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Resolved: On balance, the benefits of creating the United States Space Force outweigh the harms.

March 2021 PF Brief*

*Published by Victory Briefs, PO Box 803338 #40503, Chicago, IL 60680-3338. Edited by Lawrence Zhou. Written by Inko Bovenzi, Anik Sen, Laurenn Vives, and Lawrence Zhou. Ev-idence cut by Lawrence Zhou. For customer support, please email help@victorybriefs.com.

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1 Topic Analysis by Inko Bovenzi

Inko Bovenzi debated for Hunter High School in New York City. He qualified to the Tournament of Champions twice and reached outrounds in his junior year. He has reached late elimination rounds in several varsity tournaments, including finals at Yale, quarterfinals at UK and semifinals at Scarsdale. In addition, he was 8th speaker at Harvard, 3rd speaker at UK, and 7th speaker at Scarsdale. He was invited to compete at the Harvard Round Robin twice, and during his senior year, he was ranked first in the country. He was an instructor at the Victory Briefs Institute this summer.

1.1 Introduction

So what exactly is the Space Force?

The Space Force is a (relatively) small, newly created branch of the military that is a subset of the Air Force:

> The Department of Defense forwarded a Space Force proposal to Congress, on March 1, 2019, calling for a service that would fall under the Air Force in the same way the Marine Corps falls under the Department of the Navy. The proposal also included the designation of a new position: undersecretary of the Air Force for space, a civilian position that would answer to the secre-tary of the Air Force and oversee U.S. Space Force. Officials estimated the creation of a new service would cost $2 billion over five years, and require 15,000 personnel.[1]

According to the Space Force's own website, their stated mission is to protect American interests in space and boost the military's space capabilities. While their website is a little short on specifics, here are the three main goals for the Space Force:

[1]Military, 12-20-2019, "United States Space Force," https://www.military.com/space-force

- Protecting our satellites and other critical space infrastructure, as well as being able to respond to our adversaries' spacial objects
- Monitoring and protecting American equipment from space junk
- Monitoring ballistic missile launches for potential missile launches against North America

1.1.1 What is the Counterfactual?

It appears that the Space Force is mostly a restructuring of existing personnel and funds to its own department. That makes sense—in a world without the Space Force (the counterfactual), it's likely that the Air Force would just take on most of the tasks that would have been assigned to the Space Force, as presumably our military believes that these tasks/actions are in the national interest. Herein lie two paths for debate rounds to take:

First, you can assume that all of the actions taken on by the Space Force will *not* occur in the counterfactual. While this is highly improbable, this will make for better and more interesting debates, as you can actually discuss whether the above three activities (and other, smaller ones) are harmful or beneficial. The downside of this strategy is that if your opponents are using the second, you're probably going to lose.

Second, you can argue that the counterfactual world is one where the Air Force (or some other branch of the US military) takes on all of the objectives of the current Space Force. While this strategy would be my recommendation, these rounds are not likely to be interesting, as the offense won by either side will be tiny. For example, aff may argue that separating the branches allows for somewhat greater operational efficiency, while neg may make an argument about how separation may increase/decrease funding and that's beneficial/harmful. You can see how small the impacts are: in the context of a $700 billion military budget, the $2 billion for the Space Force over five years is almost insignificant. The first section of this topic analysis will assume you go down the first route (or will give you turns to arguments that such teams will be running, while the second will focus on the second option.

1.2 No Counterfactual – Aff Arguments

1.2.1 Space Junk

The United States Space Force is supposed to help out with the reduction and moni-toring of space junk. Space junk is the assortment of debris, ranging from bullet-size to satellite-size, that orbits earth. Even though space junk may be small, because ob-jects orbit earth at thousands if not tens of thousands of miles per hour, one collision with a space junk "bullet" can be catastrophic for a satellite. And should that satellite be destroyed by the collision, then it too will become space junk. The worry is that as we continue to send objects into space, we will gradually increase the amount of space junk out there until it is impossible to send more rockets up and our satellites are all de-stroyed. That would be truly catastrophic. Keeping track of space junk and destroying it is easier said than done, as there are millions of these objects orbiting earth.

So what's the solution? The military currently has a "Space Fence" to help resolve this issue:

> For now, the military has its space fence, which tracks all of the debris and helps space assets do their best to avoid collisions.
>
> "The Space fence is revolutionizing the way we view space by providing timely, precise orbital data on objects that threaten both manned and un-manned military and commercial space assets," Chief of Space Operations Gen. Jay Raymond said in a statement back in March. "Our space capabil-ities are critical to our national defense and way of life, which is why the space fence is so important to enhance our ability to identify, characterize and track threats to those systems."[2]

While the Space Force has not taken concrete action to address this challenge (it has not even existed for two years), it plans to collaborate with the private sector to clean up space:

> Leaders of the Space Force's Rapid Capabilities Office (SRCO) and Space and Missiles Systems Center (SMSC) said Wednesday that they are interested in ways the commercial sector can help the military with junk floating around the Earth's orbit.**

[2]Defense, 11-18-2020, "DoD wants industry's help in taking out space trash," Federal News Network, https://federalnewsnetwork.com/defense-main/2020/11/dod-wants-industrys-help-in-taking-out-space-trash/

> "Space debris is already a national security space issue. You've probably heard Department of Defense leaders talk about space not only being con-tested, but also congested," Lt. Gen. John Thompson, SMSC direction, said during an American Institute of Aeronautics and Astronautics event. "I an-ticipate that in the commercial sector, and in the national security space sec-tor, that orbital debris mitigation will become a huge effort going into the future."

Unchecked, space junk would be catastrophic. As the problem worsens, more satellites will be destroyed, creating even more space junk. This vicious cycle would threaten all space vehicles, like satellites:

> In the realistic scenario, he speculated, the runaway collisions would begin in fifteen years, and by 2020 would cause certain altitudes to be so hazardous that a power station would not survive a decade. In the worst case, based on the assumption that the collisions were already cascading, the debris en-vironment would be ten times that bad by 2020; within two centuries "all tracked objects would be completely destroyed and space would be filled with millions of fragments."[3]

This would doubtless cause massive economic damage (and surely a lot worse), because modern infrastructure relies heavily on satellites. Everything from the internet to fi-nance and GPS/navigation to weather forecasts relies on satellite activity:

> The stakes are high. Much of our 21st century economy and lifestyle -- from bank transactions and weather forecasting to television service and GPS -- depends on satellites functioning round the clock and without interruption. The military depends on them too. But space right now is a bit like the Wild West, with a wide-ranging mix of government and commercial satellites, all of them sitting ducks.[4]

[3]Raffi Khatchadourian, 9-28-2020, "The Elusive Peril of Space Junk," New Yorker, https://www.newyorker.com/magazine/2020/09/28/the-elusive-peril-of-space-junk

[4]Eric Mack, 12-20-2020, "US Space Force: Everything you need to know on its first anniver-sary," CNET, https://www.cnet.com/news/us-space-force-guardians-everything-you-need-to-know-first-anniversary/

1.2.2 Satellites

Satellites are super important (as explained above), and a careful destruction of just a few critical satellites could unleash catastrophe on the globe. It's for this reason that satellites could be a prime target in the future for terrorists or hostile nations. The United States has somewhat fallen behind our adversaries in space:

> We've even seen an instance of target practice: In 2007, China shot down one of its own satellites -- mission accomplished in its own right -- and lit-tered orbit with potentially destructive space debris. Many saw that 2007 operation as a veiled display of military power.**
>
> "Our adversaries are moving deliberately and quickly in order to reduce our advantage** [in space]," Raymond said at a conference in September 2020. "I'm not confident that we can achieve victory, or even compete, in a modern conflict without space power."[5]

To this end, the Space Force already has a number of important technological efforts:

> More to the point of what the new branch is all about: On March 26, Space Force carried out what it called its first national security space launch, send-ing into orbit a military communications satellite, built by Lockheed Martin, that's part of a six-satellite network of encrypted, jam-proof systems.
>
> On May 17, Space Force launched the secretive X-37B space plane into orbit. It's carrying experiments for NASA and the military, including one studying the effects of radiation on seeds and another looking at transforming solar energy into radio frequencies that can be transmitted to the Earth's surface.
>
> Meanwhile, SpaceX has helped Space Force launch new GPS satellites over the past year. The first four of the GPS III generation of satellites all became operational in 2020.

This is from the Heritage Foundation, so take it with a grain of salt, but it appears that out adversaries currently have far superior military capabilities to ours:

> In 2015, Russia actually combined their Space Force that manages their satel-lites and associated tracking and control networks with their Air Force and

[5]Eric Mack, 12-20-2020, "US Space Force: Everything you need to know on its first anniver-sary," CNET, https://www.cnet.com/news/us-space-force-guardians-everything-you-need-to-know-first-anniversary/

> aerospace and missile defense force to create what they now call their Rus-sian Aerospace Forces. That same year China engaged in a massive reorga-nization of their military which saw the creation of the PLA Strategic Sup-port Force bringing their electronic network, cyber and space warfare forces together into a single service. Shockingly they both also have some basic abilities that we do not.
>
> One of the things that the Chinese and Russians at this point can do that the United States can't, is that it can also put an astronaut into space. At this point, ever since we retired the space shuttles we have been hitching rides on Russian rockets in Russian capsules, even up to the International Space Station.[6]

The article supports the idea of a specialized branch of the military to deal with this future of military conflict. There are two potential impacts for their argument. First, asymmetry between the United States and our adversaries could encourage an attack, because our adversaries may see the opportunity for an easy victory. Generally speak-ing, the closer two military powers are to equality, the less likely they are to go to war, given that war would be very costly without any clear benefits for either side. The sec-ond impact is that our adversaries (during a conflict) or terrorists could knock out some satellites for the sake of hurting our economy and military, which a Space Force could help prevent. While this argument may feel very nebulous (no pun intended), it proba-bly is a good deal truer than most people would imagine.

1.2.3 Missile Defense

American satellites are critical to our systems of missile defense, ranging from detec-tion leading to warnings to allowing missile defense systems to operate. In fact, these systems may have saved the US from a war in Iran by saving the lives of hundreds of American soldiers from an Iranian missile (context is that a satellite picked up on the missiles using infrared technology):

> With the clock ticking, word went out over another set of U.S. military com-munications satellites to two Iraqi bases, Al Asad and Erbil, where hundreds of Americans were stationed. The first missiles hit at 1:34 a.m., their 1,400-

[6] "Does the United States Need a Space Force?," Heritage Foundation, https://www.heritage.org/space-policy/heritage-explains/does-the-united-states-need-space-force

> lb. warheads turning buildings, aircraft and living quarters into smolder-ing rubble. Concussions from the blasts injured 109 American troops, but most had managed to shelter in underground bunkers and trenches. No one died.[7]

As in the previous argument, these systems could be protected by a Space Force:

> Dean explained to me why the abilities of our adversaries in space affect us in both wartime and peace. Right now there are thousands of U.S. satellites orbiting the Earth. In a time of war, if an enemy was able to interfere with our communication to any of these satellites they could severely affect missile defense and guidance.

The impact of this argument could either be the immediate death caused by a (poten-tially nuclear) missile, or the possibly greater impact of a war the United States may begin if hundreds of its soldiers were killed by a hostile foreign power. This resolution is evaluative (considers past impacts as well as there are benefits of the Space Force), so this exact example could be offense for your case.

1.3 No Counterfactual – Neg Arguments

1.3.1 Undermines MAD

This argument is the opposite of the missile defense aff argument. The idea is that it's a good thing if the United States is vulnerable to our enemies' missiles, because that makes our enemies confident that we will not act excessively belligerent against them. The idea is that there is "mutually assured destruction," or MAD, between two countries if both have the capability of destroying/inflicting significant damage on the other, which significantly reduces the chances of conflict. For example, as far as I'm aware, no two hegemons have fought a non-proxy war since the end of World War II (the advent of nuclear weapons). The problem is that missile defense/protection may make the US either a) more aggressive or b) make our enemies more aggressive as they feel that they are in a use it or lose it situation in the months before the US becomes fully protected from their weapons, potentially forcing their hand into a strike:

[7] W.J. Hennigan, 11-26-2019, "America Really Does Have a Space Force. We Went Inside to See What It Does," Time, https://time.com/5869987/spaceforce/

> It still is, and is likely to remain so for some time. But disruptive new tech-nologies, worsening relations between Russia and America and a less cau-tious Russian leadership than in the cold war have raised fears that a new era of strategic instability may be approaching. James Miller, who was under-secretary of defence for policy at the Pentagon until 2014, thinks that the deployment of increasingly advanced cyber, space, missile-defence, long-range conventional strike and autonomous systems "has the potential to threaten both sides' nuclear retaliatory strike capabilities, particularly their command-and-control apparatuses", and that "the potential of a dispute leading to a crisis, of a crisis leading to a war, and of a war escalating rapidly" is growing.[8]

1.3.2 Increases Space Junk

This is the reverse of the aff space junk argument. There are two parts to this argument: first, that launching more satellites (something the Space Force will certainly do) will increase space junk through unwanted collisions and leaving the satellites in orbit after their utility ends:

> These hypothetical futures ultimately led the team to come up with the 99 percent recommendation. The advice: for every 100 satellites, 99 need to be deorbited as soon as their missions are over, typically within five years of its ending. That entails lowering the altitude of the satellite so that it quickly succumbs to Earth's gravity and burns up during the descent through our planet's atmosphere. If this doesn't happen, then the population of space-craft in low Earth orbit starts to grow significantly over the years.[9]

If proper maintenance techniques are followed (as outlined by the article), this shouldn't be a problem. However, both clearing space junk and sending satellites back down to earth is costly, and something the US government might want to avoid (similarly to how there is an aversion among many to take environment protection measures that may cost a bit now but save us a lot in the long term). If this becomes the case, particularly during Republican administrations, then it is possible that the United States will help

[8]Economist, 2020, "Not so MAD," https://www.economist.com/special-report/2018/01/25/why-nuclear-stability-is-under-threat

[9]Loren Grush, "As satellite constellations grow larger, NASA is worried about orbital debris," Verge, https://www.theverge.com/2018/9/28/17906158/nasa-spacex-oneweb-satellite-large-constellations-orbital-debris

push the world to the point of no return: where we can't send up satellites to clean up space because there's so much junk that they get destroyed too quickly.

1.4 Counterfactuals

Justifying That the Counterfactual would be Similar to Aff World

The United States military has worked on the goals of the Space Force for decades before its creation:

> Before the Space Force, there was a US Space Command established as part of the Air Force in 1985...
>
> The US military has been involved in space-related projects for decades. In the 1960s, at the same time that NASA was working toward a moon land-ing, the Air Force even had a parallel manned space program with its own astronauts, although none of them ever launched, as far as we know.
>
> More recently, the Air Force, Navy and Army have had their own units fo-cused on elements of operations in space. A Pentagon memo obtained by Defense One indicated that the Trump administration's original proposal for a sixth military branch had the Space Force absorbing the Naval Satellite Operations Center, the Navy's Space and Naval Warfare Systems Command, parts of Air Force Space Command and the Army's 1st Space Brigade, which was specifically created for "enabling the delivery of decisive combat power" and includes two astronauts who are basically on loan to NASA.[10]

Essentially, the Space Force is a conglomeration of already existing branches of the Air Force, Army, and Navy. That makes sense—because satellites and related issues are so important, the US military will do everything it can to secure their objectives regarding them, *regardless of whether or not there's a group officially labeled "Space Force."* The Space Force was only created in large part as a PR stunt by the Trump Administration. This means that all of the arguments I mentioned above would happen in either world, in the aff world with the Space Force and in the neg with the Air Force, for example.

How to Run Counterfactual is the Same Arguments

[10]Eric Mack, 12-20-2020, "US Space Force: Everything you need to know on its first anniver-sary," CNET, https://www.cnet.com/news/us-space-force-guardians-everything-you-need-to-know-first-anniversary/

There's two ways to make the following arguments: creating the Space Force makes it more efficient at its tasks and that's good because the Space Force is good (aff argument) or that's bad because the Space Force is bad (neg argument). I would highly recommend reading Space Force bad on aff and Space Force good on neg because your opponents will likely agree with your links about how beneficial the Space Force is, so you only need to win your top link to win the round. For example:

If you're negating, and the aff reads Space Force good because it removes space junk, then you can read creating the Space Force adds more bureaucracy to the system (be-cause it's a separate branch of the military), thus making the US military less efficient at dealing with space junk.

The other option is to find some other reason why separating the Space Force from the rest of the military is a good/bad thing, separate from how well the Space Force functions at its jobs. I can't think of any such reasons based on the research I have done, but that doesn't mean they don't exist. Be sure that they're not easily turnable, though.

Here are the reasons why the creation of the Space Force may make it more efficient:

- More funding. With a separate branch of the military, it's easier to lobby for fund-ing from Congress.
- Clearer mission. With a branch that has a very clear job, it's more likely that the very important work of protecting satellites will be prioritized as opposed to if it's a tiny portion of the Air Force's job.

Here are the reasons why it may become less efficient:

- More bureaucracy. A new branch of the military leads to the employment of more administrators/managers, decreasing efficiency.
- Less funding. This smaller branch of the military will have less capacity to lobby for funds as opposed to the much larger Air Force.
- Less funding II. Because the Space Force was created as a PR stunt by the Trump Administration, Democrats may be suspicious of it and fund it less.

2 Topic Analysis by Lawrence Zhou

Lawrence Zhou is the Director of Lincoln-Douglas Debate and Publishing at Victory Briefs. He debated at Bartlesville HS in Oklahoma (2010-2014) in Lincoln-Douglas debate where he was the 2014 NSDA Lincoln-Douglas national champion. While attending the University of Oklahoma, he placed as the National Runner Up at the 2018 Intercollegiate Ethics Bowl National Competition, advanced to outrounds at the 2016 and 2018 Cross Examination Debate Association National Tournament, and championed the Beijing Language and Culture University in British Parliamen-tary debate. Lawrence graduated in 2019 with degrees in MIS, Marketing, and Phi-losophy. He was formerly the Debate League Director at the National High School Debate League of China and is currently a graduate assistant at the University of Wyoming and an assistant coach at The Harker School. His students have advanced to late outrounds at numerous regional and national invitational tournaments, in-cluding finals and semifinals appearances at the NSDA National Tournament.

2.1 Introduction

I'll be honest, I totally forgot about the Space Force existed. Apart from spawning an "astonishingly bad show"[1] (and I can confirm, the show was awful – but maybe the second season won't be as awful[2]), I only somewhat remember some jokes made about its uniforms and comparisons to Star Trek.[3] Also, apparently, they are calling their members "Guardians" which is just absolutely laughable.[4]

[1]Rivera, J. (2020, June 3). *Space Force is an astonishingly bad show*. The Verge. https://www.theverge.com/21279403/space-force-review-netflix-steve-carell-nasa-the-office

[2]Tassi, P. (2020, June 1). *Why Netflix's 'Space Force,' despite awful reviews, is likely to see a season 2*. Forbes. https://www.forbes.com/sites/paultassi/2020/06/01/why-netflixs-space-force-despite-awful-reviews-is-likely-to-see-a-season-2/?sh=2d5b4cb84cfd

[3]Graff, G. M. (2020, January 1). *The US Space Force has a rough launch on the internet*. Wired. https://www.wired.com/story/space-force-internet/

[4]Towers, A. (2020, December 18). *Space Force mocked by everyone for calling members 'guardians': 'How is this NOT a joke'*. The Wrap. https://www.thewrap.com/

But despite the fact that almost everything in popular media relating to the United States Space Force (USSF) is a joke (which is fitting because it apparently started as an offhand joke[5]), it's a real thing with real consequences. The fact that it has received little attention compared to other, more pressing current events, has a few noticeable implications for the topic. The first, and perhaps most obvious, is that it probably means that the benefits and harms of creating the United States Space Force are probably pretty limited in either direction. It probably hasn't been the one critical thing that has secured all of space for all, but it also probably hasn't been the one critical thing that has spawned a new age of space arms races. The cards suggesting either are true aren't bad. But they do suffer from the other problem which is that so much of the evidence on this topic is from 2018 (when the idea was being tossed around and debated) and 2019 (when the Space Force was officially created when the United States Space Force Act was signed, reorganizing Air Force Space Commend into the USSF). There are, of course, some articles floating around in 2020 and 2021, but unsurprisingly, not very many and certainly very few bearing out the apocalyptic predictions from either side.

2.1.1 Background

So, what is the United States Space Force? I'd recommend reading the USSF website[6] as well as the Wikipedia entry[7] for a more comprehensive look at what it is, but for now, here's a brief summary:

> Space Force was established on Dec. 20, 2019, with the 2020 National Defense Authorization Act providing $40 million to get things going, and it's being put into operation -- or "stood up," in Pentagon-speak -- over 18 months, which takes us to mid-2021. Its responsibilities, according to the new branch's fact sheet, include "developing military space professionals, acquiring military space systems [and] maturing the military doctrine for space power." That doctrine, titled Spacepower, was published in June 2020 and highlights the value of "the control and exploitation of the space domain" for surveillance, accomplishing strategic and military objectives and to preserve "the prosperity and security of the United

space-force-mocked-by-everyone-for-calling-members-guardians-how-is-this-not-a-joke/

[5] Benen, S. (2020, December 1). *Why jokes about the Space Force have soared to new heights.* MSNBC. https://www.msnbc.com/rachel-maddow-show/why-jokes-about-space-force-have-soared-new-heights-n1251871

[6] https://www.spaceforce.mil/

[7] https://en.wikipedia.org/wiki/United_States_Space_Force

> States." "Personnel conducting space operations, engineering, acquisitions, intelligence, and cyber comprise the space warfighting community and must therefore master the art and science of warfare -- they are the Nation's space warfighters," the document reads. At the helm is Gen. John "Jay" Raymond, the country's first chief of space operations -- and the very first member of Space Force. It's the sixth branch of the US military, so in that sense it's equivalent to the Air Force, Army, Navy, Marine Corps and Coast Guard. There is some bureaucratic nuance to that: Space Force falls under the Secretary of the Air Force, similar to how the Marines come under the Secretary of the Navy. In this initial phase, it's leaning heavily on that sibling. What's now the Space Force was the existing Air Force Space Command, and its those space-related Air Force personnel who've been transferring over throughout 2020. Eventually the new branch will consolidate space missions from across the US armed forces. (The Army and Navy currently have their own operations). "This first year was about inventing the force. This next year ... we're really focusing on integrating that force across our joint partners," Raymond said.[8]

Now, the (brief) history of the USSF might matter a bit more than other topics. Usually, it's not that hard to pretend, for the sake of not having to do as much research and for simplicity's sake, that topics are more or less happening in a vacuum and can be disen-tangled from their history. In fact, on most every PF topic of recent, excluding the West Africa topic, you could debate about surveillance, NFU, or Medicare-For-All without knowing that much about its history. However, I feel like it'd be incredibly challenging to debate about the USSF without recognizing the history behind its creation, mainly because it's hard to debate about the legacy of Trump in neutral ways.

When President Biden assumed office, he was faced with a difficult question: keep or stick with the USSF. Biden rapidly undid many policies put in place by Trump, and some speculated that Biden would quickly rollback the program. However, in early February, Biden's press secretary Psaki said that the White House is "not revisiting the decision to establish the Space Force" and that the USSF has "the full support of the Biden administration."[9]

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[8]Mack, E. (2020, December 20). *US Space Force: Everything you need to know on its first anniversary*. CNET. https://www.cnet.com/news/us-space-force-guardians-everything-you-need-to-know-first-anniversary/

[9]Reuters Staff (2021, February 3). *Biden decides to stick with Space Force as branch of U.S. military*. Reuters. https://www.reuters.com/article/us-usa-biden-spaceforce-idUSKBN2A32Z6

This decision, while keeping in line with the bipartisan support the branch enjoys, doesn't resolve many of the underlying problems facing the Space Force. One of those problems is probably less directly relevant to the topic, but still an important one: public relations. I consider myself more generally informed about current events than the average person (and if you're doing debate, you are probably more informed than average as well!), and even I didn't know very much about the USSF beyond the terrible show and less terrible memes. But those jokes actually are a huge part of the public relations problem facing the USSF and part of a larger PR problem that the Biden administration will struggle to manage. Trump's involvement in the early stages, from his Space-Force branded campaign merchandise and his suggestion that his wife design the uniforms, made the USSF seem like an actual joke in ways that have affected public perceptions of the branch.[10] Despite the program basically just being a rebranding of the now-defunct Air Force Space Command, it now suffers from being to tied to Trump that it is going to struggle to win over the broader public, which will affect its future. For example, the public remains very much unclear (in no small part because every time they hear about the Space Force, they can only think of the Netflix show) about what the actual role of the USSF is and precisely what it is and isn't going to do in space.[11] Future directions of the USSF will have to take into account these particularly weak public perceptions of the program. As Victor Tangermann notes, "The service's main mandates are rather murky. It's focused on protecting US interests in space, including the overseeing and development of satellites, and deterring aggression in space. Trump has done little to pin down the group's mandate, often falling back on verbiage about being 'number one' in space."[12]

Perhaps the more relevant concern is the question of what the USSF could actually do. As Mandy Smithberger, director of the Straus Military Reform Project at the Project for Government Oversight, notes, Biden will almost certainly put pressure on the USSF to minimize bureaucratic overhead and prevent duplication with other services such as NASA and the Air Force.[13] That almost certainly implies that a good portion of the Space Force will be fairly constrained. For example, it has recently partnered with NASA

[10]Insinna, V. (2021, February 3). *With Biden's 'full support,' the Space Force is officially here to stay*. Defense News. https://www.defensenews.com/space/2021/02/03/with-the-full-support-of-the-biden-adminisration-the-space-force-is-officially-here-to-stay/ [11]Insinna, V. (2021, January 13). *Can Biden solve the Space Force's public relations crisis?* Defense News. https://www.defensenews.com/space/2021/01/13/can-biden-solve-the-space-forces-public-relations-crisis/

[12]Tangermann, V. (2020, November 18). *Progressive groups call for elimination of Space Force*. Futurism. https://futurism.com/progressive-groups-elimination-space-force

[13]Insinna, V. (2021, January 13). *Can Biden solve the Space Force's public relations crisis?* Defense News. https://www.defensenews.com/space/2021/01/13/can-biden-solve-the-space-forces-public-relations-crisis/

to avoid duplication.[14] That is probably going to put a cap on how much additional funding it can receive. And the budget is already fairly constrained, a measly $15 billion a year.[15] That may sound like a lot – and to be fair, for a branch that's only planning on increasing to 6,400 in size,[16] it is – but note that the Coast Guard, a branch of the military that people often forget is in the military, is over 40,000 people large and also has a budget of nearly $13 billion.[17] And they just have to watch the coastlines, not all of space. It's very questionable to what degree the Space Force can achieve its (ambiguous and undefined) aims with such constraints, particularly as its still basically operating under the wing of the Air Force.

While some, like Peter Garretson, argue that "the Space Force is the only military service that delivers an unambiguously positive return on investment,"[18] others, like Conn Hal-linan, argue that any added spending is unnecessary and that "the Biden administration will have to make hard choices around the pandemic and climate change while contin-uing to spend close to $1 trillion a year on its military. Adding yet another military service when American states are reeling from the economic fallout of COVID-19 and the warming oceans are churning out superstorms is something neither the U.S. nor the world can afford."[19] This cost concern will certainly show up a few times throughout the topic.

I think it's important to understand the brief history of the USSF because it makes these concerns, like its aimlessness, it's somehow strong bipartisan support, and its relatively small size more salient and those will affect the degree to which either side can really claim a strong harm of benefit.

[14]Scoles, S. (2020, September 22). *NASA, Space Force partnershipaimsto make space exploration safe*. AAAS. https://www.sciencemag.org/news/2020/09/nasa-space-force-partnership-aims-make-space-exploration-safe

[15]Insinna, V. (2020, February 10). *Space Force asks for $15B in its first budget request*. Defense News. https://www.defensenews.com/smr/federal-budget/2020/02/10/the-space-forces-15-billion-budget-for-fy21-shows-a-service-in-transition/

[16]Dickstein, C. (2020, December 15). *Space Force plans to nearly triple in size in second year, could accept Army, Navy transfers*. Stars and Stripes. https://www.stripes.com/news/us/space-force-plans-to-nearly-triple-in-size-in-second-year-could-accept-army-navy-transfers-1.655445

[17]Kime, P. (2020, July 16). *House lawmakers advance $12.8 billion Coast Guard funding bill*. Military. https://www.military.com/daily-news/2020/07/16/house-lawmakers-advance-128-billion-coast-guard-funding-bill.html

[18]Garretson, P. (2021, February 6). *Final frontier: Why the Space Force is here to stay*. The National Interest. https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

[19]Hallinan, C. (2020, December 16). *The U.S. needs COVID relief and renewable energy, not a space force*. Foreign Policy in Focus. https://fpif.org/the-u-s-needs-covid-relief-and-renewable-energy-not-a-space-force/

2.1.2 Framing

Like the West Africa topic, this is also not a topic that asks us to evaluate the desirability of adopting a particular course of action – it is, instead, asking us to evaluate whether some past trend is, on balance, good or bad. Like the West Africa topic, my concerns about interpretational ambiguity crop up again. Does the topic mean that the benefits outweigh the harms compared to a world in which it had not been created at all, or is it asking us to compare it to a world in which some plausible counterfactual had occurred? I err towards thinking that it's probably the latter, but I have no strong reason to think that the former interpretation is wrong. Like the West Africa topic, I could see these interpretational issues mattering at the margins – maybe the Con could win that revamping Space Command was a superior alternative to establishing the USSF even if revamping Space Command was probably not going to happen even if the USSF hadn't been created, and that issue could mess with the debate – but I imagine it doesn't matter that much in the grand scheme of things. If you're curious

I also think it's obvious that the Pro gets to claim benefits of the USSF that have yet to materialize and that could potentially be beneficial in the long run, and that the Con couldn't reasonably say that was outside the bounds of the topic. The benefits of cre-ating something now should obviously include discussing the potential future returns on those benefits and the Con should be able to contest the likelihood or desirability of those outcomes occurring. I don't think I wrote about this on the previous topic because I thought it was obvious, but more than a few people have asked me about this from the previous topic, so I thought I'd explicitly include it here.

I think those are all of the major background and interpretational issues I could think of, so let's briefly talk about some of the main arguments on this topic.

2.2 Pro Arguments

By and large, the bulk of the pro arguments are going to focus on the necessity of secur-ing American primacy in space. That was, after all, Trump's main public justification for the Space Force. An open letter signed by an absurdly long list of absurdly qualified people argues that, "The establishment of a new military service for space is necessary for putting America on a path to effectively deter conflict from beginning in or extend-ing into space, and, if deterrence fails, to defeat hostile actions and protect our economic

and national security interests in space."[20]

But why would a separate branch of the military be necessary for this? Why wouldn't the previous Space Command suffice? Brian Weeden argues that it's because, "For one, it would provide the U.S. military with the ability to inculcate a new generation of space professionals who understand the unique dynamics of the space domain and how it fits into future conflicts and military activities — a challenging task for a service dedicated to the air domain. Creating a new organization would also help break the organizational and cultural shackles that currently prevent the U.S. military from adapting to changes in the space domain. The Air Force has built an acquisitions culture around building very large, expensive, and vulnerable satellites for decades and that culture has resisted policy directives to develop new space architectures that provide better space mission assurance."[21]

So, what makes space so important? It's probably important for a variety of reasons, but one of the main reasons it's so important is because it is the next domain of warfare. Emerging technology will radically change the way we think about deterrence. Peter Pry explains:

> President Trump's proposal to establish a U.S. Space Force as an inde-pendent military service on an equal footing with the U.S. Air Force, U.S. Army, U.S. Navy and Marine Corps is necessary to defend the American people from the unprecedented existential and growing threat posed by the horizontal and vertical proliferation of nuclear missiles. Classical deterrence theory that prevented the bipolar Cold War from escalating into a thermonuclear holocaust may well fail in the emerging new multi-polar security environment wherein Russia, China, North Korea and Iran rely increasingly on weapons of mass destruction and ballistic missiles for blackmail and warfighting. Electromagnetic pulse (EMP) attack by missile or satellite in the military doctrines of all these actors is considered the most effective element of Combined-Arms Cyber Warfare, the greatest Revolu-tion in Military Affairs in history. EMP attack, that could blackout national electric grids and other life-sustaining critical infrastructures, enables rogue states like North Korea and Iran, and even terrorists groups armed with a single nuclear weapon, to become potentially "giant killers." The march

[20]Perry et al. (2019, May). Open *letter in support of establishing the U.S. Space Force*. Politico. https://www.politico.com/f/?id=0000016a-8f91-d79f-adfb-af9179b90001

[21]Weeden, B. (2019, July 8). *Space Force is more important than Space Command*. War on the Rocks. https://warontherocks.com/2019/07/space-force-is-more-important-than-space-command/

> of military technology, where even North Korea has the H-Bomb, where even Yemen's Houthi rebels have ballistic missiles that regularly attack Saudi cities, is rapidly taking us to a place where failed states and terrorists can pose an existential threat to Western Civilization. A U.S. Space Force could become the locus of a counter-revolution in military technology so offensive nuclear missiles are no longer the most powerful weapons, no longer dominate the international chess board. Space-based defenses could render nuclear missiles obsolete. Our children need not live under the threat of annihilation by Russia, China, "crazy states" and terrorists. EMP, satellites, and ballistic missiles are all essentially space weapons. Congress in the National Defense Authorization Act has authorized development of space-based defenses. A U.S. Space Force can finally realize President Ronald Reagan's long neglected vision in his Strategic Defense Initiative (SDI) of space-based defenses that would kill nuclear missiles, instead of enemy populations. Instead of avenging American dead through Mutual Assured Destruction (MAD), a U.S. Space Force could shield and save the lives of the American people.[22]

Space is also valuable because it could be the next big economic frontier. As Graham Rapier argues, "Space is already a $350 billion economy, or roughly half a percent of the world's GDP, the bank estimates. And as more investments pour into technologies like reusable rockets that make space exploration cheaper, that economy could grow to $1 trillion, especially as countries recognize the need for a space presence to maintain national security."[23]

I think a lot of the rest of debating the Pro will mostly center around defeating the Con's arguments about how primacy in space risks sparking an arms race (the argument we'll discuss in the Con section). To defeat this argument, I think the Pro wants to spend a decent bit of time arguing that space militarization is more or less inevitable. For example, Benjamin Bahney and Jonathan Pearl write, "the image of space as a zone free from military competition is as fanciful as the notion that it can be subject to outright American dominance. Space is already militarized, and it has been since the start of the space age six decades ago. Competitors such as China and Russia are already capable

[22]Pry, P. V. (2018, August 2). *The security benefits of space-based defense*. The Washington Times. https://www.washingtontimes.com/news/2018/aug/2/a-us-space-force-could-become-the-locus-of-a-count/

[23]Rapier, G. (2018, June 24). *Trump's 'Space Force' could fuel a new $1 trillion economy, Morgan Stanley says*. Business Insider. https://markets.businessinsider.com/news/stocks/trump-space-force-could-fuel-new-1-trillion-economy-2018-6-1027312647

of threatening the United States' military presence there—namely, the satellites that provide the information backbone of U.S. military power. President Donald Trump's February directive to establish the Space Force as a sixth branch of the military under the U.S. Air Force—a modification from his original proposal to create a fully separate service—changes nothing in this regard."[24]

Other things the Pro could mention are the RND benefits that the USSF could return. Such arguments are substantiated by some of the evidence in the briefs and could be winning arguments if teams dedicated a bit more time to researching it, but I personally don't find those arguments all that compelling. There are surely less roundabout ways to see such returns on investment.

