The Arsenal of Democracy: Keeping China Deterred in an Age of Hard Choices

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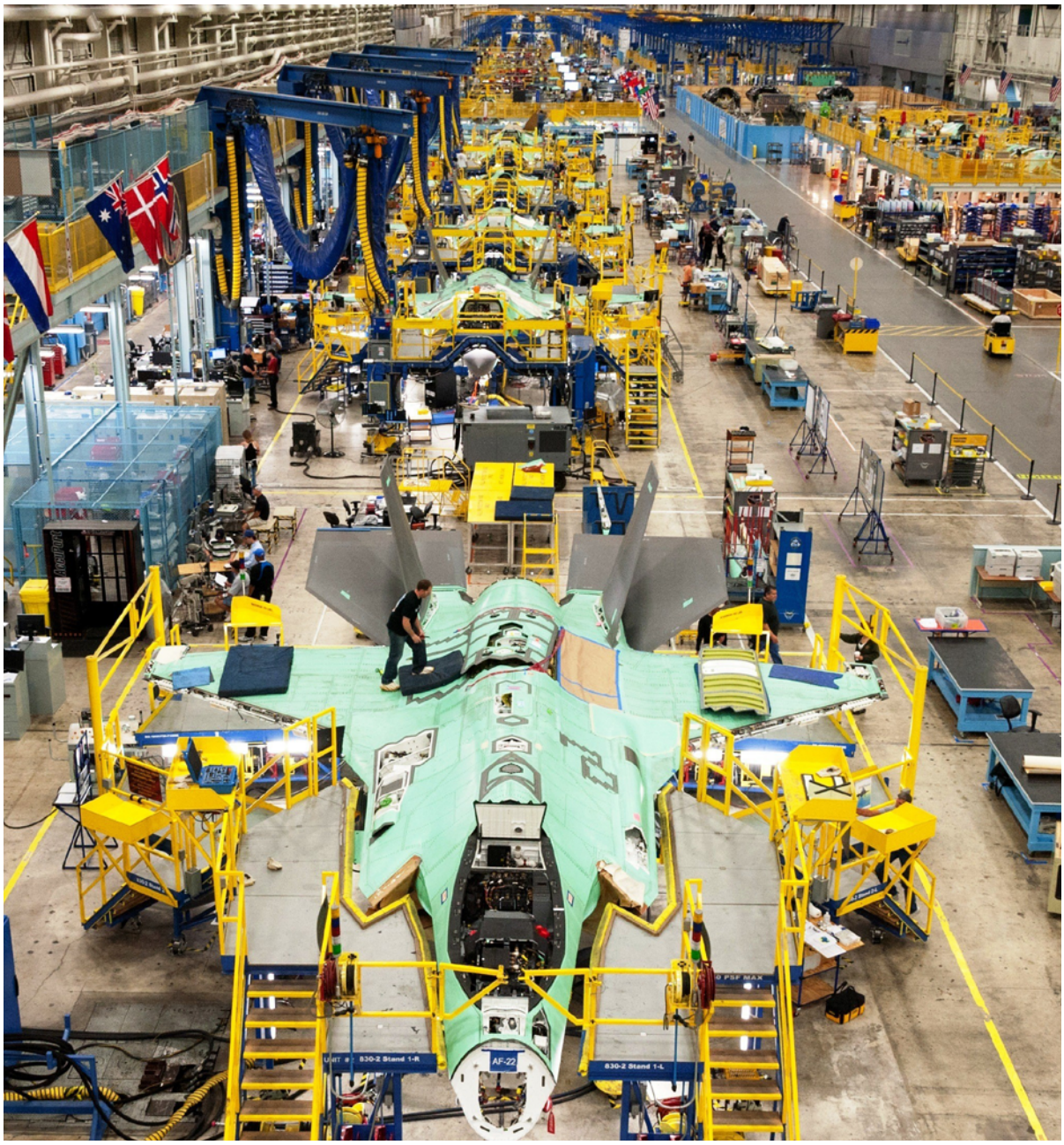

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The margin of deterrence against China is rapidly shrinking, driven not by a failure of US technological innovation, but by the American and allied defense industrial base's inability to field and sustain cutting-edge capabilities at scale, at speed, and under constant pressure. To counter China's rapid conventional and nuclear buildup in scouting and strike capabilities, the United States must urgently expand its defense industrial base to revitalize its deterrence system. This article argues that defending vital US interests requires a comprehensive focus on systemic vulnerabilities that offer the fastest path to defeat, chiefly the brittleness of scouting (C4ISR) and logistics networks. The most time-sensitive industrial investments are in munitions, to close a widening missile gap; drones, to compete with China's mass production; and submarines, to address the profound crisis in the attack submarine force's industrial capacity and sustainment. Stabilizing the balance does not require a doubling of the defense budget, but rather a coordinated, whole-of-system effort by the Pentagon and Congress to make hard choices, prioritize key industrial programs, and reform the allied acquisition process to produce what the evolving force requires. Achieving these goals requires a political mandate to discard the notion of "business as usual."

A pair of drones hover quietly in eastern Ukraine. The higher one—a fixed-wing reconnaissance drone—captures and transmits real-time imagery to a command center, tracking the telltale shapes of two artillery pieces tucked beneath camouflage nets far below. A Russian officer gives the order, and the second drone—a loitering munition flying nearby—zeroes in on its target, accelerating to over 300 kilometers per hour. Its explosive payload detonates on impact.

Warfare is undergoing a technological transformation. In some ways, images from the trenches in Ukraine recall the horrors of World War I. But in other ways, this war is unlike any in history. Due to drones, satellite communications, and precision munitions, enemy targets can be spotted and attacked within minutes, even kilometers behind the front line. To survive, the Russian and Ukrainian militaries are constantly adapting. They've adopted new logistics models, changed how units maneuver, and repurposed existing capabilities for reconnaissance and strike units. They've invested in countermeasures like air defenses, decoys, and electronic warfare, and hardened their equipment and fighting positions. The battlefield in Ukraine has become a sandbox of innovation—and a contest of industrial capacity.

To protect vital American interests, the US government must absorb these lessons and apply them through an integrated military and industrial strategy. The risk of great-power conflict is higher today than at any point in decades. China, Russia, North Korea, and Iran threaten US allies in several regions at once. Worse, these four powers are increasingly operating as an axis in ways that are hostile to American interests. Their regimes share an interest in undermining US leadership and building a world order safe for authoritarianism. These powers are sharing advanced defense technologies and selling each other basic items ranging from munitions to drones, effectively building an integrated defense industrial base. As they shift from dollar networks to PRC-controlled payment systems, they are also building resilience to sanctions, which will make it harder for US policy to halt future cooperation that challenges the security of the United States or its allies. The more such cooperation deepens, the greater the chance that a conflict in one region could spread to another.

Amid a growing consensus that US foreign policy is overextended, the current administration is shifting toward defense of the homeland and Western Hemisphere—but deterring war with China is vital for hemispheric defense. If the People's Liberation Army (PLA) gains a geographic springboard to project air and naval power beyond the First Island Chain, US forces will find their own positions in the Western and Central Pacific increasingly tenuous. In any conflict, China would also surely try to leverage its intelligence and commercial capabilities to foster malign presence in Latin America. Many potential flashpoints between Washington and Beijing might conceivably lead to war, including Taiwan, the Philippines, or even North Korea. China also has many non-kinetic options to move coercively against Taiwan. Nevertheless, if conventional deterrence fails, the US will face a severe challenge in preserving regional order that will extend far beyond Taiwan. Given the risk that an emboldened China could provoke crises or escalate toward general war, the US needs military strength as a necessary foundation for diplomacy to succeed.

The United States must therefore credibly demonstrate to China that it is prepared to win *any* high-intensity conventional war. This strategy, in turn, requires showing China that no single capability is so exquisite and dominant as to transform the military balance. The best open-source wargames suggest that the United States would probably win a large-scale war with China today, albeit at significant cost.[1] US forces retain key qualitative advantages. Nevertheless, China is pulling ahead in several metrics, and it has industrial momentum. US deterrence is therefore operating on narrowing margins.

Most American citizens, legislators, and national security professionals understand that a collapse of conventional deterrence against China would be catastrophic for American freedom, prosperity, and security. But on the specifics—what to fund, what to divest—the debate lacks clarity, urgency, and consensus. Silicon Valley has one vision, large defense manufacturers another. The services and the Joint Staff all see the problem slightly differently.

