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Policy Paper



Key Points

The new administration defense team should require that the services present both a “planning force” set of requirements as well as the traditional “programming force” that is driven by current budget allocations to highlight the disconnect between budget topline and the actual mission demand needed to meet the national defense strategy.

Given increased mission demands and declining resources, the Department of Defense should adopt and apply cost-per-effect force planning analysis to ensure it makes the most prudent investment decisions across all the services.

Given the advanced age and small size of the Air Force aircraft inventory, service leaders should prioritize completing full buys of the procurement programs already underway to stabilize fragile core mission capabilities and capacity.

The Space Force must succeed. This demands matching authorities and resources in line with the service’s mission responsibilities.

Aerospace Vectors for the Incoming Biden Defense Team

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Abstract

The Biden administration faces an array of security challenges that are as great as those faced by the United States at any time in our nation’s history. It is confronted by the aggressive actions of China and Russia, two autocratic regimes seeking to impose their will on the norms of the global community. Persistent threats from Iran and North Korea continue to place the lives of Americans and those of our allies at risk. Added to this, hostile non-state actors continue to destabilize key regions around the globe. These challenges are compounded by declining budgets, aging military platforms, and a U.S. military that is overworked after two decades of unrelenting global operations.

Air and space power is essential to American strategic, operational, and tactical success. Whatever circumstances the Biden administration encounters over the next four years, it will require robust air and space capabilities. Simply continuing to meet today’s already high demand for air and space assets will not resolve the Air Force’s significant capacity shortfalls, not to mention the Air Force’s looming modernization requirements.

The Biden administration should endeavor to immediately relieve the strain on America’s air and space power forces. It could begin by ensuring that the Space Force has the funds, manpower, and authorities to fulfill its mandate. By consolidating some of the more-than-60 governmental organizations involved in space, the Biden administration could minimize redundancy and improve efficiency. The administration should further resist the latest du jour campaigns to cancel Air Force acquisition programs that are already underway. Failing on these points would drive schedule delays and escalate costs, setting America’s air and space power forces back years behind its competitors. Finally, the Biden administration should embrace a “cost-per-effect” approach to analyzing military effectiveness rather than one of unit or sustainment costs. By adopting a measure of the cost it takes to achieve a particular result, the new administration would be best prepared to respond to the myriad security threats facing the United States.

Introduction

The Biden administration will be taking office amid tremendous national security pressures. While defense may not have stood as a prevalent topic during the recent election debates or speeches, world events will demand great focus on national security issues. The reality is that an increasingly unstable security environment, paired with declining resources, will demand that the Department of Defense get the most out of every dollar spent. A robust menu of aerospace power capabilities fielded by the Air Force and Space Force will prove indispensable to leaders as they strive to navigate the difficult geopolitical environment ahead—options that drive mission effectiveness and operational efficiency. The capabilities found in these two services demand careful stewardship to ensure airmen and space guardians can deliver necessary options when the chips are down. Capabilities in both branches are fragile after three decades of underfunding, heavy use, a string of bad planning assumptions, and a dismissive—and incorrect—attitude held by many that air and space merely exist to support surface forces.

No matter what challenges the United States may be facing, air and space capabilities are indispensable in meeting them.

- Air superiority is an essential precondition for any successful military operation.
- Long range strike can cripple key elements of an adversary's war-making enterprise.
- Air mobility empowers the entire joint team.
- Air and space capabilities combine to provide intelligence, surveillance, and reconnaissance (ISR); global communications; command and control; weather; and more.

Air and space experts are not the only folks who think this way. As Chairman of the Joint Chiefs of Staff General Mark Milley recently remarked, “The fundamental defense of the United States, and the ability to project power forward [are] going to be naval and air and space power...The defense of the United States depends on air power and sea power primarily. People can say what they want and argue what they want, but that's a reality.”¹

As for the demand signal, anyone reading news headlines in recent years will know the main drivers. The list includes China aggressively seizing territory in the Pacific in violation of international law; Russia using brute force in places like Ukraine and Syria; Iran and North Korea pressing ahead with their nuclear ambitions; and non-state actors like the Islamic State (ISIS) and al Qaeda still threatening the stability of key regions. We have already tested what inaction looks like, and the results are far from good: territory seized, dangerous precedents set, entire regions set ablaze, allies rattled, adversaries rewarded for their aggression, and core U.S. interests eroded. Added to this are unknown challenges; whether discussing the attack at Pearl Harbor, North Korea's invasion of South Korea, Saddam Hussein's invasion of Kuwait, or the attacks of 9/11, the United States has an abysmal track record of anticipating future security challenges. What is certain is that the scale and scope of challenges facing the nation today is greater than at any time in our nation's history. This demands a wide range of mission competencies and a depth of capacity. Air and space are particularly unique in this regard because they will be in demand no matter what the circumstance. That cannot be said of the other services. Navies are of limited use in a land-locked region, tanks do not float on the ocean, but air and space

encompass 100 percent of the globe and can access any part of it faster than any other force. Combatant Command (COCOM) war plans reflect this.

