

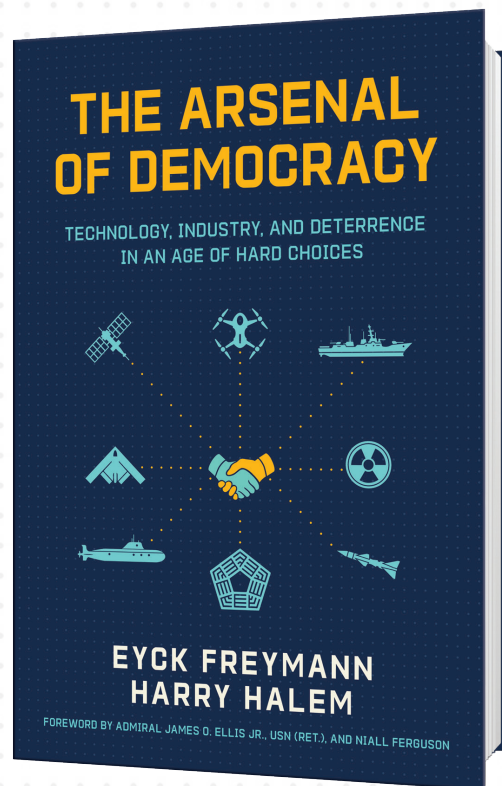


THE ARSENAL OF DEMOCRACY:

**Technology, Industry, and Deterrence
in an Age of Hard Choices**

By Eyck Freymann and Harry Halem

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CHAPTER 1

THE PROBLEM

In the event of a conflict with China, the US military could defeat the People's Liberation Army (PLA) today—but it is operating on increasingly thin margins. China is systematically building a force to exploit vulnerabilities in our deterrence system. The US armed services have reasonable operational concepts to counter China's strategy and leverage emerging tech. But today we don't have a force structure, defense industrial base (DIB), logistics system, and allied coordination framework to fully execute those concepts.

The threat environment no longer allows for business as usual. We need a crash effort to adapt legacy platforms, divest low-survivability systems, and scale up production of the capabilities that matter most for deterrence, while also investing in long-term advantages.

THE RESEARCH

In *The Arsenal of Democracy: Technology, Industry, and Deterrence in an Age of Hard Choices*, Eyck Freymann and Harry Halem provide a guide to thinking about the challenge. It's not too late for the US to preserve deterrence over China into the 2030s at an acceptable cost. **Militaries are constantly adapting to new technology. History offers guidance about what to prioritize—and deprioritize.**

Key insights from the framework:

- Whatever we need to win the opening phase of a war, we need to build now.
- But deterrence also requires showing China it can't win a protracted conflict.
- Technological superiority doesn't deter or win wars by itself. **Deterrence is a system.** Successful deterrence must integrate new tech while adapting legacy platforms.

THE SOLUTIONS

1. **Maintain the ability to defeat the PLA in an all-out fight.** Making Taiwan a porcupine—that is, arming Taiwan enough to make any potential Chinese invasion so costly that it deters Beijing—is not enough. There are more flashpoints than just Taiwan. We need to prepare for contingencies beyond Taiwan in the 2030s.
2. **Focus on dominating the opening phase of a war—but maintain capacity to win a long war.** We need to more or bigger submarine yards, surge capacity for missiles and UAS, long-term contracting, and bigger stockpiles. We need systematic coproduction to leverage allied DIB capacity.
3. **Double down on C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance), counter-C4ISR, and space and undersea defense.** Our key asymmetric advantages into the 2030s will be in space and undersea. We must sustain this lead.
4. **Build a bipartisan and interservice consensus** around this overarching framework before spending political capital on specific programmatic fights and stop splitting budget equally between the services.



CHAPTER 2

THE PROBLEM

In maritime conflict, scouting (intelligence, surveillance, and reconnaissance, or ISR) is key. Whoever identifies targets first can strike first, effectively and at scale. The PLA has built a layered reconnaissance-strike complex of satellites, drones, over-the-horizon radar, and increasingly AI-enabled command and control. The US scouting network is higher-tech but more brittle, since it relies more on space-based assets.

In a conflict, US platforms would operate within China's scouting complex, allowing China to detect and attack US assets. China can withstand attrition to its scouting network, thanks to its sophisticated DIB. Private US satellite networks are world leading, but they have failure points that China can attack.