The policy community and public urgently need a conversation about how to stabilize the balance quickly and affordably. In the early 2030s, sci-fi technologies will coexist with twentieth-century platforms. How should we evolve the force from what we have today to what we will need in a decade? The further into the future we look, the less consensus there is. Stabilizing the balance, therefore, is less a matter of dramatically expanding the budget and more about making the hard choices to reallocate resources to core industrial priorities.

Generally, the problem isn't that the US military is losing its technological edge. Rather, it's losing the ability to field that edge at scale, at speed, and under constant pressure from an aggressive, adaptive adversary. The force structure has forgotten how to translate new technology into lethality or integrate legacy and cutting-edge systems. The procurement process is optimized for controlled technological transition. This system may be prudent in peacetime, when the costly, sophisticated Joint Force methodically examines new weapons and operational concepts. But in wartime, when rapid adaptability is crucial, a rigid procurement system can be fatal.

How the US deterrence system works—and how to adapt it—depends on three core questions. First, if deterrence fails, what would a US-China war look like? Second, what capabilities does America struggle to produce and sustain at wartime scale? Third, how can America work with allies and industry to secure supply chains and bridge the gap between what the US has and what it needs? Using history as a benchmark, we take a whirlwind tour of the deterrence system, looking at scouting, long-range strike, logistics, the defense industrial base, the surface fleet, aerial drones, submarines, space, and nuclear systems.

Our net assessment is hopeful. Working with allies and the private sector, the United States can revitalize its deterrence system at a reasonable cost. But it doesn't have much time.

The Timing and Nature of Technological Offsets

China's military modernization is designed to undermine the foundations of American military superiority. Washington and its allies must therefore pursue an industrial-technological transformation to offset China's strategy. History offers no ready-made formula, but it is useful for framing current choices and understanding their potential costs and benefits.

The boldest approach is to wipe the slate clean by betting on a high-tech bundle to completely outclass current standards. One might call this a "Dreadnought offset." When the British Royal Navy deployed the HMS *Dreadnought* in 1906, it instantly rendered every existing battleship obsolete—including Britain's

1 Mark F. Cancian, Matthew Cancian, and Eric Heginbotham, *The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan* (Center for Strategic and International Studies, January 2023), https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/230109_Cancian_FirstBattle_NextWar.pdf.

own.[2] When successful, a Dreadnought offset can neutralize an adversary's quantitative momentum by making existing investments irrelevant. But if implementation slips, the transition period can create soaring costs and acute vulnerability.[3]

The US military today carries the battle scars from a messy attempt at a Dreadnought offset. In the 2000s, Secretary of Defense Donald Rumsfeld sought to transform the Joint Force by replacing heavy land forces and mass with airpower, precision, stealth, and autonomous systems.[4] It was a daring bet on largely the right technological trends, but the initiative was poorly executed. The Joint Force failed to coordinate the offset effectively, partly because the Global War on Terrorism diverted bureaucratic bandwidth. Key programs arrived years late and grossly over budget.[5] By the time the Joint Force began to reap the fruits of Rumsfeld's vision—nearly twenty years later—China was already implementing the same solutions and fielding new tools to offset America's advantages.

At the other extreme is the "torpedo boat destroyer offset," which integrates new technologies with legacy platforms to make the existing force more effective. In the late nineteenth century, many strategists believed that the small, cheap, mass-produced torpedo spelled the end of the large, expensive battleship, predicting that it would equalize the Royal Navy's structural advantages.[6] This debate echoes current discussions about emerging threats from drones. But the torpedo's proponents were wrong. Big navies countered the threat by creating "torpedo boat destroyers"—the progenitors of today's guided-missile destroyers—which worked with battleships to destroy the small torpedo-laying vessels.[7] The result was a more complex but ultimately more capable naval system that remained the standard for fifty years.

The Second Offset of the 1970s and 1980s represents a middle path. The Carter and Reagan administrations placed command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) at the center of US military transformation. The Second Offset leaned heavily on legacy platforms but built a new enabling layer that transformed how they were used and enabled radically new operational concepts. GPS was a consummate example.[8] The key to this model is mastering coordination between technological development and doctrinal innovation so that the new layer can integrate seamlessly.

Historical military offsets reveal a clear pattern: Industrial capacity, technological R&D, and doctrine must be aligned over time and across institutions.

Historical military offsets reveal a clear pattern: Industrial capacity, technological R&D, and doctrine must be aligned over time and across institutions. History offers no off-the-shelf model to copy. The lesson is that successful transformations require integrated strategy and policy coordination. No single actor—not the White House, the Pentagon, Congress, industry, or allies—can dictate terms. These parties must find ways to work together, starting with a common operating picture of the deterrence system. This article aims to provide that picture.

Scouting and Counter-Scouting

Scouting and counter-scouting are paramount in naval warfare and even more important in the age of long-range precision strike. Whoever sees the enemy first across vast stretches of open ocean can

2 Imperial War Museums, "Why the Dreadnoughts Barely Fought in the First World War," https://www.iwm.org.uk/history/why-the-dreadnoughts-barely-fought-in-the-first-world-war.

3 Robert K. Massie, *Dreadnought: Britain, Germany, and the Coming of the Great War* (Ballantine Books, 1991), part III.

4 US Department of Defense, *Quadrennial Defense Review Report* (Department of Defense, September 30, 2001), 6, https://history.defense.gov/Portals/70/Documents/quadrennial/QDR2001.pdf.

5 US Government Accountability Office, *F-35 Joint Strike Fighter: More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision* (Government Accountability Office, May 2023), 4–44, https://www.gao.gov/products/GAO-23-106047; Christopher Leonard, "Lockheed Martin's $1.7 Trillion F-35 Fighter Jet Is 10 Years Late and 80% over Budget—and It Could Be One of the Pentagon's Biggest Success Stories," *Fortune*, August 2, 2023, https://fortune.com/longform/lockheed-martin-f-35-fighter-jet/; Laura Grego, George N. Lewis, and David Wright, *Shielded from Oversight: The Disastrous US Approach to Strategic Missile Defense* (Union of Concerned Scientists, July 2016), https://www.ucsusa.org/resources/disastrous-us-approach-strategic-missile-defense.

6 Hugues Canuel, "From a Prestige Fleet to the Jeune École: French Naval Policy and Strategy Under the Second Empire and the Early Third Republic (1852–1914)," *Naval War College Review* 71, no. 1 (2018): 93–118, http://www.jstor.org/stable/26398093.

7 Frank Hoffman, "What We Can Learn from Jackie Fisher," *Proceedings*, April 2004, https://www.usni.org/magazines/proceedings/2004/april/what-we-can-learn-jackie-fisher; Rindert Zinderen Bakker, "The Development of the Destroyer," in *Warship 6: Destroyer HMCS Haida*, ed. Rindert Zinderen Bakker (Amsterdam University Press, 2016), 12–13, https://doi.org/10.1515/9789086163212-003.

8 Edward C. Keefer, *Harold Brown: Offsetting the Soviet Military Challenge 1977–1981*, vol. 9 (Historical Office, Office of the Secretary of Defense, 2017), 590–91.

strike first. Whoever strikes effectively first tends to win the engagement. Considering how expensive and sophisticated air-naval capabilities are, striking effectively first can generate a structural advantage in combat power for the rest of the war.[9] At the Battle of Midway, American aircraft struck first, and Japanese naval power never recovered.[10] Given the likely speed and scale of a war with China, the side that attacks effectively in the opening engagements will gain critical advantages. A punishing-enough defeat in this war's first few days or weeks may lead one side to capitulate. Alternatively, if a war becomes protracted, whichever side seizes an early advantage will enjoy operational flexibility if it retains assets (aircraft carriers, bombers, and so forth) that its adversary has lost.