The following four recommendations are offered as ways that the Biden administration can get the most value out of future Department of Defense (DOD) budgets.

Grow Aerospace Combat Capacity through Sufficient Funding

Capacity is the first area where the Air Force and Space Force both come up short. Former Secretary of the Air Force Heather Wilson explained in 2018, “We are too small for what the nation is asking us to do.”²² Things have only gotten worse since that timeframe.

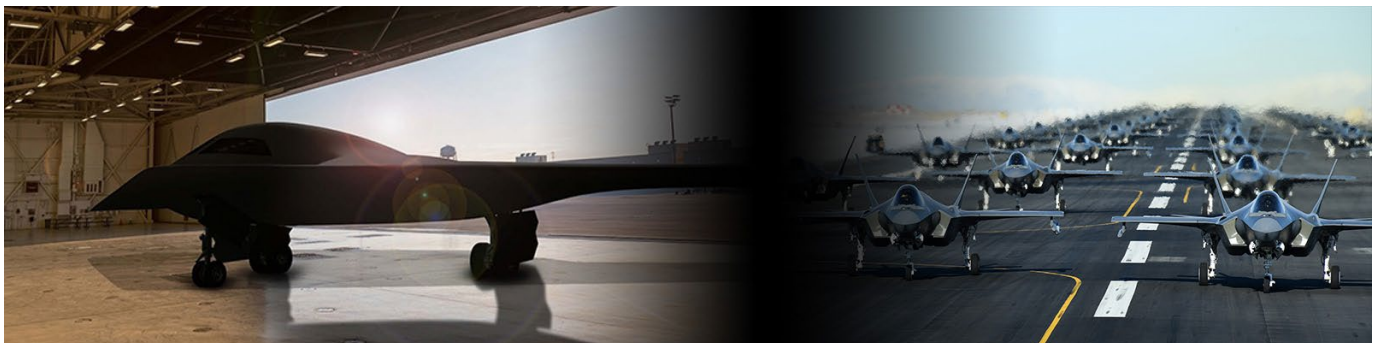
On the air side of the equation, whether looking at a bomber force that is the smallest and oldest in the Air Force’s entire history, a fighter force cut by more than half since the end of the Cold War, an airlift force that would be stretched to the breaking point in any major military operation, or an ISR force that is a fraction of that needed to meet everyday requirements, there are simply too few aircraft to meet demand. In military parlance, this is called “low density, high demand.” It basically means you cycle jets at an incredibly high rate, which wears them out fast and runs crews ragged.

Add to this challenge the fact that the aircraft inventory is exceedingly old.

Airmen learning to fly do so in T-38s that were procured during the Kennedy and Johnson administrations. They may end up flying fighters that were acquired before the world wide web was invented or in bombers that pre-date the Cuban Missile Crisis. Three generations of a family have flown in the same bombers and aerial refueling tankers. News stories often look at such occurrences with a sentimental mindset. However, the reality is that this represents an Air Force in crisis. These are combat aircraft, not museum pieces. There comes a point where an old jet is simply no longer viable to fly. That time is already past for many of these aircraft. There is also the reality that enemy defenses pose extreme danger to any combat aircraft without stealth, sensors, robust processing power, and a high degree of connectivity. Only 13 percent of the current bomber inventory and only about 20 percent of Air Force fighters are stealthy. The Air Force must become a majority stealth force, but right now that is a distant goal.

The situation is not much better in the space world. Infrastructure is old, capabilities need resetting, and the nation requires more mission assets on orbit to meet demand. A key driver toward the stand-up of the Space Force as an independent service was the presumed allocation of more resources to increase both capability and capacity. That imperative still exists.

Figure 1: An Air Force illustration of a B-21 and a photo of an elephant walk of F-35As. These will comprise the newest aircraft in the Air Force's 5th generation force.



Sources: USAF B-21 Illustration and [USAF photo of an F-35A elephant walk](#).