THE RESEARCH

In *The Arsenal of Democracy*, Freymann and Halem argue that reconnaissance dominance is not just a battlefield advantage—it's the foundation of deterrence. Chapter 2 traces the historical record throughout the World Wars and Cold War: **Whoever has superior scouting ability enjoys both tactical and strategic advantage.**

Key insights include:

- At the opening of any US-China war, both sides would try to blind the other by attacking their opponent's ISR. If we lose this fight, we lose the war.
- To deter war, we therefore must show Beijing it would lose the ISR fight.
- The vulnerability of our scouting system is mainly industrial. Our space networks have potential points of failure. We have no good non-space fallbacks. Today, we can't replace lost satellites fast enough.

THE SOLUTIONS

1. **Augment our ISR system with hybrid space architectures *and* large numbers of drones.**
2. **Build this system around attritable, networked, mass-producible units** such as high-endurance drones, microsatellites, and robust data links. Ramp up industrial capacity as fast as possible.
3. **Invest in a broader range of counter-scouting capabilities:** electronic warfare, decoys, and offensive cyber. Selectively signal them to the PLA.
4. **Use counter-scouting tools for strategic deterrence.** In the Cold War, superior US counter-scouting deterred war in Europe and contributed to Soviet collapse.



CHAPTER 3

THE PROBLEM

In an all-out fight with the PLA, both sides would race to deliver long-range precision fires early and at scale. China has thousands of long-range missiles, and its DIB can ramp up production faster than ours. China would likely open with a mass missile salvo against US and allied air bases, ports, surface ships, and logistics hubs in the First Island Chain (FIC) and Second Island Chain (SIC). The greater China's quantitative advantages, the greater the pressure on US Indo-Pacific Command (INDOPACOM) to win a quick and decisive victory. Additionally, Taiwan and our treaty allies increasingly need air defense and long-range strike for their own strategic reasons.

THE RESEARCH

In chapter 3 of *The Arsenal of Democracy*, Freymann and Halem argue that **long-range strike is an emerging vulnerability and coproduction is the best way to address the problem.**

Key insights include:

- In modern wars, munitions are typically used up much faster than expected.
- Once fighting starts, the size of our missile stockpile will shape our strategic and operational choices. Whatever happens, China will reconstitute faster.
- Missile production takes years to scale, so we have to start now.
- Allies need long-range strike and air defense too, and their DIBs can help us scale production faster.

THE SOLUTIONS

1. **Sign multiyear munitions contracts** to incentivize domestic suppliers to expand capacity as fast as possible, particularly for SM-6, JASSM (long-range air to surface), LRASM (long-range anti-ship), and Patriot interceptors.
2. **Expand capacity for the entire missile supply chain.** Rocket motors, warheads, sensors, and guidance systems are potential bottlenecks. We should plan for Chinese industrial sabotage. Where possible, we should stockpile components.
3. **Coproduce with key allies**, especially Japan, Australia, the UK, and Norway. (The EU is a question mark.) We should seek economies of scale through an integrated allied DIB for long-range strike and air defense.
4. **Increase the number of delivery platforms for each weapon.** Next-generation missiles produced in the US and allied countries should have shared specifications for easy interoperability and rapid shifts between aircraft, warships, and submarines.



CHAPTER 4

THE PROBLEM

Logistics is the weakest link in our current deterrence system. Our maritime logistics enterprise is unprepared to sustain operations in a contested environment, particularly with attrition. It certainly can't provide allies' populations with critical supplies if civilian merchant shipping shuts down. Our distribution and forward resupply infrastructure in the Indo-Pacific is underdeveloped. The Pacific Deterrence Initiative (PDI), intended to address this problem, has become a grab bag for unrelated priorities. To date, our regional allies haven't met the logistics challenge either.

If the PLA believes we and our allies can't sustain a fight in the Western Pacific, it may judge that we lack the endurance for a protracted war. Our allies' civilian economies are acutely vulnerable, so Japan's merchant marine may need to focus on the home islands if the PLA disrupts civilian shipping. Beijing knows this, which undermines deterrence.

THE RESEARCH

In chapter 4 of *The Arsenal of Democracy*, Freymann and Halem explain why **logistics is a core element of deterrence**.