If the United States can dominate the scouting fight—by preserving its C4ISR while disrupting China's—it can remain competitive even if it falls behind in other areas. But if the US loses the scouting fight and is blinded in the opening moments of a critical engagement, then either China will win, regardless of the number of ships and aircraft America fields, or the United States could find itself in a grinding, protracted conflict that seeks to reverse China's early gains at a much higher cost. This point is often missing from public debate. Scouting plays such a fundamental role in maritime conflict that it's impossible to assess the military balance without it.[11]

The PLA understands the importance of ISR in a fight with the United States. That's why it's building a layered system of space-based sensors, drones, and over-the-horizon radars. Combined with long-range missiles, these capabilities aim to push US forces beyond their effective strike range. The PLA has also emphasized counter-ISR capabilities, using cyber tools, space-based threats, and other means to disrupt American scouting almost immediately.[12] Not surprisingly, China's scouting system is vulnerable for similar reasons, which is why it is working to make the system more resilient through large investments in industrial capacity for satellites and drones.[13]

The US doesn't yet have the capacity to absorb losses to its high-end ISR assets, which depend on a small number of fragile satellites.[14] This is a critical vulnerability, especially as China develops new ways to hold these assets at risk over the next five to fifteen years. In the long term, the scouting fight is both a technological and an industrial challenge. In the short term, it's largely industrial. As former Senator Sam Nunn once said: "At some point, numbers do count."[15] This is true of the satellites, sensors, and drones that make up the US scouting system.

To stay ahead, the defense industrial base (DIB) must immediately scale up two things. First, attritable, networked ISR platforms are needed so that commanders can afford to lose thousands of units while maintaining scouting capacity. These networks will feature drones, satellites, and supporting infrastructure like secure datalinks. Second, counter-scouting capabilities—cyber, electronic warfare (EW), decoys, and other methods of deception—are necessary to confuse PLA targeting and force Beijing to waste its munitions.

Long-Range Strike

China has stockpiled thousands of precision missiles and has the industrial base to produce thousands more quickly.[16] If a conflict begins, it will rapidly use these missiles against American bases, warships, stockpiles, and high-value allied targets. The US cannot assume a war will start slowly.

The United States may have the world's best missiles, but it lacks deep stockpiles and the surge capacity to produce more quickly. Open-source estimates suggest that the US has fewer than 3,000

9 Wayne Hughes, *Fleet Tactics and Naval Operations*, 1st ed. (Naval Institute Press, 1986), 34–39.

10 US Naval History and Heritage Command, *Battle of Midway,* June 3–6, 1942 (US Naval History and Heritage Command, 2017).

11 Space-based ISR platforms like Starlink and SAR-equipped satellites now enable real-time maritime domain awareness, significantly shortening the sensor-to-shooter timeline and enhancing precision-guided weapon effectiveness in naval engagements; see Simone D'Amico, Sigrid Elschot, Anton Ermakov, Debbie Senesky, Tommaso Guffanti, and Justin Kruger, "Space," in *Stanford Emerging Technology Review 2025*, ed. Herbert S. Lin (Stanford University, 2025), 130–31.

12 China's anti-satellite program goes back to the early 2000s; see Phillip C. Saunders and Charles D. Lutes, *China's ASAT Test: Motivations and Implications* (National Defense University Institute for National Strategic Studies, 2007), https://apps.dtic.mil/sti/tr/pdf/ADA517485.pdf.

13 Akhil Kadidal and Akshara Parakala, "Feature: China Improves Rainbow UAV Capabilities," Janes.com, July 16, 2025, https://www.janes.com/osint-insights/defence-news/defence/feature-china-improves-rainbow-uav-capabilities.

14 Maj. Gen. Thomas D. Taverney, USAF (ret.), "The Evolution of Space-Based ISR," *Air & Space Forces Magazine*, August 10, 2022, https://www.airandspaceforces.com/article/the-evolution-of-space-based-isr/; Christopher T. Swain, "The Periodicity Predicament: How I Learned to Love Space ISR in a Near-Peer Threat Environment," *Wild Blue Yonder*, July 22, 2024, https://www.airuniversity.af.edu/Wild-Blue-Yonder/Articles/Article-Display/Article/3811649/the-periodicity-predicament-how-i-learned-to-love-space-isr-in-a-near-peer-thre/; Zachary Burdette, "The US-China Military Balance in Space," *International Security* 49, no. 4 (2025): 71, https://direct.mit.edu/isec/article/49/4/71/130815/The-U-S-China-Military-Balance-in-Space.

15 *US Senate Committee on Armed Services Hearings*, 96th Congress, 2nd sess. (Government Printing Office, 1980), 994.

16 US Department of Defense, *Military and Security Developments Involving the People's Republic of China: 2024* (US Department of Defense, 2024), 66.

Joint Air-to-Surface Standoff Missiles (JASSMs) and only around 400 Long-Range Anti-Ship Missiles (LRASMs).[17] It is still building Tomahawks at Cold War rates and has had to ration air-defense interceptors for Israel.[18] Ukraine alone is using interceptors roughly ten times faster than US manufacturers can produce them. Even if American platforms survive initial PLA salvos, US forces could exhaust their missile magazines within weeks of a high-end fight. The more lopsided the missile balance becomes, the more pressure commanders will face to get maximum value from every shot. This pressure forces tactical choices that risk lives and expensive platforms.

In the post–Cold War era, the US optimized its defense industrial base for efficiency, focusing on fewer, more capable platforms.

The munitions shortfall is largely a supply chain problem.[19] For example, only a handful of suppliers make rocket motors. Warhead and guidance system production requires specialized materials and components. Scaling these supply chains takes time, specialized equipment, and a trained workforce. Subcontractors will not make these investments unless they are incentivized—or forced—to do so.

The contrast with China's approach is stark. In the post–Cold War era, the US optimized its defense industrial base for efficiency, focusing on fewer, more capable platforms.[20] China, meanwhile, has deliberately built redundancy and surge capacity into its munitions infrastructure. Its missile production facilities are designed to scale output rapidly during a crisis, backed by a state-directed economy that can quickly pivot civilian industry to military production.

Allies can take several obvious steps to boost missile production. First, lock in multi-year contracts for munitions. These demand signals incentivize producers to invest in expanding the supply chain. Second, invest directly in industrial capacity for bottleneck components like rocket motors and guidance systems. Since most US allies have similar needs, coproduction is a logical step—especially with countries like Japan, which shares the strike mission and has relevant manufacturing expertise. Such partnerships distribute production risk, create economies of scale, and can encourage more allied investment in US manufacturing.

In the 1960s, President John F. Kennedy often spoke of a "missile gap" with the Soviet Union. He was exaggerating. Today, however, the missile gap is real. Until the allies take steps to close it, they are making a risky bet. If war breaks out with China, they will either win quickly and decisively—or very likely lose.

Logistics

While materiel is crucial for scouting and strike, the weakest link in the US deterrence system is logistics.[21] Just as the US cannot assume a war will start slowly, it cannot assume it will end quickly. Without the logistical capacity to fight a protracted war half a world away—especially maritime capacity, given the advantages of sealift over airlift—China will be tempted to drag out a fight, hoping to exhaust US power over time.

The US sealift fleet is increasingly brittle and vulnerable.[22] The Merchant Marine is shrinking, and the Combat Logistics Force is already under heavy stress. Fuel distribution and forward resupply plans are underdeveloped. The average ship in the Ready Reserve Force is over forty-five years old, with many requiring extensive maintenance before activation.[23] The commercial shipping industry that once formed

17 Lockheed Martin, "Lockheed Martin Delivers 2,000th JASSM to the US Air Force," September 8, 2016, 1, https://news.lockheedmartin.com/2016-09-06-Lockheed-Martin-Delivers-2-000th-JASSM-to-the-U-S-Air-Force. Hard data are classified; we assume consistent production since 2016.

18 CNN, "US THAAD Missile Interceptor Shortage," July 28, 2025, https://www.cnn.com/2025/07/28/middleeast/us-thaad-missile-interceptor-shortage-intl-invs.

19 Aaron-Mathew Lariosa, "US Navy Looks to Drastically Increase Missile Production," *Naval News*, April 5, 2023, https://www.navalnews.com/event-news/sea-air-space-2023/2023/04/navy-looks-to-drastically-increase-missile-production/.

20 Doug Berenson, Chris Higgins, and Jim Tinsley, "The US Defense Industry in a New Era," *War on the Rocks*, January 13, 2021, https://warontherocks.com/2021/01/the-u-s-defense-industry-in-a-new-era/.

21 Iskander Rehman, *Planning for Protraction: A Historically Informed Approach to Great-Power War and Sino-US Competition* (International Institute for Strategic Studies, 2023).