2.3 Con Arguments

On the flip side, the main con arguments are going to focus in on the destabilizing ef-fects of militarizing space. I already mentioned in the introduction that there are some logistical challenges with actually pinning down what the USSF is supposed to and can do. Those arguments could serve as objections to a Pro case, pushing in on whether the USSF is capable of actualizing the benefits of deterrence.

But apart from that, there are reasons to think that deterrence is undesirable. The main risk the U.S. takes by throwing a bunch of rhetoric and resources around in the domain of space is that other, less than savory actors, namely Russia and China, are likely to heavily invest in crowding space with their own space-based weapons. Laura Grego argues that, "keeping space secure also requires reducing the threats to satellites. On this score, the Space Force is likely to make space a more contentious and dangerous environment, not less. It's not just Trump's rhetoric about dominance in space that is harmful; resources for the new military service will be provided to 'deter aggression in, from, and to space.' This will create incentives within the national security bureau-cracy to hype the threat of space weapons, and to then build new weapons to counter them."[25] She continues, "What's more, unconstrained development of space weapons will make space more dangerous, costly and unpredictable to use. It will make conflict on Earth riskier, too. A space environment that is perceived as threatening may create

[24]Bahney, B., & Pearl, J. (2019, March 26). *Why creating a Space Force changes nothing*. Foreign Affairs. https://www.foreignaffairs.com/articles/space/2019-03-26/why-creating-space-force-changes-nothing

[25]Grego, L. (2020, January 8). *The new U.S. Space Force will make space more dangerous, not less*. World Politics Review. https://www.worldpoliticsreview.com/articles/28452/why-the-trump-space-force-will-make-space-more-dangerous

an incentive to 'use or lose' satellite-enabled military capabilities as a crisis approaches, potentially speeding up conflict. Goldfein underscored this point in remarks following a series of space conflict simulations conducted by the Air Force last month. 'In every war game,' he said, 'we determined that if you move first in space, you're not guaranteed to win. But if you move second, you're likely to lose.' "[26]

These types of environments, with new technology and a lack of clear rules of engage-ment, are ripe for conflict. But space conflict wouldn't be like any conventional conflict on Earth – those could be constrained and have at least some plausible options for de-escalation. These would almost certainly be worse, as Sarah O'Connor writes, "More-over, the potential chain reaction caused by the creation of space debris following such an attack would be detrimental for all involved, including neutral countries, commer-cial entities, and the international civil society. Given space debris begets space debris, a seemingly isolated incident can threaten all space assets in orbit and the infrastructure they support years after the fact."[27]

For the Con, I think that winning this contention mostly relies on pushing back on claims about the inflated nature of the threats presented in space and winning that other na-tions do perceive the Space Force to be threatening. For example, there is lots of evidence (some of it straight up Chinese propaganda) that says that China is responding to the USSF by accelerating their space weapon capabilities. Whether that is merely a conve-nient excuse to develop what they were going to do anyways or a series of actions taken out of genuine worry about U.S. space dominance is probably less relevant than the fact that they are indeed accelerating the arms race at least in part because of the USSF.

2.4 Conclusion

This is a good topic. I might prefer the West Africa topic a little more just because it forced me to cut some cards about something I had never cut cards on before. But overall, I think this topic is quite good. The literature might be a little more sparse (or at least, very recent literature) than previous topics, but the literature that does exist draws from a wide range of space literature (which you can easily find if you just trawl the backfiles from the college policy topic last year) and it shouldn't be hard to find generic cards about space conflict.

[26] Ibid.

[27] O'Connor, S. (2020, May 21). *We're all losers in the space arms race*. Real Clear Defense. https://www.realcleardefense.com/articles/2020/05/21/were_all_losers_in_the_space_arms_race_115310.html

While I think this topic has some good potential given it is the March topic, which seems to be the one used by a lot of local districts for their NSDA qualification tournament or their state tournament, I think this topic might fall a little short in terms of being something that the average person could understand and be invested in. But since those tournaments tend to attract a more qualified judging pool, I think the debates that occur could be high quality and interesting.

Good luck!

3 Topic Analysis by Anik Sen

Anik Sen debated for The Quarry Lane School in Dublin, California. He served as Public Forum Captain his junior year and Team Captain his senior year. He has reached late out rounds at MineApple, Alta, ASU, Emory, and Berkeley. His career on the national circuit spanned all four years of high school, graduating with 10 career bids. Anik currently attends Duke University as a freshman.

3.1 Introduction

Hey everyone! This month's topic is On balance, the benefits of creating the United States Space Force outweigh the harms.

3.1.1 Background

The United States Space Force (USSF) is not something that was only recently created. In fact, the first iteration of it was founded in 1982 when the Air Force established the Air Force Space Command. The primary mission of this command was space operations that focused on missile warning, launch operations, satellite control, and other forms of space surveillance. The Air Force Space Command next transformed in 2005 to include cyber space and assigned responsibilities for conducting these cyber operations through the Twenty-Fourth Air Force. [1]

The Air Force Space Command transformed into the United States Space Force on De-cember 20, 2019, established under the Department of the Air Force, meaning the Secre-tary of the Air Force has overall responsibility for the USSF. The current mission state-ment reads:

[1] https://www.spaceforce.mil/About-Us/About-Space-Force/History/

> "The USSF is a military service that organizes, trains, and equips space forces in order to protect U.S. and allied interests in space and to provide space capabilities to the joint force. USSF responsibilities include devel-oping Guardians, acquiring military space systems, maturing the military doctrine for space power, and organizing space forces to present to our Combatant Commands."[2]

The actual capabilities of the Space Force are providing services, facilities, and range safety control for the conduct of DOD, NASA, and commercial space launches. More-over, ground-based and space-based systems work together to monitor ballistic missile launches around the world to guard against a surprise missile attack on North America.[3]

3.2 Aff Arguments

The on balance nature of this topic creates some issues that can be used differently on both sides. When arguing the Aff side, I would recommend to look at the future benefits of the Space Force and the preventative impacts of those benefits. Given that the Space Force is relatively new, there is going to be little empirical evidence to rely on for what the Space Force has done so far so it is important to clearly lay out what the problem the Space Force is intended to solve and how that problem is going to be solved by the Space Force

3.2.1 The Space Race

Our foreign adversaries are one big reason for the creation of the United States Space Force. Right now, our dominance in the field is being challenged by our rivals.

> That long-held dominance, which helps establish U.S. supremacy on the bat-tlefield via unmatched reconnaissance and communications capabilities, is being challenged like never before, Air Force officials stressed here last week during the first-ever Air Force Space Pitch Day."We certainly know we have an adversary that is attempting, in all different ways, to impact what we do," Brig. Gen. Matthew Wolfe Davidson, deputy combined force space compo-nent commander at the U.S. Space Command and vice commander of the

[2] https://www.spaceforce.mil/About-Us/About-Space-Force/Mission/
[3] https://www.spaceforce.mil/About-Us/About-Space-Force/Space-Capabilities/

> 14th Air Force at Vandenberg Air Force Base in California, said during a keynote address here on Nov. 6. "There is no question when you look at what our competitors, China and Russia, are doing with direct-ascent anti-satellite weapons — there are not many dual-purpose needs for that," David-son added.[4]

This is not a general trend; however, the timing is imminent. Our adversaries are trying to take advantage of our weaknesses every day and the imminence of creating a Space Force is directly tied to our national security. Unfortunately, our process is much slower than our enemies.

> Those adversaries are working fast, bringing new space technologies online every three years or so, added Michael Dickey, director of the Enterprise Strategy and Architectures Office and the Air Force Space Command chief architect at Air Force Space Command headquarters at Peterson Air Force Base in Colorado. The "industrial age" acquisition process the U.S. Air Force has traditionally used to get new and needed tech in orbit, by contrast, takes about 15 years from start to finish, said Dickey, who was on the same panel as Barnes. "So, by the time I get to my once-every-15-years election cycle, I'm working the wrong problem, four times removed," he said. "That's kind of where we are right now. And we have got to catch up."[5]

This lack of pace compared to our rivals is especially troublesome when Russia is attack-ing our country every day.

> The recent cyber attacks against 18,000 public and private sector users of So-larWinds' Orion network monitoring software go beyond traditional espi-onage; they are acts of cyber aggression by Russia against U.S. systems that have continued for twenty years. The Russian attacks on America began in 1996 with the Moonlight Maze attack, one of the first nation state sponsored cyber espionage campaigns. Russia was blamed for the Moonlight Maze at-tacks, which involved the theft of a massive amount of classified information from numerous government agencies, including the Department of Energy, NASA, and the Defense Department (DoD), as well as defense contractors, and private sector entities. It seriously compromised U.S. national security capabilities, strategies, and interests.[6]

[4] https://www.space.com/military-space-threats-rising-air-force-says.html
[5] https://www.space.com/military-space-threats-rising-air-force-says.html
[6] https://www.forbes.com/sites/jodywestby/2020/12/20/russia-has-carried-out-20-years-of-cyber-attacks-that-call-for-internatio

3.2.2 A2 Funding

The argument that the Space Force is a waste of money is one that is more difficult to prove than just the merits of the Space Force alone. For starters, the amount of money being spent on the Space Force is just a fraction of the total budget that we spend on the military.

> An executive summary of the legislative proposal stresses that the $2 billion represents "less than 0.05 percent" of the Pentagon's expected budget dur-ing that five-year period, and adds that "more than 95 percent of the Space Force annual budget is estimated to consist of resources that will have been transferred from existing DoD budget accounts." "Additional resources will be dedicated to building out the Space Force headquarters and establishing and maintaining new support elements such as education, training, doctrine, and personnel management centers," the summary continues. "Once the Space Force is fully established, these additive costs are estimated to be $500 million annually, which would represent approximately 0.07 percent of the annual DoD budget." In a statement released by the Pentagon, acting Secre-tary of Defense Patrick Shanahan called the legislative proposal a "historic moment for our nation" and"a strategic step towards securing America's vital national interests in space." Wilson added that "We will continue to be the best in the world at space and establishing a dedicated space force strengthens our ability to deter, compete and win in space."[7]

Another important fact to consider is that the money that the US Space Force is going to spend is only money that was transferred from money already set aside for the military.

> The U.S. Space Force was established Dec. 20 as an independent service un-der the Department of the Air Force. In the 2021 budget the U.S. Air Force transferred $15.4 billion from existing accounts to the Space Force. The $15.4 billion request continues to fund programs and activities that were managed by the Air Force but the budget was developed with strong input from the U.S. Space Force, said Chief of Space Operations Gen. John Raymond. "I personally worked on this budget very closely in both of my hats as com-mander of U.S. Space Command and chief of the Space Force," Raymond told SpaceNews Feb. 10. "The mechanics of this budget was such that the

?sh=2ac407b16605

[7] https://www.defensenews.com/space/2019/03/01/space-force-to-cost-2-billion-include-15000-personnel-in-first-five-years/

> money was still in the Air Force because we hadn't stood up the Space Force yet," Raymond said. "But we shaped this budget." The $15.4 billion does not include about $800 million in personnel costs which for now remain in the Air Force budget because the Space Force does not yet have a separate accounting system, said an Air Force spokesperson.[8]

This shows that not only is the amount of money that is going to the United States Space Force just a fraction of the amount of money that we spend on our national defense, it is already appropriated to our military budget so it cannot be used for other means.

3.3 Neg Arguments

The on-balance nature of this topic makes it a bit difficult to argue the neg side from the standpoint of past failures. There is not going to be good empirical studies about the efficiency or efficacy of the Space Force. I think the better way to argue the neg side on this topic is going to be to look at what that money could have been spent on and how the bureaucracy of creating a new Space Force would harm the ability to respond to threats.

3.3.1 A2 Foreign Threats

The idea that a space war is going to happen can also be seen as being over hyped. There are many articles talking about whether there is truly a space war threat.

> As Congress and the Pentagon grapple with President Donald Trump's or-der to establish a stand-alone branch of the military dedicated to space, many questions remain about the true nature of that threat, says Weeden, director of program planning at the Secure World Foundation, a nonprofit dedicated to the secure and peaceful use of space. The answers are critical to inform the public discourse. "A lot of what you get are public statements from military leadership or politicians, or sometimes news articles talking about something and it's really hard to get down to details and...sort through what might be real, what might be hype," says Weeden. Weeden completed a de-tailed assessment of "counter-space" capabilities earlier this year as part of

[8] https://spacenews.com/trump-seeks-15-4-billion-for-u-s-space-force-in-2021-budget/

> an effort "to dig into the open source material and see what we could deter-mine from a factual standpoint was really going on -- what types of capabil-ities were being developed and how might they be used in a future conflict." "There's been increasing rhetoric...about the militarization of space and the potential for conflicts on Earth to extend into space," he adds. "That's driven in part by reports about anti-satellite testing in Russia and China...The report really grew out of our frustration at the level of publicly available informa-tion on this topic.[9]

This directly counters any Aff arguments about the threat of our adversaries and the need for the United States Space Force.

Another response that would work against such arguments would be to challenge the extent to which we need a new force in the military to solve problems. Force your oppo-nents to specify what methods of attacks this new force would respond to because we have methods for stopping all other methods. We stop conventional attacks with our military:

> The U.S. military said on Friday that Chinese military flights in the past week in the South China Sea fit a pattern of destabilizing and aggressive behavior by Beijing but posed no threat to a U.S. Navy aircraft carrier strike group in the region. "The Theodore Roosevelt Carrier Strike Group closely mon-itored all People's Liberation Army Navy (PLAN) and Air Force (PLAAF) activity, and at no time did they pose a threat to U.S. Navy ships, aircraft, or sailors," the U.S. military's Pacific Command said in a statement. A U.S. official, speaking on condition of anonymity, said the Chinese aircraft did not come within 250 nautical miles (460 km) of the U.S. Navy vessels.[10]

Our cyberattacks are also dealt by a different section of the government called Cyber Command under the US Department of Defense.

> As early as 1972, consultants for the DoD warned of serious vulnerabili-ties in computer and network security, and the importance of cyberspace to national security became a pressing concern after the end of the Cold War. In 1995, then-Director of the Defense Information Systems Agency (DISA), Air Force Lt. Gen. Albert J. Edmonds, told a seminar at Harvard's John F.

[9] https://www.politico.com/story/2018/08/03/space-war-threat-hype-force-760781
[10] https://www.reuters.com/article/us-usa-china-military/u-s-military-slams-chinese-flights-over-south-china-sea-but-says-the

> Kennedy School of Government that U.S. military networks were vulnera-ble to remote attacks. Such concerns increased dramatically as cyber focused exercises like ELIGIBLE RECEIVER 97 demonstrated defense network vul-nerabilities and highlighted the potential risk associated with network ex-ploitation. During this period, it also became clear that foreign entities were increasingly capable of probing U.S. military networks and that they could potentially disrupt military operations.[11]

3.3.2 Wasteful Spending

Another argument against the creation of the US Space Force was the time and resources that creating a new branch of government was going to waste. One part of this waste is taxpayer money.

> The newly created United States Space Force wasted little time in attempting to skirt the rules governing how it spends taxpayer money. The service sub-mitted a report last week to Congress that requested the creation of an "Alter-native Acquisition System for the U.S. Space Force," justifying the proposal with lots of jargon: "The U.S. must maintain a strategic advantage in space through both a space-focused military service and a space-tailored acquisi-tion system that rapidly leverages these new industry dynamics." These policies will hinder Congress's ability to conduct oversight and result in more money wasted on dubious systems. In one of the proposed changes, Space Force leaders want to create budget lines for broad mission categories rather than allocated funding for specific programs. In practice, this would mean that instead of asking Congress for funding for a single communica-tions satellite program, as is the current practice for virtually all acquisitions, the Space Force would have a block of money allocated for all communica-tions programs. So Space Force bureaucrats would be able to shift money from one program to another without Congress's approval.[12]

The creation of this new branch of the US military is also going to take a lot of money just to create.

> In September, Secretary of the Air Force Heather Wilson floated a cost of $13 billion for the Space Force, while an independent estimate from the Cen-

[11] https://www.cybercom.mil/About/History/
[12] https://www.theamericanconservative.com/articles/the-space-forces-real-mission-wasting-taxpayer-dollars/

> ter for Strategic and International Studies put the additional costs at around $550 million per year. However, senior department officials said March 1 that the Pentagon plans to spend about $72 million on setting up a head-quarters for the service with about 200 staffers in fiscal 2020. As the force ramps up, those costs could rise to about $500 million per year. Those costs are in addition to the roughly $10 billion the Department of Defense already spends on unclassified space programs.[13]

There are a lot of better ways that the US government could be spending its money.

> If additional federal assistance is not given and predicted cuts to education funding are made, both schools and students will suffer. Money matters in education, and a lack thereof can harm students and educators.9 What is more, these harms will be unevenly distributed. The inequity in America's funding system for K-12 education is already incredibly pronounced, with some states spending far less on their students than others and the distribu-tion of funds within states often failing to direct resources to the schools and students who need them most.10 Local revenue resources, the other main source of funding for K-12 education, can be more stable than state rev-enue sources, especially in districts that rely more heavily on property taxes. However, they also tend to be more unequal. In high-wealth school districts, a higher percentage of funding comes from these more stable local sources, providing districts with both more funding overall and more stability during economic downturns. Conversely, even in states with progressive funding formulas, schools that serve lower-income communities are often hardest hit by state budget shortfalls because they must rely more on state funding sources. Therefore, as was the case with the Great Recession, the coming cuts to education funding will likely be most painful for schools that serve large populations of Black, Latinx, and Indigenous students as well as those that serve communities experiencing concentrated poverty. Historic disin-vestment in these communities has left schools underfunded for generations, exacerbating the impact of funding cuts. This is why the federal government needs to direct significantly more funding to K-12 education—and needs to do so now. This report highlights lessons from the previous recession that show the impact of insufficient federal investment on K-12 education and demonstrates how the current federal response is falling short of what is

[13] https://www.defensenews.com/space/2019/03/01/space-force-to-cost-2-billion-include-15000-personnel-in-first-five-years/

> needed. It then provides recommendations for specific elements that a new stimulus package could include in order to best support both K-12 public schools and the educators, students, and communities that they serve.[14]

Although education is important to our economy and ensuring the future productivity of our workers, healthcare is also another important issue that desperately needs the funding that is being spent on the US Space Force and has legitimate impacts.

> Keeping Americans safe from disease, disaster, and bioterrorism requires a public health system that is focused on prevention, preparedness, and surveillance. Investment to ensure foundational capabilities is key. Inter-agency and jurisdictional planning and cooperation are also critical, as is paying attention to the needs of population groups or communities at the greatest risk of harm during emergencies. All of these activities require ded-icated and sustained funding. Also critical to protecting the public's health is a well-trained and appropriately resourced public health workforce. Over the past decade, the public health workforce has shrunk by approximately 56,000 positions primarily due to funding issues. The Public Health Work-force Interests and Needs Survey found that a large proportion of workers are considering leaving their organization in the next year, in part due to in-adequate pay. Also of concern, state health officials estimate that 25 percent of their workforce will be eligible for retirement in 2020. An unfortunate pat-tern has emerged: as a nation, we pay attention to public health investment when there's a crisis, often borrowing from existing public health budgets (money typically meant to address chronic illness) to pay for the emergency response before falling back into a pattern of underinvesting in public health. This robbing-from-Peter-to-pay-Paul approach has left the nation's public health infrastructure on weak footing. The Public Health Leadership Forum estimates that an annual infusion of $4.5 billion is needed to fully support core public health foundational capabilities at the state, territory, local, and tribal levels nationwide.

[14] https://www.americanprogress.org/issues/education-k-12/reports/2020/07/21/487865/k-12-education-needs-federal-stimulus-funding/

4 Topic Analysis by Laurenn Vives

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4.1 Introduction

It has been just over 50 years since Americans first landed on the moon. "That's one small step for man, one giant leap for mankind," Neil Armstrong said after taking his first steps on the lunar surface. Since then, the entire world has changed quickly, partly due to space exploration. The United States Space Force is the newest branch of the mil-itary, established in December 2019. President Trump proposed and initiated this space force to protect the US's interests in space. In our current society, we use space satellites to give us a lot of information that we rely on a daily basis: weather forecasts, smart-phone communication, television, financial transactions, GPS navigation, and so much more. The United States Space Force was developed with the purpose of protecting our ability to be informed and go about our daily business from potential threats who know how much we rely on this space technology, specifically Russia and China. But what are the potential harms of creating the USSF? Is it even necessary to allot money to this entirely new branch, and what trade-off does that pose? We will get into these argu-ments in the following paragraphs. This topic has the potential to have a lot of major impacts simply because of how big space is and how much we already use information from space. I predict that impact calculus and weighing will be very important on this topic and will be where the debate truly happens.

4.2 Pro Arguments

The affirmative side on this topic has the burden to prove tangible benefits to creating the USSF. While there may be many arguments for why it is a necessary part of defense, the stronger arguments will be ones that show the true need for this branch of the military and what new, positive things it has brought or will bring to the American people. After all, there was already a part of the military dedicated to space before the space force was created: the Air Force Space Command. The USSF has a budget of 15.4 billion dollars in 2021, a seemingly small portion of the 738 billion dollar military budget, but a hefty amount of money nonetheless. This budget is divided with the majority of it being spent on research and development, then operations maintenance, and lastly procurement of weapons technology.

> The Pentagon for the 2021 budget proposal tried to come up with "apples-to-apples" comparisons of its new separate budget and what the Air Force received in 2020, Pletcher said. It reflected a boost of $900 million in spend-ing, the fourth straight year of increases, he added. The breakdown of the re-maining budget items includes: $2.5 billion in operations and maintenance, a slight decrease from the $2.5 billion enacted in 2020; $10.3 billion for re-search development, test and evaluation, an increase of $500 million over 2020; and $2.4 billion in procurement, the same as 2020.Matt Vallone, a bud-get analyst with the global consulting firm Avascent, said the way the De-fense Department is slowly rolling out the establishment of the Space Force is healthy. "That is probably a good way of going forward." The RDT&E budget is by far the largest slice of the Space Force's budget pie as it em-barks on several new initiatives to transform its architecture into something more survivable.[1]

With that monetary focus in mind, one major argument on the affirmative side is the ben-efits of research and development. While it might be very important to fund and solve problems on earth right now, space is vast and there is a lot to explore. It might take humans thousands of years to get anywhere at all, which is why it is so important that we start now. Furthermore, the Space Force, unlike NASA, is not necessarily focused solely on space exploration but specifically defense of our technology already reliant on space. A lot of the research and development this budget funds will help protect US

[1]Magnuson. February 2020. National Defense Magazine.
https://www.nationaldefensemagazine.org/articles/2020/2/10/pentago rolls-out-first-space-force-budget

resources on earth from threats.

> The cost of creating the Space Force is also a legitimate concern. In a leaked memo, the Air Force estimates it would cost nearly $13 billion over five years to stand up both the Space Force and Space Command. To arrive at such a lofty figure, the Air Force assumed the broadest possible scope for the Space Force, even encompassing parts of NASA and the Department of Commerce. It also threw in a billion-dollar new headquarters building and assumed 13,000 new personnel would be needed. A Space Force that encompasses all of the space-related organizations in DoD and the intel community at the size they are today would likely be similar in headcount to the Coast Guard (roughly 50,000 active duty and civilian personnel). It therefore stands to rea-son that the new personnel needed to staff the Space Force's headquarters would be similar in size to the Coast Guard's headquarters staff (roughly 2,600 personnel, or about 5 percent of the total workforce), and all other Space Force personnel would be drawn from the existing space workforce spread across the Services and intel community. Using the same cost as-sumptions as the Air Force's estimate, the additional cost of standing up the Space Force would be less than $3 billion over five years. This is a small price to pay for the many problems a Space Force would help address. Space ca-pabilities are already an indispensable component of U.S. military power, and the threats posed to U.S. space systems by China, Russia, and others are growing by the day. While reorganizing will certainly be disruptive in the short-term, it will be even more disruptive the longer we wait. If you be-lieve that the threat environment is becoming more complex and challeng-ing, then it's better to take the risk of disruption now rather than later. Much like aviation during the interwar period, space and counterspace technolo-gies are rapidly evolving, and these capabilities are likely to play a decisive role in the next major war. I am convinced that the time for a separate mil-itary department for space is upon us, and we should not wait for another Pearl Harbor to prove it.[2]

Once you prove the link between creating the United States Space Force and a signifi-cant increase in research and development related to protecting space, you can access a number of positive impacts to the United States. The first major impact is defense ca-

[2]Harrison. October 2018. Center for Strategic and International Studies. https://www.csis.org/analysis/why-we-need-space-force

pabilities. According to US intelligence reports, both Russia and China have developed technologies that can target US satellites and space objects.

> The report details a variety of Russian and Chinese anti-satellite weapons, in-cluding electronic warfare systems, directed-energy weapons and "kinetic" anti-satellite missiles. It says both Beijing and Moscow are "likely" pursuing "laser weapons to disrupt, degrade, or damage satellites and their sensors." "China likely will field a ground-based laser weapon that can counter low-orbit space-based sensors by 2020, and by the mid-to-late 2020s, it may field higher power systems that extend the threat to the structures of non-optical satellites," the report says. It adds that China "possibly already has a limited capability to employ laser systems against satellite sensors." The report says that Russia had delivered a laser weapon to its Aerospace Forces prior to July 2018, which is likely intended for an anti-satellite mission. "Russia is also developing an airborne (anti-satellite) laser weapon system to use against space-based missile defense sensors," the report says. The Trump adminis-tration is actively considering placing advanced sensors in space as part of its recent Missile Defense Review, which was unveiled last month. The report warns that China also has an operational missile capable of hitting satellites in low-Earth orbit while Russia is in the process of developing one. The Chinese military "has an operational ground-based (anti-satellite) missile intended to target (low-Earth orbit) satellites," the report said, adding that "China has also formed military units that have begun training with (anti-satellite) missiles. The report says Russia is"likely" developing "a ground-based, mobile missile system capable of destroying space targets" in low-Earth orbit in addition to ballistic missiles. "This weapon system is likely to be operational within the next several years," the report adds. The report says Russia and China are also developing "inspection and servicing" satel-lites that could also be used to conduct attacks on satellites in orbit.[3]

Because we rely so heavily on information from satellites, the mere fact that Russia and China have developed technology that could interfere with US space technology is a threat and means for concern. As our society continues to rely more and more on the internet and other technology reliant on satellites, interference with satellites would be catastrophic. Some US enemies in the past have already realized our dependence on

[3]Brown and Westcott. 2019. CNN https://www.cnn.com/2019/02/11/politics/pentagon-russia-china-laser-threat/index.html

space technology and have attacked satellites before.

> In some ways, GPS is already under assault. During the Iraq War, forces loyal to Saddam Hussein used electronic jammers to try to block the signal for precision-guided munitions that relied on GPS for targeting, according to Brian Weeden, director of program planning at the Secure World Founda-tion, which promotes sustainable and peaceful uses for space. More recently, Russia has used GPS and satellite jammers to try to disrupt space commu-nications in the conflict in eastern Ukraine, Weeden said. "In that sense, it's already a part of conflict on Earth." The Pentagon is also making new invest-ments in technologies that allow the military to track, in real time, all space assets and ensure that the two dozen military communications satellites rely on an advanced frequency that cannot be jammed. "We must expect that war of any kind will extend into space in any future conflict, and we have to change the way we think and prepare for that eventuality," Air Force chief of staff Gen. David Goldfein told the Air Force Association, an industry group, in February. Some still think it's not enough. War in space "is going to hap-pen," said Rep. Mike Rogers, the Alabama Republican who chairs the House Armed Services Strategic Forces Subcommittee, in an interview. "It's just a matter of whether it happens in the next couple of years or the next five or six years."[4]

The fact that US enemies have targeted our reliance on space in the past shows that the world knows this is a huge military weakness. But why does this weakness matter right now over other important political goals? In order to make this argument stronger, there needs to be some sense of urgency and war scenario that is likely to happen. While mutually assured destruction seemingly takes intentional nuclear war out of the picture, other forms of weapons technology are still used and developed on a daily basis with the possibility for war in mind. Currently, US satellites in space inform the military of when and where an enemy fires a missile, which has been particularly helpful in dealing with North Korea.

> The Trump administration's latest budget request seeks $12.5 billion for mil-itary space efforts — not including secret projects. One focus will be what Wilson calls a "more dependable architecture" for the four Air Force satel-lites designed to provide early warning of missile launches. Those satellites

[4]Bender and Klimas. 2018. Politico. https://www.politico.com/story/2018/04/06/outer-space-war-defense-russia-china-463067

> are crucial to U.S. readiness in one of the most perilous global flashpoints, the Korean Peninsula. "We stare at the Earth and look for the telltale signs of a rocket launch and within seconds, detect that launch and detect where it's heading and alert the National Command Center," she explained. "So whenever the television shows that picture of North Korea launched a mis-sile, that arc actually comes from the Air Force." A major focus of the new effort will also be defending the Air Force's 31 Global Positioning System satellites. "The Air Force provides GPS for the world, for about 1 billion people every day," Wilson said. "The timing signal for the New York Stock Exchange comes from the Air Force GPS satellites. If you've gone to an ATM machine, that is connected to GPS satellites for the timing signal so you can't simultaneously take money out of two ATM machines. GPS enables Uber Eats, all kinds of things." "In this budget," she added, "we've proposed to upgrade GPS to what we call GPS III, which is more resistant to jamming."[5]

Overall, the Space Force strengthens the American military in numerous ways.

> The primary mission of the U.S. Space Force as directed by Congress is to maintain, protect, and expand the U.S. fleet of advanced military satellites that form the backbone of U.S. global military operations. The importance of satellites to the modern U.S. military can hardly be overstated. They allow instantaneous communication across battle-zones, identify enemy positions and movements, track weather patterns, guide navigational systems, and al-low for precision strikes. These advantages have bolstered the U.S. position as the leading military power in the world as the U.S. satellite fleet far out-numbers that of any other country. The Space Force will act as a conduit for space-based intelligence and technology to reach the rest of the military, for instance by making sure that battlefield commanders have real-time access to satellite reconnaissance. The Space Force is designed to be much more than a maintenance unit however, as multiple threats have emerged in re-cent years that require a substantial updating of American space presence. Satellites are extremely vulnerable to attack, which could turn America's re-liance on them into a dangerous weakness and potentially cripple American military operations globally. China in particular has homed in on this vul-nerability by building a growing arsenal of anti-satellite missiles and tech-

[5]Bender and Klimas. 2018. Politico. https://www.politico.com/story/2018/04/06/outer-space-war-defense-russia-china-463067

> nologies, including cyber-attacks. The Space Force's most urgent mission is finding ways to defend satellites in order to maintain America's preemi-nence in space.[6]

Besides defense capabilities in the case of a space war, having a United States Space Force grants other key protections to US infrastructure and ways of life. Satellites in-form a huge portion of our communication and transportation systems. They also are necessary for processing payments, weather predictions, and infrastructure. Because of how reliant the world has become on space technology, there needs to be some way of ensuring the protection of these new resources. As the affirmative, you can choose to focus on a couple key issues that satellites are necessary for. I would advise impacts to the financial market and communication as the best ones to go for because of their magnitude.