Key insights include:

- The US Ready Reserve Force, Merchant Marine, and Combat Logistics Force are overstretched in peacetime, are insufficient for wartime, and will become a top PLA target early in any conflict.
- Current logistics planning is fragmented, underfunded, insufficiently coordinated with allies, and not structured for high-end conflict.
- China's sealift logistics is vulnerable, too. But unlike our allies, China has vast food and energy stockpiles. It is prepared for all civilian shipping to shut down for months on end.

THE SOLUTIONS

1. **Embrace strategic stockpiling.** Pressure Japan and other allies to massively expand their food, energy, and equipment stockpiles. Conduct joint logistics planning with allies to help them understand our wartime demands. Build a multilateral commercial stockpile for critical minerals.
2. **Refocus PDI** tightly on our logistics ecosystem. Give INDOPACOM discretionary spending power to bolster joint in-theater logistics, especially within range of China's missiles.
3. **Partner with allies to expand our repair and sustainment capacity.** Japan, Australia, the Philippines, and Palau can host forward repair, rearmament, and medical facilities. Japan and South Korea can help expand our sealift and tanker capacity through investments in US yards, expansions of their own yards, and commercial contracting.



CHAPTER 5

THE PROBLEM

The PLA's investments in long-range strike capability increasingly place large US surface ships at risk. Carriers remain useful given their flexibility, but we don't know if the fleet can adapt around them fast enough to keep them relevant. Other legacy surface platforms—designed for peacetime presence in permissive environments—are even faster becoming too vulnerable for China contingencies. But unmanned surface vehicles (USVs) aren't yet acceptable substitutes. How should we think about this transition?

THE RESEARCH

In chapter 5 of *The Arsenal of Democracy*, Freymann and Halem discuss how navies have historically adapted to technological paradigm shifts. The key finding is that shifts can happen quickly but not all at once, and that fleets are adaptable. The fundamental question is not how many ships or how much tonnage the Navy needs; it's what those ships are for, and whether they can fight and survive in the opening weeks of a high-end conflict.

Key insights include:

- We need a surface fleet that can deliver long-range strikes, deploy air power (including unmanned aerial systems, or UAS) in the FIC, support joint operations, and stay resilient to saturation strikes. Choices about specific capabilities should flow from this understanding of the overall purpose of the fleet.
- Carriers will probably remain important for deterrence well into the 2030s, but we don't know for sure. Now is the time to start hedging against their vulnerability.
- The allied naval industrial base should optimize for *adaptability*, not just scale.

THE SOLUTIONS

1. **Clarify the fleet's purpose as part of the overall deterrence system** at the departmental level. Then use this consensus to force specific hard choices on procurement.
2. **Design future surface ships of all sizes for adaptability and modularity.** Ships should accommodate evolving payloads including USVs, unmanned underwater vehicles (UUVs), and UAS.
3. **Start fielding USVs and optionally manned platforms as soon as possible**, not to replace the current fleet but to test concepts under real-world conditions, including degraded C4ISR.
4. **Immediately divest legacy platforms, like the Littoral Combat Ship, and scrutinize platforms, like the *Constellation*-class frigate, that can't survive** in a missile-rich environment and provide only limited offensive firepower.



CHAPTER 6

THE PROBLEM

Our DIB is not prepared for a long war with China. It lacks the scale, flexibility, and institutional alignment to produce missiles, submarines, satellites, and other weapons and platform at the volume and speed required. The challenge is both technological and organizational. Perverse incentives encourage low-rate production. Program offices are fragmented. Contracting is slow and rigid. Supply chains are bottlenecked not just for critical minerals but also for components like solid rocket motors.

THE RESEARCH

In chapter 6 of *The Arsenal of Democracy*, Freymann and Halem argue that **the DIB is the enabling layer for everything else** in US force design and deterrence.

Key insights include:

- **Silicon Valley isn't a silver bullet.** We need to create a clearer pathway for defense-tech startups to escape the "valley of death" (between R&D and adoption by defense) that kills promising defense start-ups before they reach operational use. But defense tech is not a substitute for a robust DIB.
- **Comprehensive procurement reform and DIB recapitalization probably won't happen.** We need a plan that can be pushed forward piecemeal through existing structures.
- **Whatever we can produce in America, we should—but allied DIB coordination is non-negotiable.** Allies must also be able to produce for themselves and one another.