The reason for this fragile state of affairs is simple. The Air Force and Space Force combined receive about 24 percent of the defense budget. Although the budget allocation between the services appears more equitable on the surface, in reality, approximately \$40B of the Department of the Air Force's total annual budget is allocated to other agencies in DOD with absolutely no control by the Air Force. That is enough to buy around 400 F-35s, and it would also go far in the military space realm. The other armed services do not get taxed at this aggressive rate. The Department of the

No joint military operation can execute successfully without space-based capabilities. Space operations are not an optional set of capabilities, although that is largely how they have been treated.

Air Force also took the largest funding hits in the years after the Cold War. Between Fiscal Year (FY) 1989 and FY 2001, the Air Force's procurement budget fell by 52 percent. This was nearly 20 percent more than the other services. In the wake of 9/11, much was asked of the Air Force, but budget increases failed to keep pace with demand.

New joint missions, like the surge in remotely piloted aircraft, were largely funded out of hide. Operations in Afghanistan and Iraq were ground-centric, and the money tracked as such. Passage of the Budget Control Act in 2011 made the situation worse. In fact, FY 2013 saw the Air Force with the lowest level of funding for new aircraft in its history.

The creation of the new Space Force in 2019 was largely an unfunded mandate—assuming increased responsibility with its budget wedge pulled from the Air Force. Two services within the budget confines of one became a reality and should concern the new defense leadership. Part of the rationale for the standup for the new Space Force was that resources for defense operations in space were monetarily constrained.

Adding new bureaucratic demands necessary for an independent service and growing operational requirements without additional resources in terms of both personnel and money is a recipe for failure. No joint military operation can execute successfully without space-based capabilities. However, they have largely been treated as if they were an optional set of capabilities. The armed services and combatant commands assume a level of space functionality that is absolutely fundamental to their operations.

Given these challenging circumstances, the question obviously arises: what will better help the Air Force and Space Force meet the demands imposed on them? First, leaders need to admit there is a problem and remain committed to highlighting the disconnect between budgetary resources and mission demand so that senior officials understand the risks they are assuming. Often misunderstood or overlooked is that Air Force and Space Force leaders spend months before they submit their budget up the chain of command paring their monetary request to the bone. In military terms, this is stated as a “moderate-to-high risk” set of planning assumptions. Numbers normally get trimmed further by the Secretary of Defense and Office of Management and Budget. This means that the Air Force's and Space Force's going-in position to Congress is already a compromised position. Think about this in personal terms. Would you go into salary negotiations with your employer with your starting request less than what you need for rent and food? That is exactly what the Air Force and Space Force do routinely. The results may prove catastrophic over time.

This is precisely why the service leaders need to be open regarding notions of risk, shortfalls, and readiness. That is the only way Congress will know where to prioritize additive investment. That cannot happen in the absence of a problem statement. The Department of the Air

Force’s 2018 statement regarding the need for 386 operational squadrons to meet the national defense strategy, up from the 312 they presently possess, was a crucial step in the right direction. However, leaders must remain committed to this plan. Too many airmen and guardians focus only on what they are issued in arbitrary budget guidance versus what they truly require. While the services are required to submit a balanced budget in accordance with directed guidance, they also have a responsibility to advocate and articulate what they need to execute the defense strategy. Conflating these two can be dangerous, giving false confidence that missions can be met no matter how bleak the budget may be. Historically the Air Force used to have a planning force—what it needed—and a programing force—what the budget allowed. The space in-between was a measure of risk. The time has come to reinstitute that process. The FY 2021 National Defense Authorization Act’s specificity regarding an aircraft inventory floor as well as growth targets are certainly an important step in helping articulate these challenges. All of these lessons apply to the Space Force as well. In fact, as a new service, they should internalize this thinking in their culture from the very beginning. It is important to understand that the defense budget submitted in February is merely a request.

Congress owns the budget authorization and appropriation processes. They cannot do their jobs effectively if budgeteers in the Pentagon are not transparent with respect to their actual needs.

