

Indo-Pacific Deterrence and the Quad in 2030

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China is clearly demonstrating a desire to grow as a global power and expand its influence as a hegemon in the Indo-Pacific region. Beijing's non-transparent and provocative strategies to achieve that expansion through rapidly growing military capabilities, the militarization of South China Sea island features, gray-zone activities, and increased authoritarian behaviors are but a few trends that have raised tensions and uncertainties in the regional order. As China increases expansionism, it is unlikely that any one nation can solely provide sufficient and credible deterrence to counter an unimpeded rise. The Indo-Pacific region lacks a multilateral entity with the strength, resolve, and congruence of a North Atlantic Treaty Organization (NATO), established to deter aggression in Europe. The Quad nations of the United States, Australia, Japan, and India will need to become that collective, viable, and credible deterrence solution.

While debate surrounding the official formation of the Quad will undoubtedly continue and all instruments of power across the diplomatic, informational, military, and economic (DIME) spectrum will be in play, this article will articulate steps that will be required for the Quad to effectively execute deterrence through the lens of military, hard-power solutions. The questions this research seeks to answer are: What will it take, in terms of strategy, investments, and will, for the Quad to credibly deter the rise of an Indo-Pacific hegemon, and how can the Quad collectively provide a military deterrence solution by 2030? Different from previous research, this article will look to provide tangible solutions and demonstrate how the Quad nations can provide that path to deterrence.

The Idea of the Quad

Maintaining balance in the Indo-Pacific order is of high priority to the United States and nations in the region that share the same interests. Shared values and maintaining democratic norms, along with free and open trade, is imperative to the free-flowing function of the regional powers.¹ Soft-power techniques of diplomacy and trade are providing minimal effect in blunting China's expansion and increasingly far-reaching authoritarianism, demonstrated through expanding military basing, international intellectual property theft, increasing trade barriers with Australia, and programs such as the Belt and Road Initiative. Furthermore,

the steady capability growth of China's military is increasing long-range missile strike options and a growing ability to project power further with new fifth-generation aircraft and maritime assets, bringing almost every nation's homeland in the region within conventional reach.² While a US Pacific military presence has been in place since the end of World War II, *there will need to be an increased, collective hard-power effort to establish a credible deterrence against China moving toward 2030.*

The idea of forming a “Quadrilateral alliance, partnership or dialogue” has been in discussion at various diplomatic levels since 2007, generated in the aftermath of the Quad's humanitarian efforts following the 2004 Indian Ocean tsunami.³ However, there has been resistance. China perceives the alliance formation as an unnecessary means of raising tensions, labeling the Quad as an “Asian NATO,” conveying that such an alliance formation is designed to specifically oppose Beijing.⁴ Because of India's proximity to China, coupled with persistent northern border disputes, recently highlighted by the 2017 Doklam incident and Chinese soldiers killing 20 Indian soldiers in 2020,⁵ New Delhi steers clear of formally labeling the Quad an alliance.⁶ India's hesitation is understandable given its geographic proximity, promoting the Quad in more benign terms such as a “platform”⁷ or a “vehicle.”⁸ However, recent discussions, especially within Australian and US circles, have leaned toward furthering a “militarized” dimension to the Quad.⁹ On 6 October 2020, the Australian and Japanese foreign ministers, Indian external affairs minister, and US Secretary of State convened a ministerial meeting discussing a range of topics, including the South China Sea and joint exercises.¹⁰

Despite naming reservations, it needs to be recognized that by 2030, countering an expanding China will need the collective hard-power resolve of these four nations. *There needs to be a sense of urgency among the United States, its critical allies, and partners in the region.*¹¹ The Quad demonstrates shared interests and resolve to maintain balance in this prosperous region.¹² These four anchors are best equipped militarily, and geographically, to assume the leadership roles to enable balance and deterrence.

Each of the four nations have different individual interests in their own defense strategy, all with priorities built foremost around their own homeland defense. Tokyo's defense centers around its Japan Self-Defense Force (JSDF), and New Delhi largely invests in its army to defend India's northern borders.¹³ The United States is built to defend through power projection, while Australia looks to find a balance ensuring immediate regional security.¹⁴ US and Australian strategists continue to socialize the strategy of deterrence by denial, a mix of strategies focusing not solely on defending the homeland but also not simply on building an expeditionary force to invade and control a great power.¹⁵ Instead, the focus would

be to stop an impending attack from a forward location, halting an enemy before reaching a nation's shores. As this blunting strategy seems to be the more attractive and viable option, can the Quad invest appropriately and build around a 2030 deterrence-by-denial strategy?

To add further complexity, warfare technology is growing rapidly and at an exponential pace, adding another layer of urgency to the Quad formation. In just 10 years, warfare as it is currently known will have changed drastically, bearing new technologies yet to be fielded and requiring a high level of integration among partner nations that is not currently in place. Warfare will be rapid and networked and take place over a long-range environment with adversaries conducting kinetic and nonkinetic strikes from thousands of miles away. Long-range strike operations will be enabled by hypersonic weapons, hyperglide vehicles, space, fifth-generation aircraft, and submarines—all managed through newly fielded architectures such as Joint All Domain Command and Control (JADC2) and Air Battle Management System (ABMS).

Additionally, if the Quad intends to operate outside of missile threat rings and enhance deterrence-by-denial security options, there will be a requirement for increased joint-use strategic basing options. Currently, China can conventionally reach targets to the Second Island Chain and Guam, bringing almost all current US regional bases under immediate threat should hostilities commence.¹⁶

Finally, the US Department of Defense (DOD) has declared the Indo-Pacific region as its top priority region¹⁷ in an effort to deter two of America's primary adversaries: China and North Korea.¹⁸ However, the United States and Australia cannot properly prioritize the Indo-Pacific region without decommitting and offsetting forces, weapon systems, and personnel in other regions of the world.¹⁹ High-end, exquisite assets should redeploy to US bases and reset as deterrence options for the US homeland and Indo-Pacific, while committing to further high-end training and integration with partners, allies, and the Quad.