THE SOLUTIONS

1. **Clarify procurement authority**, either delegating it to the services or centralizing it in the Office of the Secretary of Defense, paired with internal acquisition reform.
2. **Use the Defense Production Act aggressively** to unblock chokepoints in propulsion, microelectronics, and high-performance materials and to stockpile critical minerals.
3. **Coordinate with allies to ban imports of drones, parts, and sensors from China.** We need the largest protected market possible to unlock economies of scale.
4. **Reform ITAR** (International Traffic in Arms Regulations) to enable codevelopment, licensing, technical standardization, and supply chain integration with close allies—especially Japan, South Korea, Australia, Taiwan, and the UK.
5. **Create more functional interfaces** between private-sector innovation and frontline military demand. This includes expanding INDOPACOM's existing OTAs (Other Transaction Authorities). OTAs are an important contracting tool that can help bring emerging technologist to the field faster and with more flexibility.



CHAPTER 7

THE PROBLEM

Unmanned systems are transforming land combat in Ukraine, and the US risks falling behind industrially and operationally. We depend on exquisite advanced systems that are costly, few in number and may not be survivable in an Indo-Pacific contingency. Our UAS should be mass-producible, attritable, and adaptable. Today, counter-UAS (CUAS) are also poised to evolve quickly. China's state-backed drone ecosystem enjoys economies of scale because it dominates the global consumer market. We need a new approach to the entire ecosystem.

THE RESEARCH

In chapter 7 of *The Arsenal of Democracy*, Freymann and Halem trace how scalable unmanned systems have historically reshaped the battlefield and highlight the limited lessons from Ukraine.

Key insights include:

- China's core advantage in UAS comes from its economy of scale. Because China dominates the global consumer market, it can produce cheaper and adapt faster.
- If our industrial ecosystem specializes in exquisite military UAS, we will lose. We need to create the biggest possible protected civilian market and let US and allied drone makers compete within it.
- Long-range UAS operations in the Indo-Pacific will be different from the experience in Ukraine. C4ISR will be harder for both sides. Power supply is a key bottleneck. Defensive measures like electronic warfare (and, in the future, directed energy weapons and railguns) may have advantages.

THE SOLUTIONS

1. **Work with allies to achieve economies of scale.** Jointly ban Chinese UAS and components from the civilian market. Embrace modular designs with specs compatible with other designs to encourage integration. Use long-term contracting to create demand signals for private producers to build capacity.
2. **Field a multi-tiered drone architecture:** Use lower-cost drones and loitering munitions for mass and reserve exquisite systems for specific missions. Integrate UAS units across echelons, as Ukraine has done, in INDOPACOM.
3. **Build channels to rapidly transfer new counter-UAS and bombardment drone tactics** from Europe and the Middle East to Asia. Train for rapid tactical adaptation.
4. **Fund and operationalize the Replicator and Hellscape initiatives:** Consider making them programs of record. Negotiate basing and supply agreements for forward sustainment.
5. **Build a redundant C4ISR infrastructure for the Western Pacific built around cheap, attritable, and networked UAS.** This may become essential if China degrades our space-based networks.



CHAPTER 8

THE PROBLEM

The US submarine force is the most survivable, lethal, and strategically valuable component of Indo-Pacific deterrence. It is also in crisis. Fewer than 60 percent of our attack submarines are operational at any given time. New construction is falling short of Navy plans, and depot-level maintenance delays have become chronic. The submarine industrial base—both public and private—is overstretched and brittle. Without swift action to expand construction and maintenance capacity, we will face a disastrous readiness gap in the early 2030s.

THE RESEARCH

In chapter 8 of *The Arsenal of Democracy*, Freymann and Halem argue that **undersea dominance, delivered by a high-readiness submarine force, is key to deterrence** and combat against China in Asia.

Key insights include:

- This is not a technology problem—it's a capacity and sustainment problem.
- Submarines take years to build and overhaul. It takes years to expand yards and train new workers to accelerate construction and maintenance. There is no rapid fix in a crisis.
- The trilateral security partnership AUKUS can help—but only if paired with real investment, allied integration, and ITAR reform.