22 Salvatore Mercogliano, "Logistics Wins—and Loses—Wars," *Proceedings*, February 2024, https://www.usni.org/magazines/proceedings/2024/february/logistics-wins-and-loses-wars.

23 Paul Doell, "The Ready Reserve Force Is in Urgent Need of Funding," *The Maritime Executive,* July 10, 2017, https://maritime-executive.com/editorials/the-ready-reserve-force-is-in-urgent-need-of-funding.

the backbone of American sealift cannot fill the gap, as private industry has largely migrated to foreign flags and crews. In principle, one could reflag foreign ships and contract with foreign mariners. Crucially, when compared to other issue areas, little work is being done in the public domain on US sealift shortfalls.[24]

The Trump administration has begun an effort to rebuild American shipbuilding,[25] but this is a generational investment, not a solution for the urgent crisis the Joint Force faces. If a conflict with China broke out in 2030, the United States would be acutely dependent on allies for commercial vessels, potentially even to supply the American homeland. This vulnerability extends beyond ships to the entire logistics architecture. US forces in the Western Pacific depend on a few major ports and airfields for resupply, creating high-value targets for PLA attacks.[26] PLA planners recognize that disrupting US sustainment is easier than defeating US platforms in combat. Beijing has coupled this strategy with long-range aircraft, anti-ship ballistic missiles, and submarine-launched cruise missiles. The more the PLA pressures US logistics, the more high-value assets—like submarines and warships—the US must divert to protect its sealift instead of attacking PLA forces.

Institutional reforms are also needed. Today, responsibility for logistics is divided between TRANSCOM (US Transportation Command) and INDOPACOM (US Indo-Pacific Command), with the services playing a role.[27] With no single entity in the Pentagon given the mandate, none is truly accountable. This situation creates seams in planning and execution that could prove catastrophic in wartime, especially since logistics inside China's strike range present a vastly different challenge than logistics outside it. Congress and the Joint Staff should give INDOPACOM full responsibility for joint intra-theater logistics—the area within range of China's missiles. This work should be fully funded through the Pacific Deterrence Initiative.[28] Working with allies, the US must forward-position essential supplies at dispersed, hardened facilities and build more manned and unmanned platforms to move them. Regional allies like South Korea and Japan have a vital role in expanding capacity for coproduction and forward repair of the logistics fleet. These allies have much to lose from wartime supply-chain disruptions and should share the burden of preparation.

The Surface Fleet

The surface fleet faces a different kind of challenge, particularly over the next fifteen years: mission clarity. What is the fundamental purpose of the surface fleet in an all-out war with China? Its purpose is to deliver pulses of high-volume fire against PLA targets and, more broadly, larger volumes of lower-cost fires across the theater. Debates about fleet size and the manned/unmanned balance often lose track of this core mission.

Today, carriers are the best way to deliver mass, but their survivability in the 2030s is a key uncertainty. China's development of long-range anti-ship missiles—especially hypersonic and ballistic variants—directly threatens large warships like carriers.[29] These threats are most acute near the First Island Chain. Yet especially with long-range munitions in short supply, US carriers must operate within range of PLA missiles to influence a fight over Taiwan.

The US Navy will adapt—much as the French and British navies adapted to torpedoes in the nineteenth century—but it may fail to adapt quickly enough. Qing China embarked on a crash naval modernization program in the 1870s, and by the time of the outbreak of the 1894 Sino-Japanese War it had deployed a sizeable battlefleet. But it did not properly adapt its force to operate gun-

24 Bryan Clark, Timothy A. Walton, and Adam Lemon, *Strengthening the US Defense Maritime Industrial Base: A Plan to Improve the Maritime Industry's Contribution to National Security* (CSBA, 2020).

25 The White House, "Restoring America's Maritime Dominance," April 9, 2025, https://www.whitehouse.gov/presidential-actions/2025/04/restoring-americas-maritime-dominance/.

26 AUSA Staff, "Guam Defense Critical amid 'Massive Threats,'" Association of the United States Army, August 1, 2024, https://www.ausa.org/news/guam-defense-critical-amid-massive-threats; Clara Fong and Diana Roy, "Guam's Strategic Importance in the Indo-Pacific," September 6, 2024, https://www.cfr.org/in-brief/guams-strategic-importance-indo-pacific; Unshin Lee Harpley, "How to Save Guam from Chinese Missiles with Layered Defense and Local Control," *Air & Space Forces Magazine*, August 1, 2024, https://www.airandspaceforces.com/guam-missile-defense-control-china/.

27 Spc. Abreanna Goodrich, "Strengthening Joint Interior Lines for a Secure Indo-Pacific," US Army Pacific, May 14, 2025, https://www.usarpac.army.mil/Our-Story/Our-News/Article-Display/Article/4184765/strengthening-joint-interior-lines-for-a-secure-indo-pacific/; Bradley Martin and Christopher G. Pernin, "So Many Questions, So Little Time for Pacific Logistics," *Breaking Defense*, June 23, 2023, https://www.rand.org/pubs/commentary/2023/06/so-many-questions-so-little-time-for-pacific-logistics.html.

28 Department of Defense Budget, *Pacific Deterrence Initiative* (Department of Defense, March 2023), https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2024/FY2024_Pacific_Deterrence_Initiative.pdf.

29 Clayton Swope, "No Place to Hide: A Look at China's Geosynchronous Surveillance Capabilities," Center for Strategic and International Studies, January 19, 2024, https://www.csis.org/analysis/no-place-hide-look-chinas-geosynchronous-surveillance-capabilities; Andrea Magi, "The Role of Aircraft Carriers in a Contested Age," *Joint Air Power Competence Centre*, July 2022, https://www.japcc.org/articles/the-role-of-aircraft-carriers-in-a-contested-age/.

armed and heavily armored warships. When China's Beiyang Fleet, its most modern force, met the Japanese Combined Fleet in September 1894, it suffered heavy damage.[30] In February 1895, the fleet was annihilated. Adaptation is a complex strategic process, demanding both technological deployment and force integration.

Cheaper, better missiles and unmanned systems may change how surface ships deliver firepower, requiring the US to make adaptations to its fleet architecture whose success is still far from certain.[31] The challenge extends beyond survivability to the economics of naval warfare. Large warships concentrate enormous capability and cost, making them attractive targets. A single carrier strike group, worth tens of billions of dollars, can be neutralized by munitions costing a fraction of that price.

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Rather than betting the fleet's future on a single technological scenario, the US Navy should hedge—adapting its current force by integrating large capital ships with new missiles and drones, rather than transitioning to a totally unmanned force. Large warships are more flexible, capable of integrating new weapons and meeting multiple missions. As night combat in World War II demonstrated, legacy platforms can also fill crucial gaps that new forces cannot as technology matures.

The Navy needs a diverse array of surface ships that can host long-range weapons, deploy drones, survive the opening days of a war, and operate close enough to the First Island Chain to remain relevant.[32] The fleet must be adaptable to technological trends. This means designing new combatants for long-range firepower that can also field emerging technologies like uncrewed surface vessels (USVs).[33] The US must also work with allies who can build ships, especially combat support vessels, more quickly and cheaply.[34]

Moreover, the Navy and the Pentagon must make hard choices about divestment, both to free up resources and signal political seriousness to Congress. Divestment discussions must take a hard look at underperforming platforms like the Littoral Combat Ship and, painfully, new ones like the Constellation-class frigate.[35] The latter offers significantly less combat power than a destroyer for only minor cost savings.

The Defense Industrial Base

The US and allied defense industrial base (DIB) is not ready for a war with China, as manufacturers cannot ramp up production rapidly. Meanwhile, China's DIB is entrenching its lead through a coordinated policy that blends commercial and military capacity, creates economies of scale, and leverages massive state support.

Realistically, a one-off transformation of the US procurement system is unlikely.[36] The system is intricate for a reason—when it fails, the results are costly in both money and lives. The system is responsible for coordinating industrial capacity, technology, and doctrine for the most complex military force in history—with assets ranging from spy satellites and stealth bombers to ocean-floor sensors and nuclear submarines. Caution is necessary, and there is no one-size-fits-all solution.

30 David C. Evans and Mark R. Peattie, *Kaigun: Strategy, Tactics, and Technology in the Imperial Japanese Navy, 1887–1941* (Naval Institute Press, 1997), 47–50.

