21ST CENTURY

PEACE *THROUGH* STRENGTH

A GENERATIONAL INVESTMENT IN THE U.S. MILITARY

BY SENATOR ROGER WICKER

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The ideas and proposals contained in the following pages are solely those of U.S. Senate Armed Services Committee Ranking Member Senator Roger F. Wicker, R-Miss. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

EXECUTIVE SUMMARY

America's national defense strategy and military budget are inadequate for the dangerous world in which we find ourselves. An emerging axis of aggressors is working to undermine U.S. interests across the globe. Congress and military leaders agree: The United States has not faced such a dangerous threat environment since the years before World War II. National security scholar Dr. Hal Brands writes, "As the strategic environment deteriorates, it's time to recognize how eminently thinkable global conflict has become."[1]

The best way to avoid further conflict is to be ready. Today's security challenges demand a generational investment to revitalize our armed forces – investments that would restore America's military strength for decades to come. This document contains a plan for such a restoration.

Chinese leader Xi Jinping remains fervently committed to reunifying Taiwan, peacefully or otherwise, and continues to act aggressively toward the Philippines, Australia, and others. U.S. military failure against China would drastically change the course of the 21st century, rendering the decades to come far darker for Americans, as well as the rest of the free world, economically, politically, and culturally. In Russia, President Putin has embarked on a massive land war in Europe and has mobilized his society for continued aggression. The Iranian Ayatollah backed the deadliest attack against Israel in decades while simultaneously orchestrating and provisioning a campaign against American servicemembers and the free trade upon which our economy depends. North Korean autocrat Kim Jong Un has continued his nation's military modernization at breakneck speed. Each of these tyrannical regimes poses their own grave risks to American security and prosperity.

Working together, these four dictators have put their countries on long-term paths that will most certainly bring continual aggression against the U.S. and our interests. China, North Korea, and Iran are supporting Russia's war, while Russia, China and North Korea each support Iran's proxy wars in the Middle East. Their mutual levels of military, political, and economic support bode poorly for peace anytime soon. The United States faces both a window of severe near-term danger and the prospect of a protracted—even decades-long—military competition.

Unfortunately, America's military has a lack of modern equipment, a paucity of training and maintenance funding, and a massive infrastructure backlog. America's existing National Defense Strategy and budget were not built to deal with the current threat landscape. The U.S. military needs this generational investment immediately to combat these rapidly growing and metastasizing threats.

This military rebuild should start with an additional $55 billion in fiscal year 2025 and grow to 5 percent of Gross Domestic Product over time. This will enable the United States to fix our failing defense infrastructure, field a new generation of equipment, and maintain American technological leadership. Such an investment would achieve two main strategic goals.

First, it would help to prevent wider conflict. The core purpose of the U.S. military is to prevent war. Over the course of the next five years, this investment would improve the U.S. military's ability to deter wider conflict and, if necessary, to win a war. Today, it is stretched too thin and outfitted too poorly to meet all the missions assigned to it at a reasonable level of risk. Our adversaries recognize this, and it makes them more adventurous and aggressive. A significant, immediate investment in the U.S. military would improve our ability to deter these foes. It would do so by recapitalizing infrastructure and equipment, accelerating the development of advanced capabilities, and putting innovative technology into U.S. service members' hands.

Second, a military rebuild would physically recapitalize U.S. military equipment, create a lasting and healthy defense industrial base, and sustain American innovation over the decades to come. By procuring large quantities of ships, aircraft, vehicles, munitions, and logistics equipment, this investment plan would rescue the U.S. military from its death spiral of ever-increasing maintenance costs. A significant down payment on military readiness will save American taxpayers over the long run by replacing old,

maintenance-hungry equipment and by dramatically increasing competition in the defense industrial base.

This generational investment would safeguard one of America's most important and enduring national security advantages: America's national security innovation base. America's innovation engine continues to lead the world, but the Department of Defense does not have enough funding to sustain a healthy national security innovation base. The United States must remain a leader for both commercial and defense applications of emerging technologies, from quantum computing to 5G, and from autonomy to additive manufacturing and advanced aircraft. More dedicated funding, alongside a greater ability for the Department of Defense to use loans, can prevent the collapse of the current innovation ecosystem and help transition many companies to lasting defense industrial base contributors. We still have the most professional military in the world, and their ability to adapt to new technology can remain a distinct comparative advantage.

But new funding must come with new ways of doing business. The American people and our service members deserve a Department of Defense that is managed effectively. That will require a purpose-built national security workforce in concert with financial and acquisition reforms. It will require serious military and civilian leaders to make the right decisions on what weapons to develop and buy. Above all, it will require accountability at senior levels, instead of buck-passing and equivocating. At times, it will also involve tough personnel decisions. Reforming the Pentagon must go hand in hand with rebuilding the military. Overwhelming historical evidence shows exactly this—a healthier military budget fosters creative thinking and better management.

Defense investment does not guarantee victory. But failing to invest properly denies us a chance to deter war. Right now we are spending too little. The problems the U.S. military faces are solvable, but fixing them will require leadership from Washington.

We have seen this investment strategy work before. The Reagan-era defense buildup demonstrated that a peace dividend can be purchased for the world, but it cannot be done on the cheap. The following proposal is significant, but it is far less costly than America engaged in direct kinetic conflict with one or more of our adversaries. "Peace through strength" continues to be the most cost-effective national security policy. This investment can allow America to enjoy another peace dividend, as we did in the 1990s.

Two World Wars taught us that, as a nation of entrepreneurs and hard workers, as a trading nation, our economic future is tied closely to peace and prosperity in Europe and Asia. We need to put our money where our mouth is and show the world we are serious about a peaceful and prosperous American-led 21st century.

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A New Axis Of Aggressors: The Most Dangerous Threat Environment Since WWII

The United States is facing the most dangerous threat environment since World War II, and the country needs a generational investment in its military to protect itself against today's threats. It is clear that a growing number of Americans see this fact plainly, since more and more are employing references to the years just before World War II. Even President Joe Biden has evoked the pre-World War II period. In his latest State of the Union address, he cited a January 1941 speech by President Franklin Roosevelt.

2022 NATIONAL DEFENSE STRATEGY IS ALREADY OUTDATED

Since the 2022 National Defense Strategy was written, threats have increased across the globe. China continues to expand and modernize its military at a breathtaking pace, while undertaking more frequent aggression against its neighbors, including Taiwan and the Philippines. Israel, the United States' most important and strongest ally in the Middle East, is fighting against Hamas terrorists for its very right to exist. In Europe, Ukraine is well into its second year of fighting against a Russian war of choice. Simply put, U.S. adversaries have not only poured money into their own military modernization programs, but have become more aggressive. They are now actively working together to undermine U.S. interests.[2] Led by the Chinese Communist Party, this new axis of aggressors is determined to advance a vision of the 21st century that fundamentally challenges American interests.

Two years ago, Congress chartered a commission to review the state of America's nuclear deterrence. The creation of the Strategic Posture Commission was prompted by Russia's investments in new tactical nuclear weapons and China's stunning nuclear buildup that outstripped our most pessimistic intelligence estimates. The bipartisan Strategic Posture Commission concluded that: "given current threat trajectories, our nation will soon encounter a fundamentally different global setting than it has ever experienced. It is an existential challenge for which the United States is ill-prepared." The U.S. National Defense Strategy and the nation's defense budget that underwrites it have been overtaken by events.

PEOPLE'S REPUBLIC OF CHINA

Beijing is and will remain our most serious strategic challenge. No other adversary comes close. Former Deputy National Security Advisor Matt Pottinger aptly captures the situation.

> Beijing is pursuing a raft of global initiatives designed to disintegrate the West and usher in an antidemocratic order. It is underwriting expansionist dictatorships in Russia, Iran, North Korea, and Venezuela. It has more than doubled its nuclear arsenal since 2020 and is building up its conventional forces faster than any country has since World War II. These actions show that China isn't aiming for a stalemate.[3]

China has achieved the most aggressive military modernization in history, with real defense budget growth each year for the past two decades. The People's Liberation Army (PLA) conducts military training against mock-ups of U.S. aircraft carriers and destroyers in Yokosuka and against the heart of Taipei City, among other things.[4] Their intent is unmistakable. Armed with new capabilities, Beijing has ramped up its coercive actions against Taiwan. It engages in aggressive military exercises in the Taiwan Strait that simulate a blockade scenario of the democratic island. In light of this, former top American intelligence officer in the Western Pacific Rear Admiral Mike Studeman concludes:

> The simple fact is that peace in the Indo-Pacific and even the wider world will be held hostage to one man with totalitarian control, messianic ambition, strategic impatience, and implacable resolve. Xi has made unification with Taiwan the signature issue of his tenure. He now calls it the essence of national rejuvenation.[5]

Beyond Taiwan, China has expanded its unsafe and unprofessional intercepts of U.S. and allied aircraft that lawfully operate in international airspace. Beijing's actions toward Manila in the South China Sea are flirting with conflict.

Quietly, Beijing has substantively supported wars of choice by Russia and Iran. A bit closer to home, China continues to take economic actions designed to disadvantage American workers. Pottinger is right. There is no stalemate in sight.

RUSSIAN FEDERATION

Russia may have presented an "acute threat" in February 2022. But after embarking on his war of choice against Ukraine, Putin has cemented a new direction for Russia, rendering its threat to U.S. interests far more chronic. With an economy fully mobilized for war, Russia will continue to exert itself against Ukraine and potentially against the eastern flank of NATO for years to come. Additionally, Moscow will likely increase its coercion against other non-NATO states like Georgia and Moldova, aggressively fan the flames of conflict in the Middle East and Africa, and support destabilizing actions by Venezuela, Cuba, and other nations in the Western hemisphere.

ISLAMIC REPUBLICAN OF IRAN

Iran's primary objective remains promoting its revolutionary theocratic ideology across the Middle East. Tehran has long viewed the ejection of the United States from the region and attacks on U.S. regional partners as critical to that end. Iran's increasing aggression and risk tolerance are highlighted by its support for Hamas' latest campaign against Israel and the Houthi campaign against international trade. Iran has tried nearly every day to kill U.S. personnel, including former senior U.S. officials, and attacked Israel directly for the first time in 2024.

DEMOCRATIC REPUBLIC OF NORTH KOREA

North Korea continues to outpace expectations with respect to its nuclear and missile programs, with capabilities that can target the continental United States. Recognizing that diplomacy with the United States is unlikely to yield meaningful outcomes, Kim Jong Un has recently shifted to a "wartime footing." In addition, international sanctions—which previously crippled the North Korean economy—are now ineffective because Russia and China refuse to implement them. Further, North Korea's strategic alignment with Russia and China provide Pyongyang with a steady source of revenue, as North Korea now becomes a source of global instability well beyond the Korean Peninsula.[6]


HOPMAN97 VIA WIKIMEDIA


WWW.KREMLIN.RU VIA WIKIMEDIA


PRESIDENT KAGAME RECEIVED BY PRESIDENT XI JINPING OF CHINA, BEIJING, 17 MARCH 2017 (PAUL KAGAME VIA FLICKR)


ISRAELI DEFENSE FORCES VIA FLICKR

VIOLENT EXTREMIST ORGANIZATIONS (VEOS)

Lastly, violent extremist organizations continue to metastasize in the background of global conflict. The ISIS-K attack in Moscow should serve as a warning to all nations that South Asian and African offshoots of ISIS and al Qaeda remain quite capable of external attacks.[7]

AGGRESSORS ARE DEEPENING COOPERATION

China, Russia, North Korea, and Iran are working together in ways that would have been unthinkable a few years ago. They collude beyond the military sphere, collaborating across a vast range of trade and economic issues. Strategically, the reunifying objective that bands these countries together is their desire to weaken American resolve and shift the global balance of power away from the United States. As the United States and members of the NATO alliance have come together to support Ukraine's sovereignty, Iran, North Korea, and China have seized the opportunity to aid Putin's opposition to the West.

CHINA AND RUSSIA

Russia and China have traditionally had a challenging relationship owing to both ideological and interests-based disagreements. Today, though, China and Russia are aligned by their common opposition to U.S. interests.

Most importantly, China wants to see Russia win in Ukraine. The United States, Japan, Taiwan, Australia, and other key allies and partners have all pitched in to help Ukraine in significant ways. For China, the coordination of these U.S. partners is likely worrisome. The U.S. and its allies are learning lessons about defensive operations that can be applied to Taiwan. Japanese Prime Minister Kishida visited Kyiv in March 2023 and invited Zelensky to join a G7 summit the following May – which he did. South Korea has supplied Ukraine with 500,000 155mm artillery shells, indirectly, through the United States. Australia's military support has totaled $880 million. This is just the tip of the iceberg.

In April, Secretary of State Antony Blinken noted that China was "overwhelmingly the No. 1 supplier of Russia's military industrial base." This has been a long time coming. Over a year ago, February 2023 reports revealed that U.S. officials were tracking Chinese intent to provide lethal support to Russia. China has also surged sales of machine tools and microelectronics for the Russian defense industrial base – in violation of sanctions – and purchased massive amounts of Russian oil.[8]

AXIS OF AGGRESSORS RALLY AGAINST UKRAINE

Russia carries out its war against Ukraine using weapons fitted with technology from China, missiles from North Korea, and drones from Iran.

Iran and Russia are working together to make up for the military shortfalls of the others. Iran has sent more than 3,700 drones to Russia, and the two are collaborating to build a new drone factory inside Russia that will further fuel Putin's army. Iran has also provided Russia with a significant number of surface-to-surface ballistic missiles. In November 2023 finalized a deal to buy advanced Russian fighter jets and helicopters, including the Sukhoi Su-35. These capabilities could cause further disarray in the Middle East as Iran's terrorist proxies threaten Israel, as Iran recently struck Israel directly for the first time.

According to South Korea's defense chief, North Korea has provided over three million 152mm artillery shells to Russia. In September 2023, Putin and Kim Jong-Un held a second summit, marking startling and deepening cooperation between the two states. Following the summit, a top Defense Intelligence Agency official said it would be unsurprising if the two had spoken in detail about weapons transfers.

Coalition Against Democracy

Foreign and Defense Policy

The People's Republic of China (PRC), Russia, Iran, and the Democratic People's Republic of Korea (DPRK) have formed a coalition against democracy to combat the US-led international order. Each of these revisionist states aids the others in their goals to establish spheres of influence and subvert or destroy democratic nations. The Iranian-backed terrorist attacks in Israel, Russia's war on Ukraine, China's encroachment on Taiwan, and North Korea's ongoing hostilities toward South Korea are all fronts in a coordinated campaign to overturn democracy.