This article will look at tangible recommendations to move forward with credible implementation. Future technology investments will be required by all four nations, coupled with the imperative to demonstrate seamless integration through new battle management systems. Current basing structures limit the Quad's effectiveness to deter a long-range, high-end conflict. The Indo-Pacific region will need the Quad to capitalize on its integrated partnerships to preserve the balance of power in this region amid growing angst.

What will it take, in terms of strategy, investments, and will, for the Quad to credibly deter the rise of an Indo-Pacific hegemon?

To achieve credible deterrence and defense against a rising military power, the Quad nations will need to fortify the Indo-Pacific Arc, collectively structuring their forces, furthering capability growth, and establishing new basing options outside of missile threat rings. The Quad would need to provide a foundation as the ‘four anchors’ of the Indo-Pacific, showing deterrent leadership in their subregions while simultaneously integrating each nation’s strengths across the expansive geography of the region.

Deterrence by Denial

The employment of a Deterrence by Denial strategy would be defined by two arguments for the Quad. First, the Quad’s intentions should only be to maintain a stable, free, and open region. To do so, the Quad will need to provide effective deterrence around the Indo-Pacific arc, not design a force to invade and occupy within an adversary’s borders. Second, the defense of three of the four Quad nations—Japan, India, and Australia—is designed around homeland or regional defense, not invasion and occupation. Past coalitions, as seen in Middle East operations over the past decades, could combine forces to defeat a lesser adversary. However, the Indo-Pacific expanse is vast, and China is a far larger, more formidable opponent, with a population of 1.4 billion people. The Quad focus should be to deter hostile actions through credible military capabilities and integration, and, if that fails, denial.

The security goals and objectives of the Quad’s strategy should firmly plant deterrence to enable free and open trade of uncontested sea and air lanes, uninhibited prosperity opportunities, and a status quo of peace in the region. With the expansion of globalization and an intense interactive trade environment, the Indo-Pacific takes on the nature of an integrated system.²⁰ The Quad needs to operationalize as that one, collective system, not four stove-piped militaries, demonstrating effective deterrence by blunting kinetic and nonkinetic adversarial advances in a 2030 environment, while simultaneously creating a plethora of dilemmas to complicate an adversary’s ability to make optimal decisions.²¹

Additionally, a denial strategy must be credible. To be credible, the strategy must be backed by an effective, military architecture capable of enforcing deterrence. The Quad will need to present a denial environment through modern weapon systems around the arc through an active defense posture, giving an adversary little room to make a miscalculated decision.²² Warfare in 2030 will be employed rapidly through JADC2 networks and effects employed via hypersonic

weapons and space assets. If the Quad denial system is integrated with those effects, it will give great caution to an adversary casting a first shot.

Follow on questions regarding the argument include the following: What strategy is each defense force feasibly capable of employing, and what strategy can the Quad legitimately execute? The strategy may be limited to what the Quad can objectively execute in such a vast region. While the US military is built for global power projection, the rest of the Quad forces are built around defense of their homeland and immediate regions.

The new strategic objectives set out in Australia's 2020 *Defence Strategic Update* are "shape, deter, respond."²³ Australia prioritizes investments over the next decade into systems that will provide defense for the immediate region,²⁴ likely through a maritime denial strategy countering an adversary at sea from Australia's northern approaches. This strategy provides a balance of not looking to achieve control of the sea or project power to invade another nation but to have the right balance of forces to defeat an advancing enemy, away from Australian borders.

Hugh White, emeritus professor of strategic studies at the Australian National University, acknowledges that while a denial strategy may appear defensive, it would use "offensive" capabilities to defeat an expeditionary adversary.²⁵ Accordingly, Australia recognizes the need for offensive long-range weapon systems, seeking "to hold adversarial forces and infrastructure at risk from a greater distance," through the acquisition of "longer range strike weapons and area denial systems,"²⁶ investing 3.2–4.8 billion AUD in long-range rockets and missile systems²⁷ and 7.75 billion AUD in high-speed, long-range strike research.²⁸ In November 2020, Australia committed to the hypersonic development partnership with the United States, Southern Cross Integrated Flight Research Experiment (SCIFiRE), committing not only resources but also Australian airspace and ranges to test air-launched hypersonic prototypes.²⁹

Turning to Japan, the JSDF is designed to defend its homeland from attack. However, Japan does have highly capable weapon systems, including submarines and F-35s, capable of integration with US systems to deter in the northeast region of the Indo-Pacific. In July 2014, Japan slightly amended its constitution to permit the use of force "when an armed attack against a foreign country that is in a close relationship with Japan occurs and as a result threatens Japan's survival."³⁰

India's northern border distractions with China create an unbalanced force structure, while trying to offset China's increased presence in the Indian Ocean Region (IOR). India currently possesses the seventh-largest navy in the world, with one aircraft carrier, 137 ships and submarines, and 291 aircraft.³¹ However, India is projected to allocate only 15 percent of its defense budget to naval forces in 2020–2021,³² only allocating 13–18 percent in its 2012–2018 budgets. The

Indian Army prioritizes 56 percent of funds to invest in its 1.2 million troops and 960,000 reserve force,³³ along with howitzers, Apache helicopters, and other low-end assets to deter Chinese land incursions.³⁴ The Indian Navy originally planned for 200 ships by 2027 but has now revised down to 175 ships.³⁵ Thus, while India presents a formidable maritime force, the lack of investment into future capability will be evident by 2030. As China continues to increase its presence in the IOR, India could struggle to counter China alone. Quad solutions will require an increase in US and Australian maritime forces in the region.