31 Chloe Hoorman and Elise Vincent, "Ukrainian Naval Drone Attacks Force Russian Fleet Out of Crimea," *Le Monde*, July 22, 2024, https://www.lemonde.fr/en/international/article/2024/07/22/ukrainian-naval-drone-attacks-force-russian-fleet-out-of-crimea_6694576_4.html.

32 Sam Lagrone, "MQ-25A Stingray IOC Pushed to 2026 Following Manufacturing Delays," *USNI News*, April 4, 2023, https://news.usni.org/2023/04/04/mq-25a-stingray-ioc-pushed-to-2026-following-manufacturing-delays; Joseph Trevithick, "Navy's HALO Hypersonic Anti-Ship Missile Planned for Ships, Submarines, as Well as Jets," *TWZ*, June 5, 2024, https://www.twz.com/air/navys-halo-hypersonic-anti-ship-missile-planned-for-ships-submarines-as-well-as-jets; "A Promising Future for US Navy: Vertical Launching Systems," *Defense Systems Information Analysis Center (DSIAC)*, November 2, 2019, https://dsiac.org/articles/a-promising-future-for-us-navy-vertical-launching-systems/.

33 Ronald O'Rourke, *Defense Primer: Navy Distributed Maritime Operations (DMO) Concept* (Congressional Research Service, October 2, 2024), https://sgp.fas.org/crs/natsec/IF12599.pdf.

34 Namyeon Kwon, "Don't Miss the Boat: Considerations for US–South Korea Maritime Cooperation," *Center for Strategic and International Studies (CSIS)*, June 12, 2025, https://www.csis.org/analysis/dont-miss-boat-considerations-us-south-korea-maritime-cooperation.

35 Sam LaGrone, "All Freedom Littoral Combat Ships in Commission Tapped for Early Disposal," *USNI News*, March 29, 2022, https://news.usni.org/2022/03/29/all-freedom-littoral-combat-ships-in-commission-tapped-for-early-disposal.

36 "Quick Sheet: Defense Acquisition System," AcqNotes, August 28, 2017, https://acqnotes.com/wp-content/uploads/2017/08/Defense-Acquisition-System-Quick-Sheet.pdf.

Incremental reforms across the system, however, can generate outsized benefits. The Pentagon's recent decision to scrap the byzantine Joint Capabilities Integration and Development System (JCIDS) is a good example.[37] By removing red tape, the military can now field and test new technology at scale much faster. Other reforms are crucial. For instance, defense firms need budgetary stability and long-term contracts, especially for specialized subcomponents.[38]

Aggressively using the Defense Production Act (DPA) for bottleneck materials is also critical.[39] Solid rocket motors, sensors, and critical minerals are all candidates. While the federal government cannot build complex systems more efficiently than private industry, targeted DPA use can fill gaps for key components and materials.[40] Modular production lines are also helpful.[41] By designing multiple munitions with similar parts, like JASSMs and LRASMs, the US and its allies can better concentrate industrial output and achieve economies of scale.

The system also needs clearer accountability. Today, the Office of the Secretary of Defense (OSD), the Joint Staff, and the services have overlapping responsibilities, which makes accountability difficult to establish. The Pentagon also needs to greatly expand its use of Other Transaction Authorities (OTAs), which provide funding for rapid acquisition.[42] This expansion should apply across the services, OSD, and combatant commands like INDOPACOM.

Finally, allied integration is crucial. The International Traffic in Arms Regulations (ITAR) is a web of restrictions that impedes co-development with partners like Japan, Australia, and South Korea.[43] Beyond cutting red tape, allied governments can do more to help industry align technical standards. Reforming the Foreign Military Sales (FMS) system would also help industry plan to service growth markets in allied countries.[44]

The Pentagon is already taking some of these steps. But ad hoc spending and regulatory tweaks will not deliver the industrial revitalization the US requires. The Pentagon and Congress must apply a sustained, coordinated effort to fix the DIB and the acquisition process.

Unmanned Aerial Systems

Unmanned aerial systems (UAS) are essential to modern military power, from small FPVs (first-person view drones) in Ukraine to sophisticated long-range reconnaissance drones. Drones will likely not replace legacy weapons. Instead, they will augment these weapons, while becoming vital for network functions like scouting and logistics.

China's state-backed drone industry is outproducing the US and its allies by orders of magnitude. Its platforms are being combat-tested and iterated in Ukraine and the Middle East. The US unmanned force, meanwhile, relies on expensive systems like the MQ-4 and MQ-9, with minimal industrial capac-

37 Ashley Roque, "Pentagon Terminating JCIDS Process as Part of Larger Acquisition Reform: Memo," *Breaking Defense*, August 22, 2025, https://breakingdefense.com/2025/08/pentagon-terminating-jcids-process-as-part-of-larger-acquisition-reform-memo/.

38 Bryant Harris, "Congress Supersizes Munitions Production with Emergency Authorities," *Defense News*, December 13, 2022, https://www.defensenews.com/congress/budget/2022/12/13/congress-supersizes-munitions-production-with-emergency-authorities/.

39 Anshu Siripurapu, "What Is the Defense Production Act?" Council on Foreign Relations, December 22, 2021, https://www.cfr.org/in-brief/what-defense-production-act.

40 Valerie Insinna, "5% GDP: Top SASC Republican Pitches Dramatic Jump in Defense Spending $44B More in FY25," *Breaking Defense*, May 29, 2024, https://breakingdefense.com/2024/05/5-gdp-top-sasc-republican-pitches-dramatic-jump-in-defense-spending-55b-more-in-fy25/; Rick Green, "GreenSource Fabrication Secures $46.2m Federal Defense-Production Grant," *New Hampshire Business Review*, January 12, 2024, https://www.nhbr.com/greensource-fabrication-secures-46-2m-federal-defense-production-grant/; Bill Greenwalt, Jerry McGinn, and Christopher Zember, "The Defense Production Act Is Helping Rebuild the US Industrial Base. Let's Keep It That Way," *Defense News*, June 15, 2022, https://www.defensenews.com/opinion/commentary/2022/06/15/the-defense-production-act-is-helping-rebuild-the-us-industrial-base-lets-keep-it-that-way/.

41 US Department of Defense, *Terraforming the Valley of Death*, Defense Innovation Board (US Department of Defense, July 2023), https://innovation.defense.gov/Portals/63/DIB_Terraforming%20the%20Valley%20of%20Death_230717_1.pdf; US Army Acquisition Support Center, "Understanding Acquisition: The Valley of Death," *Army AL&T*, October 6, 2021, https://asc.army.mil/web/news-understanding-acquisition-the-valley-of-death/; Michael Brown and Lorin Selby, "Revisiting the Hedge Strategy with Renewed Urgency," *War on the Rocks*, September 7, 2023, https://warontherocks.com/2023/09/revisiting-the-hedge-strategy-with-renewed-urgency/; Michael Brown, "The Big Disconnect: Defense R&D and Warfighter Capabilities," *Forbes*, March 26, 2024, https://www.forbes.com/sites/mikebrown/2024/03/26/the-big-disconnect-defense-rd-and-warfighter-capabilities/.

42 Alexandra G. Neenan and David H. Carpenter, "Defense Primer: Other Transactions (OTs)," Congressional Research Service, December 19, 2024, https://www.congress.gov/crs-product/IF12856.

43 Kathryn Toomey, "Understanding ITAR: The International Traffic in Arms Regulations," shippingsolutions.com, October 26, 2022, https://shippingsolutionssoftware.com/blog/understanding-itar-the-international-traffic-in-arms-regulations; Tom Corben, "Even with Intended Reforms, US Defence Trade Rules Threaten AUKUS Cooperation," *The Strategist*, June 18, 2024, https://www.aspistrategist.org.au/even-with-intended-reforms-us-defence-trade-rules-threaten-aukus-cooperation/; Department of State, "International Traffic in Arms Regulations: Exemption for Defense Trade and Cooperation Among Australia, the United Kingdom, and the United States," *Federal Register*, August 20, 2024, https://www.federalregister.gov/documents/2024/08/20/2024-18043/international-traffic-in-arms-regulations-exemption-for-defense-trade-and-cooperation-among; "Export Control Revisions for Australia, United Kingdom, United States (AUKUS) Enhanced Trilateral Cooperation," *Federal Register*, April 19, 2024, https://www.federalregister.gov/documents/2024/04/19/2024-08446/export-control-revisions-for-australia-united-kingdom-united-states-aukus-enhanced-trilateral.