PRC TO RUSSIA

- Dual-use drones
- Nonlethal aid and economic assistance
- Dual-use and nonlethal equipment (e.g., body armor, thermal imaging equipment, and commercial drones)
- Computer chips
- Promise of "no limits" friendship
- Tacit support of war in Ukraine
- Armored personnel vehicles
- Increased purchasing of Russian crude to support the oil industry
- US-sanctioned aircraft parts sold
- Vladimir Putin named guest of honor at the Belt and Road Summit
- Increased investment in Russian banking sector by fourfold since the start of war in Ukraine
- Smokeless powder (enough to make 80 million rounds of ammunition)
- Joint naval patrols in East China Sea

IRAN TO RUSSIA

- Drone production facilities being built
- Drone manufacturing planned in Belarus
- North Korean R-122 122 mm rockets
- Chinese 152 mm shells
- Iranian Shahed kamikaze drones
- Drone training for Russian troops in Crimea
- Iranian 122 mm high explosive–fragmentation rockets
- 300,000 artillery shells and one million rounds of ammunition
- Maintenance for US-sanctioned Russian aircraft
- T-72 tank and howitzer barrels

RUSSIA TO DPRK

- Promise to build closer ties
- Satellite assistance

IRAN TO DPRK

- Cooperation on ICBM development

PRC TO DPRK

- Financial support and trade

DPRK TO RUSSIA

- Infantry rockets and missiles
- Equipment and munitions
- 10 million ammunition shells

RUSSIA TO IRAN

- Military ships and shipbuilding expertise
- Two Yak-130 combat trainer aircraft
- Captured Western equipment (e.g., British NLAWs and US Javelins and Stingers)
- Launch of the Iranian Khayyam remote-sensing satellite
- Nuclear materials and technology
- $900 million in cash for drones
- Promised Su-35 fighter jets (not yet sent)
- Assistance with the Iranian space launch vehicle
- Advanced surveillance software
- Support for anti-Israel narratives
- Disinformation, violent rhetoric, and hate speech against Israel spread by state-affiliated social media accounts
- Refusal to call Hamas a terrorist group

RUSSIA TO IRANIAN-BACKED GROUPS (HAMAS, HEZBOLLAH)

- Weapons seized by Russian military sent to Hamas and other Iran-backed groups
- Air defense systems from Russia's state funded Wagner Group sent to Hezbollah
- Six high-level meetings with Hamas and Iran since April 2022
- Refusal to call Hamas a terrorist group
- 17 trucks of weapons sent to proxies in Syria

PRC TO IRAN

- Joint military training
- Ammonium perchlorate (an ingredient in solid rocket fuel)
- Support for anti-Israel narratives
- Drone parts
- Disinformation, violent rhetoric, and hate speech against Israel spread by state-affiliated social media accounts
- Israel removed from Chinese corporate maps

DPRK TO IRAN

- Sent weapons to Hamas and other Iranian backed groups
- Sent Hamas grenade launchers and rifles
- Assisted Hezbollah building tunnels and underground military facilities

DPRK TO IRANIAN-BACKED GROUPS (HAMAS, HEZBOLLAH)

- Weapons sent to Hamas and other Iran-backed groups
- Grenade launchers and rifles sent to Hamas
- Assistance to Hezbollah for building tunnels and underground military facilities

RUSSIA TO PRC

- Oil (bought in yuan)
- Joint military training
- Arctic sea routes opened to China
- Promise of "no limits" friendship
- Joint naval patrols in East China Sea

IRAN TO PRC

- Oil (bought in yuan)
- Sanctions evasion through oil sales
- Joint military training

PRC TO IRANIAN-BACKED GROUPS (HAMAS, HEZBOLLAH)

- Chinese manufactured weapons sent to Hamas and other Iran-backed groups through intermediaries

Source: "Coalition Against Democracy," American Enterprise Institute.

China's support for Russia began with the provision of geospatial intelligence and the sale of machine tools and microelectronics for the Russian defense industrial base. According to two senior Biden administration officials, about 90 percent of Russia's microelectronics in 2023 came from China. Russia used these to make missiles and aircraft that they then used to pummel Ukrainian cities. Further, in 2023, about 70 percent of Russia's $900 million in machine tool imports in the last quarter of 2023 came from China. Russia has received military optics to use in tanks and armored vehicles manufactured with Chinese components. China has also provided UAV engines and turbojet engines for Russian cruise missiles. The Free Russia Foundation has found that Russian semiconductor imports from China rose from only $200 million in 2021 to $500 million plus in 2022.

COOPERATION GOES BEYOND UKRAINE

China, Russia, Iran, and North Korea see a U.S.-led coalition as the major obstacle to establishing their spheres of influence. China's primary interests lie in taking Taiwan and dominating the South China Sea; Iran employs its proxy groups across the Middle East to increase its leverage in Iraq, Syria, Lebanon, and elsewhere; North Korea seeks supremacy over the entire Korean Peninsula; and as we have seen with Ukraine, Russia actively looks to annex the countries that composed the Soviet Union.

In a SASC hearing on worldwide threats this year, Director of National Intelligence Avril Haines said, "We see China and Russia, for the first time, exercising together in relation to Taiwan and recognizing that this is a place where China definitely wants Russia to be working with them, and we see no reason why they wouldn't." She also described the China-Russia relationship as a "no limits partnership." While cooperation may be focused on Ukraine today, all four adversaries are exploring other avenues of cooperation that could be extremely problematic for the United States.

Despite a threat environment that has only become more concerning since the 2022 National Defense Strategy, U.S. strategy has remained unchanged. It is characterized by a feeble defense budget that does not keep pace with inflation and means continued cuts to U.S. military power. Unfortunately, the U.S. federal government has failed its citizenry. It has not adequately communicated the threats we face and why they matter to America's future.

Furthermore, too many in Congress and the executive branch remain blasé about the potential for further conflict – even after Russia's invasion of Ukraine and Hamas' attack on Israel. Washington, D.C., suffers from a collective failure of imagination on this topic. The status quo will not deter China, Iran, North Korea, or Russia as they seek to undermine U.S. interests. This moment requires generational investments in our military. It is time for U.S. politicians to speak clearly about the nature of our adversaries and their clear intent to create a distinctly un-American 21st century. It is time to toss out vague references to the "rules-based international order" and get down to brass tacks about American interests and how to defend them.

A Defense Strategy to Meet Today's Threats

The U.S. military currently suffers from a strategy-resource mismatch. Notably, this imbalance exists despite the inadequacy of the current strategy to achieve U.S. interests. An accurate assessment of the threats posed to U.S. interests must underpin any defense resourcing plan. A clear-eyed and realistic strategy chooses which U.S. interests deserve priority and where risk should be taken. Fundamentally, a useful defense strategy should clearly answer these questions: "What does the United States want the U.S. military to do? How much of it? By when?" With this in mind, the United States desperately needs a new defense strategy to rectify the following four flaws of the 2022 National Defense Strategy (NDS).

First, the 2022 NDS force planning construct does not account for simultaneity — the likelihood that our adversaries will act in concert against U.S. interests in a limited timeframe. Already, the simultaneous wars of choice by Russia in Ukraine and by Iran and Hamas on Israel have invalidated the 2022 NDS. Real-world events clearly show each adversary not only aiding the others but also building contingency plans for either planned or opportunistic simultaneous aggression.

Second, the 2022 NDS does not accurately portray the growing threats from Russia, North Korea, and Iran. The strategy was outdated by the time it was written because the first draft had relegated Russia to a minor threat. The rewrite before publication upgraded Russia to an "acute threat." Though an improvement, even that designation fell short. Russia's lasting war mobilization and conversion to a partial wartime economy make it clear that "acute threat" does not capture the likelihood of Russia's threat trajectory for the next decade. Russia is a chronic threat that has shown a remarkable ability to reconstitute its military power in Ukraine, and Putin has chosen a terrible long-term path wherein continual external aggression against his neighbors is necessary.

The strategy also wishes away Iran and North Korea, mentioning them only a handful of times. Reality has unequivocally disproven that hypothesis on a monthly basis. Unfortunately, Iran's support for its proxies' wars against Israel and the United States since October 2023 show that any realistic strategy must deal with a complex, adaptive, and lasting adversary in Tehran – one that understands the promise of a U.S.-Israel-Gulf Cooperation Council alliance for regional stability. Similarly, the threat of North Korea's nuclear weapons continues to increase. Meanwhile, Kim Jong Un has thrown a significant amount of support behind Russia's war of choice in Ukraine. Pyongyang continues to reject diplomatic overtures from the United States, highlighting Kim Jong Un's comfort in aligning with bad actors across the world.

Third, the 2022 NDS does not account for the increasing likelihood of protracted warfare and the centrality of industrial capacity in modern warfare. The strategy accurately identifies China as our "pacing threat," but it fails to translate that realization into an accurately stressing set of missions for the U.S. military. The PLA remains underestimated in the 2022 NDS, with its capability advances and training improvements still discounted. The lack of planning

U.S. NAVY SAILORS WITH THE BOXER AMPHIBIOUS READY GROUP PREPARE MV-22B OSPREYS WITH MEDIUM TILT ROTOR SQUADRON 166 REINFORCED TO TAKE OFF FROM THE USS NEW ORLEANS, FEBRUARY 16, 2016. (SGT. TYLER C. GREGORY, U.S. MARINE CORPS)

for protracted warfare further stretches the gap between the version of the PRC depicted in the 2022 NDS and the capabilities Beijing possesses in 2024.

This observation extends to the ability of the United States to maintain political will in anything other than a very short or limited conflict, since both China and Russia possess significant capabilities to negatively impact the U.S. homeland, which the 2022 NDS mentions, but does not treat as a core military mission.

Fourth, the 2022 NDS is wholly divorced from a resourcing plan and overly focused on warfighting instead of deterrence. The 2022 NDS simply assumes an intolerable amount of risk in its resourcing to respond to key threats. It makes too many rosy assumptions about conditions under which conflict might occur. In particular, the strategy does not factor in the demands placed on the U.S. military for widespread campaigning and presence activities necessary to provide recurring deterrence and assurance signals in multiple theaters, including during a conflict.

Many commentators cite the value of the U.S. ally and partner network as a reason why U.S. defense spending does not need to increase. However, there has been relatively little work done to quantify their contribution in warfighting scenarios. A cursory overview of actual capabilities makes it clear that the U.S. ally and partner network has much greater value to the United States for deterrence, not warfighting, purposes. In public, simply look at the contributions U.S. allies and partners made to the mission to intercept Houthi missile strikes on commercial shipping and to degrade Houthi capabilities. Most European partners simply do not possess the capacity and capability to credibly contribute. Thus, they rely on the United States.

A REALISTIC U.S. DEFENSE STRATEGY HELPS FOCUS INVESTMENT

The 2024 NDS should address each of these shortcomings. It should design a two-war force sizing construct that adequately captures the scope of the China "defeat" scenario, including its threat to the homeland, while requiring defeat of a second aggressor and the maintenance of deterrence against all remaining aggressors. This was the conclusion of the 2023 Strategic Posture Commission.[9] This strategy should also reckon with the real potential for protracted warfare. This could be done by affirmatively devoting time and resources to developing options for U.S. decisionmakers in a protracted conflict and by requiring combatant commanders to account for the potential of protracted warfare.[10]

Because rectifying the strategy-resources mismatch will take time, this new strategy should also embrace the role of hedge forces against specific threats, moving away from a wholly multi-mission, multi-purpose military.[11] A hedge force is a "set of alternative and complementary capabilities that ensure preparedness against specific contingencies that the bulk of the force may not fully address." Hedge forces confront the most challenging aspects of a scenario in order to support the general-purpose force in achieving its objective. Given the lasting nature of U.S. interests and threats, and the long-term nature of this competition, further specialization of the U.S. military is in order. Additionally, the 2024 NDS should make clear that pursuing democracy promotion and liberalization for moral reasons, particularly in the global south, should not come at the expense of growing relationships with non-democratic countries in the near- to mid-term. Washington must meet these countries where they are or risk losing any long-term hope for the continued spread of democracy and liberal markets.

This strategy should also more clearly connect the U.S. defense strategy to core U.S. interests: The United States is a status quo power that values stability across the globe because it begets sustained economic growth. The United States seeks economic growth and peace for its citizens, who want their children and grandchildren to have higher standards of living and more options than they had. War is decidedly not good for business — just look at the trillions of dollars disappearing from global GDP growth as a result of Russia's war in Ukraine.[12]

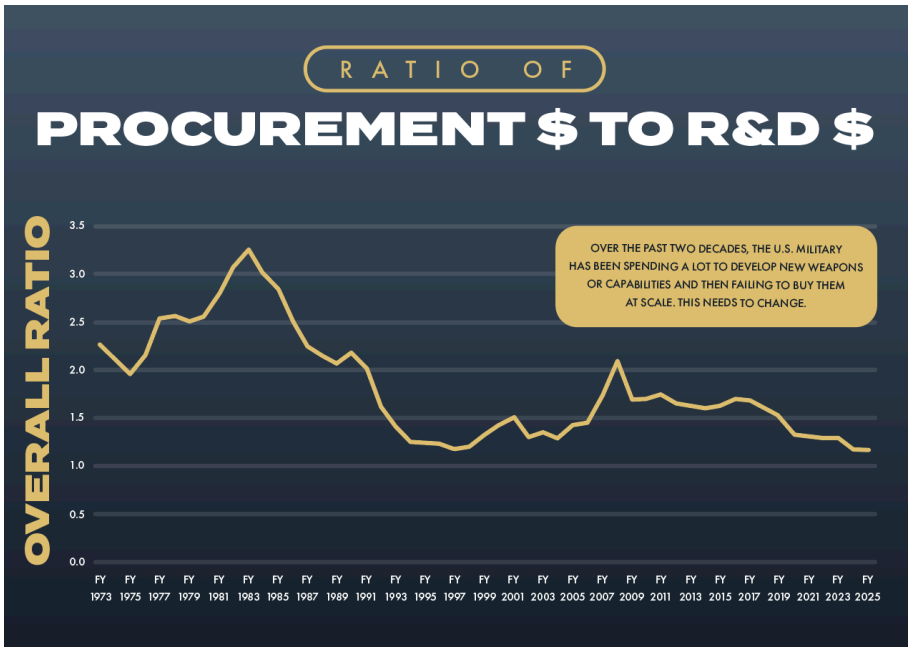
This simple reality should drive U.S. defense planning toward energetic campaigning with allies and partners. It should create a desire to ensure deterrence of each major threat with low risk, compared to the high risk the U.S. military operates with today. The U.S. economy has proven remarkably resilient compared to the rest of the world. The biggest risk to America's long-term pursuit of its core interests is adversary military action that resets the global security balance of power to negate the United States' inherent advantages in innovation and productivity.

Defense Budget History and the Path to 5%

As President Ronald Reagan said, "Defense is not a budget issue. You spend what you need." Reagan recognized that winning the Cold War could not be done with a cookie-cutter budget or by sticking to the status quo. He started by identifying U.S. interests and strategy and concluded with an analysis of his adversaries' effort level. As a result, in the 1980s, President Reagan and Congress spent more than $400 billion above the 20-year average in procurement of equipment alone to modernize the U.S. military.[13]

In the following chart, you can see that the Pentagon had three procurement dollars for each research and development dollar through the 1980s. That means that while the Carter administration seeded the new technologies, the Reagan administration bought those developed technologies in bulk. Nothing like that has happened since.

Fig. I Time to Buy in Bulk: Military Continues to Develop Good R&D Program, but has Little Money to Transition those Weapons to Production



In the Cold War, the U.S. used intelligence estimates of Soviet military spending as a baseline for understanding America's relative level of effort. Because of this, the U.S. achieved 5-6% of GDP for defense spending, focused only on the Soviets. Unfortunately, the U.S. government has not taken Chinese military spending seriously for many years. The U.S. intelligence community does not have a good answer for PRC level of effort, nor for how they manage to field systems so quickly.[14] However, many outside analyses of Chinese spending show that the PRC defense budget is likely over $700 billion, with the vast majority of that spending focused on the Western Pacific.[15] China has pursued the largest military buildup since World War II, with over two decades of real budget increases. Additionally, Russia recently unveiled its largest defense budget since the collapse of the Soviet Union and has embraced a war economy.