Finally, the implementation of this strategy would weave into the new US strategies of dynamic force employment (DFE) and agile combat employment (ACE).³⁶ DFE gives the joint force credible, flexible, and scalable options to deploy to any theater,³⁷ while allowing forces to train, exercise, and maintain readiness in their home nations without an unending forward-deployed posture. ACE then provides the ability to disperse DFE forces across numerous smaller airfields throughout the Indo-Pacific region.³⁸ ACE will allow Quad forces to complicate an adversary's decision calculus across an expanse of air bases, while increasing survivability of Quad forces.³⁹ To implement such an overarching strategy, the Quad will need to increase joint strategic basing options.

Integrated Warfare

... we must make clear-eyed judgments about our strategic future as an Air Force. We must be able to adapt and accelerate change to account for the strategic environment we face today and the far more challenging environment we can expect to face tomorrow. We must train and prepare in order to maintain a decisive advantage across the full spectrum—from competition to conflict.

—General Charles Q. Brown, Jr., US Air Force Chief of Staff

Understanding what it will take for the Quad to engage in an effective deterrence-by-denial strategy requires a clear understanding of the emerging character of conflict. Warfare in 2030 will be defined by networks and command structures, synchronized to rapidly close kill chains through sensor-to-shooter systems. Whoever integrates faster and closes kill chains autonomously will achieve the speed and effects to compete with a great power. JADC2 will operate on the backbone of systems such as ABMS, enabled by joint space assets, prosecuting long-range hypersonic missiles and fifth-generation platforms, all incorporating artificial intelligence (AI) for autonomous effects. If the Quad system is going to achieve deterrence, or worse, face a great-power adversary in conflict, *all four nations must be networked, linked, and integrated across one, rapid kill-chain system . . . and must be good at doing so.*

China is sharply focused on securing regional dominance through building “a networked, precision-strike capability.”⁴⁰ Beijing will continue to seek modernization in integrated command-and-control, network-centric systems emphasizing joint service approaches across the full spectrum of warfare operations.⁴¹ “By 2020, China will be as good as the US at prosecuting AI technologies, by 2025 they will be better, and by 2030 they will dominate.”⁴² If Quad systems are not integrated to effectively execute at the speed of 2030 with hypersonic Mach 5 weapons across thousands of miles and with autonomous targeting decisions, then the Quad will not be able to effectively deter. *There is a technological arms race,*⁴³ and speed of fielding and integration matters over the next decade. The way to win is to achieve integration first.

In response, the United States and Australia have taken significant steps to accelerate toward required 2030 changes. US Indo-Pacific Command (USIN-DOPACOM) Commander, ADM Phil Davidson, is gaining congressional support to establish the Indo-Pacific Deterrence Initiative, committing 20 billion USD over five years.⁴⁴ The FY21 National Defense Authorization Act allocated first-year funds of 2.2 billion USD to the initiative,⁴⁵ which “bolster[s] military deterrence vis-à-vis China in the Pacific theater.” 2030 weapon systems investments could include space-based persistent radar systems, maritime strike missiles, and defensive radars to detect hypersonic missiles. It aims to enhance five lines of effort, including joint force lethality, strengthening partners and allies, and exercises and experimentation.⁴⁶

Australia took a significant leap in June 2020 by committing to a greater defense leadership role. Its 2020 *Defence Strategic Update* committed 270 billion AUD over the next decade to specific high-end weapons from long-range anti-ship missiles to increased cyber capabilities.⁴⁷ During Australia-US Ministerial Consultations (AUSMIN), Australian Defence Minister Linda Reynolds expanded further agreement with the United States to deepen defense technology in hypersonic missiles, electronic warfare, and space.⁴⁸

JADC2 and ABMS

Future warfare will prioritize capability over capacity. Former USAF Chief of Staff, Gen David Goldfein, said “multiple wargames show that only with JADC2 does the joint force win in the ‘most stressing scenarios.’”⁴⁹ Near-future warfare will be won through information and the ability to build battle networks across all systems—and for those systems to effectively collaborate with other systems.⁵⁰

JADC2 will be the integration of joint force actions across air, land, maritime, cyberspace, and space, and at scale and speed.⁵¹ JADC2 will integrate planning, tasking, and assessment of operations across all war-fighting domains.⁵² ABMS

will serve as the family of systems that enables underlying networks executing data management and digital engineering to employ those effects such as AI and hypersonic missiles.⁵³

A battle management system serves as the backbone of JADC2, it is “the means by which militaries close the kill chain.” It is what enables them to understand, decide and act.⁵⁴ Preston Dunlap, USAF Chief Architect, often compares a future battle network to the Uber app, a system that autonomously works for you, finding optimal solutions within seconds with no human input.⁵⁵ Former USAF Acquisition Chief, Dr. William Roper adds, “there’s going to be so much happening at so many different locations concurrently, [humans] can’t keep up.”⁵⁶ For the Quad to become an autonomously integrated system, enabling future hyperspeed of warfare, it will require multiple tests, exercises, and integrating activities to form the trust necessary to implement such systems across all domains.

JADC2 is the top priority of current USAF Chief of Staff, Gen Charles Q. Brown, Jr.⁵⁷ It is not lost on the DOD that JADC2 is the future of war fighting, and the need to integrate into the system is causing urgency across the military and industry alike. In September 2019, the USAF announced reallocation of 30 billion USD of future funds to specifically enable joint domain operations and space war fighting,⁵⁸ capabilities directly contributing to JADC2.

Successful 2030 deterrence will require the Quad to be networked, integrated, and operate as one cohesive operating system across increasingly dynamic speed. *Not being integrated across these systems is a real threat that the Quad will not be able to operate as a deterrent coalition.* China is developing and implementing similar systems, allowing for rapid and lethal kinetic decision making. “Peer competition” requires reframing integration and synchronization for sustained and dynamic combat operations. This competition requires changes driving “rapid synchronization of effects to create adversary dilemmas.”⁵⁹ JADC2 and ABMS will provide that foundational architecture to enable this integrated system and deterrence-by-denial strategy.