44 Republican Foreign Affairs Committee, "House Passes HFAC-Led Reforms to Foreign Arms Sales Process," September 2, 2025, https://foreignaffairs.house.gov/news/press-releases/house-passes-hfac-led-reforms-to-foreign-arms-sales-process.

ity to replenish losses or scale production quickly. The disparity is particularly stark at the lower end of the market. The Shenzhen-based DJI dominates the global civilian drone market, creating economies of scale that American competitors cannot match.[45] This commercial success creates manufacturing capacity that could be rapidly pivoted to military production in a crisis. Aided by state subsidies and access to low-cost components, China's drone makers are integrated into supply chains that span both civilian and military uses. Allied producers lag far behind even Ukraine in producing combat-proven small and medium UAS in quantity.

Recent conflicts clearly show that mass-producing various UAS types is essential for scouting and strike missions. Ukraine has demonstrated the effectiveness of cheap, attritable drones for both surveillance and attack.[46] Iranian-supplied drones have overwhelmed air defenses through sheer numbers. These lessons are not lost on China's military planners, who are incorporating swarm tactics into their operational concepts.

The challenge for the US extends beyond production to developing effective counter-drone capabilities. Current US air defenses are optimized for high-end threats like aircraft and missiles, not for swarms of low-cost drones that can overwhelm defenses with numbers. Using expensive interceptors against cheap drones creates an unsustainable cost-exchange ratio that heavily favors the attacker.

To win this race, allies must build economies of scale across the entire supply chain. Washington should lead allies in banning civilian drones and components from China and set about building a protected market large enough to compete globally.[47] Together, the allies need to build a multi-tiered drone ecosystem—from cheap FPVs to exquisite systems—with modular components. They must also pre-negotiate basing and supply chains in the Indo-Pacific and establish a knowledge pipeline for counter-drone techniques from Ukraine and the Middle East. A key lesson from recent wars is that drone-heavy combat requires extreme adaptability from both industry and warfighters.[48]

The challenge for the US extends beyond production to developing effective counter-drone capabilities.

Finally, initiatives like Replicator[49] and "Hellscape"[50] need a clearer role in the military's operational concepts.[51] Without clear integration into warfighting plans, these programs risk becoming expensive science projects rather than operationally relevant capabilities.

Submarines

The attack submarine force is the crown jewel of US deterrence in the Indo-Pacific. Combined with long-range stealth bombers, US nuclear-powered submarines can evade PLA scouting, attack high-value warships and land targets, and collect critical intelligence. These attacks can create seams in China's scouting network that the surface fleet can exploit.

The submarine fleet, however, is in profound crisis. Less than 60 percent of the fleet is operational at any given time. Construction is falling short of

45 Miriam McNabb, "Has the US China Trade War Changed DJI's Drone Market Share? The Latest from Drone Industry Insights," *Drone Life*, March 5, 2021, https://dronelife.com/2021/03/05/has-the-u-s-china-trade-war-changed-djis-drone-market-share-the-latest-from-drone-industry-insights/.

46 Jack Watling and Nick Reynolds, *Meatgrinder: Russian Tactics in the Second Year of Its Invasion of Ukraine* (Royal United Services Institute, May 19, 2023), https://static.rusi.org/403-SR-Russian-Tactics-web-final.pdf. Today, there are likely significantly more UAS being used in Ukraine at any given time, simply because of increased production scale and the diversity of systems employed.

47 Aaron Karp, "US House Committee Advances Legislation to Effectively Ban DJI Drones in US," *Commercial UAV News*, March 28, 2024, https://www.commercialuavnews.com/regulations/u-s-house-committee-advances-legislation-to-effectively-ban-dji-drones-in-u-s.

48 Heather Somerville and Brett Forrest, "How American Drones Failed to Turn the Tide in Ukraine," *The Wall Street Journal*, April 10, 2024, https://www.wsj.com/world/how-american-drones-failed-to-turn-the-tide-in-ukraine-b0ebbac3; David Kirichenko, "Ukraine's Drone Front," *Center for European Policy Analysis*, June 6, 2024, https://cepa.org/article/ukraines-drone-front/; Harry Halem, "Ukraine's Lessons for Future Combat: Unmanned Aerial Systems and Deep Strike," *Parameters* 53, no. 4 (2023): 19–32.

49 Jim Garamone, "Hicks Discusses Replicator Initiative," *DoD News*, September 7, 2023, https://www.defense.gov/News/News-Stories/Article/Article/3518827/hicks-discusses-replicator-initiative/; Joseph Clark, "Defense Innovation Official Says Replicator Initiative Remains on Track," *DoD News*, January 26, 2024, https://www.defense.gov/News/News-Stories/Article/Article/3657609/defense-innovation-official-says-replicator-initiative-remains-on-track/.

50 Josh Rogin, "The US Military Plans a 'Hellscape' to Deter China from Attacking Taiwan," *The Washington Post*, June 9, 2024, https://www.washingtonpost.com/opinions/2024/06/10/taiwan-china-hellscape-military-plan/.

51 Eric Tegler, "A Defense Startup CEO Says There's Too Much Negativity on Replicator," *Forbes*, February 21, 2024, https://www.forbes.com/sites/erictegler/2024/02/21/a-defense-startup-ceo-says-theres-too-much-negativity-on-replicator/; Noah Robertson, "Replicator: An Inside Look at the Pentagon's Ambitious Drone Program," *Defense News*, December 19, 2023, https://www.defensenews.com/pentagon/2023/12/19/replicator-an-inside-look-at-the-pentagons-ambitious-drone-program/; Matt Berg, "'Disorganized and Confusing': Lawmakers, Industry Rip Pentagon Plans for Drones," *Politico*, December 17, 2023, https://www.politico.com/news/2023/12/17/pentagon-drones-replicator-program-funding-00132092; Chris Jenks, "Year Ahead—The US DoD Replicator Initiative and the Acquisition Process for Autonomous Weapons," Lieber Institute at West Point—Articles of War, January 9, 2024, https://lieber.westpoint.edu/us-dod-replicator-initiative-acquisition-process-autonomous-weapons/.

Navy plans. Maintenance delays are endemic, and workforce demographics are a time bomb.[52] The fleet numbers fewer than 50 boats against a requirement of 66,[53] while the shipbuilding industry delivers only 1.2 submarines per year against a target of 2.0 or more.[54] And the maintenance backlog is growing, as submarines require longer yard periods than planned, often due to shortages of parts and skilled labor.

The workforce crisis extends across the entire submarine industrial base. Experienced welders, electricians, and nuclear-trained technicians are aging out of the workforce faster than they can be replaced.[55] The specialized skills required cannot be taught quickly, creating a bottleneck that constrains both new construction and maintenance. Competition from the *Columbia*-class ballistic missile submarine program has further strained this already-limited pool of skilled workers and industrial capacity.[56]

China's submarine fleet is structured differently. It has fewer nuclear-powered boats, many of which are noisy. Its diesel boats are limited in range, but its most advanced are very quiet.[57] China also has geographic advantages; its submarines do not have to travel halfway across the world to fight and return, nor rely on just two tenders for resupply. US submarines also operate at a higher operational tempo, which stresses platforms and crews.

America's undersea challenge isn't technological—it's about industrial capacity and sustainment. Electric Boat and Newport News Shipbuilding, the only two yards capable of building these submarines, face constraints on skilled workers, equipment, and dry docks. Fixing these problems will take years, which is why recapitalization must begin immediately.[58] The most important single investment America can make in deterrence is a massive, one-time recapitalization of the submarine industrial base, with allied co-funding. This move requires full-throttle support for AUKUS, including tech transfers and maintenance basing in Australia, South Korea, and Japan. America needs Australia on board for its bases and its investment. Through the early 2030s, the only undersea deterrent that truly matters is how many attack subs the allies can collectively deploy and keep in the fight.