> The potential for cascading failures across the myriad systems reliant on space mean that the effects of any disruption could manifest themselves in unexpected places. When a single U.S. communications satellite broke down in 1998, it was not only television and messaging systems that failed. Credit card systems stopped processing payments, weather radars went blind and frustrated drivers found themselves unable to fuel their vehicles as auto-matic petrol station pumps seized up.
>
> Perhaps most alarmingly, satellites are also an essential part of "national technical means of verification" used by nuclear-armed nations to build trust around arms control agreements through mutual surveillance. Any nation which suddenly found itself blind in space might be pushed to escalate any military standoff through a "first strike" for fear it might not detect any mis-sile launches against its territory. Similarly worrying are the limits of orga-nizational and societal preparedness to deal with the aftermath of a major disruption of essential space-dependent services. Governments warn that such disruption is becoming increasingly likely in the face of new threats and challenges.
>
> Satellite systems are increasingly threatened by hostile state and nonstate ac-tors, including through dazzling, jamming, kinetic impacts and cyber means. The European Commission has also warned that ground control stations are

[6]Barbier. 2020. American University. https://www.american.edu/sis/centers/security-technology/the-purpose-and-mission-of-the-space-force.cfm

> often vulnerable to terrorists or cyberattacks. However, perhaps the great-est fear is that any attack could provoke a chain reaction of collisions that renders entire orbits useless, known as the Kessler syndrome. Faced with this growing panoply of risks to space infrastructure, a concerted response is needed to boost the resilience of global society to natural or man-made dis-ruption of space-dependent services. Many of the protective measures apply to both, even if threats posed by solar flares cannot be deterred or negotiated away. In 2012, Multinational Experiment 7 united 17 nations, various civil-ian agencies and NATO in calls for a holistic framework to managing poten-tial space confrontation: dissuading aggression before, defending satellites during and maximizing the resilience of both space systems to recover after an attack.[7]

4.3 Con Arguments

The negative side of this topic has the burden to prove tangible harms created by the Space Force that outweigh the benefits of the affirmative. Unlike many other PF topics where the Neg just has to defend the status quo, on this topic, the status quo does have a Space Force already, so Neg is not defending an action but rather has to identify what problems the Space Force has caused. One major Neg argument is that the USSF makes space a more dangerous place.

> Since the dawn of the space age in the 1950s, satellites have been used for strategic purposes such as gathering intelligence and detecting missile launches. Today, most modern militaries consider satellites indispensable for a variety of missions: guiding munitions and drones, communicat-ing with globally deployed personnel, predicting weather patterns and surveilling targets. As a global power with military bases around the world, this dependence is particularly acute for the United States. But satellites are also fragile, vulnerable to interference, and expensive to replace, leaving the Pentagon in the uncomfortable position of relying on something that is difficult to defend. Consistent with this reality, the Space Force's primary charge, as laid out in its authorizing legislation, is to provide "freedom of operation for the United States in, from, and to space." To keep its

[7] Black. March 2018. Defense News.
https://www.defensenews.com/space/2018/03/12/our-reliance-on-space-tech-means-we-should-prepare-for-the-worst/

> satellites working dependably and safely, the Pentagon wants to ensure its systems are resilient to disruption. Some Space Force proponents argue that this mission is important enough to merit its own dedicated organization, which can focus its resources on, for example, developing more durable systems and fielding space- and Earth-based backup systems should critical satellites be impaired. But keeping space secure also requires reducing the threats to satellites. On this score, the Space Force is likely to make space a more contentious and dangerous environment, not less. It's not just Trump's rhetoric about dominance in space that is harmful; resources for the new military service will be provided to "deter aggression in, from, and to space." This will create incentives within the national security bureaucracy to hype the threat of space weapons, and to then build new weapons to counter them. In a speech last spring outlining his priorities for space, Gen. David L. Goldfein, the chief of staff of the U.S. Air Force, stated that, "It's not enough to step into the ring and just bob and weave… At some point, we've got to hit back." What Goldfein failed to mention is that the U.S. already has more sophisticated anti-satellite technology than potential adversaries like Russia and China. In fact, having anti-satellite weapons actually does very little to keep one's own satellites safe from attack. Yet military leaders appear to believe that reserving the option to deny the use of space to potential adversaries is more important than the benefits that come with a less weaponized space. What's more, uncon-strained development of space weapons will make space more dangerous, costly and unpredictable to use. It will make conflict on Earth riskier, too. A space environment that is perceived as threatening may create an incentive to "use or lose" satellite-enabled military capabilities as a crisis approaches, potentially speeding up conflict. Goldfein underscored this point in remarks following a series of space conflict simulations conducted by the Air Force last month. "In every war game," he said, "we determined that if you move first in space, you're not guaranteed to win. But if you move second, you're likely to lose."[8]

By strengthening the USSF and furthering weapons technology and development in that area of the military, those weapons become more likely to be used when the next conflict approaches. After all, they are not spending billions of dollars on this technol-

[8]Grego. January 2020. World Politics Review.
https://www.worldpoliticsreview.com/articles/28452/why-the-trump-space-force-will-make-space-more-dangerous

ogy not to use it. Therefore, by making the Space Force legitimate, the US is confirming that space is not off limits for war, and increasing the likelihood that war does occur at some point. Whether it was inevitable or not is of course debatable. But at the end of the day, the more weapons technology a country focuses on creating and funds, the more violent and dangerous that country becomes. Investing in violence creates more violence, and perhaps space is not the place to do that, because of how reliant we are on space technology. Creating a USSF could backfire significantly on the US for this reason.

> What's more, President Trump's proposed Space Force could undermine the status of space as a place of exploration and cooperation. Powerful states develop military systems in a tit-for-tat fashion, and a Space Force would trigger a response from other space-faring nations, potentially leading to the weaponization of space. Space cooperation between the United States and the Soviet Union during the Cold War served as a crucial pressure release valve in times of high tensions. It is certainly true that United States space systems need to be defended. However, this mission would be best served by consolidating only space system defense functions, which constitute a minority of military space operations. While dogfights between spaceships are still a far-off possibility, the risks of a Space Force are significant—and the time to recognize the danger of moving forward is upon us, here and now.[9]

The weaponization of space makes the universe a lot less safe for us all, despite it seem-ing to move conflicts away from the earth. Turning space into a potential battleground is harmful precisely because of our reliance on space technology. Already, because the USSF was created, China and Russia are speeding up to match our technology and our power. This has always been how war works - it is a competition. Building up our ar-senal in the name of defense still poses the same threat to our enemies. On this topic, the Negative should focus on how a more militarized universe makes relations on earth more volatile, not to mention spending a lot of money, time, and energy. Space missions are some of the most expensive endeavors humans have ever pursued, so is continuing to compete in this arena really sustainable? There are also lots of arguments to make about a trade-off. If the 5 other branches of the military did not need that $15.4 billion allocated to the USSF, why should the new 6th branch of the military be prioritized for spending over things like universal healthcare, childcare, better education, higher

[9]Nakayama. 2018. Fortune. https://fortune.com/2018/06/21/trump-space-force-bad-idea/

wages, etc. The US's financial focus on the military has always been exorbitant, and has significantly drained American wealth throughout the past century. By using public tax money to create a 6th branch of the already largest military in the world, the US continues to prioritize violence over the wellbeing of its citizens.

4.4 Conclusion

In conclusion, this topic will lead to very interesting debates about the future of war. While the USSF protects our systems reliant on space, it also emboldens our enemies to create more weapons and compete with US technology. Our everyday life is dependent on all sorts of technologies, which require information from satellites. Already, Russia and China are capable of attacking US satellites and enemies have done so in the past, successfully. Perhaps the USSF is just what America needed to adequately preserve our modern way of life. Space has always been a place of exploration for all of mankind. However, by creating the USSF, the US is in a way declaring Space as a potential war-zone. Is that really worth it just so we can text each other on our iPhones and not lose ourselves in the forest without GPS? That's up for debate. Good luck on this topic, it is definitely a fun one!

5 Pro Evidence

5.1 General

5.1.1 Now Key

Space militarization is inevitable – it's better to deploy the capabilities now rather than later.

Harrison 18

Todd Harrison (director of the Aerospace Security Project at the Center for Strategic and International Studies in Washington, D.C.), "Why We Need a Space Force," CSIS, 10-3-2018, https://www.csis.org/analysis/why-we-need-space-force

Space capabilities are already an indispensable component of U.S. military power, and the threats posed to U.S. space systems by China, Russia, and others are growing by the day. While reorganizing will certainly be disruptive in the short-term, it will be even more disruptive the longer we wait. If you believe that the threat environment is becoming more complex and challenging, then it's better to take the risk of disruption now rather than later. Much like aviation during the interwar period, space and coun-terspace technologies are rapidly evolving, and these capabilities are likely to play a decisive role in the next major war. I am convinced that the time for a separate military department for space is upon us, and we should not wait for another Pearl Harbor to prove it.

5.1.2 COVID

Space Force is key to COVID – contributions are invisible but essential.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), "Final Frontier: Why the Space Force Is Here to Stay," National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

This week, White House Press Secretary Jen Psaki stated definitively that the Space Force "absolutely has the full support of the Biden administration." It's a wise move. Psaki also tweeted an invitation to the members of the Space Force team to "visit us in the briefing room anytime to share an update on their important work." What might Space Force officials have to say?

President Joe Biden outlined his key priorities in an article in Foreign Affairs, where he pledged to make the "investments necessary to equip our troops for the challenges of this century, not the last one." The Space Force is an indispensable part of that forward-looking vision; it represents a key instrument of American technological leadership and diplomacy. Even though the new service is still in its infancy, the U.S. Space Force is already delivering on the new administration's top priorities: the economy, inclusion, climate change, and global leadership.

The Space Force's contributions are perhaps most immediately felt with regard to the current global pandemic. As the U.S. military begins the rapid deployment of coronavirus vaccines to save lives, it is the Space Force that is providing the secure communication backbone for the effort. Across the spectrum of governmental re-sponses to the coronavirus, it has been Space Force capabilities that have supported this whole-of-government approach. Its contributions are essential, but often invisible. They range from providing additional emergency bandwidth to support the U.S. Navy's one-thousand-bed hospital ship Mercy to enabling cutting-edge efforts at contact tracing via the Space Force's GPS system.

5.1.3 Climate Change

Space Force solves climate change – massive investments in new tech.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), "Final Frontier: Why the Space Force Is Here to Stay," National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

The Space Force is on the front lines of combatting climate change as well. Its weather satellites provide crucial data on the world's climate. While few may realize it, it is actually the Space Force that operates the number one Green technology, GPS, which annually reduces total carbon emissions from all forms of transportation between 15–21 percent. But Space Force is doing still more; its investments in disruptive technology are maintaining parity with China's ambitious goals for space-based solar power, a renew-able energy technology that could scale to all global demand and help us lead the world to achieve net-zero emissions. Indeed, Space Force projects like the X-37 PRAM-FX and Space Solar Power Incremental Demonstration Program (SSPIDR) are incubating tech-nologies that could lead to an energy system beyond fossil or nuclear—one that is con-trolled not by autocracies but by a web of friendly democracies willing to collaborate through science diplomacy to enable global energy and climate security.

5.1.4 Alliances

Space Force is crucial to alliances.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), "Final Frontier: Why the Space Force Is Here to Stay," National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

And as the Biden administration seeks to rebuild American leadership abroad and strengthen America's relationships with allies, the Space Force will serve as a critical enabler. Whether the challenge is Russian or Iranian aggression, Iranian or North Korean proliferation, it is the Space Force that holds the keys to verification, to warning, and to command of America's forces at a great distance. The service is also leading diplomatic efforts to draw together our alliance democracies. It already operates a Combined Space Operations Center with America's closest allies. Additionally, the nascent service is developing international partnerships and relationships with annual exercises that include Australia, Canada, France, Germany, Japan, New Zealand, and the United Kingdom.

There is much that the new administration can do to put its own stamp on America's Space Force. But the Biden White House should approach America's newest military service with a clear understanding of its potential to serve as a force for global good, and for extending American leadership in the very areas—from climate change to global re-engagement to diversity—that it values the most.

5.1.5 Growth

Accomplishments now are already impressive – but future growth will massively bolster US and allied interests.

Venable 20

John Venable (a 25-year veteran of the U.S. Air Force is a senior research fellow for de-fense policy at Heritage), "As U.S. Space Force Turns 1, Its Trajectory Is on Target," Her-itage Foundation, 12-18-2020,
https://www.heritage.org/space-policy/commentary/us-space-force-turns-1-its-trajectory-target

The U.S. Space Force will celebrate its first birthday on Dec. 20. Through a year of news cycles dominated by coronavirus-driven lockdowns and the presidential election, you might have lost track of just how much progress this youngster has made, but its ac-complishments are worth more than a passing glance. From his first moments in charge of the force, Air Force Gen. John Raymond began establishing the culture of the Space Force by setting two huge goals; namely, delivering unrivaled dominance in space while keeping the service lean. In the founding legislation, signed into law as part of the Na-tional Defense Authorization Act on Dec. 20, 2019, Congress limited the people, facilities, and assets the new service could draw on to just those that reside within the Air Force. That equates to a pool of roughly 27,000 military and civilian personnel on five major installations, along with 72 satellites and their supporting networks. There are more than 48,000 military and civilian space professionals in the Defense Department, and Raymond's vision is to take just 15,000 of them to build a service one-third the size of the Coast Guard. With a 1-in-3 chance of snagging one of those billets, the personnel and the Space Force that emerge from that competition will have an elite foundation and a compelling culture that fights for excellence. Like the other four services within the Defense Department, the mission of the Space Force is to organize, train, and equip forces that protect U.S. and allied interests in specific domains. The Space Force's do-main encompasses all the others, and the capabilities it provides allow our combatants to dominate all others on land, at sea, and in the air. Every combatant commander will depend on the seamless communications, precision navigation, weather forecast-ing, real-time intelligence, and targeting that space professionals and space-borne assets provide. However, Space Command, the newest of the 11 combatant commands, will re-ceive the bulk of those assets and capabilities to ensure America continues to dominate the critical domain of space. In its first year, the Space Force stood up its headquarters in the Pentagon and began designing an organizational structure—a diagram that has

just four levels, including that of the chief of space operations. That would be Raymond. The three major field commands that fall directly under Raymond are Space Operations Command, Space Systems Command, and Space Training and Readiness Command. Each of those major field commands will be headed by a three-star general whose com-mand will encompass the third tier of the diagram: Delta and Garrison commands. The lowest command level, squadrons, will report to the Delta and Garrison level. If that description makes your head hurt, just imagine the hair loss associated with not just designing that structure, but also filling it. The first major field command, Space Opera-tions, stood up in Colorado Springs in October, with the other two set to follow in 2021. Two Garrison and nine Delta commands are up and running, operating primarily with personnel who still belong to one of the other services. The actual transfer of personnel from the Air Force into the Space Force has been done methodically to ensure no balls get dropped. Congress has authorized the service to grow to just under 10,000 military and civilian personnel in the current fiscal year and, to date, just over 2,000 have made that transition. With a little luck, the Space Force will complete the transfer of selected Air Force personnel into its ranks by the end of September 2021, and then it can start looking at the other services and agencies. There are an additional 21,000-plus space professionals and some 95 satellites within the Defense Department that are outside the Department of the Air Force. And, once Congress gives the nod some time in 2022, the Space Force can begin drawing from those organizations to complete its portfolio. Until then, it will continue providing warfighters with exceptional capabilities, while it refines warfighting doctrine, system requirements, and the acquisition process that will continue to outpace the ever-growing threat from Russia and China. There's still a lot of growth ahead, but at the ripe old age of 1, there's already so much to be proud of. So, go ahead, space professionals: Take a minute and celebrate what you've done. Happy birthday, Space Force!

5.1.6 AT: Cost

Cost objections are wrong – it provides a positive return on investment.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), "Final Frontier: Why the Space Force Is Here to Stay," National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

Very likely, the Space Force is the only military service that delivers an unambiguously positive return on investment. And it does so at low cost; the Space Force budget, which is less than one-tenth of that of the Air Force, and not even two percent of the entire De-fense Department budget, pays for its entire yearly allocation in just sixteen days of GPS operation. Moreover, while the Space Force is small, with just a few thousand members, its budget supports close to 180,000 jobs. It also invests approximately $10.3 billion of the nation's research and development (R&D) in the space industry, from in-dustry giants like SpaceX, ULA, and Blue Origin to tiny start-ups with big dreams— R&D investments that in the past have given America its first glimpse of planet Earth, climate-monitoring satellites, hurricane warning, precision farming, and broadband for underserved rural communities.

The cost is tiny and the benefits far outweigh.

Harrison 18

Todd Harrison (director of the Aerospace Security Project at the Center for Strategic and International Studies in Washington, D.C.), "Why We Need a Space Force," CSIS, 10-3-2018, https://www.csis.org/analysis/why-we-need-space-force

The cost of creating the Space Force is also a legitimate concern. In a leaked memo, the Air Force estimates it would cost nearly $13 billion over five years to stand up both the Space Force and Space Command. To arrive at such a lofty figure, the Air Force assumed the broadest possible scope for the Space Force, even encompassing parts of NASA and the Department of Commerce. It also threw in a billion-dollar new head-quarters building and assumed 13,000 new personnel would be needed. A Space Force that encompasses all of the space-related organizations in DoD and the intel commu-nity at the size they are today would likely be similar in headcount to the Coast Guard

(roughly 50,000 active duty and civilian personnel). It therefore stands to reason that the new personnel needed to staff the Space Force's headquarters would be similar in size to the Coast Guard's headquarters staff (roughly 2,600 personnel, or about 5 per-cent of the total workforce), and all other Space Force personnel would be drawn from the existing space workforce spread across the Services and intel community. Using the same cost assumptions as the Air Force's estimate, the additional cost of standing up the Space Force would be less than $3 billion over five years. This is a small price to pay for the many problems a Space Force would help address.

5.1.7 AT: No Immediate Results

Short-term results don't price in long-run returns.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), "Final Frontier: Why the Space Force Is Here to Stay," National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

America's Space Force is also playing the long game. It has proposed a comprehensive "get-well" plan for the space industry to cope with the coronavirus and remain globally competitive—one that hinges on leveraging the full diversity of America. The Space Force has already secured science, technology, engineering, and mathematics partner-ships, recruiting partnerships, and scholarships with Historically Black Colleges and Universities. Women already make up 22 percent of officers in the Space Force, and 21 percent of its enlisted personnel. Small and lean, with the least cultural resistance, it is the easiest of the services to mold and change, with potentially the largest symbolic im-pact. Placed under the direct supervision of Vice President Kamala Harris in her role as head of the National Space Council, it will be a showcase of both diversity and progress.

5.1.8 AT: General Objections

Objections to Space Force are wrong – it's not new or destabilizing.

Hunter and Bowen 18

Cameron Hunter (PhD Candidate in Politics, University of Bristol), Bleddyn Bowen (Lecturer in International Relations, University of Leicester), "Donald Trump's Space Force isn't as new or as dangerous as it seems," Conversation, 8-15-2018, https://theconversation.com/donald-trumps-space-force-isnt-as-new-or-as-dangerous-as-it-seems-101401

Donald Trump's plans to create a "Space Force" have ruffled plenty of feathers and alarmed some commentators. Some argue it will merely cause a bureaucratic headache. Raising greater concerns, others have argued the "Space Force" will cause an arms race in outer space.

In the space policy community, however, the idea of a separate Space Force has been debated on and off for years. Trump's version – and this may come as a surprise – does not appear to be a dangerous move on its own.

The US military's satellites are currently operated separately by the Army, Navy and Air Force; a Space Force would simply bring them under a single, separate command. The US military alone is already the world's single largest operator of satellites, with 159 – more than all Russia's military and non-military satellites combined. But while these military satellites are high-tech, they're not exactly the stuff of science fiction. Rather than carrying death rays and space marines, they are built to provide secure communica-tions, early warning of a nuclear attack, reconnaissance, and precise navigation (among many other things).

While the US military will not need any new satellites to set a Space Force up, it can't be done overnight by fiat. Congress must legislate, just as it did when the Air Force was split from the Army in 1947. The Department of Defense report that sparked much of the latest speculation confirms that existing space units within the Air Force – some of which were founded back in the 1960s – are being spun out into a US Space Com-mand. Known as SPACECOM, this will be on an equal footing with the other "joint" commands upon which the US military as a whole relies and all of which have wide-ranging responsibilities.

With nothing to indicate that new capabilities or major acquisitions are being pursued,

this looks like a mere rebranding and reorganisation. Changing badges on uniforms and calling satellite operators "space warfighters" does not change the balance of power in Earth orbit. The US, China, and Russia have been developing space warfare capabilities for decades; they aren't rushing ahead, but incrementally developing a range of options to control or deny outer space in a time of open conflict, as they are sure to do at sea and in the air. Even the use of the phrase "space dominance" should not cause alarm. To say that the new Space Force could usher in an outer space arms race is premature and hyperbolic.

Reach for the sky

Erroneous claims have been made by international lawyers (such as Steven Freeland) that a Space Force (and a goal of "space dominance") violates the Outer Space Treaty of 1967. In fact, the right to self defence is used to trump the principle of peaceful purposes in outer space, and is manifested in practice by the pursuit of space for military purposes by every advanced economy and military power on Earth.

Whether the establishment of a US Space Force threatens peace in orbit comes down to how it plays into international threat perception. US leaders increasingly see Russia and China's anti-satellite capabilities as growing threats. To what extent Russian and Chinese leaders view US space technology as a threat is more difficult to prove, but their efforts to establish a UN treaty banning all weapons in space smack of an attempt to limit potential American superiority in orbit.

As this reorganisation of US military space is happening in the context of a chronic, rather than an acute, threat to American military capabilities, it begs the question of what problem Trump and his vice-president, Mike Pence, think they're solving.

This is a demotion for the Air Force, which has fought tooth and nail against the Army and Navy since its inception in 1947 to become the lead military agent for space pro-curement and services. Whether the Air Force has somehow been a poor steward of American space power we may never know, since the point where the rubber meets the road in military space policy – the procurement and acquisition of orbital hardware – will never be publicly discussed. In addition, complaints that the Air Force has failed to nurture a "space power culture" remain too nebulous and emotive for legislators to grapple with.

There are good reasons for creating a more independent Space Force, not least because all terrestrial military services now depend on space technology to carry out essential ca-pabilities. As a separate entity, a Space Force may successfully demand more resources

to expand; perhaps this will come to include anti-satellite weapons beyond those the Navy and Air Force already possess. But for now, the Space Force is mainly a bureau-cratic exercise. It is neither especially foolish nor particularly dangerous.

5.2 Hegemony

5.2.1 General

Space Force is key to military dominance in the space domain – Space Force leads to greater precision in attack, a reduction in battle casualties, and clearer signaling between great powers.

Yoo 17

John Yoo (professor at the UC Berkeley Law School and a visiting scholar at the Ameri-can Enterprise Institute), "Military use of space is coming, Trump can help America pre-pare," American Enterprise Institute, 12-28-2017, https://www.aei.org/articles/military-use-of-space-is-coming-trump-can-help-america-prepare/

President Donald Trump's National Security Strategy set a new course by focusing on rebuilding the domestic economy as central to national security and its aim at "ri-val powers, Russia and China, that seek to challenge America influence, values, and wealth." Critics observed that the White House seemed to reverse past presidents' em-phasis on advancing democracy and liberal values, reject both reducing global warming and spreading free trade as national security goals, and elevating American sovereignty over international cooperation.

Less noticed but perhaps equally revisionist, the National Security Strategy reverses the Obama administration's lead-from-behind approach to outer space. As American military and civilian networks have increased their dependence on satellite networks, the Obama White House deferred to European efforts to develop a "Code of Conduct" that would reduce the chances of armed conflict in space.

Rejecting these treaties and vague international norms, the Trump administration in-stead relies on unilateralism: "any harmful interference with or an attack upon critical components of our space architecture that directly affects this vital U.S. interest will be met with a deliberate response at a time, place, manner, and domain of our choosing."

Trump has the central issue right: control of space underlies the United States's pre-dominant position in world affairs. Communications satellites provide the high-speed data transfer that stitches the U.S. Armed Forces together, from generals issuing com-mands to pilots controlling drones. Other satellites monitor rival nations for missile launches, strategic deployments, or troop movements. America's nuclear deterrent it-

self uses space: land- or sea-based ballistic missiles leave and then reenter the atmo-sphere, giving them a global reach that is difficult to defend against.

The global positioning system (GPS) allows U.S. aircraft, naval vessels, and ground units to locate their whereabouts and to direct their fire with precision. The stunning speed of the initial invasion of Iraq in 2003, like the earlier triumph of the Persian Gulf War in 1991, demonstrates the lethal success of military operations that integrate satellite com-munications and information gathering. The drone campaign against terrorist leaders in the Middle East and Pakistan depends on satellites to locate targets, conduct real-time surveillance, and then control the fire systems of the drones.

The future holds even more advances in store. Building on precision-guided munitions, the U.S. Defense Department is developing a "prompt global strike" system that will use GPS satellites to guide hypersonic missiles, armed with conventional warheads, to targets anywhere in the world within an hour.

Civilian networks similarly depend on space. GPS has transformed the transportation industry. Navigation products allow for quicker driving for individual cars, more ef-ficient cargo transport by trucks, rail, and ships, and fuel-saving routes for airplanes. Autonomous cars, ride-sharing, and delivery services similarly rely on GPS. Other satel-lites predict the weather, while yet others transmit communications and data.

Private industry has also begun to exploit the commercial potential of space. The space economy is now estimated to be a $330 billion global commercial enterprise, $251 billion of which is contributed by private commercial actors, with the rest of the revenue being generated by government spending.

The U.S. Defense Department relies on commercial satellites for about 40 percent of its communication needs. The idea of sending civilians into space is even beginning to take flight. Elon Musk's SpaceX has developed rockets to transport cargo to the International Space Station, while Virgin Galactic is already selling seats for space tourism.

While space-based systems enhance military operations and civilian networks, they also expose vulnerabilities. Enemy destruction of U.S. reconnaissance satellites would blind its strategic monitoring and degrade its operational and tactical abilities. Anti-satellite attacks could even the technological odds against western powers that have developed information-enhanced operations. Chinese strategists discuss countering U.S. superior-ity in conventional and nuclear weapons with "soft kill" attacks on American satellites, which would blind American forces and interfere with U.S. communications and con-trol.

While China has steadily advanced its manned space program, it has also developed the technologies necessary for anti-satellite (ASAT) weapons. In 2007, for example, China tested a ground-launched missile to destroy one of its own weather satellite in low-Earth orbit, in the same region inhabited by commercial satellites. "For countries that can never win a war with the United States by using the methods of tanks and planes, attacking an American space system may be an irresistible and most tempting choice," a Chinese analyst wrote in a much-noticed comment.

The potential for space warfare has led to calls to ban the "militarization" of space. Such efforts began as early as the Outer Space Treaty of 1967, which declares its purpose "to promote international co-operation in the peaceful exploration and use of outer space." The Treaty forbids the stationing of nuclear weapons (and other WMD) in orbit and bans military installations or operations on the moon and other celestial bodies. The Treaty also forbids any nation from claiming sovereignty over the moon and planets or even the space above their territory (unlike airspace, for example).

Ever since, some have argued that space must be an arms-free zone, and any use of space for military purposes, even non-aggressive ones, violates international law. The United Nations General Assembly has repeatedly passed resolutions "to prevent an arms race in outer space." The Obama administration gave into such hopes with its quiet support of the European space Code of Conduct, which sought to restrain arms competition in space.

While the Trump NSS is a document, but not an operating strategy, it shows that the administration is making the right moves in rejecting utopian visions of space as conflict-free zone. The great powers have already carefully crafted treaties to limit a nuclear arms race in outer space. But at the same time they have left open significant routes for other military uses of space. Current law, for example, does not prohibit the passage of weapons through space, such as ballistic missiles, the stationing of reconnaissance satellites, or the basing of conventional weapons in orbit. States can use force in these ways to achieve the same goals as with other high-tech weapons: for self-defense, to pursue terrorist groups, to stop international crises, and to resolve disputes between states.

While the Trump NSS recognizes the value of space, it sets no agenda for more effective use of the arena. It calls for more commercialization and exploration of space, but lit-tle else. The Trump administration should devote more resources to the development of space-based weapons, both to prevent ballistic missiles from rogue nations such as North Korea and Iran, and to defend against anti-satellite attacks from China and Rus-

sia.

Combat in space will raise the same questions as with other technologies, due to the integration of civilian and military networks in space. But it also realizes the same ben-efits: greater precision in attack, a reduction in battle casualties, and clearer signaling between great powers, which should help settle their controversies.

Nations can coordinate to place certain areas of space off limits to occupation, such as the moon or planets, rendering them akin to the legal status of Antarctica. But it would deny reality to expect the United States and its competitors to ignore the military and technological advantages made possible by space.

Space Force is key to hegemony – it's key to maintaining US strategic advantage in space.

Perry et al. 19

Dr. William J. Perry (former US Secretary of Defense), Dennis Blair (Former Director of National Intelligence) Mike McConnell (former Director of National Intelligence), Robert Walker (former chair House Science Committee), Robert Work (former Secre-tary of Defense), Edward Aldridge (former Secretary of the Air Force and NRO director), Larry Welch (former Air Force Chief of Staff), Ronald Fogleman (former Air Force Chief of Staff), James Ellis (former Commander of US Strategic Command), Duane Andrews (former Assistant Secretary of Defense for Command, Control, Communications, and Intelligence), Thomas Moorman (former Air Force Vice Chief of Staff) Lester Lyles (for-mer Air Force Vice Chief of Staff), et al, "Open Letter in Support of Establishing the U.S. Space Force," Politico, May 2019, https://www.politico.com/f/?id=0000016a-8f91-d79f-adfb-af9179b90001

The United States is the world's leader in the exploration and uses of outer space. America's preeminent position in space activities has contributed to the nation's politi-cal prestige, international influence, scientific knowledge, technological advancement, homeland security, and national defense. In addition, space contributes powerfully to America's economic prosperity; indeed, practically every aspect of our daily lives is dependent on space capabilities. Consequently, U.S. National Security Strategy has for decades stated that freedom of access to and use of outer space is a vital national interest.

Foreign powers are seeking to undermine the United States' leadership position in space.

China and Russia are developing, testing, and fielding space and counterspace weapon systems that threaten our ability to use space for national security and economic pur-poses, jeopardize U.S. and allied military forces, and put the U.S. homeland at risk. America's long-standing strategic advantage in space is eroding.

National security space organization and management has been a recurring issue for decades. The establishment of the U.S. Space Force as an independent armed service within the Department of the Air Force is a fiscally responsible approach to address the issue. The U.S. Space Force will organize, train, and equip forces to enable U.S. Space Command's plans and operations, to include activities in support of other Combatant Commands and military services. The U.S. Space Force will develop military space cul-ture and ethos; recruit, train, educate, promote, and retain scientists, engineers, and warriors with world-class space skills and talent; advocate for space requirements and resources; develop space doctrine and operational art; develop, field, and deliver ad-vanced space capabilities; and steward resources to sustain America's strategic advan-tage and preeminence in national security space activities. The establishment of a new military service for space is necessary for putting America on a path to effectively de-ter conflict from beginning in or extending into space, and, if deterrence fails, to defeat hostile actions and protect our economic and national security interests in space.

We endorse the position of General John Hyten, USAF, Commander of U.S. Strategic Command, who recently testified, "We're going to have a Space Force someday. I think what the Committee has to decide is when is that going to happen, and I think now is the time...you want to get ahead of the problem, not trail it, not come in response to a catastrophe. Get ahead of the problem." And we applaud the statement of General Joseph Dunford, USMC, Chairman of the Joint Chiefs of Staff, who recently testified, "My best military advice, given the importance of space and the consequences of not doing all we can to optimize the Department to move forward in space, would be to move out now with what might be the 80% solution, refine as we go, and the Committee will have an opportunity to provide oversight to address some of the issues that have been raised."

Therefore, we strongly encourage action to establish the U.S. Space Force, to realize the full potential of space power and space capabilities in order to protect and advance U.S. vital national interests.

5.2.2 Space Force Key

A separate Space Force is key – it has specialized human capital and a specific organizational culture.

Weeden 19

Brian Weeden (Secure World Foundation program planning director), "Space Force is more important than Space Command," War on the Rocks, 7-8-2019, https://warontherocks.com/2019/07/space-force-is-more-important-than-space-command/

Shifting the operate, train, and equip functions for military space activities to a sepa-rate organization makes sense to address current problems. For one, it would provide the U.S. military with the ability to inculcate a new generation of space professionals who understand the unique dynamics of the space domain and how it fits into future conflicts and military activities — a challenging task for a service dedicated to the air domain. Creating a new organization would also help break the organizational and cultural shackles that currently prevent the U.S. military from adapting to changes in the space domain. The Air Force has built an acquisitions culture around building very large, expensive, and vulnerable satellites for decades and that culture has resisted pol-icy directives to develop new space architectures that provide better space mission as-surance.