Space

Space serves as the ultimate high ground, enabling complex networks to employ means and effects of future warfare. Space battle management is a key priority of the US Space Force, “ensuring ability to identify hostile actions and entities, conduct combat identification, target, and direct action in response to an evolving threat environment.”⁶⁰ Space operations, through satellite constellations and assets connected to Quad forces, will serve as the node to enable all future warfare operations.

Space is now a distinct war-fighting domain enabling the United States and its partners to “compete, deter and win in a complex security environment” against great powers.⁶¹ Additionally, it provides the infrastructure and network capabilities to provide combat synergies for JADC2 and ABMS and enable command, control, communications, computers, intelligence, surveillance, and reconnaissance; intelligence sharing; and precision navigation and timing (PNT).

Adversaries will undoubtedly challenge Quad forces in space, across electromagnetic capabilities, direct-ascent, and co-orbital counterspace weapons capabilities.⁶² China identifies space as a critical competition domain and is resolutely committed to safeguarding its interests.⁶³ China’s military doctrine considers counterspace effects specifically as a means of disrupting US and allies’ military effectiveness.⁶⁴ China’s space presence renders them capable of disrupting and destroying its adversaries’ space capabilities, as evidenced through its 2007 test via an SC-19 ground-launched satellite interceptor.⁶⁵

The 2020 US *Defense Space Strategy*’s four lines of effort prioritize integration of combined operations and deterring aggression. Specifically, the fourth line of effort focuses on partners’ and allies’ integration through information sharing, aligning policy, expanding research and development, and, most importantly, integrating operations, exercises, and intelligence activities.⁶⁶ Ensuring that space capabilities are integrated across Quad forces is critical for the Quad to attain military advantage in any high-end conflict. Gen John Raymond, Chief of Space Operations, United States Space Force, states “Our allies help us to retain space superiority and provide a stronger foundation for combat effectiveness.”⁶⁷ The Quad forces currently all have varying space capabilities and are well-positioned to synergize effects through 2030, provided they maintain forward momentum coupled with appropriately funded budgets.

Japan has the potential to emerge in a lead role. Tokyo is committed to building a multi-domain force and expanding space capabilities through further satellite procurement, establishing a space operations squadron, and strengthening information gathering.⁶⁸ By 2023, Japan will establish the Space Domain Mission Unit within the Japan Air Self-Defense Force, increasing war-fighting capabilities through PNT, satellite communications, and development of a space-based ballistic missile early warning system.⁶⁹

Australia, through the Australian Space Agency and Combined Space Operations (CSPO) Initiative, is seeking to evolve military operations through PNT; intelligence, surveillance, and reconnaissance (ISR); satellite communications; and domain awareness.⁷⁰ The 2020 *Defence Strategic Update* identified space as critical to national security and committed 7 billion AUD over the next decade toward a network of satellites and enhancing space situational awareness through

sensors and tracking systems.⁷¹ Through robust investment, cooperation with CSpO, and a concerted effort to enhance integration with Quad forces, Australia is committing significant steps to effectively deter via space by 2030.

India's role in space development will provide IOR connectivity and situational awareness. India is focusing upgrades to its space capabilities on maritime security. India recently agreed with France to develop a network of 8–10 satellites specifically aimed at maritime surveillance in the IOR.⁷² Additionally, in May 2019, New Delhi announced the creation of the Defense Space Agency, aimed at providing credible deterrence in space and deterring adversaries from harming India's ISR network.⁷³ Finally, in March 2019, India conducted its first successful test of the ground-launched Prithvi Defence Vehicle Mark-II antisatellite missile.⁷⁴

Hypersonic Weapons: The New Speed of War

JADC2 networks and space-based assets will enable the new speed of warfare with hypersonic missiles. Long-range, rapid warfare with strike capabilities across hundreds or thousands of miles will define future battlefields. Hypersonic missiles and hypersonic glide vehicles will complicate adversary decision making by presenting long-range air, sea, or land retaliation at Mach 5 speeds (one mile per second).⁷⁵ Not only are these weapons fast, but high maneuverability complicates missile defense solutions through confusion of the intended target.⁷⁶

China has already tested hypersonic glide vehicles,⁷⁷ traveling in excess of Mach 5 and maneuvering across unpredictable flight paths.⁷⁸ First tested in January 2014, China unveiled the development of its DF-17 hypersonic missile during a military parade in 2017.⁷⁹

Quad forces must be able to demonstrate hypersonic solutions to effectively deter the 2030 speed of warfare and impose cost on adversaries through a rapid missile response. The Quad is behind China on hypersonic development timelines and needs to accelerate acquisition and testing. The United States has conducted multiple tests, including from Hawaii in March 2020⁸⁰ and a B-52 test flight with the AGM-183A Air-Launched Rapid Response Weapon, estimating initial operating capability by 2022.⁸¹

Japan plans to field a ground-based hypersonic weapon by 2026 and possibly an air-launched system with antiship capability by 2028. The Ministry of Defense committed 226 million USD toward further hypersonic research in 2020.⁸² However, Japan caveats the development of hypersonic technologies for the specific purpose of the “defense of Japan”⁸³ in accordance with its constitution but understanding its Cabinet's 2014 decision to defend close friends.

New Delhi is moving forward as well; however, India's hypersonic development has Russian collaboration, pursuing a variant of the current supersonic BrahMos missile, adding hypersonic capability to the BrahMos II.⁸⁴ On 12 June 2019, the Indian Ministry of Defence conducted the first test of its hypersonic technology demonstrator, furthering India's progression.⁸⁵ India could enter a hypersonic cruise missile into service by 2025.⁸⁶

Australian hypersonic development is still at a nascent stage but made a large step in its November 2020 SCIFiRE agreement with the United States, as well as laying out 19.7 billion AUD for developing and testing "Deployed Ballistic & High-Speed Missile Defence" and 7.75 billion AUD in hypersonic research.⁸⁷ Additionally, Australia's significant contributions to hypersonic deterrence will come through its space assets and integration in the JADC2 network.