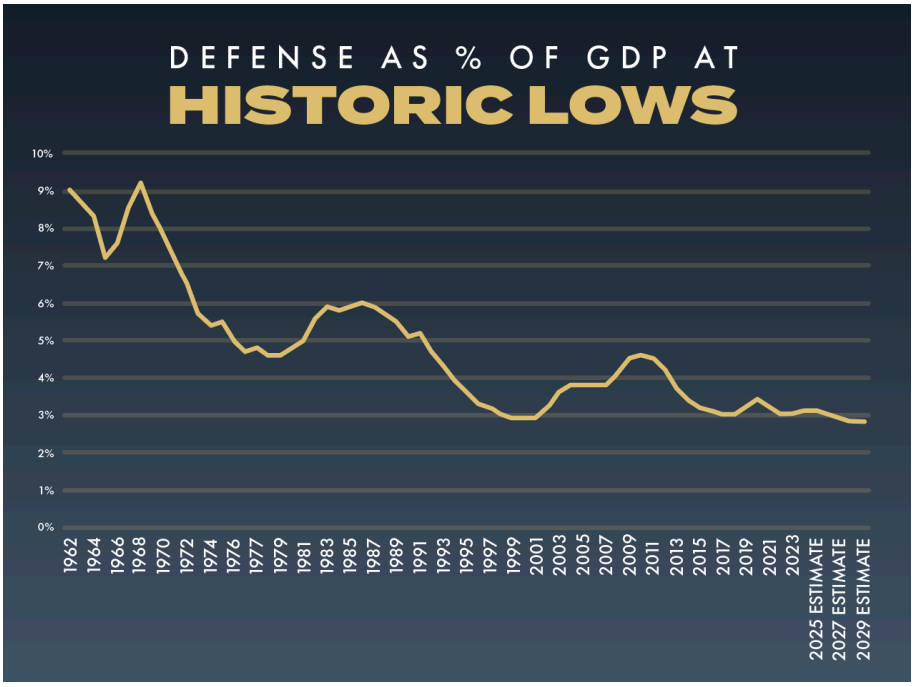
THREE PERCENT OF GDP IS NOT ENOUGH

Our adversaries are racing, but we are walking. Currently, the United States is on track to spend around three percent of GDP on national defense in 2024, an $895 billion budget. This percent of GDP spent on defense is nearing historic lows not seen since the peace dividend of the 1990s. Of all the categories of federal spending, defense has actually grown most slowly since 2000.[16] 2024 will be the first time in U.S. history that we will spend more financing the debt than we spend on defense. In 2018, after a lost decade of defense cuts under the Budget Control Act, Congress reset

the defense budget, but since then, the defense budget has largely grown with inflation, excepting the real growth experienced in FY2023.

The United States military budget is in a uniquely difficult position right now. We can attribute this to several pressures, some of which are more problematic than others. Over time, military and civilian compensation has risen significantly above inflation and now accounts for an average of 40-45 percent of the overall DOD budget, depending on the year.[17] It is hard to measure, but it is likely that this spending has a significant return on investment. After all, the U.S. still maintains the most professional all-volunteer force in world history.

Fig. II Defense Spending as a Percentage of GDP Nearing Historic Lows



Much more insidiously, the modernization and maintenance portions of the military budget are in a buying power death spiral. The Pentagon failed to recapitalize enough equipment and infrastructure early enough to meet continually rising demand signals on the force.[18] In short, the overall mission tasking assigned to the U.S. military has grown significantly since the early 1980s, but the capacity of the armed forces has shrunk precipitously. The clearest examples of this phenomenon are in the U.S. Navy fleet and the U.S. Air Force aircraft fleets. This is because both failed to procure enough ships and aircraft to replace those retiring. For instance, during the Reagan buildup, the United States built four attack subs per year. Today, it is now retiring more per year than it can actually build. This is a highly inefficient long-term plan. Older aircraft and ships are getting worked harder than intended, and longer deployments means less time for maintenance, and worse maintenance outcomes means other ships and aircraft must deploy longer, and so on into a death spiral of ever-increasing maintenance spending. This is why the Congressional Budget Office has repeatedly published analyses of skyrocketing maintenance costs.[19]

The need to replace a whole generation of military equipment creates what some experts call a "bow wave" of necessary investment that all must be completed at one point in time.[20] Indeed, the core of our military equipment still largely dates back to the 1980s: Los Angeles- and Ohio-class submarines, ATACMS, Abrams and Bradley vehicles, F-15s and F-16s are just a few examples.

Similarly, a vast portion of U.S. defense infrastructure dates back to the World War II or post-World War II era. It must be replaced, not maintained and patched up at ever-growing cost. These dynamics mean the U.S. defense budget is paying more for less every year. This is why, in recent years, even marginally increased budgets have not resulted in commensurate increases in capacity and capability. These increased budgets are simply paying off debts accrued over

time. One quote aptly summarizes the current predicament in defense spending. In 2016, principal deputy undersecretary of policy Brian McKeon said, "We're looking at that big bow wave and wondering how the heck we're going to pay for it." He then added, with a chuckle, that we are, "probably thanking our stars we won't be here to have to answer the question."[21]

A U.S. AIR FORCE F-35 LIGHTNING II RECEIVES FUEL FROM A U.S. AIR FORCE KC-135 STRATOTANKER OVER THE U.S. CENTRAL COMMAND AREA OF RESPONSIBILITY, SEPT. 30, 2020 (SENIOR AIRMAN DUNCAN C. BEVAN, U.S. AIR FORCE)

A GENERATIONAL INVESTMENT IN THE U.S. MILITARY

In sum, the United States should increase its defense budget by $55 billion to $950 billion in FY2025 and sustain significant real growth over the next five to seven years until it reaches 5 percent of GDP. In the 1980s, the Reagan buildup sought to restore a margin of superiority over the Soviet Union and by spending nearly 6% of GDP for over five years, created a military that maintained deterrence against Moscow and performed admirably when called to respond to aggression in the Gulf War and elsewhere in the decades after. Reagan's military is largely the one still in service today. Over 40 years later, the U.S. military is in desperate need of a similar buildup to recapitalize and sustain the force for today's threats. The bulk of the Reagan buildup transpired over five years and was accompanied by a post-Gulf War and post-Cold War peace dividend once an equilibrium conducive to U.S. interests had been achieved.

Ideally, devoting five percent of GDP to defense spending in the near future will not be necessary for very long, but it would certainly pay dividends far beyond five years. This defense buildup would set up the U.S. military for sustained success over the next two to three decades, as the Reagan-era buildup did in the 1980s. This program is a generational investment that will revive the U.S. military and put it on a stable path for the entirety of the 21st century.

Spending more is not sufficient to achieve U.S. interests, but not spending enough will make it nearly impossible for the United States to preserve our national security. The Pentagon faces several challenges that make spending more necessary. First, it must purchase more and newer platforms to stop shrinking and begin expanding in some areas. Second, in many cases, it must modernize its forces, replacing older legacy equipment with newer, more capable equipment or different capabilities to achieve similar effects. A combination of increased U.S. military capacity and capability is required to deal sustainably with four aggressors and the threat of simultaneous conflict. Third, it must build in resiliency and spare capacity in the industrial base for the reality of protracted modern warfare.

In particular, the Pentagon must procure technologies at scale to restore the arsenal of democracy. While many policy changes are necessary, there is simply no substitute for sustained demand signals to grow a healthier and more competitive defense industrial base.

In concert with sustained real growth in defense spending, the Pentagon's spending choices and ways of doing business must fundamentally change to get better value – not only for the American taxpayer, but as a strategic imperative. Fortunately, a defense buildup is the best time to implement fundamental reforms to the Department of Defense. A defense budget more aligned to actual mission requirements also results in much more efficient usages of taxpayer dollars. The budget and strategy may not align today, but the past five years of defense spending have been much closer to meeting mission needs than those of the Budget Control Act years.

Yet, despite increasing budgets, the Department of Defense accelerated the audit. In early 2024, the first service, the U.S. Marine Corps, received a clean bill of health.[22] The Pentagon has also drastically increased its use of multiyear procurements and block buys, which save 5-15 percent on each order. The innovation ecosystem is much healthier

today than it was in the 2010s.[23] The U.S Army, U.S. Marine Corps, and U.S. Air Force have embraced wholesale strategic and organizational reforms unthinkable ten, or even five, years ago. In fact, the U.S. military's situation looks a lot like the late 1970s, when the Carter-era Pentagon had seeded many promising new technologies that could be produced at scale.[24]

PROPER INVESTMENT REQUIRES PROPER MANAGEMENT

However, these new technologies are of no utility unless they are fielded at scale. The United States must grow the middle of our defense industrial base, between small businesses and prime contractors, to field relevant technologies and increase long-term competition in the defense industrial base. The consolidation of the U.S. defense industrial base was a deliberate choice in the 1990s, one that leaders have continually reinforced by spending too little on defense and refusing to actively manage the defense industrial base beyond weighing in on only the largest mergers and acquisition. An asymmetric advantage for the U.S. is our unchallenged innovation and entrepreneurial spirit. The U.S. must follow a dual path – more actively managing its prime contractors while simultaneously creating a carveout for medium-size innovative companies, as it currently has for small businesses.

In the Pentagon, the U.S. needs to make a down payment on the business systems and practices of the Department of Defense. This work is well underway, as witnessed by the progress of the audit, the creation of a single data analysis and visualization platform, and the digitization of an increasing amount of day-to-day work.[25] However, anyone running even a medium-size business would still be amazed by the paucity of management tools available if they joined the Pentagon. This work at the Pentagon has already saved tens of billions of dollars through cost avoidance, better use of appropriated dollars, and smarter inventory management.

Lastly, while this call for sustained real growth in defense spending is not about job creation, a positive benefit of such spending would be the rebuilding of key U.S. manufacturing trades and promising dual-use emerging technology areas.

Focus on Joint Capabilities: Contested Logistics, JADC2, Air and Missile Defense, and Munitions

Beyond the service-specific capability and capacity investments noted below, the Department must start asking itself every day what it can do to accelerate core joint capabilities not owned by a single military service. The U.S. military cannot operate effectively in the modern era without four key joint capabilities: A complementary and sufficient magazine of munitions; a widespread and effective integrated air and missile defense; a combined joint all-domain command-and-control (CJADC2) architecture; and capabilities to enable contested logistics. These joint capabilities continually fail to receive sufficient prioritization because the U.S. military is not set up to budget for joint capabilities.

As the U.S. looks to match strategy with capability, the Reagan buildup offers important historical lessons. The Reagan buildup did not seek to match the Soviets man for man, tank for tank, or artillery piece for artillery piece; instead, it sought to exploit areas of comparative advantage to deliver strategic effects. Iconic programs like F-117, B-2, ATACMS, and GPS delivered capabilities to offset Soviet mass and accentuate areas of American advantage. Indeed, the Second Offset was born out of the late Carter and early Reagan years and led to the first precision-strike regime in history.[26]

REBUILDING THE ARSENAL OF DEMOCRACY

The joint force faces a well-known shortage of munitions that will require both additional funding and additional creativity to remedy.

First, the Pentagon and Congress should rarely, if ever, allow munitions production lines to go down to the minimum sustaining rate (MSR) unless they are well above the Total Munitions Requirement. Even in the FY25 budget, many lines remain at MSR or at some small fraction of total production capacity. For instance, the Air Force cannot continue to underbuy current munitions as it waits for future weapons to finish development. AMRAAM and AIM-9X should remain maxed out each year, not only for air-to-air purposes, but also in their role as ground-launched interceptors for the NASAMS and IFPC air defense programs, respectively. The AMRAAM line cannot be allowed to close in 2027, as is currently planned. The Navy should be purchasing Mk48 torpedoes at the maximum production rate every year.

Second, the U.S. military must embrace the promises of alternative production lines for similar or "good-enough" capabilities to improve competition, increase production capacity, and maintain optionality for future decision-makers. A good example is the Joint Strike Missile (JSM), which is a perfect analog to the Long-Range Anti-Ship Missile (LRASM), just on a different production line with a different supplier base. The Air Force should also bring the Powered JDAM idea to fruition as soon as possible to unlock a significant stockpile and production capacity at a lower capability level.

While the Long-Range Hypersonic Weapon continues development, the Army can further expand production capacity on its Precision Strike Missile line. The GMLRS missile line should remain maxed out, and the Army should immediately move to develop a maritime seeker for GMLRS. The Army should also take over the Ground-Launched Small Diameter Bomb program and develop a maritime seeker for that weapon as well.

Given the difficulty of expanding production of advanced anti-ship missiles, the Navy should begin a crash program to field advanced maritime mines at scale.

Third, the Department of Defense, in coordination with the Department of State, should create a real requirement for Foreign Military Sales/Presidential Drawdown Authority stockpile reserves informed by U.S. partners and allies. Today, munitions orders are processed only after a sale has closed for Foreign Military Sales or Direct Commercial

Sales, or long after a decision has been made to transfer munitions to an ally or partner under a presidential drawdown. A strategy more reliant on allies and partners in the future, particularly in EUCOM and CENTCOM, must be able to connect U.S. production at the right level with the demands of those allies and partners. Supercharging the Special Defense Acquisition Fund, an existing tool, could achieve this objective.

Fourth, as detailed later, the Pentagon should drastically expand its successful Defense Production Act (DPA) and Industrial Base Alignment and Sustainment (IBAS) investments in the upstream munitions supplier base, including precursor chemicals for energetics and alloys. A program of $500 million to $1 billion could be executed in this area every year for the next decade. Take, for instance, the current duopoly in tactical solid rocket motor production that is just beginning to be rectified. The Pentagon is on a path to move from two producers to more than seven producers, but this will require sustained funding above today's plans. Similar situations exist for key subcomponents such as circuit cards, ball bearings, and more. The fact that only one U.S. company builds cruise missile engines at scale is unacceptable, for instance.

In particular, these shortfalls affect some of the most important U.S. munitions, including the Standard Missile series and the Tomahawk series. Support for supplier capacity expansion is required to meet the SM-6 ramp up to a goal of 300 per year and for Tomahawk missiles at 500 per year. Remedies for the obsolescence of key components, such as circuit card assemblies, should be funded, and second sources should be sought wherever feasible.

In total, an additional $7-10 billion could likely be spent on the munitions industrial base each year for the next decade to rebuild a lasting 21st-century arsenal of democracy.

PROLIFERATING INTEGRATED AIR AND MISSILE DEFENSES

This year, the world witnessed an amazing joint defense of Israel from Iran's complex attack. The use of ballistic and cruise missiles combined with one-way attack drones shows that large-scale integrated air and missile defense is not only possible but can be realized today. Effective Ukrainian defenses against monthly Russian complex attacks provide further evidence. However, DOD modeling and simulation clearly shows that a similar salvo from the PLA would be far more difficult to defeat, which requires improved coordination within DOD and increased purchases of key kinetic interceptors and non-kinetic defeat capabilities. As former U.S. Navy officer and PLA-watcher Thomas Shugart notes, China effectively doubled its conventional missile stockpiles from 2021 to 2022:[27]

Fig . III China's Military Doubles Missile Force in Just One Year

DOD 2022 and 2023 China Military power report estimates of 2021 and 2022 PLA missile inventories.

System	Launchers	Missles	Estimate Range
ICBM	300	300	>5,500km
IRBM	250	250+	3,000-5,500km
MRBM	250	500+	1,000-3,000km
SRBM	200	600+	300-1,000km
GLCM	100	300+	>1,500km

2021 estimates on China's Rocket Force. Department of Defense

CHINA ROCKET FORCE

System	Launchers	Missles	Estimate Range
ICBM	500	350	>5,500km
IRBM	250	500	3,000-5,500km
MRBM	300	1000	1,000-3,000km
SRBM	200	1000	300-1,000km
GLCM	150	300	>1,500km

2022 estimates on China's Rocket Force. Department of Defense

For integrated air and missile defense, the Department of Defense must succeed in fielding the Guam Defense System—as soon as possible—as a joint capability to provide a pathfinder to other ground-based critical site defense efforts. Unfortunately, the Guam Defense System has been perennially underfunded, and bureaucratic disagreements have prevented timely decision-making. It will require several billion dollars over the next few years to realize this vision. Moreover, it will cost additional billions to replicate versions of Guam Defense System at other high-priority bases, such as Kadena Air Base.

At the high end, the Pentagon's decision to pursue SM-3 Block IB cancelation must not only be reversed, but the line should continue producing highly capable missiles far into the future. The SM-3 Block IIA line is maxed out with U.S. and Japanese purchases this year; a small investment could increase SM-3 Block IIA production to 36 missiles per year. By contrast, the THAAD line has not been maxed out in recent years. Given the wild success of Patriot PAC-3 MSE interceptors, DOD should also explore capacity expansion beyond 650 missiles per year and should ensure that launchers are bought at maximum rates in the near term.

