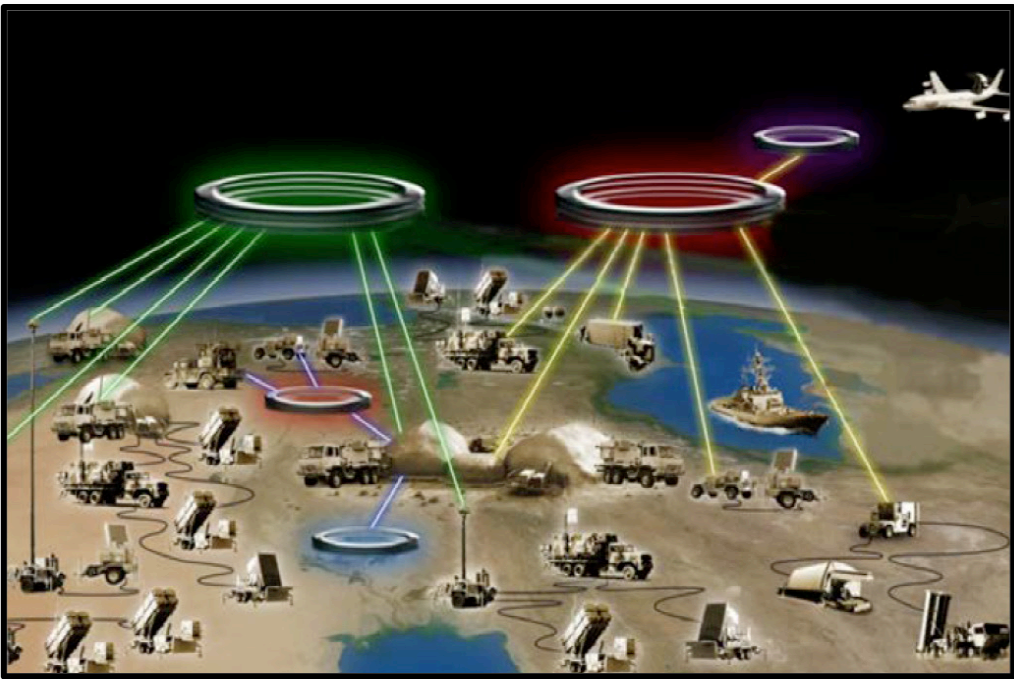# US INDOPACOM's *Integrated Air and Missile Defense Vision 2028*

Integrated Deterrence toward a Free and Open Indo-Pacific

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Once China has acquired the capability to deny U.S. forces access to the first island chain moreover, Chinese military planners will likely shift their focus of attention to the second island chain.

—Roger Cliff

Over the first decade and a half of the twenty-first century, China carried out its strategy to counter US power presence within "island chains" in a synchronized, methodical manner by extending its own basing in the South China Sea with manmade islands and inhabiting sovereign territory of neighboring countries. China also increased its presence in the Indian Ocean with the establishment of its first overseas military base in Doraleh, Djibouti.[1] This "fourth island chain" drove the USINDOPACOM combatant command name

change but was only the opening clutch of China's rise to power in the region. Along with increases in basing and offshore island building, China was also rapidly developing its ballistic missile arsenal, further improving its reach and sphere of influence. The combination of these effects extended China's anti-access/area denial (A2/AD) range and its ability to affect the area, challenging the United States and US allies' and partners' previously uncontested freedom of maneuver in the region. To counter China's A2/AD concept, one line of effort USINDOPA-COM focused on is the Integrated Air and Missile Defense (IAMD) enterprise, with a once-in-a-generation, revolutionary vision. In 2018, INDOPACOM published the *IAMD Vision 2028*, which is an innovative jump forward in IAMD development for the United States and its allies/partners to maintain a competitive advantage in the region and the topic for this article.