Department of the Air Force leaders can only get closer to what they require to meet the demands of the combatant commands by openly explaining that both the Air Force and Space Force have hit bottom. Neither can get any smaller when it comes to people or mission equipment. For years, the Air Force has regularly traded off existing force structure in the hope that it could invest savings in future priorities. The problem is that the federal budget does not belong to the Air Force. The service is allowed to list its requirements, but these must pass through the Secretary of Defense, Office of Management and Budget, and Congress. The Air Force’s batting average in this process over the past 30 years is 100 percent—in each case it has lost the force structure it offered in exchange for future investment, as well as the future investment itself every single time this approach was taken. For example, a process known as the combat air forces reduction or “CAF REDUX” in 2010 saw the Air Force divest over two hundred legacy aircraft to generate money they could use to modernize their old force structure with new 5th generation aircraft like the F-35. The retirement of

Figure 2: The Air Force must grow to by 24 percent to 386 operational squadrons to execute the *National Defense Strategy*



Source: USAF

the old fighters proceeded, but the money disappeared as a result of the “take” of the 2011 Budget Control Act. This, on the heels of the cancellation of the F-22 at less than half its stated military requirement, saw key mission areas stretch to their breaking points. Wars were still underway in Afghanistan and Iraq, with old aircraft spinning hard to meet that demand and getting older in the process. In 2019 the Air Force announced that its F-15C/D force was at the end of its service life, with structural wear and tear marking the end of a force first flown while Richard Nixon

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was President. Given a slower F-35 production rate than was originally planned, the Air Force found itself in a precarious position. A key portion of its legacy fighter force was finished, it had too few F-22s, and too few F-35s were being purchased each year to make up for these limiting factors. The situation today is worse than it was in 2010. The Air Force will not

resolve its aging force and deficit situation by adopting the same approach and hoping for a better outcome. Getting smaller through force structure cuts will only worsen the circumstances, especially given that COVID-19 related budget pressures will see the assumed savings disappear.

Complete Current Program Buys to Avoid Another Modernization Death Spiral _____

This brings up the next point: the procurement efforts under way are the ones that are going to fix the Air Force’s force structure deficit and aging challenges. F-35, B-21, KC-46, T-7, and other modernization programs currently underway are the Air Force’s best hope. The Space Force has its own priorities too, although they are largely

classified. Research and development funding has already been sunk, production lines are in place, and the bureaucratic institution is aligned for these aircraft and spacecraft. Leaders need to guard against betting on the promises of a future next generation capability and remain committed to the solutions they have in process now. The reason for this is simple: the current force structure needs resetting as soon as possible, and dollars are tight and will get tighter. Canceling programs already underway in the quest to procure something theoretically better will drive schedule delays and cost escalation, and there is no guarantee the new objective will work.

The Air Force has been down this road before. In the rush to harvest post-Cold War budget savings, the Department of Defense cancelled the B-2 buy at 21 airframes, far short of the 132 originally planned. A tremendous investment in technological development, production tooling, and infrastructure was simply abandoned. Additional funds were sunk in the B-52 and B-1 to extend their lives and increase their capabilities. However, demand for the long-range stealth bomber never went away, and by the early 2000s the service had to pursue a new design called the Next Generation Bomber. It was cancelled in 2009, with the government once again walking away from a significant sum sunk in research and development. The remaining force of legacy bombers required further upgrades to remain viable. Demand for a new stealth bomber did not wane, so the effort to come up with a new stealth bomber was restarted once again. It ultimately resulted in the B-21. If the Air Force had simply been allowed to procure the full buy of the B-2, this painful, costly process may have been avoided, and certainly would have been postponed.

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requirement. If the focus is weighted toward “program next,” the Air Force will have to face the reality of diminishing aircraft in its inventory and increasing risk to meet defense strategy demands. Said more bluntly, if it is always about the “program next,” the service will never have a real program of operational significance. The moment technical and budget challenges arise, eyes will look toward the next conceptual solution. This should inform decision-makers who are talking about reducing the F-35 buy. They have no idea what the future will hold. To this

point it is instructive to watch the Navy, who remains open as to how many F/A-18s they will ultimately procure. The answer depends on numerous conditions, few of which are fully understood at present. Leaders need to keep their options open.

Part of the quest to buy the next “new thing” now involves the need to invest significant sums in the concept of Joint All Domain Command and Control (JADC2) with the technology yielded through the Advanced Battle Management System (ABMS). While this endeavor sounds complex, it is actually quite logical at a macro level. The goal is to gain increased situational awareness throughout the battlespace—targets to strike, threats to avoid, and other pertinent information—that allows actors to optimize the use of forces such that they attain desired effects in the smartest, most prudent fashion, while minimizing undue risk. It also seeks to allow separate actors to work together in a real-time fashion to increase decision advantage over a peer adversary—where that may be the only advantage they have. Think about an aircraft over an enemy target that is out of munitions. It can still net strike results by passing target coordinates to a ship offshore that launches a missile, with

terminal guidance provided by the aircraft or satellite constellation still overhead the target. In many ways, this is not a new vision, it is as old as air combat. The Royal Air Force’s air defense command and control system during Battle of Britain is an example. A network of sensors, most famously radar, passed position information regarding attacking German bombers to ground command and control (C2) stations. They fused this data with the relative position of their fighter aircraft. This allowed an extremely limited number of defending aircraft to be vectored directly at the attacking bombers. It was an extremely efficient system, whereby both the fighter aircraft and the C2 system were critical. Both were required to net the end mission result.