Major Weapon Systems Comparison

The United States, Australia, and Japan primarily operate the same weapon systems, ranging from Aegis-capable ships to F-35s. While India operates with some similar assets, it also employs Russian weapon systems, such as MIG-29s, Su-30MKI Flankers,⁸⁸ and five S-400 surface-to-air-missile systems.⁸⁹ Recent analysis estimates that 70-85 percent of India's weapon systems could be from Russia.⁹⁰ This variance of systems could present future integration challenges with the other Quad nations.

The chart below is not a complete net assessment of China versus Quad capabilities but articulates the need for the collective Quad system to establish credible deterrence in the Indo-Pacific region. The numbers are estimated, particularly since China has not completely published force numbers.

Key points:

- Need for collective Quad maritime capabilities to match China's capabilities;
- United States would need to surge past 50 percent of its bomber fleet to match China's projected numbers of ~120 H-6s and ~30 H-20s by 2030;
- China's fifth-generation fighter fleet is estimated. Without the United States, it would take the other combined Quad fifth-generation assets to match;
- As of 2020, China has 130 major surface combatants with continued growth projected into 2030⁹¹
- Numbers below are contingent on port and air base access

Table 1. Major weapon systems comparison, 2030–2040 estimates

Weapon Systems	United States	Australia	Japan	India	Quad Total	China
5th-generation fighters	1,321	72	147	0	1,468	200
Bombers	88	0	0	0	88	150–172
Major surface combatants	78	12	54	22	166	150
Submarines	25	12	22	24	83	70
Aircraft carriers	5	0	0	3	8	2

Note: All US numbers at 50 percent to account for other global activities and US homeland defense. Multiple sources:⁹²

Exercise Integration

In July 2020, Japanese, Australian, and US naval vessels conducted a small, trilateral exercise in the South China Sea. Five Australian ships, a Japanese destroyer, and the USS *Reagan* Carrier Strike Group conducted maneuvers in the Philippine Sea prior to the Rim of the Pacific Exercise (RIMPAC) in Hawaii. At AUSMIN, former Secretary of Defense Mark Esper stated, “These exercises not only bolster interoperability, but also send a clear signal to Beijing that we will fly, we will sail, and we will operate wherever international law allows and defend the rights of our allies and partners to do the same.”⁹³

As highlighted earlier, a key line of effort in the Indo-Pacific Deterrence Initiative is “Exercises, Experimentation and Innovation,” seeking 2.87 billion USD in funding. Davidson argues “U.S. forces must be capable of fighting in highly contested environments against technologically advanced opponents, while also minimizing detection across domains. The Joint Force lacks the capacity to integrate service recommended weapons and capabilities into a warfighting concept that deters the adversary and puts us in a position to win. This challenge can only be met by conducting a series of high-end, multi-domain exercises with a continuous campaign of joint experimentation.”⁹⁴

The Quad must do more to achieve greater integration to demonstrate true high-end deterrence against a great-power adversary. Current exercise portfolios need to robustly develop into more Quad-integrated exercises that incorporate the coordination and prosecution of high-end warfare and deterrence, testing JADC2 networks, hypersonic weapon employment, and integrating space architectures.

Talisman Saber

Talisman Saber is a biannual, high-level exercise focused on deterring and defeating a great-power adversary. Primarily a US–Australia bilateral collaboration, the exercise also includes New Zealand and Japan in low numbers. Consisting of a command post exercise (CPX), Australian Defence Force (ADF) and USINDOPACOM senior leaders execute a “Fight Tonight” scenario across all warfare domains, as well as a combined 35,000-person field training exercise (FTX) with 30 ships and more than 200 aircraft off the eastern and northern Australian coasts.⁹⁵

Two recommendations for Talisman Saber that could commence with the 2023 iteration are *the full integration of India and Japan into exercise activities and projecting the maritime FTX operations to the north and northwest of Australia into the Indian Ocean*. This would enable full Quad integration, communicate integrated deterrence to China, and allow the Quad to identify capability gaps within the IOR. Additionally, this would give the Quad the ability to exercise from proposed and improved strategic basing options of RAAF Tindal and the Andaman and Nicobar Islands, identifying further basing limitations.

FTX operations in the IOR northwest of Australia bring realistic conditions to the massive exercise and real Quad learning opportunities. Traditionally exercised off Australia’s east coast and the Northern Territory, moving the exercise will give the Quad real feedback in probable scenarios by identifying JADC2 and communications gaps, testing DFE mobilization requirements, exercising new ACE concepts, and connectivity for hypersonic weapons employment—all without restraining joint force learning to fictional scenarios.

Malabar

In February 2020, Pres. Donald Trump and Indian Prime Minister Narendra Modi pledged deeper security cooperation in the maritime and space domains, while increasing “advanced training and expanded exercises” across all services with advanced equipment.⁹⁶ In addition to Talisman Saber, the Malabar exercise is a good venue to expand training. From 2007 until fall 2020, the exercise was a trilateral partnership among the United States, India, and Japan, with 10,000 personnel, usually including a US Carrier Strike Group, alternating maritime locations near India or Japan. The exercise includes naval ships, submarines, and aircraft conducting high-end maritime conflict operations.⁹⁷

A previous recommendation in the author’s initial research was to *immediately invite Australia to permanently participate with maritime and air assets in the next iteration*. In November 2020, that invitation came to fruition and Australia

participated for the first time since 2007. This is a huge step for India to communicate deterrence in the region on a large scale while integrating high-end assets with the Quad, as India is normally cautious about disrupting relations and increasing tensions with China amid Quad perceptions.⁹⁸

