reconnaissance and can lessen requirements for new, single-use collection systems. Evaluate existing sensors and data from across all DoD domains to discover and exploit any unused capability to detect, track, combat identify or discriminate, and engage air and missile threats. This includes traditional IAMD systems (air and surface surveillance and attack platforms) as well as non-traditional systems such as space-based, intelligence collection, and national.



**2. Make interdependent Joint and Combined force employment the baseline.**

Interdependence and interoperability breed efficiency and economy of resources. To enhance this effect in IAMD, develop and exercise within Joint engagement zones using current and innovative combinations of Service and national capabilities (and potentially partner nation capabilities) to meet mission needs. This will require changes at every phase of operations, from planning to employment.

**3. Target development, modernization, fielding, and science and technology efforts to meet specific gaps in IAMD capabilities, all the while stressing affordability and interoperability.** Special focus should be given to closing high-leverage technology gaps such as an adversary's emerging seeker or missile development, and the development of U.S. non-kinetic capabilities. Breakthroughs in these areas can have a dramatic effect in reducing the need to rely on expensive kinetic solutions; ensuring cross-Service interoperability further enhances efficiency.

**4. Focus Passive Defense efforts on addressing potential capability and capacity shortfalls in air and missile defense.** Improve the development and planning processes so passive defense and active air and missile defense systems and capabilities are more closely coordinated.

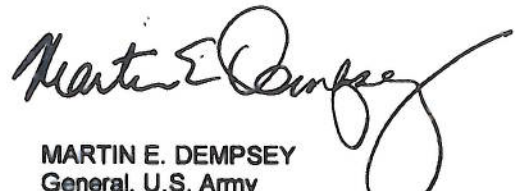


**5. Establish and pursue policies to leverage partner contributions.** Building partnerships and establishing multilateral agreements will be an important part of future regional and global security architectures in missile defense as in many areas. Partners should be encouraged to invest in their own air and missile defense capabilities that are interoperable with ours. Developing an integrated defensive network of interoperable IAMD systems can leverage cost-sharing and help spread the burden among willing participants.

**6. 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.** Commanders must understand and embrace every weapon and tool available to them. Educate personnel at every level on the need to integrate our capabilities into an interdependent Joint Force, how to employ Joint elements together, how to employ in a Joint Engagement Zone, what combinations create which capability, and which are ineffective when employed on a stand-alone basis.

## CONCLUSION

In order to succeed in IAMD, we must offset fewer resources with more innovation to develop and maintain an affordable, integrated, interdependent Joint and combined approach ready to answer the nation's call—anytime, anywhere. Investments should follow a well-reasoned, cost-balanced course to develop and evolve IAMD capabilities that anticipate the threat while leveraging innovations in employment of kinetic and non-kinetic measures. IAMD development, planning, and employment will accommodate multiple strategic and operational scenarios, embrace a wide spectrum of active and passive pre- and post-launch solutions, and encourage solution sets that are designed from the beginning to be interoperable both inter-Service and internationally. 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.



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