Developing ABMS to realize the JADC2 vision is an expensive undertaking. Many have suggested the Air Force should downsize to fund this effort. However, this is an exceedingly risky proposition. Mission demand will not let the Air Force get any smaller. JADC2 will be of little use if mission aircraft do not exist in sufficient number to meet mission objectives. Networks alone do not close kill chains. The answer is that air and spacecraft and ABMS are required. They always must be discussed as synergistic elements of modern aerospace warfare. This is a perfect area where the Air Force needs to make the case for both requirements. To choose between one or the other is an impossible choice—the requirements are wholly interdependent.

Set Up the Space Force for Success _____

The primary reason we now have a separate service to organize, train, and equip for both offensive and defensive combat operations in space is due to the growing and grave threats from China and Russia posed to challenge peaceful space operations. However, the Space Force is currently underfunded and undermanned,

and it does not have the authorities to consolidate other organizations with a role in national security space activities. Now that the Space Force is a reality, actions need to be planned and taken to set it up for success, but there are many challenges ahead.

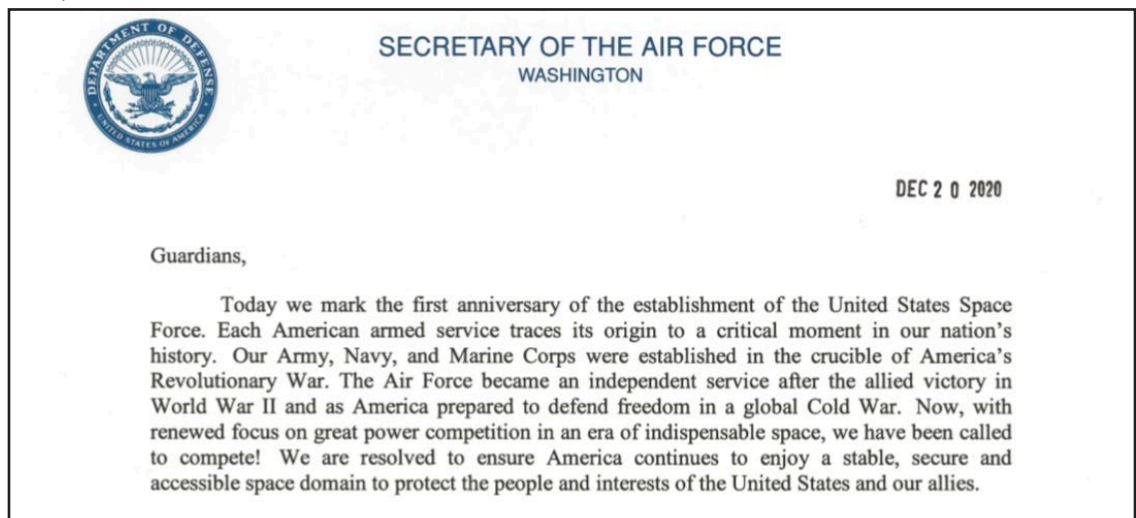
The first—and greatest—challenge is that to meet growing and grave threats to both our civil and military space architectures, the Space Force will require growth in the resources allocated to it to design, develop, and build the capabilities to defend and, if necessary, defeat any aggression against U.S. space-based systems. Because every military service, defense, and intelligence agency in the Department of Defense (DOD) are critically dependent on our space enterprise, every one of these organizations need to contribute to provide the resources the Space Force requires to successfully execute its missions. That will require a significant increase in its overall topline from what was allocated to its preceding organization, the Air Force Space Command. The Space Force must succeed, for all of DOD depends on it. Furthermore, our interests in space are too important and too vital, not just to military operations but to day-to-day business and every American's livelihood, to do this "on the cheap."