Combined with Talisman Saber, Malabar increases Quad opportunities to test interoperability in critical maritime locations to further JADC2 integration and DFE and ACE concepts. It also exercises basing options and tests logistical networks, critically through the newly established India–Australia Mutual Logistics Support Agreement, allowing reciprocal refueling, P-8 aircraft use of bases, and agreements for naval vessels to visit Indian and Australian ports.⁹⁹

Cope North

Cope North is an annual air exercise hosted by the United States in Guam with Australia and Japan, enhancing air interoperability. The exercise is predominately focused on air-to-air combat, air-to-ground bombing, air-refueling, and electronic warfare.¹⁰⁰ This exercise lends vast airspace and coordination to further integrate future weapon systems and capabilities at hyperspeed of execution, all while integrating JADC2 and ABMS. A recommendation is *to invite and fully implement India's Air Force to participate in Cope North* to grow integration with emergent technologies, providing the opportunity to integrate air systems with space and maritime assets, ensuring effective integration across the Western Pacific region.

In the 2020 iteration, the three nations launched 1,200 flight sorties, extending north across the Commonwealth of the Northern Marianas Islands and down through the vicinity of the islands of Palau and Yap.¹⁰¹ The synergistic effects and seamless integration that the exercise affords the United States, Japan, and Australia further ensures deterrence and the capability to Fight Tonight. India's future inclusion would enhance Quad integration, ensuring further integration gaps are rectified by 2030.

Pitch Black

Finally, the Royal Australian Air Force (RAAF) hosts Exercise Pitch Black on a biennial rotation in the Northern Territory. Numerous nations participate, utilizing the expanse of one of the world's largest training ranges, conducting operations against realistic and challenging threat scenarios with up to 4,000 personnel and 140 aircraft. Traditionally, three of the four Quad nations (the United States, Australia, and India) participate along with Canada, New Zealand, and multiple ASEAN partners such as Singapore and the Philippines. For the first time, Japan accepted the 2020 invitation prior to the exercise cancellation due to COVID.

Pitch Black is another perfect setting to continue Quad integration across JADC2 in and around Australia's northern approaches, as well as testing and enhancing critical capabilities at airfields such as RAAF Tindal and Darwin. While predominantly an air exercise, future iterations also enable increased integration with ground and maritime forces with the presence of the Marine Rotational Force–Darwin.¹⁰²

New Strategic Basing Options

As the United States continues to build the ACE concept, the ability to disperse forces across numerous smaller airfields throughout the Indo-Pacific region,¹⁰³ there is a further need to ensure adequate basing capability outside of China's missile threat rings and near strategic chokepoints. In addition to the large air and naval bases in Guam, it is *recommended to expand joint-use basing in Papua New Guinea (PNG) and the Andaman and Nicobar Islands and to increase access to northern Australian bases*. These basing options offer deterrence-by-denial solutions to project forward to blunt adversarial aggressions.

Japan and the United States already have strong basing agreements, securing the northeast anchor of the Indo-Pacific Arc. Since the Treaty of Mutual Cooperation and Security in 1960,¹⁰⁴ the United States has maintained basing access as a Japanese defense partner, now with four air bases, 7th Fleet Headquarters, an aircraft carrier, destroyers, and multiple Marine and Army bases.¹⁰⁵ However, with these bases situated within the first island chain and China's missile strike capability, this robust basing arrangement leaves forces extremely vulnerable.

As China continues to expand its basing and increase maritime presence across the Indo-Pacific, *the Quad's current basing structure has gaps at strategic chokepoints and needs to increase long-range basing options outside of China's conventional missile threat rings*. The Quad can expand by anchoring at Western bases in Qatar and the United Arab Emirates (UAE), across the Indian Ocean, northern Australia, and into PNG.

Thirty-five percent of the Indo-Pacific Deterrence Initiative would be allocated to increasing infrastructure in the region and another 26 percent to prepositioning and logistics.¹⁰⁶ As Admiral Davidson conveys, "It is not strategically prudent, nor operationally viable to physically concentrate on large, close-in bases that are highly vulnerable to a potential adversary's strike capability. Forward-based, rotational joint forces are the most credible way to demonstrate US commitment and resolve to potential adversaries, while simultaneously assuring allies and partners."¹⁰⁷ PNG, Tindal, and India's islands are just three of those options.