As with offensive munitions, the Department of Defense needs to embrace alternate production lines to build in future optionality and diversify the supplier base. The Pentagon and industry should be lauded for their efforts to develop alternative air defense capabilities by re-using or converting existing U.S. stocks. Alternative capabilities—like the NASAMS using AMRAAM, the IFPC using AIM-9X, the VAMPIRE APKWS conversion, and the FrankenSAM re-use of old Navy and Air Force missiles – show great promise for future redundancy. [28] AIM-9X and AMRAAM should remain maxed out every year for both air-to-air and ground-to-air purposes. The Army should continue to expand its Patriot battalions even as it adds new Indirect Fire Protection Capability and short-range air defense formations. The Joint-Air-to-Ground (JAGM) missile may have play as a lower-end interceptor. The Navy should also fully integrate and test the Army's Patriot air defense missile with Aegis combat system to provide additional capability against advanced threats and capacity to mitigate shortages of Navy Standard Missiles.

Lower in altitude, the counter-UAS innovation space is growing quickly. However, outfitting a relevant portion of the U.S. military – and developing a CONUS defense network for small UAS – will cost more than $5 billion over the next few years. This applies to both kinetic and non-kinetic options, as well as the significant number of counter-UAS systems necessary for deployed forces. The Army and Marine Corps should embrace the Roadrunner interceptor as a second source for reliable kinetic counter-UAS, even as they continue to develop directed energy and high-powered microwave options for more sustainable defenses. Likewise, the Navy should embrace experimentation with existing munitions, like the Hellfire and hypervelocity projectiles, for both counter-UAS and other air defense efforts.

This work should extend to homeland defense as well. NGI should be on its original schedule, and a new sensor network should be defined and purchased in the next decade to replace the nearly century-old network protecting American airspace today. The Glide Phase Interceptor program will need hundreds of millions more in funding to field in a relevant timeframe. Additionally, the Missile Defense Agency is pursuing some basic infrastructure upgrades and some classified capabilities that show great promise.

SOUNDING THE ALARM ON CONTESTED LOGISTICS

No joint capability is less developed than contested logistics. For years, the most advanced wargames, with painstakingly crafted U.S. and PRC kill chains, have assumed away logistics. Last year, the Army ran the first large-scale exercise for contested logistics in Talisman Sabre. U.S. Transportation Command (TRANSCOM) has not run an exercise that would stress test joint logistics on a realistic scale. TRANSCOM should start running biennial exercises for just such a purpose. Also, the command should take over more of the contested logistics portfolio within DOD, as the movement of bulk fuel management from the Defense Logistics Agency to TRANSCOM has been a wild success.

Combined, TRANSCOM and the Army need to figure out a way forward for contested logistics within the next three years. The Davidson window will not wait for the Army to procure the large, expensive maneuver support vessels in the 2030s. Part of the solution should include forward prepositioning more stocks outside of current Army Prepositioned Stocks locations in Japan and Korea. At a minimum, non-lethal supplies should be located in any

country willing to store them. At best, lethal munitions should be stored securely at geographically-advantageous locations to reduce the logistics and sustainment efforts needed to move them across the world.

NO SUBSTITUTE FOR PRESENCE

Prepositioned stocks generally must be expanded in the Western Pacific. In particular, the Army Prepositioned Stocks (APS) program has been perennially underfunded – by almost $1 billion this year. The program should be duplicated for the other services and for key joint logistics needs, such as blood, plasma, food, and potable water. The Air Force began a program to preposition key combat support equipment in 2023, but the program can be accelerated.

Stocks of individual servicemember equipment still follow a "just enough" model, which will not be enough for lengthy, unscheduled deployments. Lastly, the Pentagon should seek to create a stockpile in Taiwan – which is already authorized in law – that looks exactly like the War Reserve Stockpile Ammunition – Israel (WRSA-I). Unfortunately, in past conflicts the United States government has sometimes overlooked our servicemembers' most basic needs, sending troops into theater with insufficient supplies needed for basic survival. They have lacked enough body armor, MREs, canteens, water-purification tablets, cold-weather gear, and more. Those requirements should be articulated clearly.

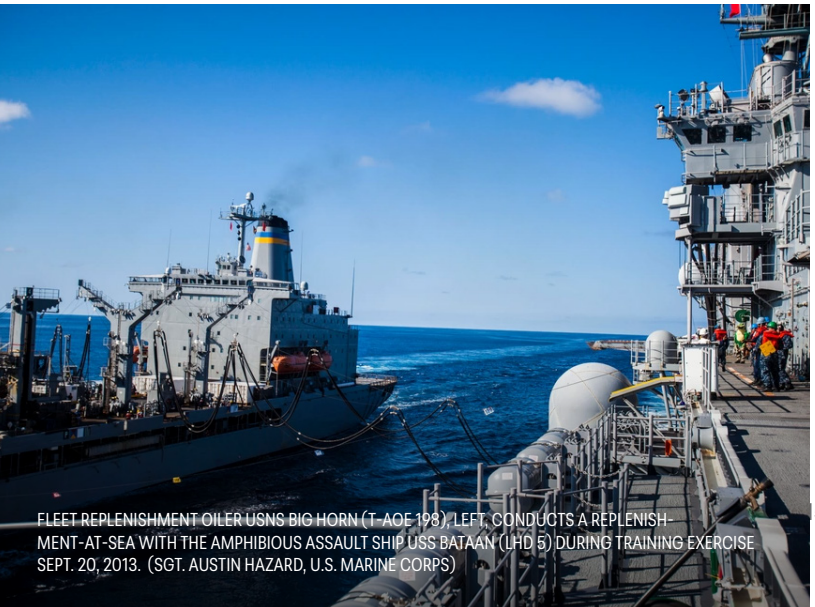
TRANSCOM and INDOPACOM should continue the diversification of fuel locations for both aviation and ship fuel. While future plans for a next-generation tanker continue to develop, the Air Force should maintain production of the KC-46A at 15 per year throughout the next five years. This will help to recapitalize and expand the aging tanker fleet, rather than ending production in FY27. We should do this if only to recognize the strains placed on the tanker fleet for both conventional and nuclear missions in a wartime scenario.

As mentioned in the following INDOPACOM section, the enabling infrastructure for a resilient logistics network will costs tens of billions of dollars over the next decade.

INTRATHEATER AND INTERTHEATER LIFT

Even with improved infrastructure and prepositioning in the First and Second Island Chains, the U.S. military will need a massive amount of sealift and airlift to build a hub-and-spoke logistics model in the Western Pacific.

A part of this answer lies in simply expanding U.S. intra and inter theater sealift fleets. While the U.S. Navy's submarine and surface combatant industrial bases may be strained, shipbuilders can build more logistics and auxiliary platforms today. The Navy should immediately move to purchase mature Logistics Support Vessels ships while developing the Landing Ship Medium (LSM). It should stand up a second shipyard for the LCU 1700 landing craft, expand production of the Surface-to-Shore Connector (SSC), and maximize the line for T-AO oilers.



FLEET REPLENISHMENT OILER USNS BIG HORN (T-AOE 198), LEFT, CONDUCTS A REPLENISHMENT-AT-SEA WITH THE AMPHIBIOUS ASSAULT SHIP USS BATAAN (LHD 5) DURING TRAINING EXERCISE SEPT. 20, 2013. (SGT. AUSTIN HAZARD, U.S. MARINE CORPS)

GROUND CREWS UNLOAD A U.S. ARMY UH-60 BLACK HAWK HELICOPTER FROM A U.S. AIR FORCE C-5 GALAXY TRANSPORT AIRCRAFT AT BAGRAM AIRFIELD, IN PARWAN PROVINCE, AFGHANISTAN, FEB. 2, 2013. (1ST LT. HENRY CHAN, U.S. ARMY)

The Merchant Marine can and should be a part of any naval buildup.[29] DOD payments to the Maritime Security Program will expand the number of ships participating, and the Navy should fund the Modular Console Adapter Kit, Modular Fuel Delivery Station, and Containerized Underway Replenishment Station to allow commercial ships to replenish Navy vessels. Lastly, the Navy needs a crash program to develop a Transferrable Re-Arming Mechanism to reload VLS tubes at sea.[30]

The Army can also pitch in with expanded Army watercraft procurement. The United States cannot possess only one Joint Logistics Over the Shore capability.

However, the Army and Marine Corps have much work to do in land-based logistics. There are key pockets of the innovation ecosystem working on technological answers to the problem of contested logistics, such as ALPV and autonomous resupply drones, and the services should embrace and expand these efforts.[31] Both ground-based services also need to increase their requirement for engineering equipment. The Air Force can help by investing in upgrades to its cargo fleet identified in the Mobility Guardian 2023 program.

SPECIFIED INVESTMENTS FOR THE CORE DEFENSE INDUSTRIAL BASE

The defense industrial base itself is a weapon. The Department of Defense needs a much larger and more capable workforce for defense industrial base issues. For instance, only a handful of people work for the Joint Production Accelerator Cell, the group that looks at high-profile weapons supply chains and determines the limiting factors impeding further action or investment. The Industrial Base Policy shop, including the office that executes DPA, is woefully understaffed to do the analytical work necessary to rebuild the U.S. defense industrial base.

Title III of the Defense Production Act (DPA) remains an underused tool for centralized building of the defense industrial base. While execution of DPA funding lagged in recent history, those problems have been solved. DPA has focused on the following DIB areas in recent years:

- Solid rocket motors
- Critical munitions subcomponents
- Critical chemicals
- Hypersonics
- Biomanufacturing
- Microelectronics

DPA currently has a $5.2 billion backlog of projects that could credibly be executed with the right direction and an expanded workforce. The department could spend more than $500 million per year in a core munitions defense industrial base rebuild program. This would include rapidly building a competitive and redundant solid rocket motor industrial base, strengthening suppliers for hypersonic weapons, and finding new sources for critical chemicals and precursors. The Pentagon could execute another $500 million per year for biomanufacturing, microelectronics, and casting and forging technologies.

The Pentagon should also execute $250 million a year more in the National Defense Stockpile, which purchases critical and strategic materials. The deck seems stacked against the Stockpile. Recent industry trends – in which U.S. mines and refineries shut down and are moved to China – do not work in its favor. About 150 materials are continuously monitored by the Defense Logistics Agency (DLA) for potential stockpiling requirements. DLA has found concerning shortfalls in 88 necessary critical materials. There is no domestic production for 76 out of the 88 materials. There is a single point of failure for 46 materials. It is easy for our adversary to turn off the spigot and create significant hardships for our industrial base.

INDOPACOM & USFK: American Deterrence Declining In The Indo-Pacific

The Chinese Communist Party is preparing for war, and the U.S. conventional and nuclear deterrent in the Western Pacific is eroding. The plurality of the investments detailed in this paper is geared toward capabilities. However, Pentagon leadership must drastically increase the focus and investment on key enabling infrastructure in the Western Pacific so those capabilities can be effectively employed. As Admiral Aquilino has repeatedly emphasized over the past three years, putting the U.S. military in a sustainably advantageous position in the Western Pacific will require tens of billions of dollars over the next five years. There is simply no way to maintain U.S. influence from afar in the Pacific.

DRIVING REAL CHANGE IN NEAR-TERM DOD PRIORITIES IN THE WESTERN PACIFIC

The Pentagon should immediately begin using the "bishop's fund" budget prioritization mechanism to drive outcomes toward the goals of the Pacific Deterrence Initiative (PDI), a bipartisan effort created in 2021. Doing so would begin tying the budget to the National Defense Strategy. A "bishop's fund" simply withholds money for a singular purpose at the beginning of the Pentagon budget process. This is how the Pentagon budgeted for the European Deterrence Initiative (EDI), established in response to the Russian invasion of Crimea in 2014. The key investments made under EDI helped set the stage for the United States' ability to support Ukraine in 2022. A "bishop's fund" is also how the Pentagon budgets for the Rapid Defense Experimentation Reserve (RDER) initiative. The normal way of doing business under PDI has failed to move enough money fast enough, despite progress by the congressional authorizing and appropriations committees.[32]

U.S. FORCES NEED FAR MORE OPERATING LOCATIONS IN THE WESTERN PACIFIC

First, this means a persistent effort to expand access, harden airfields and ports, and develop new contingency operating locations both within the First Island Chain and throughout the Second Island Chain.[33] These activities are difficult to execute; military construction and even small-scale construction take twice as long in the Western Pacific than they do in most other places on Earth. There is no time to waste, and no reason why it should take years to repair the airfields at Tinian or the new Enhanced Defense Cooperation Agreement (EDCA) sites in the Philippines. Likewise, it is inexplicable why billions of dollars of executable investment remain unfunded. If the United States cannot fight from the First and Second Island Chains in the Indo-Pacific, our military will not have a standing chance against China.

Within the Second Island Chain, Guam is a linchpin node for U.S. forces. Guam faces a dozen significant challenges. It lacks an adequate workforce, it is overcrowded, it does not have enough basic infrastructure, and it has onerous environmental requirements for military construction. According to Joint Region Marianas, the overseeing command, building a resilient Guam will require at least $60 billion over the next 10 years. This will allow it to recover from Typhoon Mawar, expand and harden facilities, and finish fielding the Guam Defense System.

Commanding and controlling a war in the Pacific would stress even the best-designed command and control system, which is not what INDOPACOM possesses today. The command will need new general and flag officers, along with a significant staff.

HELPING TAIWAN AND THE PHILIPPINES GROW INTO PORCUPINES

The United States will need to continue to help Taiwan, the Philippines, and Japan build more capable and lethal militaries. These militaries – operating from key terrain across the First Island Chain – will play a critical role in deterring conflict from China. Recognizing their importance, Congress passed the bipartisan Taiwan Enhanced Resilience Act (TERA) to provide Taiwan with $2 billion in Foreign Military Financing and $1 billion worth of U.S. weapons using Presidential Drawdown Authority. It will also be important to help the Philippines modernize and build a military capable of pushing back against China in the South China Sea. With Japan, the United States must accelerate the process of turning the U.S.-Japan alliance into a truly interoperable military alliance.

MAINTAINING FOCUS ON NORTH KOREA

Each year, Kim Jong Un continues to build more nuclear weapons and ballistic missiles capable of striking the United States and our allies in the Indo-Pacific. Because there is no immediate diplomatic solution in sight, the United States must ensure that deterrence does not erode on the Korean peninsula. That means maintaining readiness with regular U.S.-Republic of Korea (ROK) military exercises, keeping a persistent U.S. military presence on the Korean peninsula, and exploring new options—such as nuclear-sharing agreements in the Indo-Pacific and redeployment of U.S. tactical nuclear weapons on the Korean peninsula—to bolster deterrence on the Korean peninsula.

U.S. AIRMEN PERFORM AIRCRAFT LAUNCH AND RECOVERY PROCEDURES FOR THE MQ-9 REAPER AIRCRAFT AT SUBIC BAY IN THE PHILIPPINES DURING EXERCISE BALIKATAN ON APRIL 20, 2023. (STAFF SGT. JOSEPH PAGAN, U.S. AIR NATIONAL GUARD)

U.S. SOLDIERS AND PHILIPPINE SOLDIERS ADVANCE ON A BREACHING SITE DURING A DEMOLITION BREACHING RANGE ON FORT MAGSAYSAY, PHILIPPINES ON APRIL 22, 2023. (SPC. BRENNICK STEVENS, U.S. ARMY)

EUCOM: Containing Russia's Chronic Aggression

America's economy is significantly integrated with Europe's, which still accounts for a fifth of global GDP. For that reason, the preservation of security in Europe is a core U.S. interest. Vladimir Putin has chosen war as the future of Russia, and this choice makes Russia much more of a "chronic" threat compared to the simple "acute threat" articulated in the 2022 NDS.

SMALL U.S. INVESTMENTS TO HELP NATO TRANSITION TO LEAD

The potential for direct conflict between Russia and the NATO alliance is approaching Cold War-era levels. In response, the United States should continue to provide security assistance to Ukraine, enhance EUCOM's posture, and supercharge NATO integration. Paradoxically, in certain places, the United States must do more in Europe, at least in the near-term, so that it can do less in the future – as allies play a much larger role in conventional deterrence.