Space force is key to space dominance – fragmented space authority, scattered workforce, and conflicts of interest make a single branch crucial to efficacy.

Harrison 18

Todd Harrison (director of the Aerospace Security Project at the Center for Strategic and International Studies in Washington, D.C.), "Why We Need a Space Force," CSIS, 10-3-2018, https://www.csis.org/analysis/why-we-need-space-force

The Trump administration's push to create a new military department, known as the Space Force, has generated a fair amount of skepticism and more than a few nerdy jokes. Despite being easy fodder for late-night comedians, the way in which the U.S. military and intelligence community are organized for space is a serious national security issue because the threats posed to U.S. space systems by other nations are real and growing. A Space Force is needed to consolidate authority and responsibility for national security

space in a single chain of command; to build a robust cadre of space professionals who can develop space-centric strategy and doctrine; and to avoid the conflicts of interest inherent in the other Services that have short-changed space programs for decades.

First, let's get a few misconceptions out of the way. The Space Force has nothing to do with the National Aeronautics and Space Administration (NASA), astronauts, protect-ing the planet from asteroids, or fighting aliens. This is about how we organize, train, and equip our existing space forces to protect U.S. national security interests here on Earth. And President Trump did not come up with the idea of creating an independent military department for space. The role of space within the military has been debated for more than two decades in various forms. As early as 1997, Air Force Chief of Staff Ron Fogleman outlined a vision to "transition from an air force to an air and space force, on an evolutionary path toward a space and air force." In 2001, the Rumsfeld Space Commission issued its final report, which recommended a gradual evolution toward a separate Service for space by creating a Space Corps within the Air Force as an inter-mediary step. It noted that "near- and mid-term organizational adjustments should be fashioned so as to not preclude eventual evolution toward a Space Department." And just last year, before President Trump began publicly touting the idea, the House passed legislation that would have created a Space Corps.

Other common misconceptions are that we're rushing into this debate without enough time to study the issue or that the Space Force is a solution in search of a problem. Nei-ther is true. Numerous studies over the past twenty years have examined the issue in detail, and different organizational constructs have been proposed , analyzed, and de-bated. Some ideas have been tried in practice, and many of these have been discarded as ineffective or insufficient. As the Office of Management and Budget (OMB) surmised in a recent report to Congress, nearly all the studies and congressional commissions that have analyzed this issue agree that there are three central problems with how U.S. national security space is organized today.

First, authority and responsibility for space is fragmented. A 2016 Government Account-ability Office (GAO) study found that there are more than 60 different organizations strewn across the Department of Defense (DoD) and the intelligence community with responsibility for space acquisitions. While more than 80 percent of DoD's unclassi-fied space funding in a typical year is in the Air Force, key components of the space architecture, such as user terminals, ground control systems, some satellites, and many of the personnel that operate these systems, reside in the Army and Navy. Moreover, classified space funding for the National Reconnaissance Office and other intelligence

agencies in the Military Intelligence Program budget may rival the Air Force's unclassi-fied space funding in magnitude.

Real authority in the Pentagon is budget authority. When the budget for national secu-rity space is fragmented across so many different organizations, it means that no one has the authority to make enterprise-wide decisions and tradeoffs. As GAO has noted, "there is no single individual, office, or entity in place that provides oversight for the overall space program acquisition structure." The Air Force cannot force the Army to speed up the fielding of next-generation GPS receivers and satellite communications terminals any more than the Army can compel the Air Force to delay launching its next-generation constellation of satellites. This lack of centralized leadership leads to slow decision making, disunity of effort in building new space capabilities, and a lack of ac-countability when space programs go over budget or fall far behind schedule. As OMB has noted, the net effect of this is "delayed and diminished capabilities for combatant commanders, warfighters, and others."

The second problem is that the space workforce (both space operators and space acqui-sition personnel) is scattered across the Services and intelligence agencies, with too few people in each organization to create a viable and attractive career path. Moreover, per-sonnel are moved in and out of space assignments every few years, limiting their ability to develop deep domain expertise. The 2008 Allard Commission, which was charged with studying the organization and management of national security space, found that "it is exceptional for an Air Force Officer to remain in [a space] assignment for more than two years without an adverse impact on his or her career."

One of the jobs of the Military Services is to organize personnel into domain-centric clusters to develop domain-centric strategy, doctrine, and policy. This works well for the air, maritime, and land domains because we have a cadre of professionals in each of the Military Services organized around their respective domains. But under our current space organizational construct, we do not have a unified, stable cadre of space-centric personnel that focus on developing space-centric strategy, doctrine, and policy.

The third core problem is that the Services have inherent conflicts of interest when it comes to space. Because the Services are organized around their primary domain of responsibility, space is viewed as a secondary or supporting function. The Air Force has long bemoaned the fact that it funds the vast majority of unclassified space systems and that the other Services place requirements on space systems that the Air Force is expected to fund. Former Air Force Chief of Staff General Michael Ryan summed up the Air Force's institutional view of space aptly, noting in an interview that the Air

Force "can't afford to be the bank for all space systems," and that "space is not a welfare system." The Air Force would never say the same thing about its aviation programs.

When the Services must choose between space and their native domain, one should ex-pect that they will choose what they are organized to do. For example, in the most recent defense budget downturn, Air Force funding for aircraft procurement and space pro-curement declined by roughly one-third each (adjusting for inflation) from FY 2010 to FY 2014. But once the overall budget started growing again, Air Force aircraft procure-ment funding rebounded by more than 50 percent while space procurement funding declined by another 17 percent. The Air Force should not be faulted when it chooses air over space—that's what our domain-centric Services are designed to do. As Carl Builder noted in the Masks of War, "the most powerful institutions in the American na-tional security arena are the military services," and the problem is there is no military Service that consistently advocates for space.

A consistent theme that emerges from more than two decades of hand-wringing is that the way national security space is organized is inadequate. Something's got to change. One approach is to use the Special Operations Command model and create a combat-ant command for space. This approach has already been tried—U.S. Space Command existed from 1985 to 2002. What we learned from that experiment is that a Space Com-mand is not a substitute for a Space Force. The job of a combatant command is to em-ploy forces, while the job of a Service is to organize, train, and equip those forces. While Space Command could help create a community of space professionals across the Ser-vices, much as Special Operations Command (SOCOM) has done for special operations forces, it will not fix fragmented authorities and responsibilities, nor will it eliminate the Services' conflicting interests when it comes to space programs and space personnel.

Another approach being championed within the Pentagon is to use the Missile Defense Agency model and create a Space Development Agency. This too would be an in-complete solution. While a development agency would help consolidate and synchro-nize space acquisitions, it would not help build a cadre of space professionals or de-velop space strategy, doctrine, and policy. It also runs the risk of creating orphaned capabilities—systems or technologies developed by an independent agency that never find a home within the operational elements of the Services.

A third approach that was most recently advocated by the House Armed Services Com-mittee in the FY 2018 National Defense Authorization Act is to create a Space Corps within the Department of the Air Force. While this would help eliminate some of the conflicts of interest within the Air Force and begin to create a more robust cadre of space

professionals, it would not fix the fragmented authorities and responsibilities for space because these extend beyond the Department of the Air Force. For a Space Corps to be effective, it would need to include the space-related organizations, programs, and personnel from the other Services and intelligence agencies as well.

With all of this in mind, I have concluded that only a separate department for space can adequately address the three central problems discussed above. Only a Department of the Space Force can fully integrate all the existing space organizations and personnel in the Services and intelligence agencies into one unified chain of command with one person, the Secretary of the Space Force, in charge of national security space. This would eliminate the fragmented authorities and responsibilities that have plagued national security space for decades; create a robust cadre of space professionals to develop space-centric strategy, doctrine, and policy; and remove the conflicts of interest that have short-changed space programs in the other Services.

I must confess that I was not convinced at first that a separate department for space was the right next step. While I felt that eventually, we would need to create something like a Space Force given the growing economic and military importance of space, it seemed like too much change at once. Ideally, one would gradually transition to a Space Corps within the Air Force and then eventually to an independent Space Force, as previous studies have recommended. But Washington politics is not conducive to multi-phase reorganizations. If Congress passes legislation for an initial reorganization, there is no guarantee it will ever get around to finishing the job. We risk being left with a partial solution indefinitely.

5.2.3 Nuke War

Space weapons undermine nuclear deterrence – the Space Force is crucial to maintain deterrence.

Pry 18

Peter Vincent Pry (chief of staff of the congressional EMP Commission, served on the House Armed Services Committee and the CIA), "The security benefits of space-based defense," Washington Times, 8-2-2018,
https://www.washingtontimes.com/news/2018/aug/2/a-us-space-force-could-become-the-locus-of-a-count/

President Trump's proposal to establish a U.S. Space Force as an independent military service on an equal footing with the U.S. Air Force, U.S. Army, U.S. Navy and Marine Corps is necessary to defend the American people from the unprecedented existential and growing threat posed by the horizontal and vertical proliferation of nuclear mis-siles.

Classical deterrence theory that prevented the bipolar Cold War from escalating into a thermonuclear holocaust may well fail in the emerging new multi-polar security envi-ronment wherein Russia, China, North Korea and Iran rely increasingly on weapons of mass destruction and ballistic missiles for blackmail and warfighting.

Electromagnetic pulse (EMP) attack by missile or satellite in the military doctrines of all these actors is considered the most effective element of Combined-Arms Cyber Warfare, the greatest Revolution in Military Affairs in history. EMP attack, that could blackout national electric grids and other life-sustaining critical infrastructures, enables rogue states like North Korea and Iran, and even terrorists groups armed with a single nuclear weapon, to become potentially "giant killers."

The march of military technology, where even North Korea has the H-Bomb, where even Yemen's Houthi rebels have ballistic missiles that regularly attack Saudi cities, is rapidly taking us to a place where failed states and terrorists can pose an existential threat to Western Civilization.

A U.S. Space Force could become the locus of a counter-revolution in military technol-ogy so offensive nuclear missiles are no longer the most powerful weapons, no longer dominate the international chess board.

Space-based defenses could render nuclear missiles obsolete.

Our children need not live under the threat of annihilation by Russia, China, "crazy states" and terrorists.

EMP, satellites, and ballistic missiles are all essentially space weapons. Congress in the National Defense Authorization Act has authorized development of space-based defenses.

A U.S. Space Force can finally realize President Ronald Reagan's long neglected vision in his Strategic Defense Initiative (SDI) of space-based defenses that would kill nuclear missiles, instead of enemy populations. Instead of avenging American dead through Mutual Assured Destruction (MAD), a U.S. Space Force could shield and save the lives of the American people.

5.2.4 Bureaucracy

Space Force eliminates bureaucratic barriers to space control.

Codevilla 18

Angelo Codevilla (professor emeritus of international relations at Boston Univer-sit), was a US naval officer and Foreign Service officer and served on the Senate Intelligence Committee, "The Space Force's Value," Strategika, Issue 54, Oct 2018, https://www.hoover.org/sites/default/files/issues/resources/strategika_54_web.pdf

Imagine what power would accrue to the nation were its military—on the ground, at sea, and in the air—to be backed by a force able to decide whether or how any other country might benefit from objects in orbital space; if that nation were to control access to orbit, securing such objects and benefits for itself. Today, who can do what to whom in or by using orbital space makes a big difference. The world's significant militaries live by information from and communications through objects in orbital space. Inevitably, sooner or later, one will bid for the comprehensive capacity to control that space. Bet-ter that America be first. Establishing the US Space Force will endow people with the mission—the goal, the will, and the interest—to make US control of space happen.

Ever since 1960, when the United States managed the first orbital rendezvous, and hence the capacity to destroy objects in orbital space, every technology useful for space warfare has made giant strides— computing power, communications, energy storage, miniatur-ization, reduction of weight and vibrations, all manner of optics, pointing and tracking, control systems, etc. Continuing advances offer ever-more tempting options for offense and defense in orbit. It is impossible to imagine any major war's operations henceforth without competitive destruction of satellites. Because orbital space is ballistic missiles' highway, satellites offer the only prospect of anything like preclusive defense against them through control of access to space. Moreover, orbital fire control systems—which America now lacks—are key to efficient operation of surface-based missile defenses.

But for human beings to turn any technology's potential to military effect, those who really want to do it must be in a position to make it happen. Though the logic of war and technology has long counseled establishing a US Space Force, the logic of military bureaucracy has forestalled it. The existing military services' bureaucratic interests have obscured the fact that orbital space is itself a major theater of operations, victory in which might be decisive for victory everywhere else. That is why establishing the US Space Force is no mere rewiring of bureaucratic diagrams.

5.2.5 Russia

Space Force is key to deter Russia – it conducts surveillance and can project power.

Deptula 20

Gen. David Deptula (a retired U.S. Air Force lieutenant general. He planned the Desert Storm air campaign, orchestrated air operations over Iraq and Afghanistan, was the first chief of Air Force Intelligence, Surveillance and Reconnaissance, and is now dean of the Mitchell Institute for Aerospace Studies), "A sitting target in space for Russia's anti-satellite weapons?," TheHill, 8-4-2020, https://thehill.com/opinion/national-security/510337-a-sitting-target-in-space-for-russias-anti-satellite-weapons?rl=1

U.S. Space Command (USSPACECOM) has revealed evidence that Russia conducted a space-based anti-satellite (ASAT) weapon test on July 15. This is but the latest in a grow-ing number of counter-space capability tests conducted by an ever-expanding number of countries, and flies in the face of our nation's policy to not weaponize space.

It is time to face reality.

With Russia, China and other countries moving to weaponize it, space is now a warfight-ing domain. The United States must ensure the organizations it recently stood up to deter and, if necessary, to defeat an adversary's hostile use of space — the U.S. Space Force and USSPACECOM — have the necessary resources to fulfill their vital missions.

During the Cold War, the risk of an attack in space was thought to be low because it might be interpreted as a prelude to nuclear war. Historically, the United States and the Soviet Union broadly agreed not to interfere with each other's national security space as-sets, because they were implicitly subsumed under the deliberately vague definition of national technical means for treaty verification. This view of satellites as strategic assets began to change starting with the first Gulf War, when space-based systems helped to provide coalition forces with decisive operational and tactical advantages during com-bat operations.

Today, the United States relies on space to project power globally — certainly to a greater extent than potential adversaries that would have the benefit, in the most likely conflict scenarios, of operating closer to home. Our civilian economy has become inseparably dependent on space-based capabilities, too. It should, therefore, come as no surprise that potential adversaries such as Russia and China have been actively developing the doctrine, organizations and capabilities to neutralize the asymmetric U.S. advantage in

space.

Unfortunately, as the space domain has grown increasingly contested, the U.S. national security space enterprise has not kept pace. Many of the systems in use have designs dating to the Cold War, when requirements were driven by performance rather than re-silience, resulting in systems that became increasingly complex, integrated and expen-sive. Although sensible at the time, such systems are not well suited to today's strategic environment. As Gen. John Hyten, vice chairman of the Joint Chiefs of Staff, puts it, they present "juicy targets" to potential adversaries and would take years to replace, if degraded or destroyed.

The causes of our current state of affairs are numerous, including onerous, costly acqui-sition processes; fragmented authority for space acquisitions across dozens of agencies within the Department of Defense (DOD) and the intelligence community; the lack of sufficient numbers of space professionals; and the tendency of the military services — which are focused on other domains — to shortchange space investment when balanc-ing priorities.

Addressing these issues, and the growing recognition of the vulnerability of U.S. space systems, are precisely why DOD re-established USSPACECOM and why Congress stood up the U.S. Space Force.

These two organizations have distinct yet complementary roles. The U.S. Space Force is tasked to organize, train and equip space forces and to provide an appropriate space component to each of the combatant commands. As one of 11 unified DOD combatant commands, USSPACECOM integrates and employs assigned forces from each of the military services to execute its directed missions in and through the space domain.

Ensuring the success of both organizations will require the financial, human and orga-nizational resources to sustain, protect and grow America's critical space capability and capacity.

First, in terms of funding, the president's FY2021 budget allocates $15.4 billion to the U.S. Space Force, just over 2 percent of the total DOD budget. This is neither reflective of the contribution of space-based capabilities to both civilian and military functions nor sufficient to counter increasing threats. Adequately funding the Space Force will require each of the services, as well as the intelligence community, to contribute resources that align with their space mission requirements that are provided by the Space Force, rather than relying entirely on the Air Force for funding.

Second, there are not enough trained space personnel to cover all the newly created mili-

tary space organizations without double- or triple-assigning some critical space person-nel. Congress stood up the Space Force with the caveat that it would generate no new personnel, primarily out of concern for rising costs and bureaucracy. Realistically, lift-ing the restriction on added personnel is necessary to ensure the national defense space enterprise has sufficient depth and flexibility in its cadre of space professionals to cover the U.S. Space Force, USSPACECOM, and the space components each service likely will want to retain to provide for their representation and support to USSPACECOM.

Third, at least some of the more than 60 government organizations that have a role in national security space should be integrated into the Space Force — a fundamental ra-tionale for standing up the Space Force — along with their resources. An integrated U.S. military space enterprise would be better optimized than the disparate, overlap-ping, disjointed entities that exist today. Consolidating these organizations and their programs within the Space Force would allow it to assume control of the pass-through funding over which the Air Force currently has no authority. This would have the added benefit of promoting greater transparency in DOD resource allocation, to ensure each of the services is appropriately funded.

The recently published 2020 Defense Space Strategy rightly points out that space is no longer a sanctuary and that U.S. space systems will be targeted in future conflicts. Deter-ring these attacks requires increasing attention to space operations as well as developing and fielding capabilities to defend U.S. space systems and negate enemy threats in space. That starts with a U.S. Space Command and U.S. Space Force that are appropriately re-sourced for the missions they are tasked to accomplish.

Action is required now. The adverse cost of waiting until Russia and China take offen-sive actions in space would prove utterly crippling to military and civilian interests. As history has proven time and again, the best way to dissuade an adversary from pursu-ing hostile action is through deliberate, smart preparation. In the Cold War, we called this “peace through strength,” and it still applies today. The time has come to get the U.S. space enterprise in order.

5.2.6 China

Space Force needed to counter China – advancing Chinese capabilities mean the US needs the Space Force to stay ahead of adversaries.

Wang 19

Kent Wang (research fellow at the Institute for Taiwan-America Studies (ITAS), a con-servative Washington-based think-tank focusing on aspects of US-Taiwan relations, and is broadly interested in the United States-Taiwan-China trilateral equation, as well as in East Asian security architecture), "US needs Space Force to counter China," Asia Times, 4-25-2019, https://asiatimes.com/2019/04/us-needs-space-force-to-counter-china/

Is there a true military threat in space? Yes, Americans need to be aware of the real threats that China poses to their country's capabilities in space. The United States must prepare to make a show of force to prove its ability to respond to threats in space, and a space force is necessary to protect American satellites from being targeted by Chinese weapons. The main threat lies in an adversary's ability to disable or destroy satellites from the ground.

US President Donald Trump signed Space Policy Directive-4 on February 19, ordering the Pentagon to establish the Space Force. The main goal is to secure and extend Amer-ican dominance of the space domain. Since 2010, China has already demonstrated an ability to pilot satellites to approach designated targets. A space force is a crucial ele-ment of US efforts to counter China, which has been aggressively working to develop anti-satellite capabilities.

Washington's decision to establish the Space Force reflects a growing concern in the US over the development of sophisticated new weapons by China. During the last decade, there has been growing concern over the reliance on vulnerable space capabilities for national security, and the corresponding proliferation of offensive counter-space capa-bilities that could be used to disrupt, deny, degrade, or destroy space systems. Thus, space security has become an increasingly salient policy issue.

One of the major reasons behind the Space Force idea was to speed up the pace of acquisi-tion as potential adversaries such as China developed counter-space weapons. China is conducting sophisticated satellite operations and is probably testing on-orbit dual-use technologies that could be applied to counter-space missions. China's military is be-coming increasingly adept at militarizing commercial space technologies. Independent

analysts have revealed considerable details about China's growing arsenal of counter-space capabilities such as directed-energy anti-satellite weapons and satellite jammers.

The US cannot ignore potential threats to satellites that are crucial to communication, navigation, weather information and other underpinnings of modern life. Eighty per-cent of the nearly 2,000 satellites are civilian, providing critical communications and economic services for humanity's well being. We need to take care of space. However, if concentrating authority in the Space Force creates an incentive for nations to build space weapons that increase the likelihood of conflict, it would be a profoundly bad idea.

In 2007, China launched a missile that tracked and destroyed one of its own satellites – a highly provocative demonstration of China's growing capability to militarize space. China has demonstrated the ability to maneuver their satellites in close proximity to US assets, posing unprecedented new dangers. So this is a reality. The United States must be able to defend American satellites in space. At the same time, if someone is going to try to engage in space with military means, the US will not stand idly by.

China is years ahead of the United States in developing the means to destroy or dis-able satellites that the American military depends on for everything from gathering intelligence to guiding precision bombs, missiles and drones. China is also develop-ing counter-space technologies that could cripple America's satellite constellations and networks. China is also working on ground-based systems, electromagnetic jamming, lasers and other anti-satellite capabilities to counter America's advantage in space. The emergence of satellite-killing weapons and electronic warfare in space are among the trends that are reshaping the balance of power in outer space and challenging the dom-inance of the United States.

In addition to civil and commercial uses, Chinese space doctrines indicate that they view space as important to modern warfare and view counter-space capabilities as a means to reduce US military effectiveness. Chinese space surveillance networks are also capa-ble of searching, tracking, and characterizing satellites in all earth orbits. This capabil-ity supports both space operations and counter-space systems. Furthermore, China is developing jamming and cyberspace capabilities, directed-energy weapons, on-orbit ca-pabilities, and ground-based anti-satellite missiles that can achieve a range of reversible to nonreversible effects.

New studies provide fresh insights into the escalating arms race in space. China empha-sizes offensive cyberspace capabilities as key assets for integrated warfare and could use

its cyberwarfare capabilities to support military operations against space-based assets. China is also moving forward with a new modular space station. China has successfully operated two previous space labs in low earth orbit (LEO), Tiangong-1 and -2 through its Project 921 program. The new space station will consist of three modules. The core module for the new space station is expected to be launched in 2020, while the two ad-ditional experimental modules are planned for launch in 2021 and 2022. China is also currently developing a new space telescope, which will reportedly have a field of view 300 times larger than the US Hubble Space Telescope. This telescope will be placed near the new space station, in case astronauts need to service it manually.

China emphasizes offensive cyberspace capabilities as key assets for integrated warfare and could use its cyberwarfare capabilities to support military operations against space-based assets

The militarization of space is a concern. China is the third country to have landed a rover on the moon and performed the first-ever landing on the lunar far side with its Chang'e-4 rover and lander in January 2019, and it will continue to improve its space pro-grams, including human spaceflight. Commercially, China will compete internationally to build satellites and supply space launch, navigation, and intelligence, surveillance and reconnaissance services. Beijing will continue to see space as integral to winning modern wars. China is developing systems that pose a threat to freedom of action in space and will continue its efforts to enhance its space and counter-space capabilities, and better integrate them into its respective military branches.

Space and counter-space capabilities are critical for China to fight and win modern military engagements. China shows no signs of slowing its investment in developing counter-space capabilities. Government and military officials often comment on how military space capabilities will ensure their success in conflict and create a significant advantage if China can interfere with America's reliance on space architectures. China is clearly investing in its counter-space capabilities. Evidence confirms that in 2018 alone, China tested technologies in three of the four counter-space weapon categories. Specif-ically, China has tested several direct-ascent weapons capable of reaching satellites in LEO and possibly GEO.

Today, space is fundamental to our modern way of war. It could be cyber, it could be laser weapons, and it could be jamming the communications capability. The advantages the United States holds in space capabilities will drive some nations to improve their abilities to access and operate in space. As the number of spacefaring nations grows and as some actors integrate space and counter-space capabilities into military operations,

these trends will pose a challenge to US space dominance and present new risks for assets on orbit. Moreover, the threat is real and it's there and we need to react to it as a nation. The stakes from the US perspective couldn't be higher. Satellites are critical to the economy, to things like Earth-bound navigation and communication right down to self-driving cars of the future.

Now the Pentagon is trying to catch up by hardening its defenses against anti-satellite weapons and honing ways to retaliate against a new form of combat that experts warn could affect millions of people, causing untold collateral damage and spread to battle-fields on earth. Perhaps the most important area to watch is how the United States responds to new and ongoing developments in the counter-space capabilities of coun-tries like China and others. Key developments to watch within the United States are further development and articulation of military space strategy and doctrine, and in-vestments in counter-space capabilities. Changes in these areas are an indication of the level of priority being placed on space and how the United States intends to compete in this domain.

The Space Force is necessary to protect American satellites from being targeted by weapons in the hands of China and other countries. Setting up the Space Force is what it will take to ensure the United States stays ahead of adversaries that are advancing their space capabilities.

5.2.7 Impact

Space militarization risks space war.

Skibba 20

Ramin Skibba (an astrophysicist turned science writer and freelance journalist based in San Diego), "The Ripple Effects of a Space Skirmish," Atlantic, 7-12-2020,
https://www.theatlantic.com/technology/archive/2020/07/space-warfare-unregulated/614059/

On April 22, after several failed attempts, Iran's Islamic Revolutionary Guard Corps an-nounced a successful launch of what it described as a military reconnaissance satellite. That satellite joined a growing list of weapons and military systems in orbit, including those from Russia (which in April tested a missile program designed to destroy satel-lites) and India (which launched an anti-satellite weapon in March 2019). Experts like Brian Weeden, director of program planning at the Secure World Foundation (SWF), a nonpartisan think tank based in Broomfield, Colorado, worry that these developments—all confirmed by the newly rebranded United States Space Force—threaten to lift earthly conflicts to new heights and put all space activities, peaceful and military alike, at risk. Researchers at SWF and at the Center for Strategic and International Studies (CSIS), a nonpartisan think tank in Washington, D.C., both released reports this year on the rapidly evolving state of affairs. The reports suggest that the biggest players in space have upgraded their military abilities, including satellite-destroying weapons and tech-nologies that disrupt spacecraft, by, for instance, blocking data collection or transmis-sion. Many of these technologies, if deployed, could ratchet up an arms race and even spark a skirmish in space, the SWF and CSIS researchers caution. Blowing up a single satellite scatters debris throughout the atmosphere, said Weeden, co-editor of the SWF report. Such an explosion could hurl projectiles in the paths of other spacecraft and threaten the accessibility of space for everyone. "Those are absolutely the two best re-ports to be looking at to get a sense of what's going on in the space community," said David Burbach, a national security affairs expert at the U.S. Naval War College in New-port, Rhode Island, who was not involved in the new research. Today, Burbach added, the world is very different compared with the Cold War era, when access to space was essentially limited to the United States and the Soviet Union. Many more countries now have space programs, including India, Iran, North Korea, France, Japan, and Israel. Despite this expansion—and the array of new space weapons—relevant policies and regulatory bodies have remained stagnant. "What worries us in the international com-

munity is that there aren't necessarily any guardrails for how people are going to start interfering with others' space systems," said Daniel Porras, a space security fellow at the United Nations Institute for Disarmament Research in Geneva. "There are no rules of engagement." The new reports use available evidence and intelligence to explore a range of weapons that various countries' militaries are developing or testing—or al-ready have operational. (Notably, CSIS's report doesn't include the American military.) Each nation has unique abilities and characteristics. For example, India has invested heavily in space infrastructure and capabilities, while Japan's post–World War II space activities were limited until a recent change to its constitution. For Israel's space pro-gram, Weeden said, little good data is available. Potential missile attacks on military satellites "tend to get most of the attention, but that is not all that we see happening around the world," said Todd Harrison, director of the Aerospace Security Project at CSIS and a principal author of its report, during an April 6 livestream. For example, the thousands of everyday satellites that already circle low-Earth orbit, below an altitude of 1,200 miles, could potentially suffer collateral damage. More than half of those satel-lites are from the U.S.; many of the rest are from China and Russia. They provide key services like internet access, GPS signals, long-distance communications, and weather information. Any missile that smashes into a satellite—either as an attack or during a test—would disperse thousands of bits of debris. Any one of those pieces, still hurtling at orbital speeds, could take out another spacecraft and create yet more debris. "It's very easy to pollute space," Burbach said. "The debris doesn't discriminate. If you cre-ate debris, it might just as well come back and hit one of your own satellites. So I think we're pretty unlikely to see countries actually use those capabilities." Still, he said, "it would be worrying to see countries showing off that [they] can do it and start testing." When China conducted an anti-satellite missile test in 2007, it created a massive cloud of space junk that drew international condemnation. India's engineers tried to limit debris from their recent test by conducting it at a low altitude, so that Earth's gravity would pull the pieces down and they would burn up on descent. But some pieces were flung up to the International Space Station's orbit. There were no collisions; as of February, only 15 trackable pieces of debris remained in orbit, said Victoria Samson, director of the Secure World Foundation's Washington office, during the CSIS livestream in April. A number of countries are developing new military technologies for space. France, for instance, is working on laser beams that could dazzle another country's satellite, pre-venting it from taking pictures of classified targets. North Korea is studying how to jam radio frequency signals sent to or from a satellite, and Iran is devising cyberattacks that could interfere with satellite systems. Meanwhile, the big three space heavyweights—

the U.S., Russia, and China—are already capable of all three approaches, according to the SWF report. The big three have also begun to master what the reports call "ren-dezvous and proximity operations," which involve using satellites as surveillance de-vices or weapons. A satellite could maneuver within miles of a rival's classified satellite, snap photos of equipment, and transmit the pictures down to Earth. Or a satellite could sidle up to another and spray its counterpart's lenses or cover its solar panels, cutting off power and rendering it useless. Russia may be ahead with this technology, having al-ready launched a series of small "inspector satellites," as the Russian government calls them. Last fall, according to Gen. John "Jay" Raymond, chief of space operations for the U.S. Space Force, one crept near a U.S. spy satellite, which he called a "potentially threatening behavior." So far, there are relatively few international policies or norms about what's allowed in modern-day space and what's not. The SWF report notes that an incident or misunderstanding could escalate tensions if it's perceived as an attack. The lack of guidance has left room for a range of activities. Weeden said that in De-cember 2019, the Trump administration signaled its intention to strengthen the United States' space weaponry and protect its spacecraft from possible attacks by Russia and China by transforming the Air Force Space Command into the U.S. Space Force. That shift "brought a full-time operational focus to the space domain, which was a needed change," wrote Lieutenant Colonel Christina Hoggatt, a Space Force spokesperson, in a statement to Undark. With these forces, the Defense Department seeks to "strengthen deterrence" and improve capabilities to "defend our vital assets in space," she wrote. This emphasis, Burbach said, likely means that the U.S. military will focus on making satellites more resilient to attack, rather than developing offensive weapons. Compared with the U.S., smaller space powers have fewer satellites and therefore less to lose, the U.N.'s Porras said. He argues that tense regional relationships could be particularly un-predictable. For example, he said, if North Korean leaders found themselves in a stand-off with South Korea and the U.S., they might launch and detonate a nuclear weapon in space; its dangerous radiation would disable most satellites. The U.N. and other international groups—including SWF and the Outer Space Institute, a global research organization based in British Columbia—are working to avoid such scenarios. Weeden said that as long as countries don't launch destructive space weapons near other coun-tries' spacecraft, conduct overtly provocative tests, or disable critical satellites, peaceful space activities should continue. For now, he points out, countries have only tested mis-siles on their own defunct satellites, and exercises against other nations' spacecraft have remained nondestructive. Existing international laws offer little guidance for modern military technology in space. While these rules—including the Partial Nuclear Test Ban

Treaty of 1963 and the U.N.'s Outer Space Treaty of 1967—prohibit weapons of mass destruction in space, they don't explicitly limit other kinds of space weapons, tests, or military space forces. Weeden points out that space diplomats could create new guide-lines by developing something like the Incidents at Sea agreement, which the U.S. and the Soviet Union signed during the Cold War to maintain safe distances between ships and avoid maneuvers in heavy traffic. But until similar rules involving space weaponry are hammered out, he said, unexpected satellite tests will inevitably fuel speculation and paranoia. "Any time you have militaries operating near each other without a lot of transparency or clarity," he added, "you always have the opportunity for mispercep-tions that could lead to something very bad."

5.2.8 AT: Arms Control – Link Turn

The Space Force engages in confidence building measures such as multilateral cooperative efforts that are key to spurring meaningful arms control.

Lauder et al. 20

John Lauder (an independent consultant and retired senior intelligence officer. He was chief of the Intelligence Community's Arms Control Intelligence Staff and Non-proliferation Center and a deputy director of the National Reconnaissance Office), Frank Klotz (a retired lieutenant general, is an adjunct senior fellow at the nonprofit, nonpartisan RAND Corporation. He was the first commander of the Air Force Global Strike Command and administrator of the National Nuclear Security Administration), William Courtney (an adjunct senior fellow at RAND), "How to Avoid a Space Arms Race," RAND, 10-26-2020, https://www.rand.org/blog/2020/10/how-to-avoid-a-space-arms-race.html

America's newest independent military service—the U.S. Space Force—was created in large part to deal with the threats posed by Russia and China to U.S. and allied space capabilities. According to its first statement on doctrine, the primary purpose of military space forces is "to secure U.S. interests through deterrence and, when necessary, the application of force."