THE SOLUTIONS

1. **Revitalize the submarine industrial base.** This is an expensive line-item, and it's non-negotiable. We must train and retain a new generation of skilled workers for submarine construction and maintenance, build new dry docks, and replace antiquated equipment. If we can't build a new US yard, we must expand our existing yards and help allies expand theirs.
2. **Support AUKUS Pillars I and II at full throttle:** accelerate tech transfers, joint production, and regional maintenance facilities. America needs Australian investment—and basing access.
3. **Modernize and rely on allied yards** in Australia, Japan, and South Korea to support forward basing, repair, and logistics.
4. **Reform ITAR** to allow deeper industrial integration.
5. **Design next-gen SSNs (nuclear-powered attack submarines) for modularity:** enable future integration of AI-enabled sensors, unmanned payloads, and battlefield networking.
6. **Use UUVs and smart mines to supplement—not replace—SSNs:** the technology curve is promising, but SSNs will remain core to American power undersea through the mid-2030s, if not well beyond.
7. **Build magazine depth for submarine munitions.**



CHAPTER 9

THE PROBLEM

In a war with China, our space-based assets will be among the first targets. US satellites provide critical ISR, communications, PNT (positioning, navigation, and timing), and targeting functions—but most of these systems are centralized, fragile, and vulnerable to even limited damage. China has built a layered anti-satellite arsenal of ground-based lasers and jammers, co-orbital threats, and kinetic interceptors. China's own space architecture is becoming more redundant.

The US still leads in commercial innovation—especially in low-earth orbit constellations, satellite maneuverability, and in-space servicing. But unless the Department of Defense acts now to build resilience, integrate commercial capacity, and signal survivability to Beijing, US reliance on vulnerable space assets may become the weak spot of deterrence.

THE RESEARCH

In chapter 9 of *The Arsenal of Democracy*, Freymann and Halem show why the Joint Force depends on space to see, communicate, and fight. To deter attacks, the network must become more survivable and redundant.

Key insights include:

- The space domain will be contested from the first minute of a war through kinetic and nonkinetic attacks.
- US networks currently depend on a small number of high-value satellites, making the system vulnerable to disruption.
- America's world-leading space industry is a key differentiating asset.

THE SOLUTIONS

1. **Accelerate efforts to build a civil-military hybrid space architecture, emphasizing constellations of attritable satellites in low-earth orbit.** Bring as many trusted allies and partners as possible into this architecture.
2. **Slash red tape to help the US private sector extend its lead** in launch, maneuvering, and in-space servicing.
3. **Reform export controls** to enable a shared space industrial base with close allies, including joint production of satellites and supporting components.
4. **Build a redundant C4ISR network for the Western Pacific** so the US space network doesn't become single point of failure.



CHAPTER 10

THE PROBLEM

China has broken from its long-standing policy of “minimal” nuclear deterrence and is now engaged in a rapid nuclear buildup without a clear doctrinal explanation, heading toward 1,000 warheads by 2030 and 1,500 by 2035. Japan, South Korea, and other allies are increasingly concerned about the credibility of US nuclear deterrence and assurances.

THE RESEARCH

In chapter 10 of *The Arsenal of Democracy*, Freymann and Halem argue that maintaining strategic superiority is an imperative to deter China into the 2030s.

Key insights include:

- Strategic deterrence isn’t just about nuclear weapons anymore. Xi Jinping is trying to build a long menu of flexible strategic deterrence options all the way up the escalation ladder.
- US allies fear both abandonment and becoming targets. American diplomats should remember that this is a tricky political problem with no easy fix. Concerns about extended deterrence almost destroyed NATO in the 1980s.
- The US nuclear arsenal and infrastructure are aging and require sustained modernization.
- America should be prepared to build more warheads, if necessary—but it is more important to have a *flexible* strategic force, with diverse delivery mechanisms.
- Missile defenses like Golden Dome are helpful, but missile defense is a long-term project and not a substitute for offensive strategic deterrence over the next 5-10 years.

THE SOLUTIONS

1. **Accelerate the recapitalization of US nuclear forces** and delivery systems.
2. **Invest in protecting nuclear C4ISR assets**, with a particular emphasis on cyber and physical redundancy for space-based systems.
3. **Explore preliminary talks on what nuclear sharing or enhanced consultation with Japan and South Korea might look like**, calibrated to each country’s domestic politics.
4. **Consider deploying nonstrategic nuclear weapons** in greater numbers in the Indo-Pacific.
5. **Intensify coordination with Canada and other allies on air and missile defense.**



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Hoover Institution, Stanford University
434 Galvez Mall, Stanford, CA 94305-6003
650-723-1754 • hoover.org