UKRAINE NEEDS "MORE, BETTER, FASTER"

Stopping Russia in Ukraine is the preeminent current U.S. objective in Europe. U.S. security assistance has proved essential toward achieving this objective. Allied and partner donations and indigenous production simply cannot alone satisfy Ukraine's requirements for key capabilities. The United States should abandon the Biden administration's "drip-drip-drip" approach to security assistance and recognize that Ukrainian strikes within Russia territory are not only effective but absolutely necessary. Instead, the United States should adopt an approach of "more, better, and faster"—more materiel and training, better capabilities, delivered on faster timelines.

MOVING NATO CENTER OF GRAVITY TO THE EAST

The disposition of U.S. forces in Europe is outdated; it still largely reflects the Cold War, when the inner German border was the most significant flashpoint. EDI poured more than $25 billion into improving U.S. enabling infrastructure, but the U.S. must take bigger and bolder steps to reorient U.S. force posture eastward. This is both an operational imperative and a recognition that the military center of NATO now lies with Poland.

BELGIAN ARTILLERY CREW LIVE FIRING LG GIAT 105 GUN DURING EXCERCISE TRIDENT JUNCTURE IN RENA NORWAY ON OCTOBER 26TH, 2018. (CORPORAL-CHEF SEDEYN RITCHIE, BELGIAN COMBAT CAMERA TEAM)

MINISTRY OF DEFENSE OF UKRAINE VIA FLICKR

NATO DEFENSE IS RISING, BUT MORE ALLIES NEED TO STEP UP

COUNTRY/ YEAR	%GDP DEFENSE SPENDING, 2014	%GDP DEFENSE SPENDING, 2023	CHANGE
ALBANIA	1.35	1.76	0.41
BELGIUM	0.97	1.13	0.16
BULGARIA	1.31	1.84	0.53
CANADA	1.01	1.38	0.37
CROATIA	1.82	1.79	-0.03
CZECH REPUBLIC	0.94	1.5	0.56
DENMARK	1.15	1.65	0.5
ESTONIA	1.93	2.73	0.8
FINLAND	1.45	2.45	1
FRANCE	1.82	1.9	0.08
GERMANY	1.19	1.57	0.38
GREECE	2.22	3.01	0.79
HUNGARY	0.86	2.43	1.57
ITALY	1.14	1.46	0.32
LATVIA	0.94	2.27	1.33
LITHUANIA	0.88	2.54	1.66
LUXEMBOURG	0.37	0.72	0.35
MONTEGRO	1.5	1.87	0.37
NETHERLANDS	1.15	1.7	0.55
NORTH MACEDONIA	1.09	1.87	0.78
NORWAY	1.54	1.67	0.13
POLAND	1.88	3.9	2.02
PORTUGAL	1.31	1.48	0.17
ROMANIA	1.35	2.44	1.09
SLOVAKIA	0.98	2.03	1.05
SLOVENIA	0.97	1.35	0.38
SPAIN	0.92	1.26	0.34
TURKEY	1.45	1.31	-0.14
UK	2.14	2.07	-0.07
NON-US AVG	1.30	1.90	.60
OVERALL 2 PERCENT PER YEAR	2	10	

Fig. IV Eastern Europe Leads European Re-Arming

NATO data for table. Newer data shows that 20 NATO countries have hit 2% of GDP in military spending, but the specific countries bewilderingly remain classified.

Elsewhere in Eastern Europe, EUCOM should increase rotational deployments of U.S. forces to Romania and the Baltics. It should immediately begin any remaining EDI construction projects and make significant down payments on air defense and counter-UAS assets for U.S. operating locations. The Pentagon can also lead in the effort to define interoperability from the strategic to the tactical levels. To fight together, allies must have common operating pictures, integrated command-and-control, seamless communications, and the general capability to pass and receive data.

The United States cannot and should not be the only one to restore deterrence in Europe. Many European allies have stepped up, including by donating substantial amounts of high-end military aid to Ukraine. Although many allies have made tremendous efforts to modernize their forces, there remains far too much free-riding among key NATO allies. These include Canada, Italy, and France. In 2014, allies made the "Wales Pledge" to reach the two percent of GDP defense spending target in 10 years. In 2022, only seven allies hit two percent during the year of Russia's full-scale invasion of Ukraine. A decade after Wales, at least 20 allies will meet two percent, including Germany. If Russia's effort to decapitate a European neighbor will not spur reticent allies to meet basic financial commitments, what will? Additionally, the alliance should revise its targets upward to at least 2.5% of GDP as soon as possible.

The United States should seek to reward allies who are meeting their commitments and find ways to motivate laggards. For example, the U.S. should rally allies to move the NATO Support and Procurement Agency from Luxembourg – the richest country in the world on a per-capita income basis - until it meets its obligations.

CENTCOM: Managing A Variety Of Long-Term Threats

COST-EFFECTIVE INVESTMENT REQUIRED TO PREVENT FURTHER CHAOS

Stability in CENTCOM's AOR remains a core U.S. interest, principally owing to its strategic location. The region is central to global energy prices, and it includes three major maritime commercial chokepoints (Strait of Hormuz, Bab al-Mandeb, Suez Canal). Effective counterterrorism in CENTCOM also helps the United States focus on the threats of Russia and China. That work becomes all the more important as the threat of ISIS-K and other al Qaeda offshoots grows across the Middle East and Africa. Recently, both the FBI Director and a bevy of current and former CENTCOM personnel have expressed significant concern that ISIS-K and al-Qaeda offshoots are improving their external attack capabilities. The world witnessed this during the April 2024 ISIS-K attack on Crocus City Hall in Moscow.[34]

RECENT U.S. DECISIONS UNDERCUT REGIONAL PARTNERS' ABILITY TO RESIST IRAN

The Department of Defense does not need to make significant new investments in the region to achieve U.S. interests. Under the 2022 NDS, the Department of Defense attempted to treat CENTCOM as an "economy of force" theater under the theory that allies and partners would pick up the slack against Iran, its proxy network, and non-state-affiliated violent extremists. This strategy does not work if our policy choices alienate the key allies and partners necessary to carry it out. The U.S. withdrawal from Afghanistan both handed the country over to the Taliban and sent a clear signal to key Gulf allies that the U.S. was not interested in contributing to their security objectives. The administration's efforts to rejoin the 2015 Joint Comprehensive Plan of Action further alienated Gulf allies, who had already seen their defense support and Foreign Military Sales from the U.S. constrained.

USING THE RIGHT TOOLS IN CENTCOM ENABLES "ECONOMY OF FORCE" POSTURE

From a defense force management and resourcing perspective, however, CENTCOM must remain an "economy of force" theater. The pre-October 7 level of conventional military support for CENTCOM must remain the baseline, without the regular deployment of significant numbers of conventional forces. However, the United States must wield its non-military tools much more aggressively in this theater. Among these are security assistance, Foreign Military Sales, Direct Commercial Sales, and private capital. CENTCOM's lack of conventional overmatch against Iran means

that policymakers must be willing to accept greater risk by climbing the escalation ladder. These leaders have tried this strategy too infrequently.

There are two key expenditures that the U.S. should pursue in CENTCOM. First, the CENTCOM commander must finalize a true counter-drone network at U.S. operation locations. Second, we must establish an effective command-and-control and intelligence sharing network among U.S. allies and partners, including the Maven Smart System and the Mission Data Platform, or like capabilities.

AFRICOM/SOUTHCOM: Finding New Ways To Compete

Africa and Central and South America represent a vibrant and growing part of the global economy that the United States should seek to grow its relationships with. However, these regions remain at risk from predatory behavior by China and Russia. On top of that, transnational criminal organizations and extremist groups throw the regions into instability and inflict upon them persistent security challenges. Despite this, the U.S. military commitment to each continent has remained static or shrunk. Like CENTCOM, both of these theaters are true "economy of force" efforts already, and are likely to remain so. Both AFRICOM and SOUTHCOM must embrace the idea that the U.S. military using security assistance alone cannot effectively compete with Chinese and Russian economic and security advances. This is true even as training and security assistance is a critical component of our engagement in these regions.

Each commander must more aggressively pursue economic warfare tools, including the deployment of U.S. private capital, to blunt Chinese and Russian influence. Relatively modest investments of $50-$100 million per year in economic warfare tools, including DOD-led loans and loan guarantees, could drastically increase U.S. efficacy in Africa and South America. This will enhance our economic ties in the region, provide us with greater credibility and shared interests with regional partners, and move us collectively toward overall economic security in those areas. Ultimately, this will directly enhance our national security by decreasing our partners' reliance on the economic influence of the PRC and on Russian security agreements.

THE SENEGAL NAVY DIVERS EXHIBITION DURING THE 45TH NAVY DAY CELEBRATION. (TAKISHA MILLER)

NORTHCOM: Patching Widespread Gaps In Homeland Defense

CHINA IS PREPARING TO ATTACK U.S. DOMESTIC INFRASTRUCTURE, AND WE ARE NOT READY

The United States homeland is not a sanctuary. Following 9/11, the U.S. government prioritized defense against foreign terrorist threats. Today, the greatest homeland defense challenges come from peer competitors.

NORTHCOM and its civilian agency partners are not prepared to deal with adversary attacks on the homeland during a conflict. In particular, China is honing counter-mobilization techniques that will affect U.S. ports, railways, energy grids, telecommunications networks, fuel distribution, and dual-use and civilian space infrastructure.[35] Beijing is also interested in broader societal effects that could undermine U.S. public opinion in a wartime scenario. The PLA or Russian forces could even take kinetic action against the U.S. homeland in a way that World War II-era Germany and Japan never could.[36]

The Department of Defense should embark on a crash program to define and resource mitigation strategies for key portions of U.S. infrastructure, in concert with the Department of Homeland Security. This will require far more personnel to develop plans and coordinate with federal, state, and local partners. Today, DOD neither plans nor budgets for defense support to civil authorities. Such support would undoubtedly be needed in the event of any meaningful attack on the homeland.

TOO MANY GAPS FOR MISSILES, LOW- AND HIGH-ALTITUDE UAS

Further, NORTHCOM's posture against adversary missile attacks, UAS incursions, and high-altitude balloon intrusions also remains wanting.[37] Fielding a credible homeland missile defense and counter-UAS protective web at key U.S. sites will likely cost $5 billion or more over a decade. As a start, the Department should finish modernizing its Cold War-era air defense radar network and explore the development of different capabilities to characterize and engage high-altitude threats. The Air Force should be planning to build collaborative combat aircraft variants for the air defense mission in the early 2030s, given its huge demand on fighter aircraft more suited to other missions today.

Of greater concern is the proliferation of low-altitude UAS in the homeland.[38] After NORTHCOM and the Joint Staff finishes its recommended changes to counter-UAS organization and authorities, the command will need a comprehensive equipping program for counter-UAS starting with the highest-priority U.S. bases and going down the list, which will cost several hundred million dollars per year, at least.

Lastly, the Department of Defense should recognize the long-term nature of its defense support to civil authorities (DSCA) mission at the southwest border and begin planning and budgeting accordingly, including by expanding the coordinating capacity of Joint Task Force North. That support has on average run about $500 million per year.

U.S. Navy: Meeting Mission Demands and Setting the Conditions for Future Growth

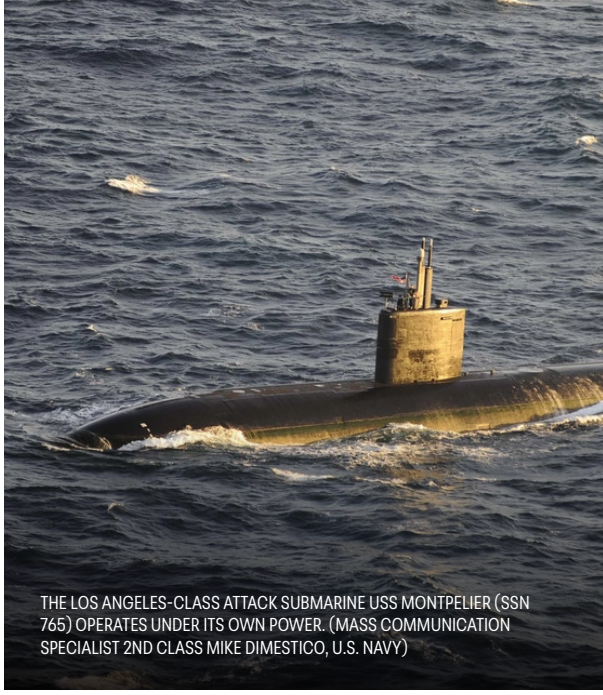
U.S. NAVY SHRINKS AS CHINA'S NAVY MULTIPLIES

The U.S. Navy is the smallest and oldest it has been in over 80 years. The number of Navy ships and Navy missile launch capacity are both set to reach minimums in 2027, within the window of maximum danger for a Chinese attack on Taiwan. Simultaneously, China has been engaged in a major buildup of its fleet with nearly 400 battle force ships, including a rapidly growing number of advanced ships. Recent American defense budgets have shrunk both the ship and aviation fleets and deferred maintenance, even as deployments become longer and more frequent. The U.S. Navy is in a death spiral, and it requires sustained budget growth alongside aggressive management to maintain a high state of readiness while expanding to meet growing threats.

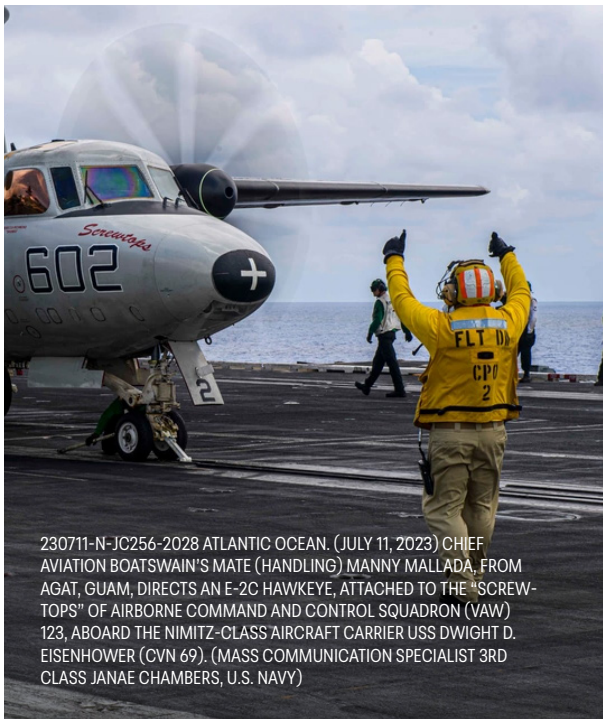
DESPITE DEFEATIST LEADERSHIP, AMERICA CAN GET TO 355 SHIPS

When it comes to shipbuilding, too many officials have repeatedly expressed defeatism. They doubt that additional funding will provide force structure returns. These leaders say so even as they provide ship-building plans that fail to consider known delays, cost growth, and unfunded investments in shipyards and suppliers.[39] The Navy fails to provide a consistent demand signal to industry. Forecasted plans for ship procurement vary by 60 percent compared to what is actually procured.

True, the U.S. Navy will struggle to deliver additional battle force ships over the next five years. Nonetheless, it is time to begin expanding the industrial base to make at least a 355-ship Navy a reality, even as the Navy looks to alternative capabilities in the near term to mitigate mission risk. These decisions would make it possible for the U.S. Navy to add ships over the next ten years. It could even exceed the 355-ship policy goal the Congress created in the FY2018 NDAA by growing to 357 ships by 2035, an increase of 41 ships in ten years over existing plans. This is a realistic, executable plan to build what the shipbuilding industrial base can do today, even as the U.S. seeks to ameliorate the constraints that currently exist on portions of the industrial base. More ships and better maintenance will feed a virtuous cycle of cost-effectiveness over the mid- to long-term, too.