This is familiar language. Deterrence, and the capability to respond with overwhelming force to aggression, have long been central elements of U.S. national security policy, especially in the nuclear domain.

So too has been the pursuit of arms control agreements as a complementary approach to enhancing stability, bolstering deterrence, and avoiding costly arms races. Thus, it is worth asking whether arms control can play a useful role in mitigating potential threats to U.S and allied interests in space.

There has been some success. The 1967 multilateral Outer Space Treaty prohibited the stationing of weapons of mass destruction in orbit. The 2010 U.S.-Russian New START nuclear arms control agreement prohibited either country from interfering with the other side's "National Technical Means" for monitoring compliance, which is under-stood to include satellite reconnaissance systems as well as other intelligence collection methods

But negotiating legally binding limits on weapons or activities that threaten use of space

by all nations has so far proven elusive, for several reasons.

In the first place, defining what constitutes a space weapon can be daunting. Terrestrial-based missile defense interceptors can and have been adapted to also destroy satel-lites. Lasers, electronic jamming, directed energy weapons, and offensive cyber tools designed for a wide range of other national security missions can also threaten satellites. It is highly unlikely that the United States or others would agree to ban capabilities that they believe are essential to protect their military operations on land, at sea, in the air, or in space.

In the future, the problem of defining an anti-satellite weapon (ASAT) is likely to get even more complicated. Several space-faring countries are planning to develop a capa-bility to service and refuel satellites on orbit to extend their service lives. However, any system that can maneuver close enough to another satellite for this purpose can pose an ASAT threat. In July Russia used a close approach to conduct a non-destructive test against one of its satellites.

Even if an agreement could be reached on the definition of an ASAT system, verifying compliance with arms control limits would prove challenging.

Some 70 countries and multinational organizations own or operate satellites. The U.S. Space Force tracks over 26,000 thousand objects in space, including satellites and de-bris. This number is likely to grow rapidly. SpaceX, for example, plans to launch thou-sands of small Starlink satellites to provide global internet service. Sorting out potential threats in a more crowded space environment may become increasingly difficult.

Parties to any arms control accord must have confidence that others are not cheating. Onsite inspection, a common feature in arms control pacts, is largely infeasible in space. It is unclear whether proven arms control monitoring tools, such as information ex-changes, are feasible or useful for a space agreement.

The history of U.S.-Soviet arms control during the Cold War might suggest a way for-ward. Before the two superpowers concluded major agreements, they negotiated a se-ries of measures to enhance transparency and build mutual confidence, such as notify-ing each other of impending ballistic missile launches. They also adopted measures to avoid incidents at sea.

Efforts to promote transparency and confidence in the space domain are underway. Un-der both Republican and Democratic administrations, the United States has collaborated with other nations and the commercial space sector on developing several non-legally-binding "norms of behavior" for operations in space, including best practices to avoid

collisions and mitigate space debris.

The U.S. Space Force shares information on location of objects in space with more than 100 governmental, academic, and commercial partner organizations from 25 nations through formal data sharing agreements, and is steadily adding more parties to the list of users. NASA is pursuing Artemis Accords with international partners "to create a safe and transparent environment" in space, particularly as human space exploration and possible economic activities venture beyond Earth orbit.

Such multilateral cooperative efforts could help set a foundation for the adoption of additional transparency and confidence measures. They may offer realistic hope of re-ducing risks and protecting freedom of access to space for all nations.

5.2.9 AT: Arms Control – Fails

Treaties fail – can't convince, verify, or regulate.

Bahney and Pearl 19

Benjamin Bahney and Jonathan Pearl (are Senior Fellows at the Lawrence Liver-more National Laboratory's Center for Global Security Research and contribut-ing authors to Cross Domain Deterrence: Strategy in an Era of Complexity), "Why Creating a Space Force Changes Nothing," Foreign Affairs, 3-26-2019, https://www.foreignaffairs.com/articles/space/2019-03-26/why-creating-space-force-changes-nothing

WHY TREATIES WON'T WORK

As Russia and China continue to push forward, U.S. policymakers may be tempted to use treaties and diplomacy to head off their efforts entirely. This option, although allur-ing on paper, is simply not feasible. Existing treaties designed to limit military compe-tition in space have had little success in actually doing so. The 1967 Outer Space Treaty bans parties from placing nuclear weapons or other weapons of mass destruction in space, on the moon, or on other celestial bodies, but it has no formal mechanism for verifying compliance, and places no restrictions on the development or deployment in space of conventional antisatellite weapons.

Even if it were possible to convince Moscow and Beijing of the benefits of comprehensive space arms control, existing technology makes it extremely difficult to verify compliance with the necessary treaty provisions—and without comprehensive and reliable verifica-tion, treaties are toothless. Moreover, regulating the development and deployment of antisatellite weapons is extremely difficult, both because they include such a broad and diverse range of technologies and because many types of antisatellite weapons can be concealed or explained away as having some other use. Unsurprisingly, Russia and China's draft Treaty on the Prevention of Placement of Weapons in Space, which they have been pushing for several years now, has an unenforceable definition of what consti-tutes a "weapon" and does nothing at all to address ground-based antisatellite weapons development.

Washington should thus shift its focus away from formal treaties and toward strength-ening norms around especially worrying space operations. The most important norms to pursue relate to the targeting of satellites that support strategic warning and com-mand and control, since these systems help maintain strategic stability between nuclear-

weapons states. The United States should immediately start a serious and sustained dialogue with China and Russia to at least build a consensus against attacking these systems, if a more wide-ranging agreement is out of reach.

The United States could also explore informal measures to strengthen operational rules of the road in space. A useful model for these measures is the 1972 maritime agreement on the Prevention of Incidents On and Over the High Seas, also known as the INCSEA treaty. The spirit of INCSEA's provisions map over to the space domain rather well— including its focus on maintaining a safe distance from other ships; avoiding maneuvers in heavy sea traffic; not simulating attacks on, launching objects toward, or illuminating the bridges of other ships; and using accepted international signals when maneuvering near another ship. In fact, since none of these measures rely on intrusive inspection activities, one can imagine the possibility of reaching agreement on a similar treaty for space.

5.2.10 AT: Militarization

Non-unique – space is already militarized.

Bahney and Pearl 19

Benjamin Bahney and Jonathan Pearl (are Senior Fellows at the Lawrence Liver-more National Laboratory's Center for Global Security Research and contribut-ing authors to Cross Domain Deterrence: Strategy in an Era of Complexity), "Why Creating a Space Force Changes Nothing," Foreign Affairs, 3-26-2019, https://www.foreignaffairs.com/articles/space/2019-03-26/why-creating-space-force-changes-nothing

But in reality, the image of space as a zone free from military competition is as fanciful as the notion that it can be subject to outright American dominance. Space is already militarized, and it has been since the start of the space age six decades ago. Competitors such as China and Russia are already capable of threatening the United States' military presence there—namely, the satellites that provide the information backbone of U.S. military power. President Donald Trump's February directive to establish the Space Force as a sixth branch of the military under the U.S. Air Force—a modification from his original proposal to create a fully separate service—changes nothing in this regard.

Arguing over whether Washington should create a Space Force misses the point. Since space is already a competitive and a militarized domain, the task now is to protect U.S. and allied military interests in space to guard against catastrophe. That means both strengthening U.S. capabilities to deter and defend against strikes on its satellites and working with other nations to strengthen norms. The most important norms are against attacks on so-called strategic-warning satellites, which underpin nuclear deterrence by detecting missile launches in real time, because such attacks could be interpreted as a prelude to a nuclear strike and result in unintended nuclear war. Ignoring these prob-lems will only make arms racing and conflict more likely.

5.2.11 AT: ASATs

Countries are already deploying ASATs technology.

Bahney and Pearl 19

Benjamin Bahney and Jonathan Pearl (are Senior Fellows at the Lawrence Liver-more National Laboratory's Center for Global Security Research and contribut-ing authors to Cross Domain Deterrence: Strategy in an Era of Complexity), "Why Creating a Space Force Changes Nothing," Foreign Affairs, 3-26-2019, https://www.foreignaffairs.com/articles/space/2019-03-26/why-creating-space-force-changes-nothing

Militaries across the world have taken notice, but none more so than in China and Russia. Beijing's 2015 Military Strategy referred to outer space as part of the new "commanding heights in strategic competition," and Chinese leaders have established a Strategic Sup-port Force, designed to bring its military space and cyber missions under one umbrella. Moscow has similarly created an integrated Aerospace Force, tasked with missions in-cluding detecting and "meeting" threats from space.

Both countries are developing and deploying antisatellite weapons to undermine U.S. military effectiveness in the event of a conflict. China has an operational ground-based hit-to-kill antisatellite missile intended to target satellites in low orbit, and its military has begun training with antisatellite missiles. Russia, meanwhile, is likely developing a similar system, and has also claimed to be developing air-launched missiles to target U.S. satellites. And both countries are developing laser technologies to damage satellite sensors, with Russia recently fielding a ground-based laser weapon, likely for an anti-satellite mission. Both are also building electronic warfare capabilities to block signals from U.S. communications and navigation satellites.

China and Russia also appear to be developing space-based antisatellite capabilities. Ac-cording to the U.S. Department of Defense, China is working toward having the ability to launch antisatellite strikes from other satellites. And at the UN Conference on Dis-armament in Geneva in 2018, the U.S. State Department expressed concerns about the abnormal behavior of a Russian military satellite. Moscow claims it is intended to sup-port satellite inspection missions, but the State Department argues that the satellite's behavior is inconsistent with this claim.

China may also be working toward targeting satellites in higher-altitude orbits. In May 2013, Beijing launched an object with a peak altitude above 30,000 kilometers, which a

Pentagon report argues could have been a test aimed at achieving high-orbit antisatellite capability. These higher orbits are home to many of the United States' most important space assets, including strategic warning and nuclear command and control satellites, which alert decision-makers of ICBM launches and enable the president and military commanders to control tactical and strategic (including nuclear) forces. Attacks against these satellites would be particularly dangerous because they could prompt fears of an impending nuclear strike and lead to runaway nuclear escalation during a crisis or conflict.

5.2.12 AT: OST

Space Force is legal under international law – it's allowed for peaceful purposes.

Fukazawa 20

James Fukazawa (Staff Editor of the Denver Journal of International Law & Policy), "Does the U.S. Space Force Violate the Outer Space Treaty?," Denver Journal of Inter-national Law & Policy, 4-28-2020, https://djilp.org/does-the-u-s-space-force-violate-the-outer-space-treaty/

The National Institute of Standards and Technology estimates the economic benefit of the space-based Global Positioning System (GPS) for private sector use between 1984-2017 at $1.4T.[1] By some estimates, Newspace, the private spaceflight industry, will be worth another trillion dollars by the 2040s.[2] Despite or perhaps because of its enor-mous space interests, America has stated that space war is inevitable.[3] To protect those interests, the United States created the U.S. Space Command in 1985.[4] In 2002, U.S. Space Command integrated with U.S. Strategic Command.[5] And on December 20, 2019, U.S. President Donald Trump's 2020 National Defense Authorization Act, con-verting U.S. Space Command into the U.S. Space Force, a discrete geographic combatant command and the sixth branch of the United States military.[6] The Space Force is meant to be "consistent with applicable law, including international law."[7] Governing space law is premised upon the exploration and use of space strictly for peaceful purposes.[8] Conversely, part of the U.S. Space Force's purpose is to project "military power in, from, and to space…"[9] Is the Space Force actually illegal?

Space-race sabre-rattling between the United States and Russia in the 1960s resulted in the creation of the dominant treaty governing space law, the 1966 United Nations Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, better known as the Outer Space Treaty (OST).[10] Guided by treaties governing the exploration and use of simi-larly harsh, terrestrial environments like the high seas and Antarctica, the OST declares outer space the province of all mankind and calls for cooperative use of outer space for peaceful purposes.[11] Like the Antarctica Treaty of 1959, which suspended claims of sovereignty in the Antarctic, the OST similarly precludes claims of sovereignty in space.[12] The elimination of sovereignty precludes national appropriation of space ob-jects, natural resources found in space, and celestial bodies.[13] The restriction is meant to deter a space race motivated by national superiority, which would be inimical to the

spirit of the OST.[14]

The OST is a shining example of diplomacy between competing states with vastly dif-ferent agendas.[15] However, the diplomatic process resulted in ambiguities that are re-solved by varying national interpretations.[16] For example, the United States and Rus-sia disagree on the meaning of the "peaceful purposes" upon which the OST is premised. The United States interprets peaceful purposes broadly as "non-aggressive," and Russia interprets peaceful purposes narrowly as "non-military."[17] The United States' inter-pretation is in agreement with Article IV of the OST, which expressly condones the use of military personnel for peaceful purposes.[18] Because there is no international con-sensus on the meaning of peaceful purposes, each state conducts their affairs in accor-dance with their own sometimes conflicting national interpretations.[19] Several prob-lems follow from the uncertainty. For example, dual-use technology like satellites are not prohibited by the OST because they have a legitimate–albeit nonexclusive–peaceful purpose.[20] Destruction of satellites is similarly unprotected.[21] Because the use of military personnel for peaceful purposes is allowed under the OST,[22] and the United States' interpretation of peaceful purposes does not exclude military activity, the Space Force is arguably legal under international law.

5.2.13 AT: Cooperation

Cooperation is possible even assuming a militarized space — strong economic interests motivate cooperation.

Young 20

Makena Young (a research associate with the Aerospace Security Project at the Center for Strategic and International Studies), "Why Cooperation Is Still Possible in a More Militarized Space," World Politics Review, 9-22-2020, https://www.worldpolitics review.com/articles/29076/why-cooperation-is-still-possible-in-a-more-militarized-space

In mid-July, a Russian satellite moved uncommonly close to a U.S. government satellite in low-Earth orbit, before quickly rendezvousing with another Russian satellite nearby. The Kremlin initially insisted that this satellite was part of a routine program to monitor its own assets in space. But a week later, U.S. Space Command, which oversees Ameri-can military operations in space, deemed Russia's maneuver a non-destructive test of an anti-satellite weapon—a sophisticated counterspace tool that could threaten U.S. space assets and national security.

U.S. officials had raised similar concerns twice before, earlier this year and in 2018, about abnormal Russian satellite behavior in orbit that was inconsistent with the stated mis-sion. This latest test highlights the blatant development and placement of counterspace weapons in orbit, and Russia is not alone in pursuing them. Yet as it stands, there are few formally established international rules or regulations that define operations in space, including potentially hostile acts. The most notable and widely accepted in-ternational agreements—the Partial Test Ban Treaty of 1963 and the Outer Space Treaty of 1967—declare space as a peaceful commons and limit space weapons activity and testing. While these treaties are essential, the increase in the number of countries and commercial actors with heightened space capabilities requires new international agree-ments that can account for new challenges and threats.

As space is becoming more diverse, disruptive, disordered—and dangerous—the bur-den of setting ground rules is left to the major players in space, namely the United States, Russia, and China. Many have feared that recent developments, like the launch of the U.S. Space Force as a new branch of the U.S. military under President Donald Trump, could escalate tensions in space, particularly given that they are rising so rapidly on Earth.

But it is likely overstating things to say the world is entering a new and more desta-bilizing space race. The U.S. and others are still working diligently to preserve peace in orbit. After Russia's July maneuver, Gen. John Raymond, the Space Force's chief of space operations and at the time the commander of Space Command, said that "it is a shared interest and responsibility of all spacefaring nations to create the conditions for a safe, stable, and operationally sustainable space environment." His comments reflect two recent U.S. policy documents that aim to shape that better future: the Pentagon's Defense Space Strategy and NASA's Artemis Accords.

Both documents offer guidelines and describe their separate visions for the future of in-ternational engagement in space, indicating real will on behalf of the U.S. government, at least, to work with partners to create a robust environment in space with strong and widely accepted norms of behavior. Despite recent warning signs, if history is any indi-cation, the future of space will be marked by collaboration and cooperation, regardless of what's happening at ground level.

A Changing Domain

The militarization of space is, in fact, nothing new. For as long as humans have had the technology to reach space, militaries have been involved. Germany's military kicked things off near the end of World War II by attacking London with the V-2, the world's first long-range ballistic missile, which was able to enter what we now consider the space domain, flying 60 miles above the English Channel. In response, the U.S. and the Soviet Union established their own missile programs after the war, in what soon developed into the Cold War's space race. Militaries have used space-based tools to advance objectives ever since, such as using satellites to capture imagery or improve communication and navigation.

Yet it is the use of weapons based in space, or weapons that have effects in space, that is new, though they won't look like anything out of Star Wars. An act of aggression in space today includes everything from hacking, spoofing or jamming signals to physical kinetic attacks on satellites or ground stations, causing temporary or even permanent damage. Counterspace weapons with damaging capabilities aren't just being developed by the traditional space powers in the U.S., Russia, and China, as the barriers to entry are decreasing. Funding has long been an obstacle to entering the space domain, but cyber and electronic capabilities have become faster and cheaper to develop, allowing countries like North Korea and Iran to advance their own counterspace capabilities.

Many countries, in turn, are beginning to reorganize their military arms to protect their

space assets from these emerging threats, like the U.S. did when it revived Space Com-mand and formed the Space Force. Space Command, which is responsible for joint military operations in space, was on hiatus for 17 years, after President George W. Bush restructured the military's unified commands in 2002 in the aftermath of 9/11. When the Trump administration reestablished Space Command in August last year, it designated it as a geographic combatant command with a domain that extends to areas 62 miles or more above mean sea level. With that, the U.S. furthered its position, first asserted in 2017, that space would no longer simply support military operations, but would itself be considered a "warfighting domain."

The formation of the Space Force, which provides the personnel and equipment to Space Command, brought that vision even further. Though it's been highly controversial since the Trump administration floated plans to create the first new branch of the U.S. military in more than 70 years, the idea of having a dedicated military branch focused on space has been around for decades. It was first suggested back in 1997 by Gen. Ronald Fogle-man, who was then the Air Force's chief of staff. According to the Office of Management and Budget at the time, a Space Force would address long-standing problems in three ways: by centralizing the authority and responsibility of U.S. space operations, consol-idating a previously scattered space acquisition workforce, and establishing a military service whose full attention goes to space.

Previously, the military's space operations were fragmented between more than 60 dif-ferent organizations throughout the Department of Defense and U.S. intelligence agen-cies. The Space Force now consolidates all of these duties under one office. While the establishment of this new military branch has been much maligned, this reorganization is an important step to protect U.S. assets in space and create a clear, public distinction between civil and military functions. It can also help to clarify incidents like Russia's space missile test by providing a strong, singular U.S. military response.

Other countries have moved to reorganize their militaries as well and stand up their own space forces. China, Russia, France, Japan and the United Kingdom have all published white papers and either established, or publicly announced plans to establish, military units focused on space making clear that they will be ready to defend their assets in space if necessary. NATO also formally declared that it now considers space to be an "operational domain."

For the U.S., though, the military restructuring is aimed at deterrence, in order to "pre-serve space as a global commons," as Secretary of Defense Mark Esper described the goal of Space Command and the Space Force, in a briefing early this year. "It's impor-

tant not just to our security, but to our commerce, our way of life, our understanding of the planet, weather, you name it," Esper added. "So it's very important that we now treat it that way and make sure that we're prepared to defend ourselves and preserve space."

The Pentagon's updated Defense Space Strategy, released in June, takes a similar ap-proach to the militarization of space, articulating its goal of making space secure, stable and accessible. It lists its desired conditions in space as those that would maintain U.S. superiority there; provide support to national, joint, and combined operations; and en-sure stability in order to deter aggression in space and provide space transit. The U.S., it says, aims to uphold internationally accepted standards of responsible behavior, as a good steward of space.

But just as significant, the new strategy also notes that U.S. allies and partners are in-creasingly interested in collaborating in the development of space capabilities, sharing space-related information and intelligence, and partnering in space operations. And in-deed, there are plans in the works for the U.S. Air Force and Space Force to increase joint allied operations in space. For example, the U.S. and Japan have revealed plans to carry American military payloads on Japanese satellites—believed to be the first time the U.S. military has paid for a payload to be carried on another country's satellite. The project is designed to pave the way for possible future programs with other allies, in another sign that international cooperation in military-related space operations will become more common as militaries expand their operations in space.

The Space Force, and previously the Air Force, has experience working with interna-tional partners in space, particularly through its management of the Global Positioning System. Though GPS was initially developed as a network for the U.S. military and is owned by the U.S. government, it became available for civilian use worldwide in the 1980s after a South Korean airliner flew off course because of a navigational error and was shot down by Soviet fighters.

The U.S. has coordinated with a range of countries to maintain and augment GPS, in-cluding China and Russia. More recently, though, both China and Russia, as well as the European Union, have developed their own, similar navigation satellite systems. As more states build assets in space, they also develop counterspace capabilities to protect them.

Collaboration in Spite of Competition

Many have worried that designating space as a "warfighting domain" could come at the

expense of civil projects in space, and also endanger scientific exploration. But NASA's history should be reassuring on this score.

Since its creation in 1958, NASA, which is a strictly civil space program, has historically been able to find collaborative projects in spite of rivalries and competition on Earth. In the late 1950s, even as the U.S. and the Soviet Union were engaged in the space race at the height of the Cold War, President Dwight Eisenhower wrote letters to Soviet leader-ship, suggesting that the two governments work together to ensure that space would be used for peaceful objectives. Although Eisenhower was rebuffed, the Soviets eventually agreed years later, and the historic rivals came together for their first collaboration in space, the Apollo-Soyuz test project, in 1975. After the collapse of the Soviet Union, the U.S. and Russia continued to cooperate on the Shuttle-Mir program in the 1990s.

These joint operations helped propel human space exploration and chartered a mutually beneficial area of cooperation and communication between Washington and Moscow. The benefits of this partnership continue today. The U.S. and Russia may not be able to reach agreement on a range of geopolitical issues, but in space, the two countries continue to successfully work together. That includes on operating the International Space Station as part of a broader international coalition, a project NASA itself calls "the most politically complex space exploration program ever undertaken."

Since it first hosted astronauts in 2000, the International Space Station has welcomed 240 astronauts from 19 different countries. It involves principal partnerships between the space programs of not just the U.S. and Russia, but also Japan, Canada and the participat-ing countries of the European Space Agency, with continuous support and cooperation from others. While each country's space agency has its own goals and ambitions, in-ternational astronauts conduct experiments on the International Space Station together, proving that states can partner together for common goals in space despite geopolitical tensions on Earth.

This model of collaborative scientific work has set a precedent that NASA hopes to repli-cate in its future missions. For example, in January 2019, NASA shared satellite infor-mation with the Chinese National Space Administration to help monitor its landing of the Chang'e 4, the first lunar probe to land on the far side of the moon. It was the first confirmed instance of the two agencies sharing data in a significant way since Congress passed the Wolf Amendment in 2011, which severely limited NASA's ability to collab-orate with Chinese government agencies or commercial entities.

As the International Space Station and now the Chang'e 4's moon landing have shown,

creating dependable partnerships and increasing communication during space opera-tions can lead to new discoveries, even if the countries working together in space are competitors on Earth. Building trustworthy relationships and increasing transparency can go a long way, and could help de-escalate potential future conflicts brought on by increased military activity in space.

In its next era of exploration, NASA has set its sights on the Moon, again, and on Mars. Under its Artemis program, it has planned missions to land "the first woman and the next man" on the Moon as soon as 2024, with hopes to establish a sustainable human presence. The Moon is then set to serve as preparation for eventual human missions to Mars. NASA has announced its intent to plan these missions with international and commercial partners, to develop new technologies and capabilities.

Like the Department of Defense, NASA also recently unveiled its own strategy docu-ment, the Artemis Accords, in early 2020. Consistent with the Outer Space Treaty, the fundamental 1967 treaty that defines space as a peaceful realm, the Artemis Accords attempt to set ground rules for the many countries and companies that are accelerating their ambitions to explore space. The 10 principles it outlines will also form the basis of the agency's future bilateral agreements. These principles include the public release of scientific data, the requirement that all activities be conducted for peaceful purposes, and, importantly, a call for notification and coordination between partner nations to prevent harmful interference and reduce the risk of collisions.

Ultimately, the Artemis program underscores NASA's capacity as a civil space agency to openly seek collaboration with international and industry partners that the military may not be able to. So far, NASA has announced commercial partnerships and early international support for Artemis from the European Space Agency and Canada; more international partnerships will be announced soon.

And NASA is not alone in seeking possible new collaborations in space. After India's Chandrayaan-2 rover crash-landed on the moon in September 2019, China publicly de-clared its interest in collaborating with India's civil space agency on space exploration. China and Russia have also announced a cooperation agreement for a lunar orbiter, and Russia is currently training four Indian astronauts.

The sheer number of countries planning to engage in space exploration presents an op-portunity for more collaboration. The U.S., the United Arab Emirates and China have all launched new missions to Mars in recent months: NASA's Perseverance rover; the Emi-rates' Hope orbiter, its first; and China's Tianwen-1, its first orbiter, lander and rover.

Additionally, Europe and Russia have their own joint mission, a Mars rover, scheduled for 2022. Closer cooperation between these space agencies can bind together the suc-cesses of their programs, allowing citizens around the world to celebrate shared achieve-ments and benefit from space exploration. Ultimately, these collaborations could bring about more frequent and deeper exploration of space.

A New Vision for Engagement in Space

Still, the question remains: Can space continue to be a collaborative domain in spite of geopolitical hostilities? And can civilian space programs continue to work together, undeterred by the risk of more military aggression in space?

Space is at a turning point, and U.S. leadership is so far indicating that more collabora-tion in space, not less, is both possible and desirable. The U.S. is bringing this vision into its foreign policy, as well. In late July, for example, the U.S. and Russia sat down to discuss space security for the first time since 2013, with a goal of guarding against the militarization of space. That kind of engagement, along with more technical coopera-tion like NASA's support for China's moon rover, suggest that other governments also share this vision, even if they also have their own interests at stake.

As space becomes more crowded and complex, the way it is used and how it shapes international relations, will inevitably change, too. Despite moves toward a more weaponized space, the long history of coexistence and collaboration in orbit suggests that rivals can come together to advance science, exploration and their security aspirations, regardless of their militaries' endeavors in space or on Earth.

5.3 Space Economy

5.3.1 General

The Space Force creates a new trillion-dollar space faring economy – it's key to tech leadership and spills over to other industries.

Rapier 18

Graham Rapier (business news reporter Business Insider based in New York), "Trump's 'Space Force' could fuel a new $1 trillion economy, Morgan Stanley says," Business Insider, 6-24-2018, https://markets.businessinsider.com/news/stocks/trump-space-force-could-fuel-new-1-trillion-economy-2018-6-1027312647

If President Donald Trump successfully organizes his so-called Space Force, it could speed up investment in what Morgan Stanley sees as the next trillion-dollar economy. In a note to clients Friday, the bank doubled down on its intergalactic thesis from last October, saying the Space Force "could address critical vulnerabilities in national se-curity, raising investor awareness in the formation of what we see as the next trillion-dollar economy." Morgan Stanley has already identified 20 stocks staking their place in the space race, and says it's monitoring 100 other private companies across sectors including satellite internet, rockets, space tourism, and asteroid mining as the push to pioneer this new frontier heats up. "Our conversations with various actors (current and retired) in the US government, military, and intelligence communities overwhelmingly indicate that space is an area where we will see significant development," a team of analysts led by Adam Jonas, the bank's autos analyst, wrote in Friday's note. "This development could enhance US technological leadership and address vulnerabilities in surveillance, mission deployment, cyber, and AI." Space is already a $350 billion econ-omy, or roughly half a percent of the world's GDP, the bank estimates. And as more investments pour into technologies like reusable rockets that make space exploration cheaper, that economy could grow to $1 trillion, especially as countries recognize the need for a space presence to maintain national security. Still, though, it's not clear how exactly the "Space Force" might come about — or even which branch of the current military it may fall under — but Morgan Stanley says it could actually be a net posi-tive for the Department of Defense. "Based on conversations with some Washington insiders, establishing a Space Force as a standalone military branch, while potentially contentious, could be overall beneficial for the US Defense Department," said Morgan Stanley. "That said, the President must now garner the support of Congress to move on

the initiative, through both funding and authorization." That last part may prove diffi-cult, but the President seemed committed to the idea when he signed a "space policy directive" last week. "It is not enough to merely have an American presence in space," President Trump said at the time. "We must have American dominance in space. We are going to have the Air Force, and we are going to have the Space Force, separate but equal."

Space Force ensures a prosperous and security space economy.

Erwin 20

Sandra Erwin (writer for SpaceNews. She has covered the military, the Pentagon, Congress and the defense industry for nearly two decades as editor of NDIA's National Defense Magazine and Pentagon correspondent for Real Clear Defense), "Space Force outreach emphasizes role protecting global space economy," SpaceNews, 9-9-2020, https://spacenews.com/space-force-outreach-emphasizes-role-protecting-global-space-economy/

WASHINGTON — In meetings with lawmakers on Capitol Hill, Space Force leaders are making the case that the service plays a central role defending national security and also economic interests. The Space Force envisions as one of its responsibilities to pro-tect space commerce and "freedom of action" for the United States and its allies, and that point is being stressed to the public and Congress, said Lt. Gen. William Liquori, deputy chief of space operations for strategy, plans, programs, requirements and analysis. Hav-ing free access to the space domain is vital "in order to advance not only our national security but our economic prosperity and scientific knowledge," Liquori said Sept. 9 at the annual DefenseNews conference. Liquori is one of the new members of the senior staff of the office of Chief of Space Operations Gen. John "Jay" Raymond. Raymond has been on Capitol Hill for "multiple engagements with the members, and will continue to engage with Congress," said Liquori. "We need to be able to have a budget that will al-low us to execute those core competencies." A key message is the "importance of what it is that the Space Force brings, not only to our joint force but to our entire nation and our allies," he said. Liquori was one of the intellectual leaders in the development of the Space Force capstone doctrine titled "Spacepower." The document makes the case that access and control of space is not just a military concern but a national one due to the role of space in the global economy and the world's increasing dependence on space for critical products and services. "Space is simultaneously a source and conduit

through which a nation can generate and apply diplomatic, informational, military and economic power," the Spacepower document says. "The United States must cultivate, develop and advance spacepower in order to ensure national prosperity and security." Military space forces, the document says, have a duty to "preserve that prosperity and security."

5.3.2 GPS

Space is key to the economy – provides GPS.

Garretson 21

Peter Garretson (Senior Fellow in Defense Studies at the American Foreign Policy Council in Washington, DC), ”Final Frontier: Why the Space Force Is Here to Stay,” National Interest, 2-6-2021, https://nationalinterest.org/feature/final-frontier-why-space-force-here-stay-177673

These contributions, however, are just the tip of the iceberg, because the Space Force is an engine of the industries of the future. Today, the service’s contributions are already ubiquitous. Its GPS constellation enables precision agriculture for the food we eat, nav-igation for the aircraft we fly, location services on our phones and cars, and timing for our banks and ATMs. In fact, it is estimated that Space Force-administered GPS services add as much as $1 billion per day in economic benefits to our economy.

5.3.3 Space Architecture

Space Force is necessary to protect private space architecture.

Mahshie 20

Abraham Mahshie (defense and national security reporter for the Washington Exam-iner), "Space Force can ramp up protection of space architecture as launches hit light speed," Washington Examiner, 11-30-2020, https://www.washingtonexaminer.com/policy/defense-national-security/space-force-can-ramp-up-protection-of-space-architecture-as-launches-hit-light-speed

The rapid pace of rocket launches from the eastern range is more than just a commer-cial space boon. It means a greater capacity to defend America's space architecture against aggressive adversaries developing space weapons, said the commander of the 45th Space Wing at Patrick Air Force Base in Florida. "It's on the forefront of everyone's mind, even our bosses," Wing Commander Brig. Gen. Douglas Schiess told the Wash-ington Examiner. "How can we keep this pace up, and how can we be even faster or [have] more launches?" When Schiess first served at Cape Canaveral eight years ago, he saw just a dozen annual launches. In 2020, the Department of Defense's eastern range is set to surpass 30 commercial and national security launches. Even more launches are expected as the nation's newest service, Space Force, stands up and needs to de-ploy additional assets into space. Launch capacity has been enabled by the growth in commercial space, the commander said, including private companies such as SpaceX, United Launch Alliance, and soon, Jeff Bezos's Blue Origin. The first autonomous rocket service for satellites, Relativity Space, will also come online shortly. "We believe that a strong commercial space launch business case helps national security space by ensuring that we have launched providers that have a good business model," said Schiess. As Space Force approaches its first birthday on Dec. 20, Schiess said Space Force Comman-der Gen. Jay Raymond will decide what he needs to protect national security. Space Command's Gen. James Dickinson, who manages the war fighting aspect of space, will add additional requirements that will mean even more launches. "There'll be more national security space launches in the future that we'll also need to be put onto the schedule," the 45th Space Wing commander said. "It's been a huge increase, and we've had to come up with innovative ways to be able to be better at that so that we can get that pace off." Air traffic along the eastern seaboard needs to be cleared, cruise ships need to be moved out of the area, there need to be precise weather conditions, and while the vast oceanfront base has some 26 launch pads, only four are currently operational.