Space Power

Space is not an emerging capability area. It is already a contested military domain—and whichever side leads in this domain could enjoy decisive advantages.[59] In a war in the early 2030s, planners must assume that the PLA would open with or escalate to attacks on US military space-based systems, and possibly also civilian space systems. China has developed layered anti-satellite capabilities and signaled them consistently to the United States and its Asian allies.[60] The PLA fields ground-based lasers and jammers, ground-launched kinetic interceptors, and probable co-

52 Edward Bartlett, "The Navy's Submarine Maintenance Crisis Needs Ready, Affordable Solutions," *Proceedings*, January 2024, https://www.usni.org/magazines/proceedings/2024/january/navys-submarine-maintenance-crisis-needs-ready-affordable; "Report on Virginia-Class Attack Submarine Program," *USNI News*, July 4, 2023, https://news.usni.org/2023/07/04/report-on-virginia-class-attack-submarine-program-12; Seth Cropsey, "Delayed Repairs Shrink the US Submarine Fleet," *The Wall Street Journal*, September 14, 2022, https://www.wsj.com/articles/delayed-repairs-shrink-the-submarine-fleet-taiwan-china-navy-amphibious-assault-aircraft-private-shipyards-deployable-boats-materials-11663162266.

53 Seth Cropsey, "The Sorry State of America's Submarine Fleet," *The Wall Street Journal*, September 29, 2023, https://www.wsj.com/articles/the-sorry-state-of-americas-submarine-fleet-japan-korea-alliance-taiwan-invasion-china-c29203bd.

54 Roger Wicker, "The US Navy Needs More Attack Submarines," wicker.senate.gov, July 16, 2023, https://www.wicker.senate.gov/2023/7/the-u-s-navy-needs-more-attack-submarines; Alastair Gale, "The Era of Total US Submarine Dominance over China Is Ending," *The Wall Street Journal*, November 20, 2023, https://www.wsj.com/world/china/us-submarine-dominance-shift-china-8db10a0d.

55 Alexander Grey, "The Submarine Workforce Crisis: Admitting Realities and Restructuring Long-Term Strategy," *War on the Rocks*, April 4, 2024, https://warontherocks.com/2024/04/the-submarine-workforce-crisis-admitting-realities-and-restructuring-long-term-strategy/.

56 John Grady, "Growing Work Force Largest Challenge to Columbia-Class Sub Programs, Says Navy Official," *USNI News*, August 25, 2022, https://news.usni.org/2022/08/25/growing-work-force-largest-challenge-to-columbia-class-sub-programs-says-navy-official; Christian Orr, "$130,000,000,000 Problem: The Navy's Columbia-Class Submarine Is 'Drowning,'" *National Security Journal*, July 14, 2025, https://nationalsecurityjournal.org/130000000000-problem-the-navys-columbia-class-submarine-is-drowning/.

57 US Naval War College, "CMSI Conference: Chinese Undersea Warfare; Development, Capabilities, Trends," China Maritime Studies Institute, April 2023, https://usnwc.edu/News-and-Events/Events/CMSI-Conference-Chinese-Undersea-Warfare; Ronald O'Rourke, *China Naval Modernization: Implications for US Navy Capabilities—Background and Issues for Congress* (Congressional Research Service, March 18, 2020).

58 Ronald O'Rourke, *Navy Virginia-Class Submarine Program and AUKUS Submarine (Pillar 1) Project: Background and Issues for Congress* (Congressional Research Service, June 12, 2024); Sam Lagrone, "Senators Question SecNav, OMB on Submarine Funding Ahead of 17 Attack Boat Buy," *USNI News*, October 28, 2024, https://news.usni.org/2024/10/28/senators-question-secnav-omb-on-submarine-funding-ahead-of-17-attack-boat-buy; David Axe, "US Navy Submarines Are Expensive—Check Out This Graph," *Forbes*, December 15, 2020, https://www.forbes.com/sites/davidaxe/2020/12/15/us-navy-submarines-are-expensive-check-out-this-graph/.

59 Jonathan D. Caverley, "So What? Reassessing the Military Implications of Chinese Control of Taiwan," *Texas National Security Review* 8, no. 3 (Summer 2025): 28–53, https://tnsr.org/2025/06/so-what-reassessing-the-military-implications-of-chinese-control-of-taiwan/.

60 Matthew Mowthorpe and Markos Trichas, "A Review of Chinese Counterspace Activities," *The Space Review*, August 1, 2022, https://www.thespacereview.com/article/4431/1; US Space Force, *Space Threat Fact Sheet* (Headquarters Space Force Intelligence), July 16, 2024, https://www.andrewerickson.com/wp-content/uploads/2024/09/20240716-S2-Space-Threat-Fact-Sheet-v5-RELEASE.pdf.

orbital threats.[61] It can also use cyber tools against ground stations.[62]

As we saw above, the US C4ISR network still depends on a relatively fragile, centralized satellite architecture. China's space-based ISR assets are also vulnerable, but China would be fighting right off its own coastline, not across an ocean. It has other ways to see the battlefield. The vulnerability of American space assets creates a critical dependency that China can exploit. GPS satellites, military communications satellites, and intelligence collection platforms all operate in predictable orbits that can be targeted by PLA anti-satellite weapons.[63]

The United States can deter aggression by extending America's lead and making its space-based systems more networked and redundant.

The asymmetry extends beyond geography to the nature of space dependencies. American forces rely heavily on space-based systems for precision navigation, timing, communications, and intelligence. PLA forces, while increasingly space-dependent, retain more terrestrial alternatives and operate closer to their home bases, where ground-based systems can provide backup capabilities. This situation creates a vulnerability that China can exploit by targeting American space assets while accepting the loss of some of its own capabilities.[64]

The good news is that US companies are outpacing their adversaries in launch, low Earth orbit (LEO) constellation tech and construction, satellite maneuverability, and in-space manufacturing.[65] The United States can deter aggression by extending America's lead and making its space-based systems more networked and redundant. The commercial space industry, led by companies like SpaceX, has revolutionized launch costs and frequency.[66] The industry is also pioneering new space architectures based on large constellations of smaller satellites rather than a few exquisite platforms.

As American and allied space companies continue their work, the Pentagon can hitch a ride by buying into hybrid space architectures that fuse civil and military communications; positioning, navigation, and timing (PNT); and ISR.[67] American diplomacy can encourage allied and neutral countries to join these networks and invest in expanding them. The goal should be to create a situation such that any PLA attack on US C4ISR networks would be an attack against a large coalition of nations.

The federal government can also take many low-cost steps quickly and unilaterally to support these efforts. It can cut red tape that holds back US space companies from scaling up launches. Current licensing and regulatory processes can add months or years to deployment timelines, reducing the military utility of rapidly evolving commercial capabilities. The government can also accelerate reforms to export controls that stand in the way of creating a space industrial base.

Nuclear Deterrence

The US faces a new era of tripolar nuclear competition, for which its doctrine, planning, and strategy are not adjusted.[68] China is engaged in a stunning nuclear breakout. Its stockpile has surged from under 100 warheads a decade ago to over 600 today.

61 US Department of Defense, *Military and Security Developments Involving the People's Republic of China: 2024*, 86; US Space Force, *Space Threat Fact Sheet.*

62 Kevin Pollpeter, *Coercive Space Activities: The View from PRC Sources* (China Aerospace Studies Institute, February 2024).

63 "Orbiting Spacecraft," The European Space Agency, n.d., https://www.esa.int/Science_Exploration/Space_Science/Orbiting_spacecraft.

64 Marcus Solarz Hendriks and Harry Halem, *From Space to Seabed: Protecting the UK's Undersea Cables from Hostile Actors* (Policy Exchange, February 19, 2024); Dustin Volz, Drew FitzGerald, and Peter Champelli, "US Fears Undersea Cables Are Vulnerable to Espionage from Chinese Repair Ships," *The Wall Street Journal*, May 19, 2024, https://www.wsj.com/politics/national-security/china-internet-cables-repair-ships-93fd6320; Aaron Bateman, "Undersea Cables and the Vulnerability of American Power," Engelsberg Ideas, May 7, 2024, https://engelsbergideas.com/essays/undersea-cables-and-the-vulnerability-of-american-power/.

65 Ethan Karp, "Manufacturing in Space: An Inside Look at a Seemingly Crazy Idea," *Forbes*, September 11, 2024, https://www.forbes.com/sites/ethankarp/2024/09/11/manufacturing-in-space-an-inside-look-at-a-seemingly-crazy-idea/.