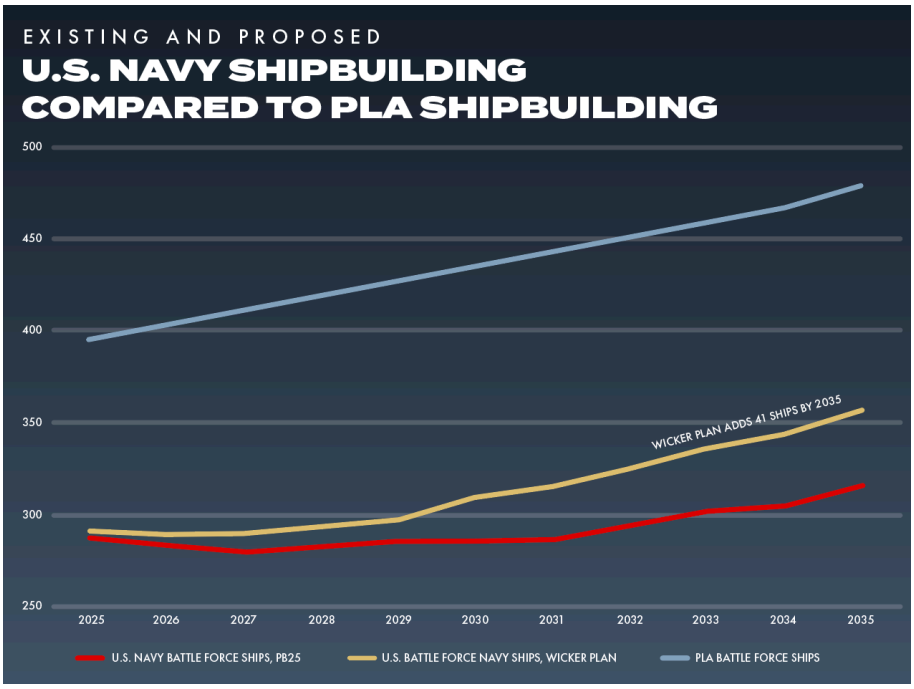
THE LOS ANGELES-CLASS ATTACK SUBMARINE USS MONTPELIER (SSN 765) OPERATES UNDER ITS OWN POWER. (MASS COMMUNICATION SPECIALIST 2ND CLASS MIKE DIMESTICO, U.S. NAVY)



230711-N-JC256-2028 ATLANTIC OCEAN. (JULY 11, 2023) CHIEF AVIATION BOATSWAIN'S MATE (HANDLING) MANNY MALLADA, FROM AGAT, GUAM, DIRECTS AN E-2C HAWKEYE, ATTACHED TO THE "SCREW-TOPS" OF AIRBORNE COMMAND AND CONTROL SQUADRON (VAW) 123, ABOARD THE NIMITZ-CLASS AIRCRAFT CARRIER USS DWIGHT D. EISENHOWER (CVN 69). (MASS COMMUNICATION SPECIALIST 3RD CLASS JANAE CHAMBERS, U.S. NAVY)

THE FUTURE USS JOHN FINN (DDG 113). (PHOT COURTESY OF HII)

Fig. V Getting Started on Growing the Navy



GETTING THE SUBMARINE INDUSTRIAL BASE ABOVE 2 SUBS PER YEAR

Congress and the Navy have begun to address the underfunded U.S. submarine industrial base. Since 2011, it is experiencing a five-fold increase in new construction requirements. Between FY23 and FY28, the Navy plans more than $16 billion of funding above regular construction and maintenance to address parts availability issues, strengthen the supplier base, build shipbuilder infrastructure, create workforce training pipelines, and transition advanced manufacturing solutions. This is the right way to approach the problem, although the Navy should add at least $1 billion to its budget in FY25 to keep suppliers on track for delivering two Virginia-class submarine shipsets per year. The submarine industrial base also must be capable of producing more than 12 *Columbia*-class SSBNs, both for an expanded nuclear deterrent and for a future replacement of the retiring *Ohio*-class SSGNs.

THE SURFACE COMBATANT INDUSTRIAL BASE NEEDS COMPREHENSIVE STRENGTHENING

For surface ships, the Navy needs to embark immediately upon a comprehensive industrial base investment strategy, just as it has done for the submarine industrial base. This would look something like the multi-year SHIPYARD Act – extensive funding for workforce development, supply chain resiliency, long-lead item production, development and insertion of additive manufacturing techniques, supplier base diversification, and shipyard modernization and expansion. As with the submarine industrial base, this investment strategy will require around $20 billion over a period of five years. Arleigh Burke-class destroyers must be reliably built at three per year. Once the Constellation-class frigate design is matured, two shipyards turning out four frigates per year is a worthy goal. Doing so will better allow the Navy to meet the competition-phase presence demands enshrined in statute in FY23 NDAA Section 912.[40] Priming the pump on the surface ship industrial base will also drastically increase the likelihood that the Navy's much larger replacement for DDG-51, DDG(X), can be delivered on time and under budget. At some point, the Navy and industry will need to contemplate an additional new-construction shipyard for the surface combatant industrial base.

To begin creating a high-low mix of surface combatants, the Navy should also fund preliminary design of a highly producible surface combatant and a guided missile patrol coastal craft. Some believe that such designs are foolish without access agreements in ally or partner nations, but the U.S. military must adopt an "if you build it, they will

come" posture. Development of small surface combatants should precede access agreements, just as the post-INF Treaty development of ground-based, long-range fires did.

The Navy should also lock in a multi-ship procurement contract for LPD Flight II and LHA amphibious ships, halt the retirement of all amphibious ships with service life remaining, and reverse any future aircraft carrier production delays.

THE ATTACK SUBMARINE USS VIRGINIA (SSN 774) ARRIVES AT PORTSMOUTH NAVAL SHIPYARD FOR AN EXTENDED DRYDOCK SELECTIVE RESTRICTIVE AVAILABILTY. (U.S. NAVY)

In time, these industrial base investments should produce a core shipbuilding industry that can annually produce three large surface combatants, three attack submarines, and four frigates per year. It could also build aircraft carriers and amphibious ships faster than currently planned.

In the near term, the Navy's biggest opportunity lies in improving its maintenance throughput, procuring more logistics ships, and beginning procurement programs for unmanned vessels.

FIXING NEAR-TERM NAVY READINESS

The Navy's organic nuclear shipyards for repair are chronically underfunded. Companies invest three to five percent of their revenues to facilities sustainment, restoration, and modernization, but the Navy shipyards have been below one percent for decades. The Navy must invest in the Shipyard Infrastructure Optimization Program at realistic cost estimates for the magnitude of the effort. It must also procure a shiplift for nuclear submarines to increase maintenance throughput. More civilian public shipyard workers are required above the arbitrary 37,600 cap. The Navy should begin work on a fifth nuclear shipyard, which will likely cost over $20 billion.[41]

At the private repair yards, Navy workload will fall between 20 and 40 percent from 2021 under current plans. That rate causes significant pressure to layoff workers and defer investments. The Navy must stabilize repair demand at private shipyards and develop an infrastructure program. Funding for spare and repair parts for ships should be drastically increased to mitigate cannibalization and replenish rotatable pools.

THE NAVY SHOULD GET CREATIVE TO MEET NEAR-TERM MISSION DEMANDS

The Navy has not figured out how to build and repair ships at scale, and it has also failed to develop alternative concepts of operation and procurement to perform its missions in different ways. It has been too slow to adopt unmanned surface and underwater vehicles. That adoption process has been beset with poor program choices and an inability to accept the state of commercial technology.

The Navy should accelerate its efforts to build a digital infrastructure and transition small- and medium-sized unmanned underwater vessels (UUV) and unmanned surface vessels (USV) systems beyond the mine countermeasures efforts that have matured over the past decade. This includes rapidly scaling up kinetic small USVs using multiple providers of hardware and software. Doing so would enable them to meet critical INDOPACOM requirements with resilient beyond line-of-sight communications and autonomy that can operate in denied environments using swarm behaviors.

The Navy has also extensively experimented with medium USVs in the Pacific and should buy them at scale for electronic warfare missions and advancing containerized missile effects. There are a number of small and medium USVs and UUVs, including survivable dual-modality USV/UUVs, that have successfully been experimented with in Task Force 59 to provide maritime domain awareness tied together with mesh networking. These proliferated capabilities will require strong concepts of employment, including advancing unmanned mothership concepts by converting existing assets. The Navy should continue pursuing more exquisite unmanned capabilities. Doing so would mean entering a rapid competitive demonstration for extra-large UUVs before initiating serial production and continuing enabling technologies for maturing the large USV.

U.S. Air Force: Arrest Shrinking Aircraft Fleets, Accelerate Advanced Capabilities

NEW TECH CANNOT MAKE UP FOR TOO FEW PLANES

During this period of global vulnerability, especially in the Pacific, the Air Force is shrinking to its lowest size in modern history. The fact of the matter is, the Air Force does not have enough aircraft to meet its current requirements, let alone more stressing scenarios involving multiple theaters -- no amount of advanced capabilities can substitute for traditional air power. The Air Force, like the Navy, is in a death spiral.[42] The Air Force plans to retire almost 1,000 aircraft over the next five years, including nearly 400 fighters.[43] It has not replaced its aircraft fast enough to keep the fleet from shrinking precipitously, even as the mission demands remain steady or increase. This stresses a smaller number of airframes, which are asked to deploy more often. Consequently, we see worse maintenance outcomes, and the cycle continues. The main architect of Air Force plans says too little money results in "hollowing out the force."[44]

The Air Force should have two main goals in the coming years. First, it should restore a significant amount of capacity across its fleets. Second, it should accelerate its ongoing advanced capabilities programs. Across its aircraft fleets, the Air Force must drastically increase funding for Weapons System Sustainment and spares programs, both of which appear on the unfunded priorities lists to the tune of several hundred million dollars. This would increase overall readiness both at home and in deployed units.

GETTING THE FIGHTER FORCE OUT OF ITS DEATH SPIRAL

The Air Force should aim to arrest its shrinking fighter force structure by reversing its plans to retire capable F-15E and F-22 fighters over the next five years and by purchasing at least 340 aircraft above its current plans over the next five years.

For fighter force capacity, the Air Force should continue to procure the F-35A Block IV at a minimum of 48 aircraft per year, rising to 72 or more per year once production issues are stabilized. F-15EX fighter production should remain at least 24 per year in the near future, and the Air Force should look to begin a limited block buy of F-16 Block 70 fighters.

The F-35 program has been catastrophically behind schedule. That obscures the reality that the program has produced incredibly capable fighter aircraft. Block IV aircraft will be even more advanced and should be purchased at the highest rate possible. The F-15EX is a key second fighter production line, and its output can substantially increase over the next five years. The EX will help immensely in the Western Pacific, since it can carry heavier weapons. While a less capable aircraft, F-16 Block 70 development was paid for by allies and partners, and this still-capable aircraft can perform plenty of less stressing missions, such as homeland defense (air/cruise missile defense), VIP protection, and suppression of enemy air defenses in lower-threat regions. A limited block buy of 120 F-16 Block 70s would appreciably slow the decline in fighter force structure and free up more capable fighters for combatant commanders.

The Air Force also needs to follow through on funding its fighter force re-optimization plans so that fighter wings can deploy with everything they need to operate. The Air Force is already on the right path in establishing deployable combat wings that can fly, fight, and win together; the next step is to right-size the fighter wings with aircrew, maintenance, and support personnel required to deploy immediately, if called upon. This change will not be cost-free.

THE B-21 RAIDER WAS UNVEILED TO THE PUBLIC AT A CEREMONY DECEMBER 2, 2022 (U.S. AIR FORCE)

EXPANDING PLANNED BOMBER AND TANKER PRODUCTION

The answer for the Air Force's bomber fleet is simple. The Air Force can likely accelerate production of B-21 with minimal risk, and once early production of the B-21 has ended, the Air Force should move as fast as possible to field at least double its planned quantity of 100. This is particularly important given the complexity of the interplay between conventional and nuclear requirements.[45] The Air Force should also move to qualify additional conventional weapons on the B-52 bomber.[46]

In its support aircraft fleet, the Air Force should find a "good-enough" solution on the E-7 Wedgetail radar plane. At the same time, it should begin a new rapid acquisition program of land-based E-2D Hawkeye radar aircraft and maintain its classified airborne intelligence, surveillance, and reconnaissance programs.

ACCELERATION OF ADVANCED CAPABILITIES

There is one last way the Air Force can reliably keep itself out of an accelerating force structure death spiral in the decades to come. That is to expand its acquisition requirement for the Collaborative Combat Aircraft (CCA) program and move forward with a multi-vendor approach. Today, the Air Force has capped the program at 1,000 aircraft and will take only two of five vendors through development. This approach is no doubt heavily informed by lack of funding. Even with CCAs, the Air Force can and must field the Next-Generation Air Dominance program at the planned numbers. The Air Force should also execute additional funding against the Airborne Battle Management System program, which has performed well to date under the leadership of the Program Executive Officer (C3BM).

U.S. Army: Accelerate Transformation, Embrace Role In Logistics

The Army deserves much credit for its relatively swift shift from two decades of counterinsurgency and into great power competition and conflict and for its desire to operate from within the First Island Chain in the Western Pacific. With renewed focus in areas like long range fires and air and missile defense, the Army is providing the joint force with critical offensive and defensive options. Observations from Ukraine have informed the Army's plans to field new air defense and counter unmanned aerial systems (counter-UAS) units. The Army must continue its modernization plans by focusing on land-based strike platforms with range, while improving its ability to conduct large-scale maneuver activities for the potential Russia, North Korea, and Iran scenarios.

The Army should be focused on three overriding force development and force design goals in the next five to ten years. First, it should immediately accelerate and expand the fielding of capability to its new units relevant in the Western Pacific. Second, it should harvest lessons learned from ground warfare in Ukraine to apply to a more lethal and cost-effective large-scale ground maneuver force structure. Finally, it should support the joint force through improved contested logistics capabilities, as detailed in an earlier section.

The Army needs new force structure to address critical areas including air defense, counter-UAS, and sustainment. For now, these new force structure changes will need to come from elsewhere in the Army. Over time, the Army needs to grow, but it will take time to fix the current recruitment crisis. After falling short of recruiting goals for the past two years, the Army lowered its benchmark for 2024. While the Army may reach its FY24 goal of 55,000 enlistments, it will take years to begin truly growing again.

The Army needs increased investment to accelerate the transformation of a portion of its force structure to better operate in the Western Pacific and significantly contribute to joint operations. This will require the Army to accelerate new air defense programs, ground-based fires, and electronic warfare. The Army's multidomain task forces (MDTFs) need fielding prioritization for key capabilities including the Precision Strike Missile, Mid-Range Capability, and Long-Range Hypersonic Weapon. The Army also needs to expand its collection of terrestrial sensing and data fusion command-and-control nodes, like TITAN, to enable the Army to provide tracking information to the joint force in contested environments. At the same time, the Army must prioritize electronic warfare systems to disable the enemy's ability to communicate, see, and target.

U.S. ARMY SOLDIERS ASSIGNED TO 3RD PLATOON, ALPHA BATTERY, 1ST LONG RANGE FIRES BATTALION, 1ST MULTI-DOMAIN TASK FORCE PREPARE TO FIRE AN M142 HIGH MOBILITY ROCKET SYSTEM DURING EXERCISE BALIKATAN 24 AT RIZAL, PHILIPPINES, MAY 2, 2024. BK 24 IS AN ANNUAL EXERCISE BETWEEN THE ARMED FORCES OF THE PHILIPPINES AND THE U.S. MILITARY DESIGNED TO STRENGTHEN BILATERAL INTEROPERABILITY, CAPABILITIES, TRUST, AND COOPERATION BUILT OVER DECADES OF SHARED EXPERIENCES. (U.S. MARINE CORPS PHOTO BY CPL. KYLE CHAN)

The Army must also continue its traditional maneuver forces modernization, which is meant to replace its core ground vehicles and rotary-wing fleet for scenarios involving Russia, North Korea, and even Iran. This includes making units lighter and more mobile to reduce the logistics burden of deploying mass numbers of soldiers. The service desperately needs to expand its Short and Medium Range Recon drone program and pick a solution for its new long-range cannon program (ERCA). Then, it should field that platform at scale.[47] Further, the Army needs to field manned/unmanned teaming vehicles as soon as possible, incorporating efforts like the XM-30 mechanized infantry combat vehicle, robotic combat vehicle, and small multipurpose equipment transport.