The second challenge the Space Force has to deal with is personnel. The new service was created by renaming the Air Force Space Command (AFSPC) as the U.S. Space Force. That was an appropriate move, as the vast majority of DOD's expertise in space was resident in Air Force Space Command. However, there are also important elements of space expertise in the other services. To capitalize on that expertise in a unified way, there needs to be a plan for bringing those elements into the Space Force to achieve a synergy of capabilities and effects that can only come from integration of all the DOD space elements into the Space Force.

Remember that the DOD also re-established the U.S. Space Command as a separate combatant command in August 2019, and a good number of its personnel came from Air Force Space Command. We should not forget that the U.S. Air Force will still need its own space component to provide its representation to the U.S. Space Command. Where are all of these people going to come from?

This personnel challenge is one that will need to be addressed as a priority as there are simply not enough trained space personnel to cover all these additional new

Figure 3: A letter from the SECAF on the 1-year anniversary of the establishment of the Space Force that recognizes space as "indispensable."



Source: [USAF News](#).

military space organizations without having to double- or even triple-hat some personnel in all three organizations. Critical to maturing a stand-alone space force will be to develop a larger, deeper, and more flexible stable of space talent.

The third challenge is the need to consolidate the nation's fragmented multitude of space organizations into the Space Force. A July 2016 Government Accountability Office (GAO) report noted that some 60 stakeholder organizations in DOD, the Executive Office of the President, the Intelligence Community, and civilian agencies all have a role in national security space. GAO's conclusion was that too many cooks are spoiling the proverbial broth. Former Vice President Mike Pence echoed that sentiment on March 1, 2019, saying that spreading the national security space program so thinly has resulted in "a glaring lack of leadership and accountability that undermines our combatant commanders and puts our war-fighters at risk." If the Nation is serious about dealing with the threats facing us in space, those more than 60 government organizations need to be integrated into the Space Force.

Attention is required immediately to garner the fledgling Space Force the resources it needs to build new capabilities; develop space doctrine; train personnel to fully and separately man the Space Force, Space Command, and individual service space components; and integrate the numerous and disparate organizations and agencies with a role in space into the Space Force. Only

then will the vision of the world's greatest Space Force—unequaled by any other, and one fully equipped to deter any adversary aggression against U.S. capabilities in space—be realized.

Adopt Cost-Per-Effect Analysis as DOD's Preferred Measure of Merit

Building the most effective, efficient military in a time of decreased spending on defense demands focusing on solutions that realize best mission value. Wars are not won by lowest-cost bidders. They are won by applying more capable systems in innovative ways to best achieve desired effects or outputs. For the same reason, the value of a warfighting system cannot be accurately quantified by input measures like unit cost, cost per flying hour, or total sustainment cost over the lifetime of a program.

While this seems obvious, a continued narrow focus on quantitative metrics strongly suggests otherwise. Indeed, "effectiveness" has largely been missing for the last three decades from the goal of cost-effectiveness in procuring military systems. Though well-intentioned, a focus on unit and sustainment costs too often yields capabilities that drive more expensive, less capable combat options in an operational context.

Looking to future investments, the concept of "cost" needs to focus less on individual systems and more on the enterprise resources required to achieve mission goals. This means implementing a "cost-per-effect" metric. A cost-per-effect assessment measures the sum of what it takes to net a desired mission result, not just a single system's acquisition and support costs without necessary context surrounding the capability's actual use. For instance, stealth weapon systems may appear more costly on a per-unit basis than less-capable legacy aircraft designs, but enterprise assessments illustrate their potential to complete mission