Leading up to this ground-breaking IAMD concept, in 2015, *Air & Space Power Journal* published an article entitled "Back to the Future: Integrated Air and Missile Defense in the Pacific."[2] The authors defined IAMD from the US perspective, how we got to where we were at the time, and what "right" looks like in the Pacific. Significantly, the article highlighted the importance of allies and partners in successfully conducting the IAMD mission. Security cooperation, seen as "Runways and Relationships" and "Places not Bases," were the catch-phrases capturing Pacific Air Forces' strategic narrative and relationship line of operation with allies and partners, ultimately morphing into the Agile Combat Employment (ACE) concept of today. The article emphasized the importance of regional access, praised bilateral IAMD architecture such as we have with Japan, touched briefly on the benefit of a common operating picture (COP) and information and data sharing, and advocated the benefits of training and education with regional allies and partners as provided by the Pacific IAMD Center (PIC). All these concepts were valid then and still resonate today, but the INDOPA-COM *IAMD Vision 2028* took a revolutionary leap on these tenets. Instead of a COP that "PACAF can constantly monitor,"[3] *IAMD Vision 2028* suggests a network architecture that all allies/partners can share and "any sensor, any shooter" in the region can leverage to thwart an incoming threat. Instead of bilateral area air defense plans, *IAMD Vision 2028* advocates for area of responsibility (AOR)-wide integrated, netted, and layered sensor coverage. Beyond a robust US–only command and control (C2) for its own forces, *IAMD Vision 2028* proposes a regional integrated and interoperable fire-control architecture and an advanced joint and combined IAMD battle management and engagement coordination system. The revolutionary changes *IAMD Vision 2028* envisions are credible fixed, mobile, and expeditionary operations that untether interceptors from sensors and tailors multilateral information-sharing agreements throughout the region, en-

abling allies and partners a holistic freedom of maneuver and power-projection presence to maintain a free and open Indo-Pacific.

The *IAMD Vision 2028* opens with a clear statement of what needs to be defended: critical fixed sites dispersed over a vast AOR and mobile and expeditionary forces. Given China's growing ballistic missile, cruise missile, unmanned aerial systems (UAS), and hypersonic weapons arsenal and capability, the vision suggests fixed sites, regardless of location, throughout the Indo-Pacific, are vulnerable to missile attack. Guam, Hawaii, the United States mainland, and allies' and partners' critical sites are vulnerable to a potentially overwhelming Chinese threat. Additionally, Beijing's open desire to become the world's dominant power and extend its sphere of control in the region, as expressed in the "China Dream," demonstrate China's resolve to close off a free and open Indo-Pacific and impose its will to the second island chain and beyond. This desire, along with the emergent capability and capacity, foreshadows a time in the near future where the United States and US allies cannot continue to mass forces from fixed, main operating bases (MOB) as has been the operational strategy for decades. Additionally, US IAMD resources alone are overmatched and unable to defend the high-value assets across the entire Indo-Pacific. The USAF, realizing its MOBs are now targets not havens, is doing its part by moving toward a revolutionary ACE methodology of airpower generation to preserve the service's ability to generate combat airpower and counter China's strategy. Even with forces repositioning throughout the theater, once detected by China, and because air defense (AD) forces would not be able to move with equal agility, the forces would once again become targetable and vulnerable to missile attacks. INDOPACOM *IAMD Vision 2028* realized this conundrum and envisioned the need to defend mobile forces throughout the entire theater, including future ACE basing locations.

Previous air and missile defense planning doctrine called for developing a defended asset list of fixed locations within adversary interceptor range. Updated military operational strategy of rapidly maneuvering and dispersing forces for combat involves deployment to locations where US IAMD forces are not adequately postured to defend and unable to relocate in a timely manner.[4] *IAMD Vision 2028* resolves this dilemma, not by attempting the nonviable option of increasing US IAMD capability alone but instead by synergizing sensors and interceptors with our regional allies and partners, further extending INDOPACOM's IAMD capability and ultimately the survivability of combat forces.

With INDOPACOM's vast AOR, allies and partners are absolutely critical, and the vision to seamlessly integrate with regional partners is the revolutionary aspect of the new vision. It is nothing new for the United States to work side by side in "coordination" with allies and partners, both politically and militarily.

However, to seamlessly integrate and interoperate forces is a new initiative. The landing on the D-Day beaches, with each ally having their own beach, was an example of side-by-side integration. Operation Iraq Freedom and Operation Enduring Freedom ground forces' laydown are other examples of side-by-side integration, as coalition forces were divided across the different countries' land mass. There are numerous other examples of side-by-side integration, but what has always been missing is a truly seamless amalgamation.