66 Tereza Pultarova and Elizabeth Howell, with contributions from Daisy Dobrijevic and Adam Man, "Starlink Satellites: Facts, Tracking and Impact on Astronomy," Space.com, April 14, 2022, https://www.space.com/spacex-starlink-satellites.html.

67 Ria Urban, "Space Systems Command Facilitates Multiple Contract Awards for Proliferated Low Earth Orbit Satellite-Based Services," *Space Impulse*, July 24, 2023, https://spaceimpulse.com/2023/07/28/space-systems-command-facilitates-multiple-contract-awards-for-proliferated-low-earth-orbit-satellite-based-services/.

68 Congressional Commission on the Strategic Posture of the United States, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Institute for Defense Analyses, October 2023), https://www.ida.org/-/media/feature/publications/a/am/americas-strategic-posture/strategic-posture-commission-report.ashx.

The Pentagon projects that China will surpass 1,000 warheads by 2030 and could reach 1,500 by 2035.[69] China is also developing a credible second-strike capability, along with intermediate-range delivery systems and low-yield warheads—capabilities it has never fielded at scale. Russia still poses a nuclear threat as well. China and especially Russia field nonstrategic nuclear forces that raise different challenges.

The shift to tripolar competition fundamentally alters the strategic stability calculations that governed the Cold War. Bipolar competition between the US and Soviet Union created relatively predictable deterrence dynamics and enabled arms control. Adding a third major nuclear power with an unclear doctrine complicates this dynamic. Each side must now consider not only bilateral exchanges but also how nuclear use might affect relationships with the third party. The stress of nuclear tripolarity, moreover, is more acute for the United States than for Russia or China. The Moscow-Beijing relationship may break down, but for now, China and Russia need only focus on modifying American deterrence calculations, not each other's. Nor do China and Russia need to act in a coordinated fashion to place extreme stress on core US deterrence priorities.[70]

The shift to tripolar competition fundamentally alters the strategic stability calculations that governed the Cold War.

China's nuclear modernization extends beyond warhead numbers to delivery systems and doctrine. The PLA Rocket Force has deployed new mobile intercontinental ballistic missiles, nuclear-powered ballistic missile submarines, and dual-capable intermediate-range systems that place US allies and forward-deployed forces at risk.[71] China's nuclear doctrine appears to be evolving from a purely retaliatory posture toward options for limited nuclear use, potentially including theater nuclear weapons to deter US intervention in a Taiwan conflict.

Nuclear deterrence is not just a question of arsenal size. Still, the United States must continue its ongoing nuclear modernization, which consists mainly of replacing aging command-and-control and delivery systems.[72] If China's nuclear breakout continues, it may become necessary for the US to deploy additional nuclear forces in the region, including the Sea-Launched Nuclear-Armed Cruise Missile (SLCM-N).[73] SLCM-N would provide theater commanders with flexible response options and complicate PLA targeting by distributing nuclear capabilities across multiple platforms. Additionally, as Vipin Narang has argued, deploying more lower-yield weapons in the Indo-Pacific would free up Trident-armed submarines to focus on strategic deterrence missions.[74]

Closer nuclear planning dialogues with South Korea and Japan will also be necessary to ensure alliance cohesion. Washington may eventually need to consider NATO-style nuclear sharing, which involves allies more directly in nuclear operations without proliferating the technology itself.[75] The credibility of US extended deterrence depends on allies' confidence that Washington would risk nuclear escalation to defend them. As China's capabilities grow, maintaining this confidence will require new and creative approaches.

The strategic balance matters not because a US-China war would necessarily involve nuclear use, but because it shapes crisis dynamics. If China initiates a war, it is plausible it would contemplate nuclear use. To control escalation, America needs to match China in strategic flexibility. This strategy requires nuclear forces capable of limited, discriminate use—not just massive retaliation—and command-and-control systems that can operate in degraded environments.

The strategic balance matters for crisis dynamics. If China chooses to initiate a war, it is not unthinkable that it would contemplate nuclear use as well. If Washington wants to control escalation, it will need to match China in strategic flexibility.

69 US Department of Defense, *Military and Security Developments Involving the People's Republic of China: 2024*, 101; US Department of Defense, *Military and Security Developments Involving the People's Republic of China: 2022*, 94.

70 Vipin Narang and Pranay Vaddi, "How to Survive the New Nuclear Age," *Foreign Affairs*, July/August 2025, https://www.foreignaffairs.com/united-states/how-survive-new-nuclear-age-narang-vaddi?check_logged_in=1.

71 US Department of Defense, *Military and Security Developments Involving the People's Republic of China: 2024*, 56, 61, 105.

72 "Fact Sheet: An Enduring Commitment to the US Nuclear Deterrent," The White House, Office of the Press Secretary, November 17, 2010, https://obamawhitehouse.archives.gov/the-press-office/2010/11/17/fact-sheet-enduring-commitment-us-nuclear-deterrent.

73 Anya Fink, *Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N)* (Congressional Research Service, October 17, 2024), https://crsreports.congress.gov/product/pdf/IF/IF12084.

74 Narang and Vaddi, "How to Survive the New Nuclear Age."

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Conclusion: The Arsenal of Democracy Redux

Maintaining a force that can defeat China in a kinetic war helps to deter not only war itself, but a broad range of Chinese armed coercion. As this article has shown, US forces face challenges in preparing for such a war—but so do China's. The PLA has never fought a major naval war. Its officer corps is largely untested and rarely exercises in realistic conditions.[76] Beijing knows the United States enjoys key qualitative advantages, particularly in C4ISR. Before risking a devastating defeat, Beijing will want substantial confidence in its all-around superiority. Strengthening deterrence, therefore, means increasing China's uncertainty while preventing it from miscalculating that any single advantage could prove decisive. This calculus requires the US to look at deterrence as a system, by identifying the US military's greatest systemic vulnerabilities, along with areas in which it can gain fundamental long-term advantages.

The fastest path to US defeat is the collapse of its scouting and logistics networks. Munitions, drones, and submarines are the most time-sensitive industrial investments, while satellite and drone ISR systems must become more networked and redundant. These are largely industrial challenges. Procurement reform should focus on evolving the force, not searching for disruptive "killer apps." The existing deterrence system must adapt faster, and the engine of that adaptation must be an allied defense industrial base that can produce what an evolving force needs.

Ultimately, the hardest choices about force design will be made by Congress, including by members outside the Armed Services committees. These members need to understand the deterrence system, the costs of inaction, and the trade-offs involved. Congress doesn't want a wish list; it wants to understand the mission and the required trade-offs. It is the Pentagon's job to explain them.

Deterring China to secure the Western Hemisphere does not require a politically impossible doubling of the defense budget. The US needs to spend more, but more importantly, it must make hard choices to prioritize key programs and spend smarter. Budgets must align resources with the primary challenge: an air-naval conflict in the Pacific. National security professionals should spend less time admiring specific capabilities and more time debating and fixing the weakest links in the deterrence system. Demanding that allies spend more on defense makes little sense without coordinating those investments to meet shared production needs. Deterrence is a system of strategic, industrial, and institutional choices. It is not too late to shore up the system, but the clock is ticking, and America's margin for error is shrinking. A moment like this requires the broadest possible consensus on what needs to be done and why.

The United States should take inspiration from 1940, when Franklin D. Roosevelt realized a crash effort was needed to arm the world's democracies against the Axis powers. In his famous "arsenal of democracy" fireside chat, FDR told Americans: "We must discard the notion of 'business as usual.'"[77] The tragic irony is that Roosevelt was right—but he moved too late. Deterrence failed in 1941. Today, the world's democracies must not repeat that mistake.

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Image: *QA identifies, helps fix critical F-35 assembly flaw by Staci Reidinger.*[78]

76 Cristina L. Garafola, "The PLA Airborne Corps in a Joint Island Landing Campaign," in *Study No. 8, Chinese Amphibious Warfare: Prospects for a Cross-Strait Invasion*, ed. Andrew S. Erickson, Conor M. Kennedy, and Ryan D. Martinson (China Maritime Studies Institute, 2024), 164–66, https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1000&context=cmsi-studies.

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78 For image, see https://www.dvidshub.net/image/8650988/qa-identifies-helps-fix-critical-f-35-assembly-flaw.