Part of the reason why the Space Force will likely increase its launches soon is a defen-sive strategy to replace large, clunky satellites with numerous, smaller satellites. The so-called proliferated low Earth orbit constellations will consist of satellites that can be built and launched faster. Brookings Institution national security scholar Frank Rose told the Washington Examiner that the success or failure of the Space Force will depend on its ability to assure resiliency in space. "The ability to maintain our space systems in the midst of the threat from anti-satellite weapons," he explained. Earlier this year, Russia tested for the second time a space weapon capable of chasing a satellite and fir-ing a projectile. In 2007, China showed it can shoot down a satellite. Rose said a robust launch capacity is a step in the right direction. "Our ability to enhance the resiliency to a certain extent depends on our ability to quickly reconstitute things," said Rose. "Space launch capability is key to our ability to effectively operate in space in the context of a contested environment." Schiess said the capability, developed in concert with the pri-vate sector, is consistent with Raymond's goals for the force. "Gen. Raymond and our leaders are trying to build an agile and responsive service that can meet the needs of the United States," he said. "We just need to be postured to be able to do those launches when they come down and they get scheduled," the 28-year Air Force veteran asserted. "I think there's no limit to what the Space Force could do."

5.3.4 Mining

Space force is key to space mining – ensures those resources are secure from both human and natural hazards.

Garretson 19

Peter Garretson (independent strategy consultant who focuses on space and defense. He was previously the director of Air University's Space Horizons Task Force, Amer-ica's think tank for space, and was deputy director of America's premier space strategy program, the Schriever Scholars), "The purpose of a Space Force is a spacefaring econ-omy," The Hill, 6-26-2019, https://thehill.com/opinion/technology/450519-the-purpose-of-a-space-force-is-a-spacefaring-economy

America needs a Space Force for the same reason it needed a Navy: to secure American interests, especially commerce upon the great ocean that is space. In the 19th century, America realized the tremendous benefits that would be possible were it to become a seafaring nation. With the desire to be seafaring came a need for a Navy to secure its citizens, their property and their transport far from American shores.

Today, America is likewise waking up to the vast potential of space commerce in the inner solar system. Tech billionaires lead the way with personal investments to create access to an expanding and diverse space economy. Elon Musk of Tesla and SpaceX has developed and is developing reusable rockets to make humanity multi-planetary. The world's richest man, Amazon's Jeff Bezos is spending his personal fortune to begin a multi-generational mission ultimately to enable trillions of people living and working in space and to move heavy industry off Earth to protect the Earth's environment. They are not alone. A tremendous and well-financed ecosystem of private start-ups is pursuing everything from air-launched rockets to lunar and asteroid mining.

We are in the midst of a space industrial revolution — a revolution in transportation, mining and manufacture that will unlock a billion-fold greater resources than on Earth, and ultimately lead to an economic expansion larger even than what the New World became for Europe.

In space are stupendous amounts of accessible metals — far, far more than has ever been mined (or could be mined) on Earth. This includes rare and valuable metals like platinum. We now have the technology to 3-D print those materials into factories in space, and to produce orbital power stations to light the entire world with constant green energy. Space solar power satellites are a game changer, allowing the entire world

to develop without environmental impact. The leader of that industry will command the century ahead.

There will be a need to secure those interests. There will be threats both from natural hazards and from human hazards. Wherever there is profit there is likely to be conflict.

While America opened the moon, our "eighth continent," we will not be alone in space. Many capable nations are already spacefaring, and many more will be. The most capa-ble are the great powers. American history warns us not to be dependent on the largess of foreign powers. A formative experience for our early nation were the demands of the Barbary states for tribute and safe passage, and later when the British Navy would impress our sailors. Autocratic powers are not kind to traders who don't have navies. We can expect the same in space.

But nations will not be the only actors. Even now a few U.S. corporations have space programs that would have been the envy of superpowers in the Cold War. They will soon be joined by corporations from a diversity of nations. Eventually, some may choose to break the law, with or without the encouragement of their home state. Whether as pirates or privateers Americans and their interests far from our shores will be at risk. As our interests develop — and they will develop fast — we cannot leave them unprotected.

With such a vast frontier before it, we should seek to ensure it is a domain of liberty for ourselves, our posterity and anyone who wishes to participate under our umbrella. Merchant, pioneers and settlers have always required guardians to make secure the frontier.

5.3.5 AT Arms Racing

Space Force is key to space traffic control – that affirms space as a commons and avoids space war.

Atherton 21

Kelsey D. Atherton (defense technology journalist), "What Biden Should Do With the Space Force," Slate Magazine, 1-20-2021, https://slate.com/technology/2021/01/biden-administration-space-force-plans.html

But a space war is not inevitable. The best way for the Biden administration to prevent one is to treat orbit as a commons, and the Space Force as a kind of traffic control agent. The more other countries feel they can safely keep satellites in use, the less likely they are to plan a "scorched orbit" approach to a future conflict. To support this, the Biden ad-ministration should deemphasize the Space Force's fighting role and emphasize instead how it fits into the broader, and less offensive, family of Pentagon support services.

The Biden administration has the opportunity to craft a new space strategy, and to do so before the commanders of the Space Force are established enough to define that mission to the public. This means that, despite Congress legislating the Space Force into being as a separate branch, formal strategy and institutional pressures can relegate it back into the support role it had as part of the Air Force.

"The greatest risk is that the Space Force starts thinking of itself as a separate service, and acting in accord with the bureaucratic imperatives that tend to put services in com-petition with one another," said Robert Farley, senior lecturer at the Patterson School of Diplomacy and International Commerce at the University of Kentucky and author of Grounded: The Case for Abolishing the United States Air Force.* "Right now, everyone in the U.S. military uses space all the time for core organizational functions."

Staffing can play some part of this. By taking in space professionals from the Army and Navy, the Space Force can build ties to those services, focusing on maintaining existing satellites, managing traffic in orbit, and keeping an eye out for future threats. Treating the Space Force as a support service removes the obligation for it to act like an actual front-line fighting force. The increased pace of commercial satellite launches, where each new satellite raises the overall likelihood of an orbital collision, creates enough of a mission for the Space Force, without also trying to actively plot out a covert war of maneuver visible to observers below.

Besides deprioritizing war in space, the Biden administration should make a concrete bid to actively secure peace in orbit through diplomacy. The first step would be a mora-torium on militaristic stunts like commissioning officers abroad the International Space Station. Next would be working on a new international treaty to name, prohibit, and verify a lack of new weapons in orbit. (The 1967 Outer Space Treaty famously pro-hibits putting nuclear weapons in orbit but is much more open-ended about precision weaponry.)

In 2014, the Obama administration rejected a new "Treaty on the Prevention of the Placement of Weapons in Outer Space" advanced by Russia as fundamentally flawed. (Observers at the time found the treaty's focus only on weapons in orbit, and not anti-satellite missiles launched from Earth, underwhelming.) But past rejection of an under-whelming treaty shouldn't preclude the possibility of any future agreements establish-ing peace in the heavens. There is plenty of, er, space for Russia, China, and the United States to negotiate new agreements banning the testing of debris-causing anti-satellite tests, and to establish a verification regime for specific anti-satellite satellites. It is harder to come up with rules governing hacking and jamming attacks on satellites, but they are also less likely to immediately result in debris that threatens other objects in orbit.

Unlike the last time a Democratic president inherited a new expansion of the security state, the Space Force poses little threat to civil liberties or the long-term viability of American democracy. If the Space Force can be absorbed as a grandiose rebranding of what the military was already doing in orbit, there's a chance the Biden administration could use it to establish laws and agreements that keep space from hosting a new cold war, or a disastrous hot war.

The planet below is getting hot enough already. The safest path forward is to make sure the guardians are focused on cleaning up debris in orbit, instead of creating it.

5.4 Planetary Defense

5.4.1 General

Space Force is key to planetary defense – it's best positioned to detect and deflect an asteroid. That solves one of the largest existential risks.

Garretson 20

Peter Garretson (a senior fellow in Defense Studies with the American Foreign Pol-icy Council and a strategy consultant who focuses on space and defense. He was previously the director of Air University's Space Horizons Task Force, America's think tank for space, and was deputy director of America's premier space strategy program, the Schriever Scholars), "Make planetary defense a Space Force mission," The Hill, 6-1-2020, https://thehill.com/opinion/national-security/500457-make-planetary-defense-a-space-force-mission

What is the mission of the U.S. Space Force? Ever since the White House formally launched America's newest military branch in December 2019, that question has dogged the newborn service. Today, some six months later, the answer is still very much up in the air.

But an opportunity to flesh out the duties of the Space Force is now on the horizon. The White House National Space Council recently announced plans to update the country's National Space Policy for the first time in a decade. That facelift provides the adminis-tration with an important opening to assign primary responsibility for an all-important mission: planetary defense.

In a recent interview with Politico, celebrity astrophysicist Neil deGrasse Tyson made the case that the Space Force's mission should logically include asteroid defense. Tyson is arguably the most prominent advocate of this idea, but he's hardly the only one. In fact, a blue ribbon presidential commission on the future of the aerospace industrial base recommended the very same thing way back in 2002 — when the space force was still merely conceptual.

Today, for the first time in our nation's history, we have a dedicated military service charged with protecting American interests in space. The Space Force already cooper-ates with NASA to map the asteroid threat, and already bears primary responsibility for space situational awareness and space control in the service of homeland defense.

Planetary defense is quite obviously a defense mission, and it's therefore natural that the Space Force should have primary responsibility.

The need is urgent. Few threats are as catastrophic as an asteroid or comet collision. Large impacts could — as happened to the dinosaurs — cause a global mass extinction and end human civilization. Smaller impacts could be powerful enough to destroy en-tire cities or entire regions. Even the smallest impacts could be mistaken for a nuclear first strike and potentially set off a nuclear war by accident.

Since 2008, Congress has requested multiple successive administrations to name a fed-eral agency responsible for protecting our homeland from an asteroid strike. While progress on this front has been made recently in the form of the Trump administra-tion's 2018 National Near-Earth Object Preparedness Strategy and Action Plan, it's time to take it to the next level. The U.S. Space Force should be tasked to organize, train, equip and present the necessary units and capabilities to surveil, detect, and respond to an as-teroid or comet threat. Congress should not wait but codify this in this year's National Defense Authorization Act. U.S. Space Command should be tasked to plan, execute, and develop requirements for a deflection campaign, while NASA and the Department of Energy should continue to support this mission through science and technology. The Department of Homeland Security's Federal Emergency Management Agency (FEMA) and regional combatant commands, meanwhile, should be tasked to plan for responses to preserve life and property should a collision be unavoidable. These responsibilities can be codified in an Executive Order and then made part of a formal legislative pro-posal to make it an enduring part of the Space Force mission.

But the likely benefits would be broader still. A Space Force that delivers peacetime ben-efits for homeland security is likely to enjoy strong bipartisan support. Meanwhile, own-ing the planetary defense mission will push the Space Force — and the country at large — in important directions which would enhance spacefaring technology. Planetary de-fense is a demanding mission, one requiring exquisite space domain awareness and advanced propulsion capabilities. Developing those technologies will improve Space Force capabilities, but it will also have important spillover effects that will catapult the United States into a position to exploit the emerging trillion-dollar space economy.

Other ancillary benefits can also be expected to accrue. Making Space Force an attrac-tive and priority branch of the military will help propel interest in space, and motivate students to fill the expected requirement of the more than 10,000 new space related Sci-ence Technology Engineering and Math (STEM) jobs that experts believe will be needed to keep the U.S. competitive in that domain.

Planetary defense is also quite obviously an important mission — one that can be ex-pected to contribute to a positive image for the service, and a positive identity for its members, who will simultaneously be defending America and protecting the planet at large.

For all these reasons, thinking broadly about the potential role of the Space Force in the planetary defense mission makes sound strategic sense. The upcoming update of the National Space Policy gives the Administration the opportunity to do just that.

Space Force protects against asteroids.

Malik 18

Tariq Malik (editor in chief of Space.com), "How Trump's Space Force Would Help Pro-tect Earth from Future Asteroid Threats," Space, 6-20-2018, https://www.space.com/40949-trump-space-force-asteroid-defense.html

If a military Space Force like the one proposed by President Donald Trump becomes a reality, odds are, it would play a role in defending Earth from an incoming asteroid. In a report released today (June 20), NASA and other federal officials unveiled what the United States should do over the next 10 years to safeguard Earth from potential aster-oid impacts. That 18-page plan, called the "The National Near-Earth Object Prepared-ness Strategy and Action Plan," would involve work from agencies across the federal government, White House officials said — even, potentially, Trump's proposed Space Force. "One of the things that should be clear from the report is that the responsibil-ity for responding, and preparing response, is spread and shared throughout the U.S. government," Aaron Miles, of the White House Office of Science and Technology Policy, said in response to a question about a Space Force's role. "So everybody brings capabili-ties to the table … One of the objectives of this plan is coordinating and leveraging those capabilities where they are across the government." [How to Defend Earth Against As-teroids] While Miles did not mention the Space Force by name, it stands to reason that any national concerted effort to defend Earth from an incoming asteroid would involve at least some military assets in space for asteroid tracking or deflection. And if a Space Force is in service at that time, it's likely to play a role — after all, the Air Force already works hard to maintain space situational awareness of objects orbiting Earth. The U.S. currently has three possible methods for deflecting any potentially hazardous asteroid from hitting Earth: A "gravity tractor" that would park a spacecraft near the asteroid and let the gravitational attraction of the two objects nudge the asteroid off course. A

"kinetic impactor" that would slam a spacecraft into an asteroid to knock it off course. A nuclear strike aimed at vaporizing the surface of an asteroid, creating jet of material that would push the asteroid off course. All three of those options would require at least a 10-year lead time before a potential asteroid impact, NASA Planetary Defense Officer Lindley Johnson told reporters at the teleconference. And all could be accomplished with robotic spacecraft rather than astronauts. This week, Trump ordered the Depart-ment of Defense to form a Space Force as the sixth branch of the U.S. armed forces. (The other branches are the Air Force, Army, Navy, Marines and Coast Guard.) The Space Force, which would have to be approved Congress, would oversee U.S. military operations in space, much of which is currently managed by the Air Force. But while it's likely that a Space Force, if one ever exists, would play a role in the U.S. asteroid-response plan, NASA would also be heavily involved. The space agency's proposed 2019 budget calls for $150 million in funding to support asteroid defense, Johnson said. Those funds in 2019 would support NASA's planned Double Asteroid Redirection Test (DART), a mission that would launch in December 2020 to visit the near-Earth asteroid Didymos (and its moon, nicknamed "Didymoon"). DART would crash into Didymos to test an asteroid-deflection technique called "kinetic impactor," which essentially slams a projectile into an incoming object. And then there are efforts from the international community, because a major asteroid impact would pose a threat to the entire Earth, not just one country. The European Space Agency, for example, has drawn up plans for a companion mission to NASA's DART that would send a probe to the asteroid Didymos to watch as DART hit the space rock. "It's a global hazard that we all face together," Miles said, adding that international collaboration is one of the five major goals of the new action plan. Johnson even suggested that civilians, like amateur astronomers or the B612 Foundation for asteroid awareness, could play a response role. "Planetary defense is a team sport," Johnson said. "We welcome capability wherever it comes."

Space operators and AI are key to asteroid defense.

Giannetti 19

William Giannetti (U.S. Air Force Reserve officer), "Trump is Right: America Needs a Space Force," National Interest, 12-28-2019, https://nationalinterest.org/feature/trump-right-america-needs-space-force-107751?page=0%2C1

The Space Force could also lead the development of small satellites—some the size of household microwave ovens—that could pursue a satellite's attackers in the same way

then-Major General Claire Chennault's Flying Tigers defended our heavy bombers from Japanese fighters over Western China and Southeast Asia. On any given day at Vanden-berg Air Force Base, one Airman might track more than sixteen thousand satellites from 186 countries, as well as man-made objects and pieces of debris traveling at 17,500 miles per hour that come perilously close to tumbling into our big bus systems. Space op-erators of the future could reduce errors of a sort by revolutionizing space situational awareness—or even asteroid defense for that matter—with artificially intelligent appli-cations that might warn of or predict catastrophic collisions.

5.4.2 AT: NASA

They just teamed up for planetary defense – that's key because NASA is underfunded.

Robitzski 20

Dan Robitzski (writer for Futurism), "NASA and the Space Force have officially teamed up," Futurism, 9-22-2020, https://futurism.com/the-byte/nasa-space-force-planetary-defense

NASA and the U.S. Space Force just formally teamed up on a number of objectives rang-ing from human spaceflight to planetary defense. A five-page Memorandum of Under-standing signed by the two agencies draws on the longstanding collaboration between NASA and the Pentagon, C4ISRNET reports, and reaffirms that the space agency and newly-launched military branch will continue to work together in the years to come. For the infamously cash-strapped NASA, this team-up presents a new opportunity to keep its research afloat.

6 Con Evidence

6.1 General

6.1.1 Not Key

Space Force isn't key – it's too small to solve, doesn't sort out bureaucratic hurdles, and new branches are unnecessary and undermine integration.

O'Hanlon 19

Michael E. O'Hanlon (senior fellow, and director of research, in Foreign Policy at the Brookings Institution, where he specializes in U.S. defense strategy, the use of military force, and American national security policy), "The Space Force is a misguided idea. Congress should turn it down.," Brookings, 4-20-2019, https://www.brookings.edu/blog/order-from-chaos/2019/04/20/the-space-force-is-a-misguided-idea-congress-should-turn-it-down/

With the Trump administration and thus the Pentagon now firmly behind it, and with Americans naturally predisposed to new high-tech frontiers, the proposal to create a Space Force within the U.S. military now has lots of momentum. But Congress, which must approve the plan before the new military service is created, should say no to this alluring, misguided idea. Some of the arguments against a Space Force, which would be bureaucratically positioned within the Department of the Air Force, just as the Ma-rine Corps is technically part of the Department of the Navy, are mundane and largely about economics and efficiency. Others are more conceptual and strategic. Together, they add up to a strong case for skepticism. First, the Space Force would be not just small relative to any other service but tiny. It would consist of perhaps 15,000 to 20,000 personnel, including civilians. By contrast, the Marine Corps, far and away the small-est of military services, has about 185,000 active-duty Marines. Even the Coast Guard, within the Department of Homeland Security, has more than 40,000 active-duty per-sonnel and a grand total of nearly 90,000 employees. Because a stand-alone military

service, even if within the Air Force, will need its own hierarchy, doctrine, schools, uni-forms and everything else under the sun that goes with a stand-alone organization — including, perhaps, marching bands — we will spend lots of time in the early years sim-ply building it, at a cost the Pentagon estimates at $2 billion over five years (which seems a lowball estimate). The experience of building other new governmental organizations should make us wary of bureaucratically reorganizing our way to a new national pri-ority. Yes, space is a priority for the armed forces, and yes, space is a dynamic theater where adversaries are increasingly active. But after 9/11, we similarly agreed to create a Department of Homeland Security. Nearly two decades later, the verdict is still out about the wisdom of that move. Already, the nation's top military advisory body, the Joint Chiefs of Staff, has seven members — the chairman, vice chairman, head of each of the four Defense Department services and head of the National Guard Bureau. This group does not need an eighth member and eighth separate military advisory voice. Proponents of the Space Force argue that such a branch would be necessary to promote space-related defense projects and technology. While the Air Force does tend to be run by fighter pilots who often emphasize jet technology, it also has an institutional pro-clivity to play down the importance of bomber forces, unmanned systems and other technologies. The Navy might similarly overemphasize aircraft carriers while under-emphasizing unmanned systems. But we cannot create a new service for each partially neglected area of the armed forces. The best solution is for civilians, and the chairman and vice chairman, to take more of a role in promoting officers within the existing ser-vices who have a variety of specialties, and for Congress to properly fund the full range of military priorities. We have seen this approach work in the past, even with less sexy areas of technology such as long-range transport aircraft. It can work for space, too. The Trump administration is right to create a new space command — that is, a unified headquarters of perhaps 500 to 1,000 people from across the military services who will specialize in space operations, which have in fact become much more important over the years. But Space Command will likely work best if its personnel also have strong ties to the military services, since each service ultimately depends upon the sensors, commu-nications systems and networks operating in and through space. Integration should be the watchword. Space systems are increasingly vulnerable today, and while we can miti-gate this trend by dispersing more capabilities across large numbers of smaller satellites, space will never again be a military sanctuary. As such, most space systems today need backups of one type or another that would operate in the air or another medium closer to Earth. Again, integration of space capabilities with other assets should be the watch-word. Creating a new bureaucracy might run counter to this by increasing stovepiping

rather than teamwork. U.S. military services all have strong warrior cultures that em-phasize offensive weapons and decisive lethal operations. This is as it should be. But it is not clear that the same attitude is optimal for space operations. While we should assume that adversaries will target our satellites in war — and while we need ways to counter theirs, too — we should attempt restraint wherever possible in weaponizing space, which is still humanity's last great frontier and serves the U.S. military best as a region for creating and transmitting data rather than fighting. Creating a Space Force might run counter to this goal. Yes, there is lots of military work to do in space, and yes, we need to devote more military attention and resources to this region. But a Space Force is not the best solution to this problem.

6.1.2 Cost

The Space Force is both unnecessary and excessively costly – that trades off with other economic priorities.

Hallinan 20

Conn Hallinan (columnist for Foreign Policy In Focus), "The U.S. Needs COVID Re-lief and Renewable Energy, Not a Space Force," Foreign Policy In Focus, 12-16-2020, https://fpif.org/the-u-s-needs-covid-relief-and-renewable-energy-not-a-space-force/

When President-elect Joe Biden takes office on January 21, he will be faced with some very expensive problems, from bailing out the COVID-19 economy to getting a handle on climate change. Vaccinating over 300 million people will not be cheap, and wrestling the U.S.'s hydrocarbon-based economy in the direction of renewable energies will come with a hefty price tag.

One place to find some of that money would be to respond to Russian, Chinese, and United Nations (UN) proposals to demilitarize space, heading off what will be an ex-pensive — and destabilizing — arms race for the new high ground.

The Militarization of Space

Last December, the U.S. Department of Defense (DOD) created the Space Force, al-though a major push to increase the military's presence in space dates back to the Obama administration.

In fact, space has always had a military aspect to it, and no country is more dependent on that dimension than the United States. A virtual cloud of surveillance satellites spy on adversaries, tap into communications, and monitor military maneuvers and weapons tests. It was a U.S. Vela Hotel satellite that caught the Israelis and the South Africans secretly testing a nuclear warhead in the southern Indian Ocean in 1979.

While other countries have similar platforms in space, the U.S. is the only country with a world-wide military presence, and it is increasingly dependent on satellites to enhance its armed forces. Such satellites allow drone operators to call in missile strikes from half a world away without risking the lives of pilots.

The U.S. is not the only country with armed drones. Turkish and Israeli drones demonstrated their effectiveness in the recent war between Azerbaijan and Armenia, and scores of countries produce armed drones. But no other country wages war from tens of thousands of miles away.

American drones stalk adversaries in Africa, South Asia, and the Middle East piloted from air conditioned trailers in southern Nevada. "It's only really the U.S. that needs to conduct military operations anywhere in the world all the time against anyone," Brian Weeden of the Secure World Federation told Scientific American in the magazine's November article, "Orbital Aggression: How do we prevent war in space?"

According to the DOD, it is the Russians and the Chinese who have taken the initiative to militarize space, although most of that is ancient news and a lot of it is based more on supposition than fact. Moscow, Beijing, and Washington have long had the ability to take out an opponent's satellites, and have demonstrated that on a number of occasions. It takes no great skill to do so. Satellites generally have very predictable orbits and speeds. Astrophysicist Laura Greco of the Union of Concerned Scientists calls them "sitting ducks."

Satellites do, however, have the capacity to maneuver. Indeed, it was a recent encounter between a Russian Cosmos "inspection" satellite and a U.S. spy satellite that kicked off the latest round of "the Russians are coming!" rhetoric from the Pentagon. The Amer-icans accused the Cosmos of potentially threatening the American satellite by moving close to it, although many independent observers shrugged their shoulders. "That's what an inspection satellite does," says Weeden. "It is hard to see at this point why the U.S. is making it a big deal."

The 'Star Wars' Lobby

One reason? Because blaster rattling loosens Congressional purse strings.

China's military and civilian space budget is estimated to be $8.4 billion. Russia's is a comparatively modest $3 billion. In contrast, the U.S. space budget is at $48 billion and climbing, and that figure doesn't account for secret black budget items like the X-37B unmanned space plane.

The DOD points to the fact that the Chinese have launched more satellites in the past year than the U.S., but that is a reflection of the fact that the U.S. currently dominates space, both on the military and the civilian side. Other countries — like India and the European Union — are simply trying to catch up. Out of 3,200 live satellites currently in orbit, the U.S. controls 1,327.

Space is, indeed, essential for the modern world. Satellites don't just spy or direct drones. They are central to communication systems, banking, weather predictions, and monitoring everything from climate change to tectonic plate movement. An actual war

in space that destroyed the satellite networks would cause a worldwide blackout and likely lead to a ground war.

Which is why it is so important to sit down with Russia, China, and the UN and work out a way to keep space a realm for peace, not war. While there are treaties that cover weaponizing space, they are dated. The 1967 Treaty on Outer Space keeps nuclear weapons from being deployed, but it doesn't cover ground-launched or space-launched anti-satellite weapons, or how close a satellite has to get to another country's satellite to be considered a threat.

In 2008, and again in 2014, Moscow and Beijing proposed a Prevention of the Place-ment of Weapons in Outer Space Treaty. So far, the U.S. has not formally responded, and rejected four resolutions proposed by the UN's General Assembly on preventing the militarization of space. There have been informal talks between the Russians and Americans, but the last three U.S. administrations have essentially stonewalled serious discussions.

Of course, the U.S. currently holds most of the cards, but that is shortsighted thinking. Adversaries always figure out how to overcome their disadvantages. The U.S. was the first country to launch an anti-satellite weapon in 1959, but the Russians matched it four years later. China destroyed one of its old satellites in 2007, and India claims it has such a weapon as well.

But there is strong opposition to such an agreement in the Pentagon and the Congress, in part because of growing tensions between Russia, China, and the U.S., and in part because of the power of corporations. Boeing, Lockheed Martin, Raytheon, Northrop Grumman, and General Dynamics stand to reap billions in profits by supplying the hardware to dominate space. Added to the formidable lobbying power of the major arms corporations is another layer of up and comers like Virgin Galactic, SpaceX, and Blue Origin.

Hard Choices

The Space Force also has bipartisan support. Some 188 Democrats joined 189 Republi-cans to pass the National Defense Authorization Act for 2020.

The creation of the Space Force has not exactly been met with open arms by the other military services. Each of the services have their own space-based systems and the bud-gets that go along with that, and they jealously guard their turf. For the time being Space Force is under the Air Force's wing, but its budget is separate, and few doubt that it will soon become a service in its own right.

At this point the outlay for the Force will be $200 billion over five years, but military budgets have a way of increasing geometrically. The initial outlay for the Reagan ad-ministration's missile-intercepting "Star Wars" system was small, but it has eaten up over $200 billion to date and is still chugging along, in spite of the fact that it is charac-terized more for failure than success.

The Biden administration will have to make hard choices around the pandemic and cli-mate change while continuing to spend close to $1 trillion a year on its military. Adding yet another military service when American states are reeling from the economic fallout of COVID-19 and the warming oceans are churning out superstorms is something nei-ther the U.S. nor the world can afford.

6.1.3 Logistics

It's a waste of billions, lacks any coherent mandate, and can't even recruit.

Tangermann 20

Victor Tangermann (writer for Futurism), "Progressive groups call for elimination of Space Force," Futurism, 11-18-2020, https://futurism.com/progressive-groups-elimination-space-force

According to a memo first obtained by Politico, progressive groups are planning to pres-sure president-elect Joe Biden's transition team into slashing military budgets — with one specific aim being to eliminate the US Space Force. The memo calls out the Space Force as an "unnecessary bureaucracy that costs $16 billion in 2021" and militarizes space, as quoted by SpaceNews, which obtained the memo as well. The $16 billion referred to by the memo technically came out of the budget of the Air Force and was requested for the 2021 fiscal year back in February. It's also dwarfed by the Pentagon's overall $740 billion budget. The Space Force is the youngest arm of the military, estab-lished in December 2019 when president Donald Trump signed the US Space Force Act. Congress made the decision permanent with the 2020 National Defense Authorization Act. The service's main mandates are rather murky. It's focused on protecting US in-terests in space, including the overseeing and development of satellites, and deterring aggression in space. Trump has done little to pin down the group's mandate, often falling back on verbiage about being "number one" in space. "Amid grave threats to our national security, American superiority in space is absolutely vital," he said dur-ing the official launch in December 2019. "And we're leading, but we're not leading by enough. But very shortly we'll be leading by a lot." The service has already faced a good deal of criticism over its short history. Early on, it was deemed a "bureaucratic mess in search of a problem" by the media, and characterized as a reshuffling of existing personnel more than anything concrete. The Space Force still has plenty of ties to the US Air Force and has been slow to recruit personnel. Approximately 16,000 military and civilian space staff were assigned upon its creation in 2019, and in June, more than 8,500 active-duty Air Force service members volunteered to join the service.

6.2 Arms Racing

6.2.1 General

The Space Force sets up structural changes that make a space arms race inevitable.

Grego 20

Laura Grego (senior scientist in the Global Security Program at the Union of Concerned Scientists. She focuses her analysis and advocacy on the technology and security dimensions of ballistic missile defense and of outer space security), "The New U.S. Space Force Will Make Space More Dangerous, Not Less," World Politics Review, 1-8-2020, https://www.worldpoliticsreview.com/articles/28452/why-the-trump-space-force-will-make-space-more-dangerous

When President Donald Trump signed the latest National Defense Authorization Act last month, he brought into existence the United States Space Force, the sixth branch of the country's military. The name likely appeals to Trump for the same reasons that it ap-palls others: It is attention-grabbing and frames the issue of space in terms of American military dominance.

At least initially, the new Space Force represents only a modest organizational change, one that is essentially neutral in terms of personnel and budgetary impact. A skeptical Congress appropriated only $40 million of its $738 billion military budget for the new endeavor. At the same time, it would be a mistake to dismiss the move as a lot of bluster over bureaucratic reshuffling. Creating the Space Force sets up structural changes and reinforces approaches that could hasten a costly and destabilizing arms race in space.

Since the dawn of the space age in the 1950s, satellites have been used for strategic purposes such as gathering intelligence and detecting missile launches. Today, most modern militaries consider satellites indispensable for a variety of missions: guiding munitions and drones, communicating with globally deployed personnel, predicting weather patterns and surveilling targets. As a global power with military bases around the world, this dependence is particularly acute for the United States. But satellites are also fragile, vulnerable to interference, and expensive to replace, leaving the Pentagon in the uncomfortable position of relying on something that is difficult to defend.

Consistent with this reality, the Space Force's primary charge, as laid out in its authoriz-ing legislation, is to provide "freedom of operation for the United States in, from, and

to space." To keep its satellites working dependably and safely, the Pentagon wants to ensure its systems are resilient to disruption. Some Space Force proponents argue that this mission is important enough to merit its own dedicated organization, which can focus its resources on, for example, developing more durable systems and fielding space- and Earth-based backup systems should critical satellites be impaired.

But keeping space secure also requires reducing the threats to satellites. On this score, the Space Force is likely to make space a more contentious and dangerous environment, not less. It's not just Trump's rhetoric about dominance in space that is harmful; re-sources for the new military service will be provided to "deter aggression in, from, and to space." This will create incentives within the national security bureaucracy to hype the threat of space weapons, and to then build new weapons to counter them.

In a speech last spring outlining his priorities for space, Gen. David L. Goldfein, the chief of staff of the U.S. Air Force, stated that, "It's not enough to step into the ring and just bob and weave… At some point, we've got to hit back." What Goldfein failed to mention is that the U.S. already has more sophisticated anti-satellite technology than potential adversaries like Russia and China. In fact, having anti-satellite weapons actually does very little to keep one's own satellites safe from attack. Yet military leaders appear to believe that reserving the option to deny the use of space to potential adversaries is more important than the benefits that come with a less weaponized space.

What's more, unconstrained development of space weapons will make space more dan-gerous, costly and unpredictable to use. It will make conflict on Earth riskier, too. A space environment that is perceived as threatening may create an incentive to "use or lose" satellite-enabled military capabilities as a crisis approaches, potentially speeding up conflict. Goldfein underscored this point in remarks following a series of space con-flict simulations conducted by the Air Force last month. "In every war game," he said, "we determined that if you move first in space, you're not guaranteed to win. But if you move second, you're likely to lose."

In the absence of robust international agreements to protect satellites and the outer space environment—the 1967 Outer Space Treaty does not specifically ban non-nuclear weapons from being tested in space or put into orbit—more countries are developing weapons that can destroy satellites in orbit, leaving fast-moving bits of debris that can stay in space for decades and later damage other satellites. When India obliterated its own satellite with an anti-satellite weapon last March, Prime Minister Narendra Modi expressed pride afterward that it had joined an "elite club of space powers." Testing anti-satellite weapons, much less engaging in an actual conflict in space, can have pro-

found and lasting effects on space. For example, the destruction of a single large satellite in low-Earth orbit would more than double the amount of dangerous debris in these im-portant orbits.