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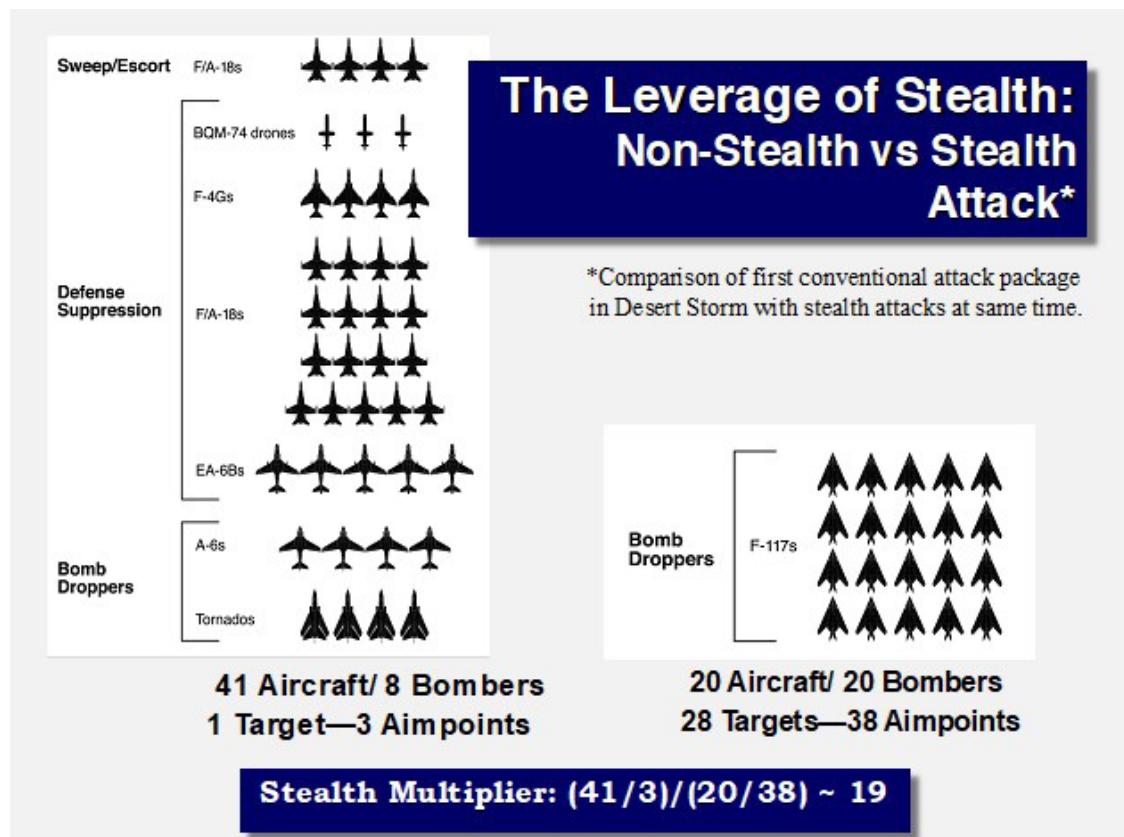
objectives more efficiently and capably. They can use dozens of fewer aircraft to achieve the same mission effects, lowering overall operational expense. As such, they are a far more cost-effective option.

Considering that additional defense spending will not be a realistic solution given the economic damage wrought by COVID-19, the Department of Defense, as a whole, needs to capitalize upon cost-per-effect force planning analysis. Leaders in Washington D.C. tend to focus on how much an aircraft or spacecraft will cost without looking at how it will be used. Understanding that aircraft and spacecraft tend to have lives measured in decades, the real money drivers reside on the operational side of the ledger. This often sees certain options appear to be “cheap” on paper but turn out to deliver lesser capability at extremely high cost. For example, the F-117 stealth fighter was always thought of

as “expensive,” and it did cost a lot to buy and sustain when compared to non-stealth combat aircraft of the day. However, these aircraft were radically more effective and efficient. On night one of Desert Storm, as an example, it took over 40 non-stealth aircraft to strike a single target. Out of this total, only eight aircraft dropped bombs, and the rest were focused on keeping those strike aircraft alive with things like air superiority and electronic jamming. Past this, think about the crew demands of those 40+ aircraft, the basing and logistical support, and the risk of putting that many non-stealth aircraft into harm’s way. At that same time, 20 F-117s hit 28 separate targets thanks to their use of stealth technology and precision munitions. From this sort of vantage, the F-117 was clearly the better value.

Yet 30 years later, people are still deriding aircraft like the F-22, F-35, B-2,

Figure 4: Comparing stealth and non-stealth performance in Desert Storm



Source: Mitchell Institute

and B-21—the successors to the F-117—as “expensive.” This is profoundly inaccurate given how they are employed. It also reflects how some are trying to compare types like the F-35 and F-15EX to each other as if they offered similar capabilities. This is ludicrous. A 5th generation combat aircraft is employed wholly differently than an airframe design that first flew in 1972. The mission expenses reflect this evolution, with 5th generation technology affording huge advantages. That is what cost-per-effect is designed to measure, and it is well past time that the Air

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Force and the DOD step up and use it to make best use of their resources. With funding set to tighten, we cannot afford to use the wrong set of measures to deliver too little combat capability for too much money.

Nor is this just about acquisition. Cost-per-effect can be used to look at a host of areas, including maintenance and sustainment, where concepts like performance-based support may prove more cost-effective than traditional methods. It can also better measure where we are going in the future by looking at the teaming of distributed assets combining to meet a given mission goal, breaking into separate elements, then combining into another set of capabilities for another function. Trying to assess the relative value of these assets absent their broader teaming operational construct is going to yield increasingly inaccurate results.