Side-by-side integration, as recent coalition operations in Southwest Asia and Afghanistan showcase, is analogous to one nation running the offense while another runs the defense. Seamless integration as described in *IAMD Vision 2028* directs partner nations to integrate offensive and defensive skills. Every player, every coach, has the same playbook, knows each other's moves and rules, and coherently and effectively practice and execute the game plan together. Players and coaches mix and match, practice together, and are seen by opponents as one well prepared team. *Vision 2028* recognizes the shortfall of side-by-side integration with and among allies in defending against a Chinese A2/AD threat, and the first requirement to counter is seamless amalgamation: AOR-wide integrated, netted, and layered sensor coverage. This concept of connecting all sensor data across the Indo-Pacific is an identical concept to the Department of Defense's Joint All-Domain Command and Control (JADC2) concept but goes one step further by being combined and including all regional allies and partners.

This envisioned combined, integrated, netted, and layered sensor coverage enables birth-to-death tracking of all threats within air and space domains utilizing space, terrestrial, mobile and partner sensors. At times, the United States may be better postured for threats to the east, with systems such as the Next-Generation Overhead Persistent Infrared (Next-Gen OPIR) and GhostEye identifying intercontinental and tactical ballistic missile launches against the US mainland.[5] At other times allies and partners in the Indo-Pacific region may be better postured with sensor coverage for launches to the southern and western half of the Indo-Pacific AOR. Including ally and partner sensor coverage into an integrated network architecture ensures constant tracking of threats across the entire region. Additionally, partner-nation sensors help increase regional situational awareness on other hazards, Including air-breathing threats, UAS, and cruise missiles. Finally, these sensors add redundancy by creating a kill web of sensor coverage versus a single kill chain of sensor data and enable dispersion of systems, complicating the enemy's targeting ability. However, before the data becomes useful, before it becomes an integrated, netted, and layered sensor coverage, it must be combined. Combined operations are achievable with the vision's second requirement of a regional integrated fire-control architecture.

This envisioned fire-control architecture is a joint standard, modular, and inclusively open system. Selective multilateralism, or tailorable releasability as labeled by INDOPACOM, enables different ally and partner sensors across the AOR to fuse together to provide a truly seamless, integrated, netted, and layered sensor coverage for everyone. This architecture will be the sensor-fusion hardware for the AOR that correlates data and presents it as a single image of the threat environment, releasing it to partners tied into the architecture. This standardized, modular, open, tailorable architecture does not exist today, but *IAMD Vision 2028* implores innovation. Currently three potential systems are in development, which will be discussed shortly. Once the system is established, the third requirement to bring the vision to fruition will be creating an interoperable software to run the architecture.

With sensors across the AOR fused together in a single image shared by all, the final requirement envisioned by the vision is software that will be defined by doctrine and tactics, techniques, and procedures (TTP). The first TTP requirement is a defense design plan and analysis tool. This tool needs to have all the capabilities for sensors and shooters cataloged, be able to show where coverages exist, where they overlap, where there are seams, where there is shooter coverage, and where there are gaps. It needs to be AI-enabled to rapidly provide engagement solutions against incoming threats and display the targeting in real time. Finally, the system would need to integrate the offensive and defensive sides of IAMD operations to enable all four IAMD operational elements. Examples include multiple engage-on-remote options, launch-on-remote options, as well as sending back point-of-origin (POO) data to afford targeting of threat location. Additionally, the system would need to be able to use AI to predict enemy future operations based on past volleys. The synergy of architecture and the software to support it would ensure the theater's IAMD success in the vision of defending high-value targets and mobile and expeditionary forces from the full range of advanced air and missile threats. Prior to the vision becoming a reality, strategic hurdles and policy-level obstacles must be overcome.

The INDOPACOM *IAMD 2028 Vision* is grandiose by any measurement. It is the first of its kind, and there will be many challenges and constraints to conquer to be successful. The first obstacle to moving the vision forward is the strategic level buy-in from the United States and US allies and partners to realize the value of a shared, seamless system, including the information-sharing agreements that will be required to make it a reality. However, as with any political interaction with allies and partners, adjustments in national security policies necessary to accomplish *IAMD Vision 2028* is a complicated and diversified endeavor.[6] The battle will be against the status quo of not sharing data, historical baggage of past