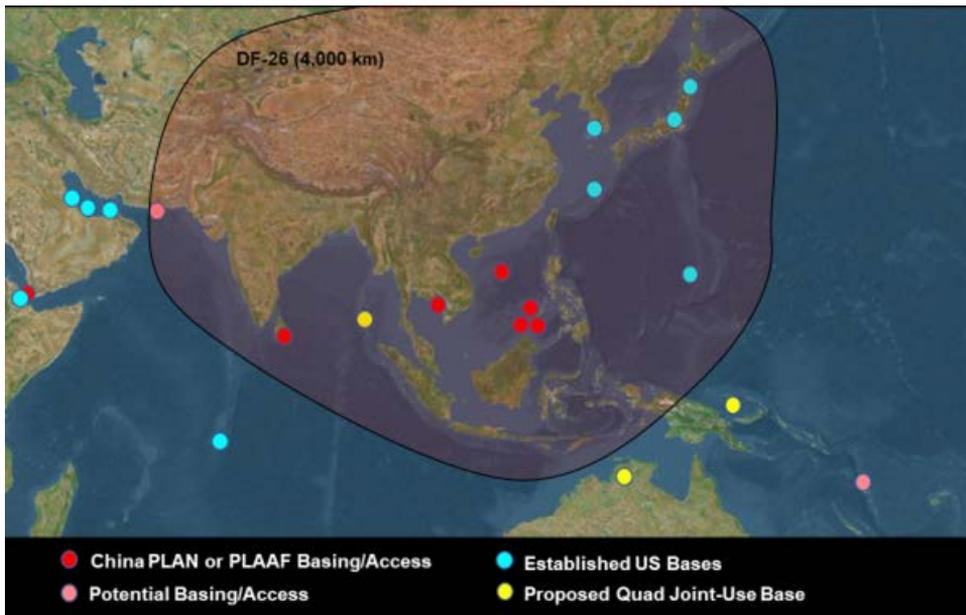


Figure 1. Quad joint-use basing options

Andaman and Nicobar Islands

India's Andaman and Nicobar Islands, just west of the Malacca Strait, not only increase Quad air and naval presence in the IOR but also serve as a strategic blunting option to deter aggression near the key trade corridor. The Malacca Strait accounts for 25 percent of global trade amounting to 100,000 vessels transiting the waterway each year.¹⁰⁸ India has slowly increased military presence on the islands over the past decades, now home to two naval bases with 15 warships and four air bases, including India's Su-30KI multirole fighter.¹⁰⁹ However, as India's budgets steer toward land forces, India could offer basing rights to other Quad nations. From there, the United States and Australia can project fighter aircraft, P-8 maritime surveillance, and aerial refuelers. The bases can serve as US and Australian naval ports and strategic fuel and logistics reserve centers for the region.

Currently, Car Nicobar Air Force Station has a runway of more than 8,900 feet, and the international airport's runway is 10,795 feet.¹¹⁰ India plans to extend two other airfields, Indian Naval Station Baaz and Shipbur Airstrip, to more than 10,000 feet,¹¹¹ as well as extending INS Kohassa's runway to more than 9,000 feet.¹¹² These runway extensions, along with increased parking aprons, would allow Quad aircraft basing to blunt adversaries at the Malacca chokepoint. As China has established naval basing in Sri Lanka and intentions point toward

basing in Pakistan, Cambodia, and elsewhere, it is clear China intends to project its Southern Command fleet of 16 attack submarines and 21 frigates further across the Indian Ocean expanse.¹¹³

Manus Island, Papua New Guinea

Manus Island, PNG, is uniquely situated to the north of Australia, offering the Quad a powerful strategic basing option more than 4,000 km away from China and outside the DF-26 missile range.¹¹⁴ Manus offers both naval and air basing through Lombrum Naval Base and Momote Airport.

In November 2018, US Vice Pres. Mike Pence announced the United States and Australia will work with PNG to develop a joint naval base on Manus Island.¹¹⁵ In March 2019, Australia and PNG signed the Lombrum Joint Initiative Memorandum of Understanding for the construction and redevelopment of the naval base,¹¹⁶ which commenced in mid-2020, initially aimed at enhancing Guardian-class patrol boat operations of both Australia and PNG.¹¹⁷ Through increased US and Australia funding and infrastructure development, the naval base could significantly expand to host naval vessels, logistics operations, and fuel reserves, as well as continued support to larger naval vessels anchored offshore.

Additionally, Manus assists Australia in prioritizing security and resilience via its northern approaches, sea lines of communication, and exclusive economic zones, aiming to deter, deny, and defeat threats to Australia's north.¹¹⁸ The basing options would enhance a secure and free trade environment, relieving pressure of adversarial influence and maintaining the viability of Australia's economic interests.¹¹⁹

Securing Manus Island for Quad operations alone is a significant deterrence act. If China were to base military assets on Manus Island first, it would further extend China's expansion into the South Pacific. The base "would give Beijing a prime strategic location for projecting military power north toward US forces in Guam or south toward Australia," as well as projecting further debt-trap diplomacy influence across the vulnerable South Pacific nations.¹²⁰

From an air operations perspective, Momote Airport is capable of hosting various commercial and military aircraft. At its current runway length of 1,870 meters, the airfield can accommodate 737-size aircraft, which would include P-8 surveillance aircraft and airlift operations.¹²¹ The airfield recently increased its runway length by 600 feet and significantly expanded its parking aprons.¹²² If further runway and ramp expansion occurs, the airfield would be able to host larger, long-range aircraft as well.

Northern Australia

Northern Australian air bases provide the infrastructure to base long-range aircraft and fighters, including US bombers and air-refueling aircraft. Primary locations include RAAF Base Tindal, RAAF Base Darwin (co-located with the international airport), and RAAF Base Townsville on the northeast coast of Australia, positioned outside China's current missile threat rings. Additionally, there are 2,500 US Marines that rotate through Darwin as part of the Marine Rotational Force–Darwin.¹²³ The intent is not to increase personnel at the bases but to have the appropriate infrastructure in place for Quad forces to fall in to support DFE and ACE operations in the event of conflict. These bases would also be well-suited to support enhanced and revamped Quad exercises with air and maritime forces in the northern region, including Talisman Saber and Pitch Black.

Australian leaders have committed further support to the infrastructure of these bases. To enable F-35 operations, support heavier aircraft and refueling operations, and store new high-technology weapon systems, Australia has multiple infrastructure projects funded for an FY25–26 completion.¹²⁴ In February 2020, Australia committed 1.6 billion AUD to the expansion of Northern Territory ADF infrastructure and 8 billion AUD over the decade.¹²⁵ Additionally, at the 2020 AUSMIN, Defence Minister Reynolds committed “to establish a US-funded, commercially operated strategic fuel reserve in Darwin,”¹²⁶ of which a fuel farm will be added to the air base. To support the US Force Posture Initiative and Australia's KC-30 refueling aircraft, RAAF Tindal infrastructure funds will lengthen the runway from 9,000 feet to 11,000 feet, adding a 52,000 m² apron to support four large, heavy aircraft,¹²⁷ enabling future B-21, B-52, and B-1 operations.