Sensible constraints on this kind of behavior, and limits on dangerous space weapons technologies, would go a long way to augmenting stability, preserving the space envi-ronment and avoiding an arms race. But attempts to hammer out such constraints have seen little success. The United Nations Conference on Disarmament has been dead-locked for decades. Negotiations over the European Union's proposed International Code of Conduct for Outer Space Activities—which would require signatories to re-solve not to damage or destroy any satellite except for reasons of safety, self-defense or to avoid debris production—foundered in 2015. Last year, a group of U.N.-convened governmental experts looking at space arms control concluded their deliberations with-out coming to consensus recommendations.

Still, the outlook is not all bleak. Even without binding legal instruments, no state has ever intentionally destroyed another's satellite. And in 2018, 87 U.N. member states agreed to voluntary guidelines to protect the long-term sustainability of the space envi-ronment.

However, despite the United States having the most investment in space—nearly half of operational satellites are American—it has put very little effort into space-related diplomacy. While the Space Force is big news for the Pentagon, the State Department is nowhere to be seen. Russia and China have repeatedly submitted drafts of their pre-ferred arms control arrangement to the U.N. Conference on Disarmament, most recently in 2014. Their proposed treaty would include binding prohibitions on placing weapons in space and using force or threatening the use of force against satellites. The United States repeatedly rejects these proposals as flawed but declines to provide its own alter-native vision.

Despite, or perhaps because of, the deep ideological divides between the world's great powers, it is critically important that they keep engaging with each other, if only to avoid miscalculation. Information about potential adversaries' technical capabilities is plentiful, especially in a highly visible domain like space. But assessing their intentions is notoriously difficult. The U.S. and Russia have built some shared understandings over the course of decades of diplomatic engagement, but Washington has little such common ground with China. As a result, the world's two largest economies risk misin-terpreting each other in potentially very serious ways.

Understanding an adversary's intentions brings more clarity to decision-making in a complex operating environment and may help manage or resolve a conflict more suc-cessfully. In 2010, Lincoln P. Bloomfield Jr., a veteran U.S. national security official, warned that without a history of bilateral understandings or crisis management in con-flicts involving emerging domains like outer space and cyberspace, there would be "no credible basis for anyone around the president to attribute restraint to the adversary, no track record from which to interpret the actions by the adversary."

Those risks have not faded in the ensuing decade. If anything, they have multiplied. Doubling down on new space weapons and creating a dedicated Space Force while neglecting to vigorously pursue sensible negotiated constraints seems a sure path to a dangerous future, after having wasted billions of dollars.

The Space Force isn't key to ASATs – but does trade-off with robust international agreements necessary to cap arms races.

Grego 19

Laura Grego (senior scientist in the Global Security Program at the Union of Con-cerned Scientists. She focuses her analysis and advocacy on the technology and security dimensions of ballistic missile defense and of outer space security), "Cre-ating a Space Force Would Trigger a Space Arms Race and Threaten US Satel-lite Security, Science Group Says," Union of Concerned Scientists, 12-20-2019, https://www.ucsusa.org/about/news/space-force-would-trigger-arms-race

WASHINGTON (December 10, 2019)—A congressional conference committee has agreed to include the creation of a space force in a must-pass defense bill in exchange for paid parental leave benefits for federal workers. What is missing from the debate over the horse trade, according to the Union of Concerned Scientists (UCS), is the fact that a space force is a very bad idea.

Below is a statement by Laura Grego, a physicist and senior scientist in the Global Se-curity Program at UCS.

"At best a space force is a distraction from what is necessary to ensure space security in the face of rapid technological and geopolitical changes. At worst, it would prompt a space arms race that would threaten U.S. military and civilian satellites, not protect them. Diplomacy, not bureaucratic reorganization is urgently needed.

"The Pentagon insists that keeping space predictable and safe is the core purpose of whatever reorganization they do. To be sure, that mission is important and stabilizing, but it doesn't need a new military service. Creating a new military service focused on space will create bureaucratic incentives to hype the space weapons threat and build new weapons. Pentagon officials emphasize that Russia and China are developing anti-satellite technology, but they leave out the fact that the United States is far ahead in sophistication as well as capacity of such technology.

"In fact, having anti-satellite weapons will do very little to keep one's own satellites safe from attack. And unconstrained space weapons development will lead to a competition that makes space more dangerous, costly and unpredictable to use.

"In the absence of any international agreements about protecting satellites and the outer space environment, more countries are developing weapons that can destroy satellites in orbit. Earlier this year, for example, India successfully tested its anti-satellite system, obliterating its own satellite. It proudly proclaimed that it had joined the 'elite club of space powers.'

"Testing anti-satellite technology, much less engaging in an actual conflict in space, can have profound ripple effects. The destruction of a single large satellite in low Earth orbit could more than double the amount of dangerous debris in the orbits most often used for weather observations, earth imaging and space-based internet service.

"We all would be better off with international agreements that constrain conduct and particularly dangerous technologies in space. The international community has strug-gled to overcome ideological divisions to reach agreements, but the benefits of continu-ing to try are obvious. Despite the United States having the most investment in space— nearly half of all satellites—it has put very little time into diplomatic efforts to keep space safe.

"Keeping space safe is critical, not just for military purposes, but for the billions of civil-ians who rely on the nearly 2,000 satellites circling the planet, the vast majority of which are non-military, which provide critical communications and economic services."

Trump shredded arms control and undermined the potential for cooperation – that makes space militarization inevitable – BUT the weapons platforms will likely be ineffective.

Skibba 18

Ramin Skibba (astrophysicist turned science writer and freelance journalist based in San Diego. He has written for The Atlantic, Slate, National Geographic, Sci-entific American, and Nature, among other publications), "How Trump's 'Space Force' Could Set Off a Dangerous Arms Race," POLITICO Magazine, 6-22-2018, https://www.politico.com/magazine/story/2018/06/22/how-trumps-space-force-could-set-off-a-dangerous-arms-race-218888

"When it comes to defending America, it is not enough to merely have an American presence in space," President Donald Trump said Monday as he announced the creation of a new "Space Force" to protect U.S. interests and assets in space. "We must have American dominance in space."

Past American presidents may have thought the same, and acted accordingly, but rarely have they ever expressed this sentiment so brazenly. It's yet another way Trump has broken with past precedent—and it could set off a dangerous arms race, potentially sparking a Cold War in space.

As one top expert on space security, Joan Johnson-Freese of the U.S. Naval War College in Newport, Rhode Island, put it to me, "This will probably be seen as another indicator that the United States is moving towards a more militaristic position regarding space activity."

Trump directed the Pentagon on Monday to establish a sixth branch of the military to fo-cus on space, presumably separating personnel that concentrate on things like military satellites and their ground infrastructure from the Air Force. Though he called Ameri-can "destiny" in space "a matter of national security," the president didn't say anything specific about whether the Space Force will simply be continuing U.S. Air Force activi-ties, or whether it would be launching new ones, such as developing offensive or defen-sive weapons capabilities. A separate plan for developing missile defense platforms to be deployed in space may be in the works as well, though, if Congress decides to fund it.

Advocates of militarizing space are thrilled, but Trump's move threatens to antagonize the U.S.'s biggest rivals in space, China and Russia. Each have hundreds of satellites of their own, and if they see the U.S. taking a more muscular posture in the cosmos, they'll likely boost their corresponding budgets, possibly including studying how to shoot down or hack American satellites or spacecraft.

For decades, diplomats have tried to prevent exactly this scenario. International space law, first established by the Outer Space Treaty in 1967, which the U.S. has signed,

sees outer space—low Earth orbit and beyond—as a public good to be protected. Like Antarctica, people may travel there and scientists may conduct research, but it's not viewed as a potential battlefield. "There are significant restrictions on what the military can do," said Joanne Gabrynowicz, a space law expert at the University of Mississippi who is also editor-in-chief emerita of the Journal of Space Law. The 51-year-old treaty prohibits launching weapons of mass destruction, like nuclear weapons, into space, and it prohibits military bases and maneuvers on the moon. It also says the use of outer space should maintain international peace and security and promote international co-operation and understanding.

The treaty is silent about less destructive weapons in open space, say, missile defense systems or non-nuclear attack weapons, but a set of taboos has tended to govern their use. The United States and other space powers have avoided using space for military purposes, refraining from launching or testing space weapons and from equipping satel-lites with weapons.

Trump, though, seems to be pulling away from current norms. In March, at the Marine Corps Air Station Miramar near San Diego, he called space "a warfighting domain just like the land, the air and sea." Vice President Pence, chairman of the National Space Council, has sounded similarly militaristic, writing in March that the moon was a "vital strategic goal" and that "America must be as dominant in the heavens as it is on Earth."

The justification for the administration's new space focus seems to be at least partly that China and Russia have been secretly at work on their own space-based military capabil-ities. "Our adversaries are aggressively developing jamming and hacking capabilities that could cripple critical military surveillance, navigation systems and communication networks," Pence wrote. Experts say it's impossible to know whether that is true. But one thing they do agree on: Once the U.S. has sent weapons into space, other countries will follow—blowing up traditional norms and turning low Earth orbit into a dangerous place.

That fear isn't just limited to Space Force, which might not make it very far. The pro-posal resurrects a similar idea for a "space corps," which was championed by House Armed Services Committee Chairman Mac Thornberry (R-Texas) and strategic forces subcommittee Chairman Mike Rogers (R-Ala.). The space corps failed to make it into the National Defense Authorization Act last year, and the congressional opposition that killed it remains. So does skepticism within the upper echelons of the Defense Depart-ment: Defense Secretary Jim Mattis himself opposed the idea last year, calling it pre-mature to add new bureaucracy to the department. The Space Force similarly could be

quashed if both houses of Congress aren't on board.

But there are other plans to militarize space that don't involve a new military branch. A separate proposal to develop space-based missile defense systems, advocated by Sen-ator Ted Cruz (R-Texas) and other Congress members, did find its way into last year's authorization bill. If such systems are included in the Pentagon's Missile Defense Re-view, whose release has been delayed by months, then it would mean that there is suf-ficient support for them for the military to receive funding to develop the technology and eventually test it.

"Allies and adversaries alike would see putting interceptors in space as the first time anyone's put dedicated destructive weapons up there. If you're concerned about keep-ing space secure and usable, it would be crossing a line," said Laura Grego, a Caltech-trained physicist and senior scientist of the Union of Concerned Scientists.

This all for a system of questionable effectiveness. Missile defense systems either need to take long-range missiles out in the brief boost phase or contend with missile counter-measures like decoys and balloons later. Either way, such systems have had a spotty track record in tests so far. Plus, orbiting weapons travel at some 17,000 miles per hour and quickly move out of range, meaning that hundreds or more missile defense systems would be needed to make them worthwhile. Constructing so many systems and send-ing them out into space would make the costs add up rapidly. Interceptors launched from the ground or ships or even laser-firing drones hovering at low altitude can be much more effective.

The fear, though, is that missile interceptors are much better offensive than defensive weapons—offensive weapons targeting satellites, Grego told me. A sky full of Chinese and Russian missile defense systems, she said, would be a serious threat to the more than 500 U.S. satellites currently in orbit, which enable everything from GPS to commu-nications and weather forecasting.

If the U.S. missile defense proposal moves forward, it could be the beginning of a full-scale satellite war. "My biggest concern is that [the U.S.] would do a test bed, to demon-strate that it works. There's no formal agreement, but there's an unspoken consensus prohibiting weapons in space. The point of the test bed is to break that taboo," said George N. Lewis, a physicist and a visiting scholar at Cornell University.

A test of a space-based interceptor or laser system might seem far-fetched, but it too, was explicitly included in last year's authorization act. And then if China, for example, felt threatened by such a test, it could demonstrate its own weapons. In 2007, China

tested an antisatellite missile launched from the ground, which created more debris in an already crowded orbit, threatening other satellites.

Once the taboo on space-based weapons is broken, suddenly anything in orbit that can maneuver could be turned into a space weapon. Government or private owners of cru-cial billion-dollar satellites could feel threatened, such as if a rival's weapon system parked in orbit in range, risking a Cuban missile crisis 300 miles above the ground.

In that case, an effort to increase security would have actually undermined it.

Trump says he wants American domination in space, but "what does that mean, to 'dom-inate'?" Johnson-Freese, the space security expert, asked. "We already had that rhetoric under the George W. Bush administration. Now it's being revived, and it probably will have the same kind of negative unintended consequences."

6.2.2 Rhetoric

The rhetoric alone of justifying the creation of a Space Force makes space war more likely – it detracts from cooperative frameworks over space and makes it more militarized.

Freeland 18

Steven Freeland (Director of the International Institute of Space Law and a member of the Space Law Committee of the International Law Association), "The US plan for a Space Force risks escalating a 'space arms race'," Conversation, 8-10-2018, https://theconversation.com/the-us-plan-for-a-space-force-risks-escalating-a-space-arms-race-101368

A threat of an arms race in space The fear is that rhetoric like that coming from those raising the inevitability of space war will fuel a race to the bottom, as all major (space) powers dedicate even more energy towards an arms race in space. This also gives rise to the creeping colonisation of space around claims regarding resource exploitation and possible attempts by countries to establish systems to protect themselves against their vulnerabilities by denying access to space for others. To ignore this and simply to try to argue that the legal framework supposedly supports war in space relies on an overly simplistic assertion that what is not expressly prohibited (by the treaties and interna-tional law) is permitted. It is crucial that the underlying principles of space law and the practice of States in interpreting those principles continue to apply to preserve space for the "benefit and in the interests of all countries". This is specified in the Outer Space Treaty, to which virtually all space-faring nations, including the major powers, are bound. The international rules that govern space dictate responsible behaviour, freedom of access but not lawlessness, and an adherence to well-established interna-tional principles and norms of behaviour that serve us well. Properly respected, these allow for and encourage inspiration and optimism, innovation and development, com-merce and science, notwithstanding the pressures of increasing commercialisation. A militaristic view of space threatens the existing legal regime and can thwart the oppor-tunities for all of us. The humanity of space In the end, we must not lose sight of the humanity of space and the need to use it for peaceful purposes underpins our very fu-ture. The existing rules recognise and reinforce these imperatives. Thinking of space as a place to conduct war, dangerously jolts the conversation about space and gives rise to consequences that are too terrifying to contemplate. Asserting the inevitability of war in space simply argues that we should move down that untenable path. Every effort

must be made by all sectors of society to recalibrate those conversations. The counter-vailing voices must be heard. There are so many positive aspects to how space should be viewed. This is supported by law and practice.

6.2.3 China

The Space Force raises global tensions and sparks a space "great power contest" between the US and China.

Broad 21

William J. Broad (a science journalist and senior writer at The New York Times), "How Space Became the Next 'Great Power' Contest Between the U.S. and China," The New York Times, 1-24-2021, https://www.nytimes.com/2021/01/24/us/politics/trump-biden-pentagon-space-missiles-satellite.html

Beijing's rush for antisatellite arms began 15 years ago. Now, it can threaten the orbital fleets that give the United States military its technological edge. Advanced weapons at China's military bases can fire warheads that smash satellites and can shoot laser beams that have a potential to blind arrays of delicate sensors. And China's cyberattacks can, at least in theory, cut off the Pentagon from contact with fleets of satellites that track enemy movements, relay communications among troops and provide information for the precise targeting of smart weapons. Among the most important national security issues now facing President Biden is how to contend with the threat that China poses to the American military in space and, by extension, terrestrial forces that rely on the overhead platforms. The Biden administration has yet to indicate what it plans to do with President Donald J. Trump's legacy in this area: the Space Force, a new branch of the military that has been criticized as an expensive and ill-advised escalation that could lead to a dangerous new arms race. Mr. Trump presented the initiative as his own, and it now suffers from an association with him and remains the brunt of jokes on television. But its creation was also the culmination of strategic choices by his pre-decessors, Presidents George W. Bush and Barack Obama, to counter an emboldened China that raised bipartisan alarm. "There's been a dawning realization that our space systems are quite vulnerable," said Greg Grant, a Pentagon official in the Obama admin-istration who helped devise its response to China. "The Biden administration will see more funding — not less — going into space defense and dealing with these threats." The protective goal is to create an American presence in orbit so resilient that, no matter how deadly the attacks, it will function well enough for the military to project power halfway around the globe in terrestrial reprisals and counterattacks. That could deter Beijing's strikes in the first place. The hard question is how to achieve that kind of strong deterrence. Lloyd J. Austin III, a retired four-star Army general who was con-firmed last week as Mr. Biden's secretary of defense, told the Senate that he would keep

a "laserlike focus" on sharpening the country's "competitive edge" against China's in-creasingly powerful military. Among other things, he called for new American strides in building "space-based platforms" and repeatedly referred to space as a war-fighting domain. "Space is already an arena of great power competition," Mr. Austin said, with China "the most significant threat going forward." The new administration has shown interest in tapping the innovations of space entrepreneurs as a means of strengthening the military's hand — what Mr. Austin in his Senate testimony called "partnerships with commercial space entities." The Obama and Trump administrations both adopted that strategy as a uniquely American way of sharpening the military's edge. Experts clash on whether the United States is doing too little or too much. Defense hawks had lobbied for decades for the creation of a military Space Corps and called for more spending on weapons. But arms controllers see the Space Force as raising global tensions and giv-ing Beijing an excuse to accelerate its own threatening measures. Some go further and call it a precipitous move that will increase the likelihood of war. In decades past, espe-cially during the "Star Wars" program of the Reagan administration, conflict in space was often portrayed as shootouts in orbit. That has changed. With few exceptions, the weapons are no longer seen as circling the planet but as being deployed from secure bases. So, too, the targets are no longer swarms of nuclear warheads but fleets of satel-lites, whose recurring, predictable paths while orbiting the Earth make them far easier to destroy. A main question is whether the antisatellite moves and countermoves will lower or raise the risks of miscalculation and war. That debate is just beginning.

Official Chinese documents prove China perceives the Space Force as containment.

Clay 20

Marcus Clay (Ph.D., analyst with the U.S. Air Force's China Aerospace Stud-ies Institute), "Parsing Chinese Perspectives on the U.S. Space Force", China Aerospace Studies Institute, February 2020, https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Parsing%20Chinese%20Perspectives%20on%20US%20Space%20Fo%20Feb%202020.pdf?ver=2020-02-24-154048-177

Almost all of the official Chinese discussions about the USSF avoid the topic of its di-rect implications for China or how Chinese military should respond to the U.S. military transformation. Pundits in China also remain tight-lipped about China's own military space capabilities. A brief survey of Chinese writings on the specific U.S. proposals with regard to strengthening its spacebased capabilities, however, shows that Chinese schol-

ars and the think tank community remain specifically concerned about the ongoing U.S. policy debates pertaining to the space-based missile defense systems. 26 To be sure, China's concern about U.S. missile defense is not new. In fact, Chinese analysts care-fully studied the implications of President Reagan's Strategic Defense Initiative (SDI, or "Star Wars") in the early 1980s. The defense R&D establishment began internal analyses in the early to mid-1990s, focusing on missile defense and its impact on China's secu-rity interests.27 Nevertheless, against the backdrop of the publication of the 2019 U.S. Missile Defense Review (MDR) drawing attention to China's offensive missile capabili-ties28, and the official U.S. withdrawal from the Intermediate-range Nuclear Force (INF) Treaty, that Chinese military planners have come to the conclusion that the creation of the USSF – and possibly the kinds of space-based systems the MDR explicitly discusses - is an extension of the U.S. expansive missile defense strategy against Beijing. 29

Space hegemony spurs Chinese counterbalancing – abandoning heg is best.

Dongxu 20

Wei Dongxu (Beijing-based military analyst), "US is fanning Cold War-like competition on the moon," Global Times, 11-26-2020, https://www.globaltimes.cn/content/1208198.shtml

The US has been hyping China's so-called space ambitions to displace the US as the dominant space power from China's successful debut flight of the Long March-5B in May to the launch of Chang'e-5 lunar probe that will retrieve Moon rocks. Some ana-lysts have even called for the US to take countermeasures to protect its national inter-ests and space security, claiming that China's increasing speed in space development has threatened international space security. Such voices show a Cold War mentality of the US and its long-standing prejudice against China. For a long time, the West has been deliberately targeting China, regarding China's space development as a security threat without any basis, but recognizing and encouraging the space development of other countries. This is an unreasonable and deliberate smear on China similar to the space hegemony competition between the US and the Soviet Union in the Cold War. But China is not interested in engaging in any kind of Cold War in space. China believes that space is vast enough to allow all the countries with the capability and power to make use of such space resources. All of China's space exploration programs are open and transparent and are solely for the peaceful use of space resources. China develops such projects on its own to upgrade the country's scientific and technological level and its ability to explore space. China is also willing to share with scientists around the world

the related technology and results. The way China explores space is peaceful and does not involve any aggressive or military elements. In fact, it is not China that has milita-rized space, but the US. The US' ambitions for space hegemony are much too obvious. The US has created a space force, deliberately targeting other countries' space assets. In particular, US satellites have the capability of deterrence and attack. The country has clear military purposes. In October, NASA announced bringing seven countries into its Artemis Accords, an agreement to explore the moon and Mars together. Some be-lieve this is the US space version of the "enclosure movement." The US wants to build space hegemony. The Artemis program is like building a small base above the moon which can be landed on at any time. This is the US plan to return to the moon and better control the moon. The US hopes to transform its scientific research capabilities in space into major military strength. Some of NASA's projects and technologies may be shared with the US space force. Many private companies may even participate in them. One reason why the US is hyping China's intention to replace US dominance in space is that the US is jealous of China's accomplishments. Another possible reason is that US arms dealers are pushing the hype to make more money. US space exploration programs have been advancing at a slow pace, while China has been moving faster and steadier and achieving a lot of success. In addition, the establishment of the US space force has opened a whole new market for US arms dealers, who intend to sell space warfare-related weapons to the US space force. So they are deliberately setting up an image of China as an "imaginary enemy," putting a "danger" sign on it to create the false impression that the US and China are competing for supremacy in space. This will scare the Pentagon and the American public, and create a sense of fear, which may in turn lead the US space force to purchase more offensive warfare-related space weapons. It is inevitable that there will be competition among major powers in the development of the space domain, but China will not participate in the Cold War-like competition initiated by the US. China is entering and exploring space solely for peaceful purposes. Instead, the US should reverse its selfishness, exclusivism and hegemony, and adopt a more tolerant mind-set in space technology cooperation, actively promoting interna-tional cooperation, not fighting with swords and guns in space, using its space forces and targeting other countries' space assets, especially satellite systems, for deterrence. Fundamentally, the US should abandon its hegemonic mentality. Otherwise, such uni-lateralism in space affairs will cause harm to its image, and the US' future promotion of cooperation in space will draw more suspicions and questions.

6.2.4 Russia

The Space Force prompts Russian ASATs missile testing.

Detsch et al. 20

Jack Detsch (Foreign Policy's Pentagon and national security reporter), Robbie Gramer (a diplomacy and national security reporter at Foreign Policy), Dan Haverty (a former editorial fellow at Foreign Policy), "Russia Fires Shot in Space Arms Race," Foreign Policy, 4-16-2020, https://foreignpolicy.com/2020/04/16/russia-fires-shot-in-space-arms-race/

Russia tested a missile on Wednesday that is capable of destroying satellites in low-earth orbit, U.S. Space Command said in a statement, as the Pentagon faced military challenges from Russia, China, and Iran over the course of a busy day. The move could be a significant challenge to U.S. efforts to invest in communications satellites and sen-sor layers to track missiles in-flight—as the Space Force did during Iran's ballistic mis-sile attack on Iraq's Al Asad air base in January, which left more than 100 U.S. troops with traumatic brain injuries. "This test is further proof of Russia's hypocritical advo-cacy of outer space arms control proposals designed to restrict the capabilities of the United States while clearly having no intention of halting their counter-space weapons programs," said Gen. Jay Raymond, Space Command's chief. Growing challenge. The missile test is another example of Russian forces challenging the United States in outer space in recent months, as the Trump administration has sought to get the nascent U.S. Space Force off the ground. Time reported in February that two Russian satellites had begun shadowing a U.S. satellite in outer space, a move that Raymond said had the po-tential to "create a dangerous situation." Other rivals joining in. It won't just be Russia keeping the nascent Space Force busy: The Secure World Foundation said in its annual report last month that China, Iran, and North Korea are also looking at counter-space technologies.

6.2.5 Impact

Arms races cause space debris – that threatens all future space assets.

O'Connor 20

Sarah O'Connor (a researcher at the International Cyber Policy Centre at the Australian Strategic Policy Institute), "We're All Losers in the Space Arms Race," RealClearDefense, 5-21-2020, https://www.realcleardefense.com/articles/2020/05/21/were_all_losers_in_the_space_arms_race_115310.html

Almost immediately, the U.S. Space Command issued a statement outlining its readi-ness to respond to acts of aggression in defence of U.S. interests and those of its allies in space. General John Raymond, the commander of U.S. Space Command, said that the test demonstrated "Russia's hypocritical advocacy of outer space arms control pro-posals … while clearly having no intention of halting their counterspace weapons pro-grams". The space arms control proposals Raymond was referring to have been the subject of ongoing debate at the UN since the 1980s, featuring regularly as an agenda item in the General Assembly's First Committee and the Conference on Disarmament. For more than three decades, countries have failed to negotiate a treaty on the preven-tion of an arms race in space, or settle on an alternative. The last time countries came to an agreement on arms control in space was in 1967, resulting in the Outer Space Treaty. This treaty, which serves as the basis for international space law, was primarily concerned with preserving outer space for peaceful purposes. It stipulated in no uncer-tain terms that the deployment or placement of "nuclear weapons or any other kinds of weapons of mass destruction" in outer space was prohibited. Unfortunately, the treaty said nothing of conventional weapons, such as ballistic missiles. This means there is cur-rently nothing in place that precludes the development, use, or testing of conventional weapons in outer space or counterspace weapons capabilities, such as anti-satellite mis-siles – often referred to as ASATs. Russia is not alone when it comes to the development and testing of counterspace weapons capabilities. There are currently four countries – Russia, China, the U.S. and India – that have demonstrated counterspace capability, ac-cording to the Secure World Foundation's 2020 Global Counterspace Capabilities report. Of the four, Russia is the only one that hasn't destroyed a satellite using a ground-based system. At least in part, Russia's test is likely a response to the U.S. counterspace pro-gram, its Space Force, and its recent posturing around space as a battlefield. In a speech to the Pentagon on 9 August 2018, Vice President Mike Pence referred to comments made by President Donald Trump earlier that year, in which he explicitly stated that

space is "a war-fighting domain, just like … land, [and] air, and sea", and confirmed that the U.S. would "meet the emerging threats on this new battlefield". And yet, for all this talk of emerging threats, the reality is spacefaring nations have been battling one another in a race for strategic advantage in space for decades. This is especially true given the vital role space plays in ground-based military operations, providing forces with the means to conduct timely and effective operations. As long as space is framed as a battlefield, and with no arms controls in place to prevent the use or placement of weapons in space, countries will continue to develop and test counterspace capabilities. Yet it need not be seen as a domain for conflict. In the interest of keeping space safe, stable and operational, it is worth noting the low likelihood that ASATs would be used in an armed conflict. Already there has been a push to move away from counterspace capabilities that are physically destructive and irreversible. As Pavel Podvig, director of the Russian Nuclear Forces Project and a senior research fellow at the UN Institute for Disarmament Research, notes, ASATs offer little in terms of military capability and strategic advantage. Moreover, the potential chain reaction caused by the creation of space debris following such an attack would be detrimental for all involved, including neutral countries, commercial entities, and the international civil society. Given space debris begets space debris, a seemingly isolated incident can threaten all space assets in orbit and the infrastructure they support years after the fact. Consider the damage to the space environment caused by India's ASAT test last year, which created at least 400 pieces of space debris, or the more than 3,000 pieces created when China destroyed one of its ageing weather satellites in 2007. For its 2018–2020 cycle, the UN Disarmament Commission's Outer Space Working Group will prepare a set of recommendations to promote the practical implementation of transparency and confidence-building mea-sures in outer space activities. While such measures are a step in the right direction, they should not be viewed as a panacea. More needs to be done to ensure space re-mains accessible and operational for both military and civilian purposes. Space as a battlefield is not inevitable, but "you can work yourself into it", cautions Joan Johnson-Freese. So far, only France and the U.S. have officially recognised the prospect of armed conflict in outer space, but the limited constraints on behaviour have given countries such as Russia, China and India the scope to continue to develop and test their coun-terspace capabilities. Perhaps the next step is to pursue a policy of "strategic restraint", as Johnson-Freese suggests, and make use of the transparency and confidence-building measures as a basis for developing a verifiable, and legally binding, prohibition on ac-tivities that cause harm or permanent damage to space assets. After all, we're all losers in the space arms race.

6.2.6 Overstretch

The Air Force is overstretched – Space Force capabilities ensure the Air Force will be unsustainable. That crushes readiness.

Gomez et al. 20

Eric Gomez (director of defense policy studies); Christopher Preble (vice presi-dent for defense and foreign policy studies); Lauren Sander (external relations manager for defense and foreign policy studies); and Brandon Valeriano (a senior fellow at the Cato Institute), "Building a Modern Military", Cato White Paper, 2020, https://www.cato.org/sites/cato.org/files/2020-05/white-paper-building-a-modern-military.pdf

Since its formal inception in 1947, the Air Force has fended off challenges to its place in the structure of the U.S. military, and a few respected scholars still call for its aboli-tion.59 Many critics, however, aim to fix apparent inefficiencies within the force rather than doing away with it. A recent Center for Strategic and International Studies report, for example, notes that while spending on the Air Force has reached new heights, its force capabilities—as measured by the number of aircraft in its inventory—have fallen to an all-time low.60 This is partly explained by the overall focus on quality over quan-tity but is also due to the fact that the Air Force is more than just planes, just as the Army is more than the infantry and the Navy is more than surface ships. Still, the Air Force has struggled to introduce new aircraft. The service's experience with the F-35 Light-ning II aircraft, a fifth-generation fighter jet that is significantly more advanced than its predecessors and supposed to replace several other aircraft currently in service, has not been promising. In general, the Air Force has spent a lot of money to get less capacity.

A change of direction is in order. The structure and capabilities of the Air Force should maximize operational readiness, taking into consideration procurement difficulties as-sociated with current weapons systems still under production.61 The bitter experience with the F-35, which will be delivered to the force nearly a decade late and at an inflation-adjusted cost well above original estimates, is only one sign of the overall challenge facing the Air Force.62 The service needs capable aircraft at a cost that will allow it to purchase them in adequate quantities, and it needs to obtain them in a timely fashion.

Per the objectives spelled out in the 2018 National Defense Strategy (NDS), the U.S. Air Force is tasked with dominating the air, outer space, and cyberspace by using advanced and emerging technology. The Air Force needs to be an innovative service to keep up

with the rapid pace of technical change. Specifically, the service should focus on counter-ing China and Russia's investments in anti-access/area-denial systems, including long-range surface-to-air missiles.63

This will be difficult. As previously noted, the Air Force's rising budgets have coin-cided with a declining number of active aircraft, along with fewer pilots and Air Force civilian employees.64 Such trends signal broader challenges with basic budgetary man-agement, including the expanding costs of operation and maintenance. In other words, today's Air Force paradoxically does less while spending more. This is perplexing to say the least. While the service has emphasized incorporating advanced technology for air and space operations, overall readiness and pilot training have decreased substantially, contributing to a steady rise in aircraft mishaps.65 These operational problems are ex-acerbated by a shortage of qualified maintenance technicians. According to the GAO, the Air Force does not have a strategy to improve retention. If the Air Force is unable to hold onto its best people, it will struggle to adapt to changing operating environments (including outer space and cyberspace) and new technology (such as AI and quantum computing).66 The Air Force must undertake a service-wide initiative to reverse this trend, especially by incentivizing qualified personnel to remain in the force.

With respect to hardware, the Air Force is developing the F-35A, the B-21 Raider long-range bomber, and the KC-46A Pegasus tanker aircraft while also seeking to replace current intercontinental ballistic missiles and developing a Space Force, which is still officially under the Air Force's auspices. That is unsustainable. The service's goals must be aligned to present and future realities and should take account of the demands of modern combat. As the airspace in which the Air Force operates becomes increasingly crowded and contested, this places a premium on unmanned vehicles that can loiter and are capable of executing strike, surveillance, and resupply missions.

6.2.7 AT: Biden

Arms racing will occur under Biden – Space Force has bipartisan support.