conflicts and disagreements, China's intervention to prevent unity of allies and partners, cultural differences of how to establish agreements, ethical variances of who can support who, and ultimately the perceived cost to sovereignty of sharing national security capabilities with other nations. Each nation, including the United States, will need to adjust their national disclosure of classified information-sharing policies before an AOR-wide IAMD vision can become a reality. Participating countries will need to share sensor and fire-control data with all other countries to optimize the vision. Shooting nations will need to share interceptor locations and capability. For a real-time system, nations will need to share when systems are down for maintenance, making those nations feel vulnerable to attack as well as sharing where authorization of responsibilities lie with each nation, further highlighting vulnerabilities. These challenges are real and longstanding, but the political buy-in necessary to move forward needs to be addressed to make the vision a reality. The ultimate authority to get the nations to initially secede a piece of their sovereignty for a greater overall defense network (we will see later that ultimately it increases each nation's ability to preserve sovereignty) will need to be a whole-of-government approach. However, once nations do agree to come together against a common enemy, as previously highlighted, a standardized, modular, open, and tailorable architecture to enable all the different systems to communicate timely and effectively will need to be developed.

Within the Indo-Pacific AOR, there are US-built sensors and interceptors, Russian-built sensor and interceptors, Israeli-built sensors, and a plethora of indigenous systems. While the capability to fuse disparate system feeds in one location exists, the architecture to get the 1s and 0s to align and talk is equivalent to getting all the nations to speak the same language: it is an impossible task. To get the systems to work together, they will all need to be decoded to some common 1s and 0s protocol. While not new, Radiant Mercury, one of multiple cross-domain software applications, is a proven integrator and routinely takes a nation's incoming RADAR data and displays it on a bilateral COP. *IAMD Vision 2028* architecture will need to be able to send fire-control quality data to multiple nation's interceptors, not a common practice with disparate systems; however, progress is being made to make this vision a reality.

The first of three systems going after the "really hard" problem set of an architecture that fuses data across all domains, including interoperability with allies and partners, as well as the software necessary to run the system, is the IAMD Battle Command System (IBCS) by the US Army. IBCS is the Army's architecture and software solution to JADC2, but as with *IAMD Vision 2028*, it also recognizes and accommodates the need to include integration with allies and partners. The system can integrate any sensor and shooter across all domains and fuse

the data securely to user-friendly displays where C2 can be executed seamlessly. As recently as 2019, the system demonstrated the capability to intercept two cruise missiles with the USMC TPS-59 radar and F-35 sensors as well as Patriot, Sentinel, and PAC-3 interceptors,[7] which is unprecedented. IBCS is anticipating initial operating capability as soon as 2022. The next system going after JADC2 is the Air Force's Advanced Battle Management System (ABMS).

ABMS, intended to replace legacy stove-piped C2 has, as stated by the Air Force Chief of Staff Gen Charles Q. Brown, Jr., "demonstrated the ability to collect vast amounts of data from air, land, sea, space and cyber domains, process that information, and share it in a way that allows for faster and better decisions."[8] As of May 2021, the program has moved from developmental to purchasing and installing the hardware and software on aircraft, with the initial step including the KC-46, F-22, and F-35 aircraft. While not explicitly an advertised AD platform by design, the ability to tie in sensors and shooters will make it a valued program to the IAMD mission. The final program that is still in the concept development phase and being championed by an ally in the region is AIR6500.

AIR6500 is a Royal Australian Air Force (RAAF) program designed to develop a joint air battle management system that maximizes the capabilities offered by fifth-generation systems.[9] The system will be the architecture at the core of the Australian Defence Force (ADF) to provide high situational awareness and defense against air and missile threats.[10] It is expected to be interoperable with existing US systems and able to maintain high interoperability with coalition partners.[11] The system desires to link disparate systems across every domain of warfare, including future submarines, over-the-horizon radar, UAS, and much more.[12] This "system-of-systems" will synchronize air and missile defense operations and, because of its mobility and plug-and-play capability, will have the ability to expand to include others allies and partners in the Indo-Pacific. IBCS, ABMS to a degree, and AIR6500 have the potential to be the architecture *IAMD Vision 2028* is calling a regional integrated fire-control network. With an architecture and software application available in the near future and a growing list of allies and partners likely to have the political support and willingness to work through foreign disclosure agreements, *IAMD Vision 2028* shows clear signs of moving forward.