DOD must modernize its system decision calculus. It faces declining budgets at the same time that the capability, capacity, and complexity of the threats it must address are also growing. Well beyond weapon

system comparisons from an individual unit perspective, the real value of the “cost-per-effect” measure of merit lies at the defense enterprise level. Where its focus should be aimed on measuring desired outcomes relative to concepts of operation and weapon system comparisons across service lines. For example, recent deployments of a few B-52s have served to achieve the same kind of deterrent effect against Iranian aggression in the Persian Gulf region as has an entire aircraft carrier battle group that ties up over 5,000 personnel for months on end.³ It is well past time for a serious roles and missions review with cost-per-effect as the baseline measure of merit.

Conclusion

Air Force and Space Force leaders should expand their efforts beyond making “zero-sum” trades inside their allocated budget and start signaling that they need additional resources to meet the demands that the national defense strategy imposes on them. They also need to explain the cost of coming up short. Every set of defense leaders come into office determined to do the best they can. However, the current state of the DOD enterprise, reflected by every service, indicates that it is clearly time for a significant revector of the terms of the decision calculus used by DOD to ensure that the resources spent on defense result in optimal value. In that vein, the following insights and recommendations are offered to inform defense decisions by the incoming administration over the next four years. They present a significant opportunity for President Biden’s defense team. Proof will be in the results.

The following recommendations should help inform defense decisions by the incoming administration over the next four years:

- The Department of the Air Force has

significant capacity shortfalls that cut across virtually all its highest priority mission areas, putting in jeopardy the nation's ability to conduct viable joint and coalition force operations. This is the net effect of years of underfunding resulting from a lack of transparency about how budget resources are allocated across the services. The new administration defense team should require that the services present both a "planning force" set of requirements as well as the traditional "programming force" that is driven by current budget allocations. In this manner, transparency can be introduced into defense planning. This will allow the DOD to highlight the disconnect between arbitrary budget guidance and the actual mission demand needed to meet the national defense strategy so that the administration, Congress, and the American public clearly understand the associated risks between the planning and programming forces.

- In FY21, the pass-through in the Air Force budget amounted to just over \$38 billion or just over 18 percent of the Department of the Air Force budget. Excluding the "pass through" shows that the Department of the Air Force received the lowest budget share among the military service departments. With the "pass through" included, the Department of the Air Force appears to have received the highest budget share among the military service departments. To provide transparency for decision makers to better understand the fiscal predicament facing all the services, the pass-through must be removed from the Department of the Air Force budget. It could easily be assigned its own funding line in the OSD budget or the funding re-assigned as a part of the Space Force, but

with the requisite control over its use. The current pass-through leads to inaccurate assumptions that have resulted in the Air Force being chronically underfunded for decades. That has created the conditions whereby Airmen are flying into harm's way with the smallest, and oldest force structure in the Air Force's history.

- Procurement programs already underway offer the best solution for the Department of the Air Force to address its current shortfalls. Canceling or truncating these programs to free up money to invest in theoretical promises of the future is likely to precipitate another modernization death spiral, resulting in a future force that is even smaller and older than it is today.
- Attention is required immediately to garner the new Space Force the resources it needs to build new capabilities; develop space doctrine; train personnel to fully and separately man the Space Force, Space Command, and individual service space components; and integrate the numerous and disparate organizations and agencies with a role in space into the Space Force.
- Given likely flat or declining defense budgets in the wake of COVID-19 and the fact that services may offer competing solutions to achieve similar mission objectives, the Department of Defense should adopt and apply cost-per-effect force planning analysis to ensure it makes the most prudent investment decisions across all the services. The best way to garner fast and lasting efficiencies for DOD while boosting combat capability for the Nation is for President Biden to direct the DOD to conduct a comprehensive and complete roles and missions review using cost-per-effect as the baseline measure of merit.★

Endnotes

- 1 Paul McLeary, "[CJCS Milley Predicts DoD Budget 'Bloodletting' To Fund Navy.](#)" *Breaking Defense*, December 3, 2020.
- 2 Claudia Grisales, "[Air Force secretary warns: 'We are too small for what the nation is asking us to do.'](#)" April 2, 2019.
- 3 Katie Bo Williams, "[US Flies B-52 Bomber To Gulf In Show of Force Against Iran.](#)" *Defense One*, January 27, 2021.

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