Work under Project Convergence to improve Army networking and shrink the command-and-control footprint should be accelerated. The Army needs a wholesale change in how it funds military deception capabilities, physical and electronic alike. Establishing command posts on the move, and disguising them, will be key to Army operations in future theaters. The Army should also pursue Starshield in earnest, enabling safe connectivity from remote locations. Legacy or outdated network products should cease so that solutions from visionary companies can be adopted.

U.S. Marine Corps: Complete Force Design 2030 Transformation

Under General Berger's leadership with Force Design 2030, the Marine Corps fundamentally transformed its contribution to the joint force. It did so over a period of only five years.[48] Like the Army, the Marine Corps wants to contribute better to the joint fight through extensive passive sensing, unmanned ISR systems, long-range fires, lighter infantry, and mobile air defense. Unlike the Army, the Marine Corps is renewing its focus on amphibious operations, including improved maritime mobility and resilience. It is critical that the Marine Corps provide all of these capabilities, particularly amphibious operations, in the Indo-Pacific. Accordingly, the capabilities must be prioritized in future budgets.

In addition to the traditional and non-traditional amphibious lift expansion detailed in the previous Navy section, any program in the Force Design 2030 capability portfolio should be accelerated to the extent that it can be. Marine Corps formations in the First Island Chain will clearly require more:

1. Passive sensors and secure communications;
2. Counter-C5ISRT capabilities;
3. Organic tactical mobility in the land, air, and maritime domains;
4. Organic long-range fires capabilities, including existing NSM/MRC programs and long-range GMLRS-ER or GLSDB fitted with maritime seekers, and shorter-range loitering munitions, as detailed in the munitions section;
5. More capable organic air defense capabilities, including the integration of more capable interceptors into the MRIC program.

The Marine Corps can and should make significant investments in contested logistics in the First Island Chain, as detailed in the contested logistics section. The Marine Corps FY25 unfunded request of $2.3 billion is just a start; it could be increased to accelerate Marine Corps transformation and build decision space for the Commandant to begin restoring some of the niche capabilities (such as lighter bridging options) that were divested. This additional funding could also open opportunities to augment current formations, although new force structure is not an advisable investment given the paucity of amphibious lift in the medium-term.

X-37B ORBITAL TEST VEHICLE CONCLUDES SIXTH SUCCESSFUL MISSION. PHOTO: U.S. SPACE FORCE, NOV. 12, 2022

U.S. Space Force

The PLA continues to push a "strategic breakout" in space, according to Major General Gregory Gagnon.[49] Every military service relies on the Space Force to communicate, navigate, target, and conduct modern warfare. The DOD must continue to evolve its characterization of the Space Force. It must switch from thinking of it as an enabling service and begin thinking of it as one with formidable offensive potential, uniquely able to break the kill web of U.S. adversaries.

The U.S. Space Force has enjoyed real budgetary growth since its inception, but that does not mean it cannot do more. Classified programs in development must be procured at scale. The PLA's growing reliance on space is creating new vulnerabilities for Beijing. China's over-the-horizon kill chains are all deeply reliant on space. Without these capabilities, the "bubble" shrinks.

The Space Force also must be able to defend itself in space and on the ground. The U.S. has the chance now to make real strides in designing an even more capable, layered, networked satellite architecture in multiple orbits. This would enable military operations to deter and defend against adversary actions in air, land, and sea. Leveraging multiple types of satellites and orbits to fortify existing defensive capabilities could thwart adversaries' first-mover advantages and pave the way for broader interoperability and cooperation in space. The Space Force must invest in upgrading satellite cybersecurity and anti-jamming features. Creating a network that heals itself and autonomously mitigates attacks will also improve the speed and agility of our militaries to respond swiftly to nefarious activities from the seabed to space. Integrating and combining government and commercial space systems in diverse and hybrid constellations will thwart adversary disruption strategies by disaggregating payloads and nodes. Additional funding can be used to harden ground stations and underlying infrastructure, as well as to develop modern, integrated command-and-control software for different space functions.

Assured access to space remains a top priority for the Space Force, and the launch industry cannot be allowed to consolidate or stop driving down cost-per-launch. Beyond this, industry must also be ready to reconstitute rapidly vital on-orbit systems in case of war. This requires speed and agility from both the launch industry and key satellite manufacturers.

The Space Force must ride the zeitgeist of rapid commercial development in the space domain and use that to its advantage. The commercial sector is rapidly expanding communications, geospatial collection and earth sensing, and space domain awareness constellations, along with advanced software, ground processing, and machine learning. These things can and do provide needed resiliency and affordability to military space, if only the Space Force can be agile enough to harness those capabilities.

The size of the Space Force and Space Command unfunded requests in FY25 belie the fact that much more can be done to ensure the U.S. retains the advantage in space.

CYBERCOM and SOCOM

SPECIAL WARFARE COMBATANT-CRAFT CREWMEN (SWCC) TRANSIT THE SALT RIVER IN NORTHERN KENTUCKY DURING PRE-DEPLOYMENT, LIVE-FIRE TRAINING, AUG. 25, 2007. (PETTY OFFICER 2ND CLASS JAYME PASTORIC)

Cyberspace is an immensely complex domain that poses a significant threat to U.S. national security. In a short amount of time, international warfighting in cyberspace has become as strategically consequential as conventional warfighting environments. We have seen this play out in ongoing conflicts in Ukraine, Israel, and in cyberattacks led by the People's Republic of China in Taiwan. Breakthroughs in artificial intelligence (AI) research and development add to the complexity of the cyber domain.

Achieving enduring superiority in the cyber domain will require the DOD to prioritize strengthening cyber defenses within the defense industrial base, increasing cybersecurity investments in strategic military locations, eliminating cyber readiness shortfalls, and boosting investments in cyber science and technology.

The DOD's "defend forward" and "persistent engagement" strategies have been key to strengthening deterrence and gaining military advantages in cyberspace. Staying ahead of America's pacing threats in cyberspace can be enhanced through a number of initiatives. First, the dual hat arrangement between NSA and CYBERCOM must be maintained to enhance unity of effort and decisiveness in cyberspace. Elevating the Joint Force Headquarters DODIN (JFHQ-DODIN) to a subordinate or "sub" unified command would also help DOD and CYBERCOM be better postured for future and emerging threats in the cyber domain. The creation of a cyber intelligence center that provides all-source or foundational intelligence to CYBERCOM would also help.

CYBERCOM will need additional resources to grow its Cyber Mission Force above and beyond current force structure, alongside further enhanced hiring authorities. CYBERCOM also needs a more robust S&T budget to complement the DARPA Constellation program and additional funding support to develop offensive cyber weapons more rapidly.

In both kinetic and non-kinetic spaces, our adversaries are increasingly engaging in asymmetric and destabilizing activities below the traditional threshold of conventional armed conflict. Those activities are exposing both vulnerabilities and opportunities for the United States. Our special operations forces (SOF) provide the nation with innovative, agile, and highly-skilled capabilities to address the most vexing problems in this domain and through the spectrum of competition, conflict, and protraction. Our special operations forces are able to operate in politically sensitive and denied environments, giving the nation opportunities to shape adversary perceptions and create dilemmas, threaten adversary capabilities and critical networks, and present options to our military commanders. Additionally, special operations forces continue to play a leading role in maintaining pressure on a resurgent global Islamic terrorist threat and as our nation's premier crisis response force.

Yet, the special operations enterprise is at an inflection point. Demand for SOF's unique capabilities is greater today than at any other time since the creation of U.S. Special Operations Command (SOCOM) in 1987. Yet, the force is enduring cuts to its funding and manpower based on a misguided belief from some senior Pentagon officials that SOF's value is limited to the global counterterrorism campaign from the last two decades. This is folly. SOF provides the nation with significant capabilities to counter China and Russia, protect the American homeland from radical Islamic terrorism, and serve as our premier crisis response force. Now is not the time to cut special operations forces. Instead, we should reinvigorate our investment in the special operations enterprise. We should prioritize reconstituting force structure, accelerating development of innovative technologies, expanding experimentation with industry, and expanding the authorities and policy guidance available to employ these forces in key areas, including irregular warfare, information operations, and sensitive activities.

Nuclear Forces

Our nuclear forces are the ultimate guarantor of our fundamental security. They are the most effective deterrent against existential military threats. Every U.S. alliance, decision to project power abroad, or major DOD operational plan assumes that the risk of our most capable adversaries militarily opposing our efforts or attacking the United States directly is substantially reduced because of our nuclear capabilities. This allows the U.S. much greater latitude in projecting forces and militarily intervening in areas that might otherwise entail too great an operational or strategic risk. It vastly increases the U.S.'s ability to shape the international security environment.

Today's nuclear landscape is more complicated than ever. Russia's nuclear arsenal is larger, more modern, and more diverse than that of the U.S., and it has the capability to build large numbers of additional nuclear weapons. China is expanding its arsenal faster than any other country. In the 2030s, Beijing will likely exceed the United States' capabilities. The exceptionally rapid growth of China's intercontinental ballistic missile force and the expansion of its highly-enriched uranium and plutonium production capacity are particularly worrisome. North Korea continues to develop more capable missile technologies and to grow, slowly, its nuclear arsenal. Iran's nuclear future is unclear, but its willingness to attack regional neighbors and use the threat of nuclear weapons production to achieve its objectives is well-documented.

Conversely, U.S. nuclear systems are decades past their intended design lives. The end of their operational usefulness is rapidly approaching. U.S. facilities for maintaining our nuclear stockpile are also in a state of profound disrepair. Currently, the U.S. is the only nuclear-armed country that cannot produce a single new nuclear weapon – a condition that won't change for at least a decade. Ongoing modernization plans will replace aging weapon systems and revitalize the country's nuclear weapons and missile production capabilities, but these efforts are plagued by single points of failure and require constant maintenance to continue operations. This fragility in the industrial base undermines U.S. competitiveness with Chinese and Russian advances in hypersonic, cruise, and ballistic missile technologies. It systemically disadvantages the U.S. in long term strategic competition with China.

The U.S. should declare that the revitalization of our nuclear forces is a national priority, as the United Kingdom recently did when it announced nuclear modernization as a "national endeavour." The British committed to providing the full weight of available federal resources – including statutory and regulatory relief as needed to accelerate the recapitalization of the National Nuclear Security Administration's (NNSA) infrastructure. The Department of Energy should also establish a capital budgeting process for government-owned NNSA infrastructure to improve long term nuclear weapons facility sustainment, recapitalization, and replacement planning.

Current DOD and NNSA nuclear modernization programs must be fully funded to maintain planned schedules, and we need to begin making substantive adjustments to U.S. force posture and structure to account for China's and Russia's nuclear expansion. We must:

- Extend production of COLUMBIA-class SSBNs to a minimum of 14 boats and examine the feasibility of a COLUMBIA-class SSGN variant that could be alternately sequenced with additional SSBN production (e.g., SSBN 13, SSGN 1, SSBN 14, SSGN 2)
- Begin discussions with the Republic of Korea, Japan, and Australia to gauge their willingness to engage in a nuclear burden sharing arrangement with the U.S., similar to those existing with NATO allies
- Restore nuclear dual-capability to B-52 bombers that were converted to conventional-only missions under the New START Treaty as a hedge against Sentinel ICBM or COLUMBIA-class SSBN delays
- Begin uploading additional warheads onto currently-deployed Minuteman III ICBMs
- Begin concept studies for equipping fighter aircraft with nuclear air-launched cruise missiles instead of gravity bombs to improve survivability

The United States should also restart a comprehensive domestic uranium enrichment capability, which would support AUKUS submarine development, U.S. nuclear weapons sustainment and production, and improve our domestic civilian nuclear energy infrastructure and U.S. global competitiveness. Focusing on smaller, modular construction for enrichment facilities dispersed across the U.S. would complement ongoing efforts to develop microreactor technolo-

gies fueled by high-assay, low-enriched uranium and allow for easier project management, reduced security demands, and reduced material shipping costs. Dispersal also enables improved resilience and efficiency in commercial power grids, expanding the density of electrification across the U.S. and reducing energy costs for consumers.

AIRMEN PREPARE A REENTRY SYSTEM FOR REMOVAL FROM A LAUNCH FACILITY, FEB. 2, 2018. (AIRMAN 1ST CLASS BRAYDON WILLIAMS, U.S. AIR FORCE)

Defense Infrastructure

Our people are the lifeblood of the armed services, but the DOD's physical infrastructure is the foundation for power projection. However, DOD has only done one consistent thing as it relates to infrastructure: underfund it. Both deployed service members, as well as their families back home, have been the ones bearing the brunt of failing buildings and lackluster leadership.

From barracks and housing to shipyards and training ranges, we must treat our defense infrastructure as a key enabling capability for competition and conflict.

First, the DOD simply needs real growth in its formal military construction portfolio. For FY25 alone, the specified unfunded requests for MILCON total around $4 billion. This includes operational upgrades at hangars and ports, barracks restorations, and simple upgrades to working spaces.

The DOD normally funds building maintenance (FSRM) at 85 percent of the 100 percent requirement. Before Congress has even received the budget for the next fiscal year, DOD has added billions to its facility maintenance backlog. The current backlog is more than $180 billion. Just look at the seriousness of this crisis: The Marine Corps' top three unfunded priorities this year are FSRM projects to fix failing barracks.

Another example is plant replacement value (PRV), which is the total amount of money it would take to replace a building – a stand-in for measuring how to keep real property and buildings in decent shape. Even though there is an industry standard of 4 percent for PRV, DOD is not even halfway there. The Army is at 1.24 percent. The Navy is at 1.5 percent. The Marine Corps is at 1.5 percent. The Air Force yet hovers at 1.5 percent. Again, the industry standard is 4 percent. To meet the industry standard, the services would require the following each year: Army, $14.0 billion; Navy, $8.2 billion; Marine Corps, $2.6 billion; and Air Force, $14.3 billion.

Just let the numbers speak for themselves: Forty-three percent of the Army's facilities are in a poor or failing condition. Thirty-four percent of the Department of the Navy's assets are in poor or failing condition, with a backlog of $29.8 billion. Even with $46.8 billion in deferred maintenance and repair, the Air Force still only budgets for 1.5 percent of plant replacement value.

Fixing the military's problems with family housing, barracks, and other basic facilities will require $39.1 billion per year to get to 4 percent of plant replacement value per year and build a defense infrastructure that meets the nation's needs over the long run. Given the ubiquity of this problem, Congress and DOD could come together to use unobligated operations and maintenance funding to help fix this problem.

Beyond simple maintenance, the Pentagon also needs to increase its investment in telecommunications infrastructure, including widespread 5G adoption at installations for data processing and in advanced training range capabilities and emitters.

DOD is not the only national security agency with failing infrastructure – the Department of Energy and NNSA will need tens of billions of dollars over the next decade to restore facilities from the early Cold War.[50]

Structural Reforms: A National Security Workforce and an Innovation-Friendly Pentagon

Alongside a defense buildup, there are major core processes at DOD that require change. The needs are diverse: from the civil service system to military talent management to the ways the United States plans for and funds core functions of the defense industrial base and promotes innovation.

DEPARTMENT OF DEFENSE TALENT MANAGEMENT

As the single largest employer in the federal government, DOD requires a civil service system purpose-built for its unique mission. That is not the case today. The ramifications of this lack permeate every aspect of the DOD. Major headquarters are unable to hire experienced civilian employees due to arbitrary constraints on compensation. Shipyards and depots struggle to retain blue collar workers due to rigid regulations issued by the Office of Personnel Management. U.S. Cyber Command loses employees to other federal agencies. The Defense Health Agency cannot compete with the Department of Veterans Affairs for doctors and nurses. Hiring takes months, even with statutory direct hire authority. Compensation is not competitive; instead, it is limited by arbitrary caps in legislation or regulation. Accountability is nearly non-existent. The majority of DOD employee termination decisions are overturned on appeal.