Middle East Basing, US Readiness, & Consolidation of Forces

Finally, as the western anchor of the Quad's Indian Ocean presence, the United States and other coalition partners need to consolidate to a permanent basing structure in the Persian Gulf region, such as US bases in Japan, South Korea, and Europe. Al Udeid Air Base, Qatar, and Al Dhafra Air Base, UAE, are large, dual-runway air bases¹²⁸ that can support all variants of long-range, high-end aircraft. The US naval base in Bahrain hosts the US 5th Fleet and US Naval Forces Central Command and is the busiest overseas US DOD port.¹²⁹ These three bases can serve as power projection platforms eastward on the western edge of the region. Simultaneously, the United States can shift from sustained combat operations to a Middle East deterrence footing, leaving the primary Middle East security efforts to capable residents such as Saudi Arabia, Iraq, Israel, and the UAE. In 2019,

Saudi Arabia ranked third worldwide in defense spending (78.4 billion USD), Israel 14th (22.4 billion USD), and Iraq 15th (20.5 billion USD).¹³⁰

Furthermore, 30 years of Middle East operations, coupled with the 2011 Budget Control Act, have plagued US military readiness and future investment. Fifth-generation aircraft and other exquisite assets in the Middle East need to reduce sustained combat operations and refocus efforts, exercising, and training with Quad nations and other allies for potential high-end warfare—the original intent of these platforms.

While there is once again a steady drawdown of forces in the Middle East, the United States is still spread thin across the region, basing thousands of military personnel and assets across Iraq, Kuwait, Afghanistan, Jordan, and other locations. US forces must be given an opportunity to reset and train for the future.¹³¹

Recommendations

1. Deterrence-by-denial strategy
 - a. Deter adversaries through forward presence and emerging capabilities
2. Invest and integrate across 2030 weapon systems and networks
 - a. JADC2, ABMS, space, hypersonic weapons
3. Quad integration across already established major exercises
 - a. Test and perfect seamless Quad operational integration
4. Increase joint-use strategic basing options
 - a. Operate outside conventional missile threat rings
 - b. Increase DFE and ACE options
5. Middle East basing consolidation
 - a. Consolidate to permanent basing model, reset assets for high-end warfare

Conclusion

On 3 September 2020, the US Air Force conducted a wide-ranging ABMS test across 1,500 personnel, 60 industry partners, and dozens of aircraft. During the test, sensors linked through satellite constellations, airborne and sea-based platforms, and 5G towers detected an inbound cruise missile attacking the US homeland. The cruise missile, simulated by a targeting drone, was sensed, and systems instantly provided commanders with the most viable solutions. The automated

ABMS kill chain destroyed the missile. Impressively, the inbound cruise missile was shot down by an inexpensive high-velocity projectile shot from an Army M109 Paladin, 155m howitzer, not an exquisite and expensive intercept missile.¹³² This was done with 2020 technology. The Quad must integrate and operate seamlessly across these networks, systems, and near-future technologies or face the real threat of not achieving deterrence in 2030.

No single nation can deter nor counter China alone. It will take the collective effort of nations with shared interests and integrated militaries to present a formidable deterrence. The Quad nations are the four powers of the Indo-Pacific region best suited for this role and are on the best path to achieve that deterrence by 2030. There needs to be a recognition now, whether the Quad formally declares an alliance or not, that the Quad nations must increase integration and expand basing options to provide the Indo-Pacific the deterrence it needs. Major exercises need to see the four nations testing integration and new capabilities on a consistent regimen.

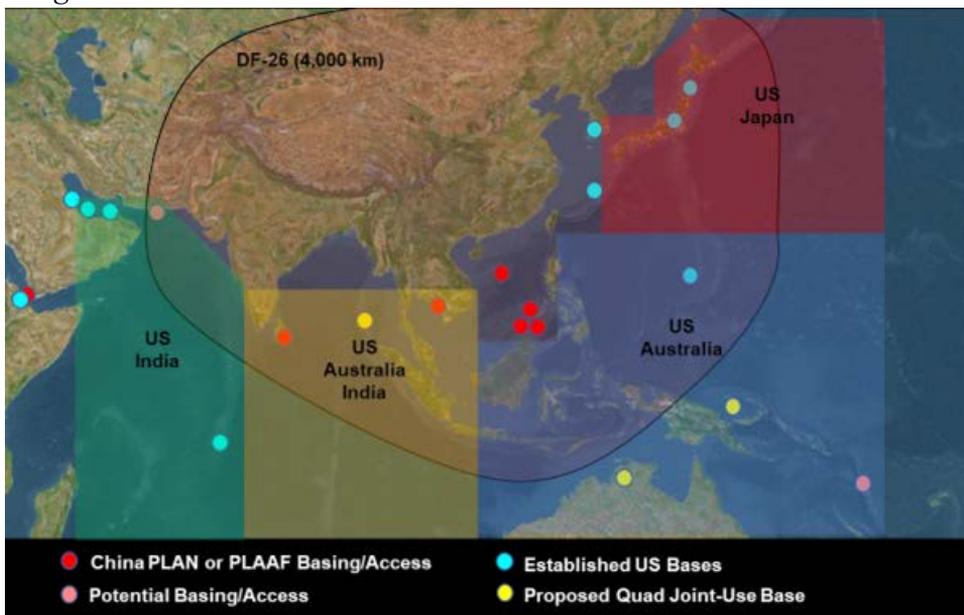


Figure 2. The Indo-Pacific in 2030

Regional deterrence is currently in place with US presence at bases in Japan and South Korea and sustained maritime presence. The priority is to identify gaps across the Quad system and remedy those gaps with the Quad nations that can fill them. If China continues to robustly enhance its military capabilities and outward expansion, then the Indo-Pacific will undoubtedly be living under the umbrella of a hegemon in 2030. Missile ranges are only increasing, hypersonic

weapons will be fielded by the mid-2020s, and basing sanctuaries will be scarce. Without a future hard-power deterrence option, the Indo-Pacific dynamics, relationships, national self-reliance, and free, open conditions will all be under threat. The Quad nations are best positioned to ensure balance and prosperity endure across the Indo-Pacific expanse into 2030. 🌐

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