Japan and the United States have been working together in missile defense since 2004,[13] with Australia joining the two nations to form a multilateral engagement venue in 2015. The Trilateral Missile Defense Forum, conducted annually, is steadfast in its charter to increase combined missile defense capability in the region. Additionally, as recently as late 2021, Philippine Air Defense officers observed Japanese forces firing Patriot missiles as an opportunity to socialize the

capability and inform the Philippine Air Force (PAF) Flight Plan 2028. The PAF is eager to build up a formidable integrated air defense system in the Philippine archipelago. The United States and South Korea have worked together in missile defense from North Korea for decades, presenting a golden opportunity to integrate sensors and shooters in the defense of the peninsula and, if required, the region. These examples are just a few that demonstrate the movement in and around the region of like-minded nations coming together against a common competitor. A recent addition, India, is highlighted as part of the Quad Conference pledge to promote an Indo-Pacific region "undaunted by coercion" and committed to a free, open, inclusive Indo-Pacific. While never mentioning China, it is clear the Quad's united rhetoric is pointed toward China's coercive tactics and rising influence in the region.[14] In late 2021, all four nations came together in Hawaii to socialize IAMD constructs to further develop each nations capability and demonstrate resolve to counter China. The expansion of China's A2/AD and the critical importance of a free and open Indo-Pacific compel us forward under the INDOPACOM *IAMD Vision 2028*.

In line with ADM John C. Aquilino's guidance, INDOPACOM *IAMD Vision 2028* is thinking, acting, and operating differently. It is taking an as-is, segregated, disparate, stove-piped IAMD infrastructure and transforming it into a to-be that fuses all the sensor data into an integrated, seamless operations and intelligence warfighting network, combined multinational C2, and a joint- and coalition-driven interceptor architecture that is the first of its kind. *Vision 2028* will tie all the allies and partners together, strengthen their strategic integrated deterrence in the region, reinforce their resolve to remain united against an ever-aggressive Chinese strategy, and if deterrence fails, bolster their ability to defend themselves individually and win as an alliance.

As the pivot that began in 2011 endures and China's increasing A2/AD military capability and the China Dream mentality threaten freedom of maneuver in the region, the recognized importance of a shared alliance and the understood value of a shared architecture, together, will help overcome political challenges and information-sharing hurdles. US Strategic Command's 15-year biannual Nimble Titan exercise underscores the desire of allies and partners to synchronize global missile defense posture and make a shared architecture a reality. When *IAMD Vision 2028* is closer to realization than conception, each nation will more clearly realize they are not giving up a piece of sovereignty but rather strengthening their autonomy by being a part of something greater than they could have accomplished on their own. Nations will recognize they are not giving up proprietary information and state secrets; they are tying into a system that takes them leaps and bounds above where they were before. When *Vision 2028* becomes every

ally's and partner's vision, both on the political and military fronts, it will no longer bring the nations side by side against a common enemy but rather transform the allies and partners into a seamless amalgamation. This new front will be greater than the sum of its parts, presenting a much greater deterrence to China, due to not only the integrated, netted, and layered sensor coverage but ultimately due to the integrated, netted, and layered alliance of like-minded allies and partners.

As Gen Kenneth Wilsbach, COMPACAF, highlighted recently at the Air Force Association's Air, Space, Cyber Conference, China's ever-expanding landscape and imposing will that is counter to the international rules-based order, and a free and open Indo-Pacific needs to be challenged every single day.[15] The United States cannot go it alone, nor does it desire to do so. Allies and partners realize the deteriorating effects of China on the Indo-Pacific remaining free and open and the detriment this brings to their sovereignty and ways of life. Because of this, allies and partners are working toward a solution, political discussions are occurring, and an IAMD architecture necessary to see the vision through is coming closer to a reality than a concept. While *IAMD Vision 2028* is ambitious, it is also achievable—and necessary. With a seamless amalgamation of nations politically cemented and the military IAMD capability a reality, China will ultimately be deterred from freely imposing its will in the region and threatening a free and open Indo-Pacific.

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Colonel Savage is currently the Director, Pacific IAMD Center (PIC) located at Hickam AFB, HI. He leads the PIC team of IAMD experts, with more than 112 years of combined IAMD experience, who work directly with allies and partners in the region to share US IAMD doctrine, TTPs, and lessons learned. The PIC team is very excited with where *INDOPACOM Vision 2028* is headed and looks forward to supporting additional allies and partners in the future.

Notes

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