The last time civil service reform was a priority, Congress enacted the National Security Personnel System (NSPS), as part of the National Defense Authorization Act for Fiscal Year 2004. This landmark legislation barely had a chance to be implemented before President Obama, at the behest of federal employee unions, effectively killed it by executive order. Since then, DOD has developed a patchwork personnel system for certain communities within the larger defense enterprise. The Cyber Excepted Service was developed for cyber professionals. The Acquisition and Lab Demonstrations provide special flexibilities for highly technical employees. These systems are limited in their utility.

Any defense buildup must tackle this ossified civilian personnel management system.

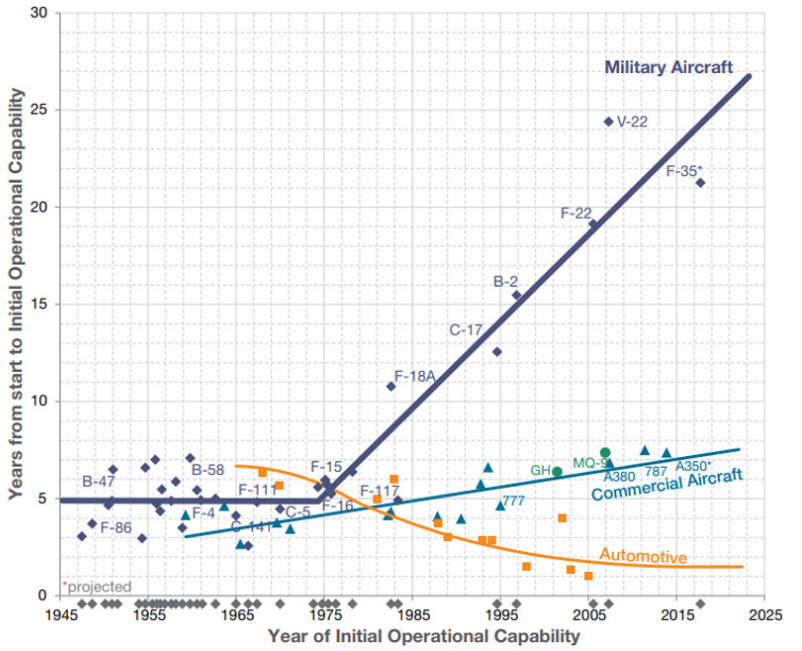
PENTAGON INNOVATION SYSTEM LACKS TRANSITION DEMAND SIGNALS

Similar structural problems afflict the Pentagon's innovation ecosystem. The Department of Defense desperately needs to shift a portion of its innovation and acquisition infrastructure to a time-based approach.[51] As Bill Greenwalt and Dan Patt note, post-Cold War military development timelines have continued to lengthen, a complete anomaly from commercial development timelines.

In addition to the fundamental investments in the U.S. cross-cutting industrial base and the specific investments in places like the surface combatant industrial base, DOD needs dedicated financial strategies to support mid-sized companies to improve the adoption rate of innovative technologies and foster competition in the industrial base. While a thousand flowers may be blooming today, these companies need actual procurement contracts to survive. As DIU Director Doug Beck says, "We have to give [funders] scaled successes."

The Department of Defense struggles to foster and adopt innovation, particularly to incorporate dual-use and commercial capabilities. Congress has enacted multiple rounds of detailed acquisition reforms and stood up various "innovation organizations" within the Office of the Secretary of Defense (OSD) and across the services. At the OSD level, notable examples include the Defense Innovation Unit, the Office of Strategic Capital, and the Strategic Capabilities Office. The military services and DOD components also have innovation organizations, such as the Army's RCCTO and the Air Force's RCO. Nonetheless, DOD often finds itself well-behind the technological curve compared to industry and, in some cases, strategic adversaries.

Fig. VI Commercial vs military time-to-market trends



Commercial aircraft and the automotive industry show favorable historical trends in time-to-market as compared to military aircraft.

Used with permission from report authors, Competing in Time, Bill Greenwalt and Dan Patt.

The Department of Defense underperforms most significantly in the process of transitioning technology from development across the two so-called "valleys of death".

The first valley exists between the technology *prototyping* and *production* phases. The transition of successful prototypes into production is often stymied by inflexibilities in both the Pentagon's budget and congressional appropriations processes, respectively. Inside the Pentagon, successful prototypes generally must wait at least two years before a military service can "fit" the technology into a Program of Record. On the Hill, Continuing Resolutions (CRs), and overly restrictive reprogramming requirements prevent DOD from shifting funding rapidly to promising innovative technologies and programs.

The second valley exists between *initial production* and *scale*. Technology that traverses the first valley of death often gets stuck in the second. The problem of scaling has become increasingly important as the services have embraced the significance of "mass" in countering challenges from China and other potential opponents. The war in Ukraine and Red Sea engagements have highlighted the need for large numbers of affordable offensive and defensive capabilities, such as counter-manned aerial system interceptors. Scaling production is often impeded by well-known internal DOD problems, notably the enduring tendency for "requirements creep" and "gold plating."

To help fix these problems, the Pentagon can and should pursue a carveout like SBIR/STTR for mid-size companies to create a significant bureaucratic incentive to drive the Pentagon to develop procurement contracts for innovative technologies. The Pentagon could also expand the budget of the APFIT and RDER programs. It could also vastly expand the ability for the Office of Strategic Capital to issue loans and loan guarantees to expand the industrial base.

U.S. NAVY STRATEGIC SYSTEMS PROGRAMS AND THE ARMY HYPERSONIC PROGRAM OFFICE SUCCESSFULLY CONDUCTED A HIGH OPERATIONAL TEMPO FOR HYPERSONICS FLIGHT CAMPAIGN. (AMY SMITH, U.S. NAVY PHOTO)

PROPOSED FY25 INVESTMENTS

INDOPACOM	
$500,000	Guam Defense System (GDS)
$125,000	Joint Fires Network (JFN)
$90,000	Campaigning - Pacific Air Forces (PACAF)
$391,200	Campaigning - U.S. Army Pacific (USARPAC)
$47,000	Campaigning - U.S. Marine Corps Forces Pacific (MARFORPAC)
$53,000	Campaigning Campaigning - Special Operations Command Pacific (SOCPAC)
$49,000	Joint Training Team (JTT)
$312,000	Distributed Electromagnetic Warfare
$298,450	Joint Strike Missile (JSM} (USAF)
$40,080	Joint Task Force Micronesia (JTF-M)
$2,000,000	Disperse and harden INDOPACOM infrastructure
$2,250,000	Guam disaster recovery and resilient rebuild
$100,000	Create and staff standing JTF in INDOPACOM
$500,000	Create and fill INDOPACOM regional contingency stockpiles
$125,000	INDOPACOM advanced data sharing with partners (MPE/MDP)
$300,000	Advanced test and training range improvements
$1,500,000	Replenishment funding for Taiwan drawdowns

EUCOM	
$250,000	Permanent ABCT in Poland
$75,000	EDI acceleration in Eastern Europe
$375,000	Additional rotational deployment to Eastern Europe
$150,000	Enhanced Aegis Ashore (anti-air warfare capability, additional VLS, self-defense capability, comms upgrades, software upgrades)
$75,000	EUCOM improved base defense

CENTCOM	
$125,000	Long-term CENTCOM CUAS laydown
$75,000	CENTCOM mission networks with partners and allies

AFRICOM	
$75,000	AFRICOM counter-UAS laydown
$100,000	Additional AFRICOM contracted ISR
$75,000	Dedicated economic warfare funding for AFRICOM AOR

SOUTHCOM	
$75,000	SOUTHCOM security assistance increases
$50,000	SOUTHCOM economic warfare initiative
$50,000	SOUTHCOM exercise expansion

NORTHCOM	
$25,000	Expand JTF North
$100,000	Begin NORTHCOM critical site cUAS laydown
$150,000	Modernized homeland air defense radar network
$500,000	FY25 border bill - budget sustainably for border support mission

NAVY	
$93,000	Accelerate Weapons Combat Expenditure Replacement for SM-2
$50,000	Accelerate Mk-48 Heavy Weight Torpedo (HWT) Procurement (+4)
$125,000	Fund KC-130J Procurement (+1)
$3,225,000	Build 2x Virginia-class SSNs per year
$175,000	Reverse CVN delays
$1,431,000	Build 3x DDGs per year
$1,000,000	Large surface combatant shipyard infrastructure and workforce development
$500,000	Small surface combatant shipyard infrastructure and workforce development
$250,000	CVN industrial base
$95,000	LCU Second shipyard
$5,000	Begin study for new maintenance shipyard
$65,000	ESD buy back
$218,000	LSM interim capability (LSV)
$465,000	Increase Ship to Shore Connector (SSC) procurement
$398,000	Increase T-AO Fleet Oiler procurement
$80,000	Accelerate development of Transferrable Re-Arming Mechanism (TRAM)
$186,000	Expand Maritime Security Program (II)
$50,000	MCAK Modular Console Adapter Kit
$50,000	MFDS Modular Fuel Delivery Station
$50,000	Containerized Underway Replenishment Station
$200,000	Tomahawk supplier development
$15,000	PAC-3-AEGIS integration
$5,000	PAC-3-AEGIS engineering analysis

$25,000	HVP 5-inch cUAS round
$15,000	Longbow Hellfire integration
$20,000	Highly Producible Surface Combatant Preliminary Design
$12,000	Guided Missile Patrol Coastal Craft Preliminary Design
$90,000	HELIOS Long Lead Procurement
$80,000	LDUUV
$300,000	Shiplift for nuclear submarines
$200,000	USV buys for experimentation
$150,000	UUV buys for experimentation
$10,000	XLUUV competitive demonstration
$200,000	Maritime mine development and fielding acceleration
$20,000	Future Naval Capabilities Applied Research
$30,000	Future Naval Capabilities Advanced Tech Development
$20,000	Innovative Naval Prototypes Applied Research
$20,000	Innovative Naval Prototypes Advanced Tech Development

AIR FORCE	
$266,300	PACAF ACE exercises
$1,200,000	USAF Spares
$650,000	Fighter Force Re-Optimization
$55,900	ICBM field security
$419,000	Prevent retirement of F-22s (+TK a/c)
$400,000	Prevent retirement of F-15Es (+26 a/c)
$800,000	Interim E-2D Air Force fleet
$150,000	CCA multi-vendor expansion
$75,000	ABMS acceleration
$1,250,000	F-16 Block 70 production
$45,000	Stratospheric balloon program start
$1,500,000	Air Force classified programs
$400,000	E-7 acceleration
$288,000	F-15EX Conformal Tanks
$690,000	Procure 6 x F-15 EX Aircraft
$690,000	Procure 6 x F-35 Aircraft
$600,000	JDAM increase (+11,000)

$350,000	JASSM max production (+260)
$103,495	LRASM max production (+35)
$14,900	XQ-58A air-to-air weapon integration
$60,000	SDB I
$206,955	SDB II
$50,000	Accelerate experimentation and prototyping including for advanced low-cost weapons
$40,000	Digital tool development for propulsion industrial base
$75,000	Maintain ARRW
$23,000	Vanguard Program
$80,000	AFWERX Prime
$12,000	Electronic Combat Technology (spectrum warfare)
$27,000	DEFEND High Power Microwave (joint program with Navy)
$10,000	Accelerate and expand Digital Transformation Office initiatives
$50,000	Clear Lab Infrastructure backlog - Major Milcon (construction + planning & design)

ARMY	
$185,000	Army cUAS
$30,300	Army missile repair
$120,000	F25 PrSM Inc 1 production increase
$125,000	MDTF capabilities acceleration
$85,000	PrSM capacity expansion to 550/yr
$15,000	GMLRS maritime seeker
$15,000	GLSDB maritime seeker research
$175,000	Additional Patriot launcher
$115,000	JAGM production increase (+460)
$75,000	JAGM-MR air defense variant research
$20,000	NGCM R&D acceleration (+1yr)
$50,000	Expand SRR program
$500,000	APS modernization
$100,000	Additional Army sustainment brigade to INDOPACOM
$30,000	Army Innovation Program
$30,000	Technology Maturation Initiative
$200,000	USAG-Kwajalein Atoll Recap

MARINE CORPS	
$55,000	Autonomous Low Profile Vessel (ALPV)
$250,000	(+2) CH-53K Aircraft
$91,000	LRASM C-3 (AGM-158C-3)
$16,000	Small Diameter Bomb II (SDB II)
$10,320	Medium Range Intercept Capability Equipment Modernization
$40,000	OPF-M NDI
$66,100	NSM production increase (+21)
$75,000	USMC MLR capabilities acceleration
$200,000	USMC passive sensors and secure comms acceleration (including space)
$150,000	USMC distributed contested logistics capabilities (air, ground, maritime)

SPACE FORCE	
$1,500,000	Accelerate core Space Force capabilities

SPACECOM	
$1,250,000	Accelerate classified space capabilities
$250,000	Improve space situational awareness
$40,000	Expand space T&E infrastructure

CYBERCOM	
$50,000	Expanded cyber S&T work
$75,000	Grow Cyber Mission Force
$150,000	Offensive cyber weapons development
$11,500	AI Pilot on Depots, Shipyards, and Manufacturing Facilities
$3,000	AI Pilot on DoD Contract Administration

SOCOM	
$75,000	SOCOM finalize CUAS buildout for deployed forces
$75,000	SOCOM unmanned systems acceleration
$75,000	SOCOM ISR and EW capabilities improvement

STRATCOM	
$252,000	SLCM-N
$4,500	B-52 Nuclear Fleet Reconversion

$60,000	OHIO SSBN Missile Tube Reconversion
$27,800	ICBM Security Vehicles

NNSA	
$70,000	SLCM warhead
$225,000	Tritium Finishing Facility
$300,000	High Explosives Synthesis, Formulation, and Production Facility

MDA	
$175,000	MDA AN-TPY-2 production increase
$200,000	MDA classified increases
$243,000	THAAD interceptor production increase (+19)
$550,000	Restore SM-3 IB production
$65,000	Expand SM-3 IIA production capacity to 36/yr
$349,000	GPI development acceleration

DEFENSE INFRASTRUCTURE & DIB	
$1,920,000	Army executable FSRM
$2,010,000	Navy executable FSRM
$600,000	Marine Corps executable FSRM
$3,450,000	Air Force executable FSRM
$150,000	Defense Community Infrastructure Program (DCIP) expansion
$100,000	Lab infrastructure backlog
$500,000	DPA munitions supplier base program
$300,000	DPA castings and forgings, biomanufacturing, microelectronics program
$75,000	JETO expansion
$25,000	JPAC, IBP analytical expansion
$500,000	SDAF expansion for FMS/PDA pre-production
$100,000	Expand 5G at U.S. bases
$250,000	National Defense Stockpile
$100,000	Accelerate business systems modernization
$1,115,700	Air Force MILCON increase
$654,512	Army MILCON increase
$1,450,000	Navy MILCON increase

$492,300	USMC MILCON increase

R&E	
$150,000	DE Testing and Experimentation
$130,000	Rapid Prototyping Program (RPP) additional projects
$100,000	Rapid Defense Experimentation Reserve (RDER) additional experimentation
$50,000	Acclerate the Procurement and Fielding of Innovation Technologies (APFIT) additional transitions
$25,000	Testing regime for Simultaenous Transmit and Receive technology (advanced spectrum sharing)
$50,000	FCT increase (AUKUS)
$250,000	OSC expansion to leverage private capital for scaling

DARPA	
$100,000	Expansion of Underexplored Systems for Utility-Scale Quantum Computing

NGB	
$4,300	7 New State Partnership Program Partners

$55,061,612	**TOTAL FY25 INVESTMENT**

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