Knight 21

Sam Knight (reporter, editor and cofounder of The District Sentinel, a news co-op reporting on Washington and federal policy for the left), "With Biden's Backing, Space Force Threatens to Accelerate the Arms Race," Truthout, 2-9-2021, https://truthout.org/articles/with-bidens-backing-space-force-threatens-to-accelerate-the-arms-race/

Though the Space Force is heavily associated with President Trump, Democrats have been pushing the U.S. military for years to ratchet up its celestial presence. In January, The New York Times published a lengthy piece detailing how the Obama administra-tion boosted the Pentagon's "offensive space control" capabilities by churning $7.2 bil-lion in contracts through 67 companies. "The beneficiaries included Elon Musk, the founder of Tesla, and Jeff Bezos, the founder of Amazon," the paper noted (Musk was not actually one of Tesla's founders, for the record). The push to militarize space started under the Bush administration in response to the Chinese military testing anti-satellite weaponry in 2007. In the years leading up to the test, however, the U.S.government re-peatedly voted against U.N. General Assembly resolutions proposed by Russian diplo-mats, which sought to affirm that outer space should only be used for "peaceful pur-poses." In 2005 and 2006, the resolutions "enjoyed support from an overwhelming ma-jority, with only Israel abstaining and the United States objecting," as the Nuclear Threat Initiative noted. Three years before the first resolution, Russia and China had released a paper entitled: "Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects." But with Democrats and Republicans now both firmly behind Space Force, it seems there is no going back. In December 2019, days before Congress first advanced legislation to create the branch, Russian President Vladimir Putin said the U.S. military's new focus on outer space would force the Russian govern-ment "to pay increased attention to strengthening the orbital group, as well as the rocket and space industry as a whole." The call from Putin reinforced warnings from critics of the Space Force worried about the proliferation of weapons in the thermosphere and beyond. Laura Grego, a physicist with the Union of Concerned Scientists, said the es-tablishment of the U.S. military branch "would prompt a space arms race that would threaten U.S. military and civilian satellites, not protect them." "Creating a new military

service focused on space will create bureaucratic incentives to hype the space weapons threat and build new weapons," Grego added.

6.2.8 AT: Threats

Threats are overhyped – Space Force is an unnecessary investment – Space Command would be better.

Gomez 18

Eric Gomez (director of defense policy studies at the Cato Institute), "Space Force: An Unwise Solution to an Overhyped Threat," Cato Institute, 8-28-2018, https://www.cato.org/commentary/space-force-unwise-solution-overhyped-threat

There's good news and bad news in the Trump administration's plan to establish the Space Force as the sixth branch of the U.S. military. The good news is that sales of formerly-ironic "space shuttle door gunner" patches are probably going to spike. The bad news is that the creation of a new military branch carries far more risks, costs and complications than benefits.

The value of the Space Force should be judged against the kinds of threats that it is intended to counter. A substantial increase in threat could warrant the drastic step of creating a new military branch, but space is not as dangerous as Trump and his senior officials are making it out to be.

Competition with Russia and China is a consistent theme of the administration's major national security documents. Senior officials frequently cite the activities of these coun-tries in outer space, such as China's use of a missile to destroy one of its own satellites in 2007. American officials are especially worried about how much the military and major civilian economic sectors depend on satellites that are vulnerable to disruption or destruction.

The Trump administration has hyped the threats while ignoring factors that would likely restrain Russian and Chinese behavior in space. The most aggressive option avail-able to Russia and China would be the destruction of U.S. satellites. The primary risk of such an attack would be the debris created by it that could inflict collateral damage on Russia or Chinese satellites. In fact, China's growing military ambitions increase its vulnerability to space debris because it must place more satellites in orbit to facilitate military operations farther from its shores. Less destructive actions such as jamming or temporarily disabling U.S. satellites would carry lower risks, but it would also be easier for the United States to recover from such actions.

Another mark against the Trump administration's plan for the Space Force is the diffi-

culty of creating a new branch of the military. The costs of adding a sixth branch would come on two fronts. First and most obvious to taxpayers is the price tag.

In an early August 2018 speech, Vice President Mike Pence said that the administration would ask Congress for $8 billion to invest in "space security systems over the next five years." Furthermore, establishing a new military branch carries significant over-head costs. According to Fred Kaplan writing for Slate, "A new service would mean a new headquarters, another seat on the Joint Chiefs of Staff (and a few hundred more Pentagon-based staff) … (and) another military academy (with faculty, grounds, schol-arships, etc.)."

The Space Force could cannibalize existing facilities and officers to hasten this process, but that would probably not go over well with other branches.

The second basket of costs associated with establishing a new military branch is bu-reaucratic. Trump cannot create a new branch of the military without congressional ap-proval. Legislation to create a Space Corps within the U.S. Air Force passed the House in 2017 but failed to get through to rhe Senate and was resisted by several high-ranking officials at the time, including the secretary of defense and the commander of Air Force Space Command.

Moreover, even if the administration could secure congressional approval, it would likely face additional bureaucratic battles within the military. A new branch of the mili-tary needs its own people and infrastructure. The Space Force could take these resources from the Air Force, the current branch with primary responsibility for space operations, which would not be a welcome development for the latter. Given the history of inter-service squabbling, the transition period could be quite arduous.

Creating a Space Force as a separate branch of the U.S. military is not a wise decision. It is an overreaction to the threats facing the United States, and its costs outweigh its dubious benefits. Instead of sticking to the current plan, which promises to generate more sensational headlines than sensible policy initiatives, the administration should focus its efforts on improving existing military organizations that handle space.

One path forward would be to emulate Cyber Command, which is not a separate branch of the military but a unified command. Instead of being its own branch, Cyber Com-mand incorporates cyber-focused units from across all the branches of the military. Cre-ating a unified command for space would help the military focus its resources and push for more investment in new capabilities without creating the economic and bureaucratic headaches.

6.2.9 AT: Deterrence

Deterrence logic is wrong in space – prompts Russian and Chinese aggression.

Feffer 20

John Feffer (directs the Foreign Policy in Focus project at the Institute for Policy Studies), "Trump's Space Force Is Worse Than Reagan's Star Wars," Institute for Policy Studies, 1-15-2020, https://ips-dc.org/trump-make-space-great-again/

When it comes to nuclear weapons and drones and cyberwarfare, it's too late for the United States to turn an initial technological advantage into a global moratorium on production. Since it quite deliberately missed such opportunities for multilateral disar-mament, Washington now feels obliged to spend scads of dollars to ensure that it main-tains a significant lead over its various adversaries, ostensibly to deter the bad guys from using their weapons.

The same applies to space. "The ultimate goal is to deter a war in space," David Mont-gomery writes. "In the Pentagon's view, space must be considered a warfighting do-main precisely to keep it peaceful."

Well, that's what the Pentagon always says. It's why it calls itself a "Defense Depart-ment" to obscure what it really is: a bureau devoted to wage war, not simply deter it. As for space, the Pentagon sees a virtually limitless terrain for expansion.

According to the "deterrence" model, however, such expansion requires a clear and present danger. One major vulnerability the Pentagon has identified in space is the U.S. complex of commercial and military satellites.

The fear that other countries would take down U.S. assets in orbit around the earth has been around for some time. During the Carter administration, the United States and Soviet Union began negotiating a ban on anti-satellite (ASAT) weapons. The Reagan administration abandoned those talks, largely because it feared they would restrict the president's cherished "Star Wars" plan of constructing a massive missile defense sys-tem.

Both sides then began building ASATs, and others joined the race. To date, no country has actually used this technology to take down the satellite of another country. Rather, they've only used it to take down their own satellites — as a test of capabilities. Four countries have done just that: the United States, Russia, India, and China.

However, it's actually not so easy to take out a satellite. GPS and communications satel-lites orbit at altitudes above what an ICBM can reach. A space rocket could do the trick, but that would cost a lot of money and still require multiple hits to disrupt communica-tions.

"Killer satellites," orbiting weapons that can take out neighboring satellites, are another option. The United States has accused Russia of deploying four such potential weapons. Russia has responded that these small satellites serve an entirely different purpose: to repair other satellites that have suffered malfunctions. In truth, it's hard to discern from the outside the ultimate purpose of such repair vehicles: remedy a friendly satellite or ram an unfriendly one. Such are the inherent dangers of dual-use systems.

Then there's the threat of hypersonic vehicles that can deploy satellites, killer or oth-erwise, as well as potentially conduct operations in space. China is working on a hy-personic glider, as is Russia. Russian President Vladimir Putin made a big splash at the end of 2019 when he announced a new Russian missile that can fly 27 times the speed of sound. Such systems make any missile defense systems, which already face major challenges in taking out conventional missiles, absolutely (as opposed to mostly) useless.

The United States has tested its own hypersonic missile. Lockheed Martin is develop-ing a new hypersonic SR-72, which would be a combination drone and stealth bomber. DARPA has teamed up with Boeing to get a hypersonic plane into operation, which would fall somewhere between a traditional airplane and a rocket. The Pentagon has also developed its X-37b military space plane, which it insists is not designed for military purposes but only to test out new satellite technologies (a frankly dubious contention).

War Over the Worlds

A third realm of space conflict — in addition to weapons that enter space on their way toward terrestrial targets and weapons that aim at each other in space — is over the territory and resources of nearby moons and planets.

That might seem far-fetched, since no country seems close to setting up anything like a base on the moon or on Mars. But militaries are voracious in their ambitions. And they'll always have their visionary — read: kooky — boosters like Newt Gingrich, who wants to team up with Trump on his colonizing space idea, "occupying the moon, developing the moon, and continuing to Mars."

Just as powerful nations are scrambling to claim territory in the Arctic that has become accessible due to climate change, these space cadets are looking to stake claims to an

even larger set of commons that lie beyond this planet.

Just listen to Maj. Gen. John Shaw, the leader of Space Force's Space Operations Com-mand: "I've been telling the team, 'Don't think about a warfighting service for the next decade. Create a warfighting service or the 22nd century. What is warfighting going to look like at the end of this century and into the next?' "

In other words, let's ask Congress for a blank check to spend on any outlandish idea we might have about the future of war.

In an Air Force report published in September, military personnel and academics con-sidered various space scenarios for 2060. The "positive" scenarios — titled Star Trek, Garden Earth, and Elysium — all assume that the "U.S. coalition retains leadership over the space domain and has introduced free-world laws and processes that have led to sig-nificant global civil, commercial, and military expansion in space and resulted in large revenue streams."

Sounds like extraterrestrial colonialism to me, though for the time being without the indigenous populations to exterminate first. Not surprisingly, in these scenarios the United States maintains its leadership through overwhelming military power deployed in the stratosphere and beyond.

The "negative" scenarios — titled Zhang He (sic), Xi's Dream, and Wild Frontier — as-sume either an "alternate nation" leads in space or no clear winner emerges from a vigorous national competition.

It's no mystery what this "alternative nation" is.

Zheng He was a great explorer of the fifteenth century who might have established China as the preeminent colonial power in the world if the emperor at the time hadn't decided to focus on affairs closer to home. Xi is, of course, Chinese leader Xi Jinping and his dream of a prosperous and powerful China.

The report makes no mention of arms control, international negotiations to preserve the commons of space, or even the dangers of a military space race. Instead, these blue-sky thinkers could only imagine a battle between the United States and the up-and-coming hegemon over all the marbles.

And that's where they intersect with Trump as well. At a meeting of the National Space Council in 2018, he said:

I want to also say that when it comes to space, too often, for too many years, our dreams of exploration and discovery were really squandered by politics and bureaucracy, and

we knocked that out. So important for our psyche, what you're doing. It's going to be important monetarily and militarily. But so important for right up here — the psyche. We don't want China and Russia and other countries leading us. We've always led.

And so the United States has. We've always led the way in devising destructive tech-nologies and, for a good many decades, using them to wage war across the planet.

6.2.10 AT: Bureaucracy

Despite fragmentation and bureaucratic hurdles, Space Force isn't key.

Johnson 18

Kaitlyn Johnson (a research associate with the Aerospace Security Project at the Center for Strategic and International Studies in Washington, D.C.), "Why a Space Force Can Wait," CSIS, 10-3-2018, https://www.csis.org/analysis/why-space-force-can-wait

When President Trump first mentioned the idea of creating a "Space Force" in March of this year, few people would have expected that his seemingly offhand remark would take us to the point where we are today. The administration has called on the Depart-ment of Defense (DoD) to develop plans to stand up a new military department for national security space by 2020 while the Air Force has released its own proposal for the gradual development of the Space Force. While the administration and support-ers of the Space Force proposal believe a new Service would remedy the issues in our national security space enterprise, they are overstepping in their solution.

I do not disagree with the contention that the current organizational structure of na-tional security space is problematic. Most experts have noted that space capabilities are spread unevenly throughout DoD and Intelligence Community, without much inter-operability and communication, and space authority and coordination is fragmented. As a result, there is no true military space career path and Air Force officers with no space background are often shifted into space work. Additionally, the Air Force tends to decrease space-related funding in order to support aircraft when balancing priorities. These are serious issues that need to be resolved; however, the solution is not to jump to create a new military department. DoD needs to slow down and take a deep breath, evaluate the issues that are causing our national security space enterprise to falter, and develop a strategic plan to fix them. Throwing more money and even more bureaucracy at the issue is not going to help, and holding to unrealistic timelines will not allow for thorough progress reviews of incremental steps, such as establishing a space combatant command or a dedicated space acquisition and development agency.

A significant issue with developing a Space Force by 2020 is the cost needed to establish a new military department. Statements from the administration describing the Space Force as "budget-neutral" are misleading. Deputy Secretary of Defense Patrick Shana-han even noted that standing up the new Service could cost "billions," though DoD has not completed a formal cost evaluation as of yet. It is widely understood that stand-

ing up organizations in DoD is expensive. Some things are fairly certain to cost DoD: overhead costs, development of doctrine, consolidation of facilities, movement of peo-ple and families, a service academy or war college, recruiting pipelines, and of course, new uniforms. This year, DoD plans to spend about $12.7 billion on unclassified space programs. Air Force Secretary Heather Wilson recently estimated that an additional $13 billion would be needed to establish both the new Department of the Space Force and the new U.S. Space Command (SPACECOM), and to keep both operating over the next five years.

For supporters of the Space Force, it is easy to claim a low or neutral budget with the Space Force just using existing personnel and facilities to continue current operations plus a small overhead staff. However, this also assumes that the Space Force will be able to acquire all space personnel from the other Services. If asked to join the Space Force, some service members may choose not to jump ship, per say, out of loyalty to their Ser-vice, causing the Space Force to have to recruit elsewhere. With the rushed timeframe of 2020, identifying, incentivizing, and building a relationship with key space personnel in all the departments—not just the Air Force—will take time and trust. Service mem-bers will be hard-pressed to leave their Service for a new department without sufficient trust in the leaders and mission of the Space Force. Furthermore, given that the majority of space personnel are civilians or contractors, the composition of a Space Force would be unlike any other military department. If a military department is mostly staffed by non-military personnel, is that necessarily the best fit for reorganization?

Despite DoD leaders now considering space a warfighting domain, space operations mainly provide critical support to operations in all other domains. Funding for space capabilities and operations is mixed between not only the different military departments and Services, but also intelligence agencies both within and outside of DoD. Sieving the right "pieces" out of DoD—and possibly the Intelligence Community—may add further bureaucracy to these programs. More worryingly, it may not even be possible to suss out the right programs or people due to classification levels and diversification of space capabilities. A new military department would almost inevitably result in extra bureaucracy and complications amongst the Services when conducting joint operations, which would likely account for almost all of the Space Force's operations.

Re-establishing a space-focused combatant command—the first U.S. SPACECOM was disestablished in 2002—will solve many of the issues agreed upon by space experts. First, operational space authority would be consolidated and led by a four-star general. This would provide much- needed leadership and direction across DoD. A SPACECOM

would also provide the opportunity to develop highly-skilled space operators and pro-vide a clearer career path for service members interested in a career in space operations. Similar to U.S. Special Operations Command, a SPACECOM would need to be able to manage all space operations and coordinate joint operations amongst the Services. Re-establishing SPACECOM is a good first step down the path to finding out the right construct for our national security space enterprise. Policymakers and defense officials should give SPACECOM the time and resources it needs to operate efficiently over the course of a few years in order to determine its success. Rushing to establish a Space Force by 2020 does not give ample time to test and synchronize SPACECOM with the rest of the combatant commands and the Services' space infrastructures. It may well be that another organizational construct fits the bill better than a Space Force, but without first testing—and providing ample time to test—a re-established SPACECOM, policy-makers will not be able to make an informed decision on how to move forward.

The administration's plan towards a Space Force also includes establishing a Space De-velopment Agency (SDA). Modeled after the Missile Defense Agency (MDA), the SDA would act as a research, development, and acquisition agency for national security space. Currently, the MDA has acquisition authorities to both conduct its own research and de-velopment but also to coordinate different acquisition programs across the Services. An SDA would have similar authorities to coordinate development and acquisition of space assets across the Services, providing top-level leadership on space acquisitions across the Department of Defense. SPACECOM and the SDA together may be the goldilocks combination for managing our national security space enterprise.

Some analysts have noted that even if Congress passes the necessary legislation to man-date the initial reorganization of military space, it may not go far enough to guarantee a complete solution to the problem. However, the case of reorganization of special op-erations forces showcases that this is not necessarily true. As Alice Hunt Friend and I recently noted, Congress has recognized the incomplete structure of special operations forces and has called for a study on the issue in this year's National Defense Authoriza-tion Act. If Congress and DoD agree to re-evaluate the status of the national security space enterprise in a few years, there will be a much more efficient and successful reor-ganization process.

Establishing a Department of the Space Force by 2020 is rushing into an end solution without proper consideration. Although there have been several space reorganization studies in the past two decades, a comprehensive public debate of our current space capabilities and their organization is just beginning. A complication to this discussion

is, of course, that many space systems and operations are classified. If creating a Space Force is a matter of inevitability, as many believe, the process should be done thought-fully and with intention. Other solutions presented—such as SPACECOM, a Space De-velopment Agency, the Space Operations Force, and a Space Corps—are all viable op-tions to remedy and make DoD space operations more efficient. Perhaps it is also time to consider that perhaps this reorganization is unique and therefore should not be limited to mimicking already-existing systems.

An incremental approach to developing a comprehensive organization for our national security space enterprise is a smarter decision. Our aim as a policy community should be to evaluate all options thoroughly, hold public discourse, and develop a solution that will best support our national security space enterprise.

6.2.11 AT: Hegemony

Space Force isn't key to hegemony – the Air Force isn't committing adequate resources – China is winning the space race.

Autry and Kwast 18

Greg Autry (the director of the Southern California Commercial Spaceflight Initiative at the University of Southern California. He served on the Trump transition team at NASA and is the co-author of Death by China) and Steve Kwast (a Lieutenant General and commander of Recruiting, Training, Educating and Development for the Air Force. He is an astronautical engineer and Harvard Fellow in Public Policy.), "America Is Losing the Second Space Race to China," Foreign Policy, 12-8-2018, https://foreignpolicy.com/2019/08/22/america-is-losing-the-second-space-race-to-china/

The current U.S. space defense strategy is inadequate and on a path to failure. President Donald Trump's vision for a Space Force is big enough. As he said on June 18, "It is not enough to merely have an American presence in space. We must have American dom-inance in space." But the Air Force is not matching this vision. Instead, the leadership is currently focused on incremental improvements to existing equipment and organiza-tional structures. Dominating the vast and dynamic environment of space will require revolutionary capabilities and resources far deeper than traditional Department of De-fense thinking can fund, manage, or even conceive of. Success depends on a much more active partnership with the commercial space industry— and its disruptive capabilities.

U.S. military space planners are preparing to repeat a conflict they imagined back in the 1980s, which never actually occurred, against a vanished Soviet empire. Meanwhile, China is executing a winning strategy in the world of today. It is burning hard toward domination of the future space markets that will define the next century. They are plan-ning infrastructure in space that will control 21st-century telecommunications, energy, transportation, and manufacturing. In doing so, they will acquire trillion-dollar rev-enues as well as the deep capabilities that come from continuous operational experience in space. This will deliver space dominance and global hegemony to China's authori-tarian rulers.

Despite the fact that many in the policy and intelligence communities understand ex-actly what China is doing and have been trying to alert leadership, Air Force leadership has convinced the White House to fund only a slightly better satellite command with

the same leadership, while sticking a new label onto their outmoded thinking. A U.S. Space Force or Corps with a satellite command will never fulfill Trump's call to dom-inate space. Air Force leadership is demonstrating the same hubris that Gen. George Custer used in convincing Congress, over President Ulysses S. Grant's better experi-ence intuition, that he could overtake the Black Hills with repeating rifles and artillery. That strategy of technological overconfidence inflamed conflict rather than subduing it, and the 7th Cavalry were wiped out at the Battle of the Little Bighorn.

6.2.12 AT: Hegemony – Arms Control Superior

Arms control is a superior approach to dealing Russia and China – the Space Force only prompts counterbalancing.

Panda 18

Ankit Panda (Stanton Senior Fellow in the Nuclear Policy Program at the Carnegie Endowment for International Peace), "Trump's Space Force Misses the Mark on Chinese and Russian Space Threats," The Diplomat, 8-28-2018

https://thediplomat.com/2018/08/trumps-space-force-misses-the-mark-on-chinese-and-russian-space-threats/

If the United States is concerned about counterspace capabilities in Russia and China – as it should be – the answer is not to create a Space Force, but to pursue arms control cre-atively with Moscow and Beijing. The United States today is the world's foremost space superpower; U.S. intelligence, surveillance and reconnaissance capabilities rely on the largest military satellite network and – make no mistake – U.S. war planners would have the most to lose from the proliferation of counterspace weapons in the Russian and Chinese arsenals.

Just in the past year, both China and Russia have tested hit-to-kill weapon systems, which are surface-launched missiles designed to ram U.S. satellites, destroying them with sheer kinetic energy. In 2007, China made its interests in these weapons known by irresponsibly shooting down one of its own defunct satellites, creating a hazardous space debris cloud that will threaten other satellites for decades to come. With Rus-sian and Chinese developmental activity, the U.S. priority should be to clamp down on the unconstrained development of counterspace weapons. Even beyond hit-to-kill weapons, the kinds of in-orbit systems described by U.S. intelligence agencies should also be of concern.

The instinct driving calls for a Space Force, however, makes precisely the opposite rec-ommendation. It is a call to arms and, consequently, a call to an arms race. Even as the United States may need to "do more" in space to manage emerging threats, the prescription for the years ahead is not a new branch as Trump imagines it. U.S. Vice-President Mike Pence recently pointed out that China's creation of the PLA Strategic Support Force, which is charged with developing and maintaining the PLA's space ca-pabilities, necessitates a similar U.S. move. This is a poor justification too; bureaucratic mirror-imaging is not the solution the United States needs.

Fortunately, reality appears to be getting in the way of Trump's poorly specified plans.

The recently approved U.S. defence budget contains a range of new space war fighting proposals, including one to create a subordinate command under U.S. Strategic Com-mand, which already deals in the space domain, to coordinate activities in space among the existing U.S. services. The U.S. secretary of defence is also now charged with coming up with a new "space war-fighting policy" by early next year.

Make no mistake: the salience of space as a war-fighting domain won't be diminishing any time soon – at least not without a concerted effort at good faith arms control, which appears to be unlikely. But in the meantime, Americans must fully consider the right way to proceed. The Space Force likely won't be it.

Cooperation is better – it's a confidence-building measure.

Feffer 20

John Feffer (directs the Foreign Policy in Focus project at the Institute for Policy Stud-ies), "Trump's Space Force Is Worse Than Reagan's Star Wars," Truthout, 1-17-2020, https://truthout.org/articles/trumps-space-force-is-worse-than-reagans-star-wars/

The Alternative

The first attempts to extend arms control to space came in the 1960s. The Limited Test Ban Treaty banned nuclear tests in space. The Outer Space Treaty of 1967 banned weapons of mass destruction from space, but all attempts to ban conventional weapons have failed. China and Russia have proposed something along those lines. The biggest naysayer? The United States, which argues that the treaty only forbids technologies that China and Russia currently don't possess.

Perhaps — but that doesn't prevent the United States from starting negotiations on various mechanisms to demilitarize space. Restarting negotiations to ban anti-satellite weapons would be a good start, but that might be too ambitious for the current moment.

So, cooperation among the principal space powers could begin with a suitable confidence-building mechanism, like a joint initiative for dealing with space junk.

The Europeans are out there trying to harmonize the various national initiatives for dealing with all the debris circling the earth. There are 14,000 pieces of garbage larger than 4 inches across (pieces of satellites, rocket stages), and even smaller items can do irreparable damage to a spacecraft. The United States could take a proactive approach to the commons by working with others to clean up space — and not just catalog the problem as it is doing now.

Alas, cleaning up trash is also probably a stretch for the Trump administration, given how blind it is to environmental problems, even if that trash is a national security haz-ard.

But what the United States is doing now with the new Space Force is the worst kind of response to the problem of the increased militarization of space. It is creating an imaginary "space gap" that the United States has to pour money into closing, just like the various missile and bomber gaps of the late twentieth century. It will increase the risk of conflict in space, not reduce it.

The Space Force is a huge white elephant, worse than the Reagan-era missile defense system dubbed Star Wars. In fact, it's Star Wars without end, sequel after sequel hitting military theaters near you. Even in the unlikely event that all is quiet on the terrestrial front, the new Space Force and its promise to keep the universe safe from bad guys will serve to justify astronomical Pentagon budgets for decades to come.

6.2.13 AT: Hegemony – Threat Discrimination

Space Force fails – they can't characterize threats.

Erwin 21

Sandra Erwin (writer for SpaceNews. She has covered the military, the Pentagon, Congress and the defense industry for nearly two decades as editor of NDIA's National Defense Magazine and Pentagon correspondent for Real Clear Defense), "Space Force needs sensors to distinguish weapons from benign objects," SpaceNews, 1-6-2021, https://spacenews.com/space-force-needs-sensors-to-distinguish-weapons-from-benign-objects/

WASHINGTON — China is developing satellites with robotic arms that could be de-ployed as space weapons. To prepare for the possibility that U.S. satellites might be targeted, the Space Force needs tools to identify whether a satellite is hostile or benign, a senior official said Jan. 6. "We need something that gives us confirmation and confi-dence to say: 'This just happened and this is who did it,' " said Maj. Gen. Leah Laud-erback, U.S. Space Force director of intelligence, surveillance and reconnaissance. "It's difficult trying to characterize what happens thousands of miles away, all through tech-nical means," Lauderback said during an online event organized by the Intelligence and National Security Alliance. The ability to "characterize threats" is a major challenge for the Space Force as it builds new systems and trains operators, she said. "We need some persistence on orbit and sensors so we can make a more confident call in a faster manner." Lauderback mentioned satellites with robotic arms as one of several Chinese capabilities the U.S. Space Force worries about. "The concern is that this robotic arm technology could be be used as a grappling arm," she said. "It's really hard to attribute from an intelligence standpoint." The Space Force has to be able to defend U.S. satellites from jammers, lasers, missiles and other weapons that China and Russia are develop-ing, she said. "Some of these are operational .Others are in testing," said Lauderback. "This is the future. This is where the adversary wants to go." In her previous assign-ment at U.S. Space Command, Lauderback tracked Russia's tests of ballistic missiles that are capable of hitting satellites in low-Earth orbit. "Militaries don't just develop these for deterrence. I think they have an idea they want to use this in the future," she said. "They understand our dependence on space and they want to be able to deny us." China has ground based laser systems of varying power levels that can blind and damage satellites, she said. "We're characterizing these the best way we can right now but we have a ways to go." The Space Force plans to develop intelligence analysts at its

future National Space Intelligence Center, to be stood up at Wright Patterson Air Force Base, Ohio. Lauderback said the service also plans to work with allies and commercial companies to figure out how to share information and tap private sector innovation.

6.2.14 AT: ASATs Key

Kinetic ASATs are not key – other domains solve.

Bateman 20

Aaron Bateman (Ph.D. student in the history of science and technology at Johns Hop-kins University. Previously, he served as a U.S. Air Force intelligence officer), "America Can Protect Its Satellites Without Kinetic Space Weapons," War on the Rocks, 7-30-2020, https://warontherocks.com/2020/07/america-can-protect-its-satellites-without-kinetic-space-weapons/

Post-Cold War Space Weaponization Shortly before the Cold War ended, former Secre-tary of the Air Force Edward Aldridge, Jr., stated that "spacepower will be as decisive in future combat as airpower is today." Concerns about space security remained after the Soviet Union collapsed. The U.S. Army, for example, maintained its kinetic energy anti-satellite program well into the early 2000s. The increasing number of space actors, both benign and potentially hostile, coupled with America's reliance on space systems, have once again made the vulnerability of national security space systems a central source of anxiety for U.S. officials. Additionally, the space economy is now valued at over $400 billion, raising the stakes of war in space. Doug Loverro, the former Deputy Assistant Secretary of Defense for Space, said in 2015 that "we can no longer view space as a sanc-tuary." In reality, space has not been a true sanctuary since the 1960s. The notion of congested and contested space has only surfaced as a public issue in the last decade or so. A watershed moment in perceptions about space and national security came in 2007, when China conducted an anti-satellite test in low-earth orbit that created over 3,000 pieces of debris. This was China's first-ever weapons test involving the destruc-tion of an object in space. A little over one year later, the United States used an Aegis SM-3 missile to destroy a malfunctioning U.S. satellite. The missile impacted the satel-lite shortly before it reentered the earth's atmosphere, generating far less debris than the Chinese test. The Russian government has tested its ground-launched anti-satellite system at least nine times, including a test earlier this year. While the U.S. government and its allies have expressed serious concern over Russian anti-satellite developments, Moscow has refrained from conducting tests that create debris. New Delhi conducted an anti-satellite test in 2019 that destroyed an Indian satellite in low-earth orbit. While the impact generated debris, it was not nearly as significant as Beijing's 2007 test. Se-curity analysts believe that Iran could develop a rudimentary anti-satellite system in the near future, and Israeli experts have stated that their Arrow missile defense system

could be adapted for an anti-satellite role. While developing kinetic space weapons re-mains a considerable technical and engineering challenge, they are no longer confined to a small circle of superpowers. Looking Ahead Shortly after the establishment of the U.S. Space Force in December 2019, senior leaders in the new service began to argue for being ready to "fight for space superiority." The Defense Space Strategy, published last month by the Trump administration, identifies maintaining space superiority as a primary objective of American space policy. It also highlights the need to "deter and defeat adversary hostile use of space." The document identifies objectives but provides no clear strategy for achieving them. While no senior U.S. officials have endorsed the de-velopment of kinetic space weapons, they have yet to close the door on that possibility. Additionally, former Secretary of the Air Force Heather Wilson said that "there may come a point where we demonstrate some capabilities so that our adversaries under-stand that they will not be able to deny us the use of space without consequences." She did not, however, specify what these capabilities might be. To obtain its stated goals, the United States should focus on the further development of non-kinetic counter-space weapons that have reversible effects. This would include electronic warfare and, poten-tially, cyber capabilities. During the Cold War, American and Soviet national security officials sought to match any new capability developed by their adversary. This was certainly the case with space weapons. The United States wanted to be able to neutral-ize hostile satellites that supported terrestrial military operations. Even though there was growing concern beginning in the 1960s about Soviet anti-satellite weapons, not everyone in the U.S. government agreed that kinetic space weapons were a useful tool. Amrom Katz, who was involved in the early U.S. space reconnaissance program, penned a memorandum in 1972 that argued the Soviets would not use anti-satellite weapons be-cause the consequences would be too grave. Washington has certainly contributed to the weaponization of space. It is not surprising that Beijing and Moscow view actions like Operation Burnt Frost as a continuation of Cold War-era space weapons programs. The kinetic space weapons genie cannot be put back into the bottle. But the United States can and should refrain from falling back into a Cold War space mentality by fo-cusing only on developing non-kinetic space weapons. Since the end of the Cold War, debris has become the main enemy of national security and civilian space operations. A war that extends into outer space and involves the use of kinetic weapons would create devastating damage and long-term effects for national security and the economy. In this situation, no one can truly win a space war. Only a pyrrhic victory would be pos-sible, at best. Space security analysts have warned about the potential vulnerability of satellites to cyber attacks and electronic warfare. Hackers could take control of satellites,

deny access to their services, and spoof satellites' signals (e.g., broadcasting fake GPS signals that are disguised as real ones). In a crisis, the United States should actively ex-ploit these vulnerabilities to deny adversaries access to their military space assets. The United States should be able to prevent China and Russia from using their space-based capabilities without transforming them into hazards that could impede American, al-lied, and commercial space operations. Using non-kinetic space weapons has long been on the minds of senior national security officials. When Ford authorized the develop-ment of a new kinetic anti-satellite system in 1977, he also called for "a non-nuclear anti-satellite capability, including means for electronic nullification." Today, the em-phasis should only be non-kinetic weapons with reversible effects. Most importantly, the objectives of the Defense Space Strategy can be achieved through the use of non-kinetic space weapons like the Space Force's counter communications system. Instead of destroying communications satellites, they can be jammed. Rather than developing weapons to completely eliminate adversary intelligence satellites, the United States can invest in directed energy weapons that could "blind" them. In a conflict, the United States could respond to an attack on a satellite in another domain of operation. Ameri-can air, maritime, and land forces could target command and control infrastructure on the ground that supports adversary space systems. This would be escalatory because it would involve destroying facilities located on enemy territory and possibly include loss of life. However, this approach would deny access to space without permanently destroying satellites in orbit. Non-kinetic weapons are not without limitations. Cyber capabilities are dependent on access. In other words, the operator needs to be able to effectively infiltrate an adversary network. Sophisticated cyber actors like Russia and China recognize that space systems are critical resources in a conflict and will likely take measures to protect their networks associated with space system command and control. Cyber tools do not constitute a one-size-fits-all capability — they must be tailored to the target. As a result, it is unclear whether a cyber operation would be able to negate an adversary space system in a timely manner. If the goal is to permanently destroy an adversary space weapon in orbit, electronic warfare systems might not be deemed suffi-cient to eliminate the threat. Kinetic space weapons can be unreliable, too. Program 437, for example, had multiple problems with its ability to accurately target adversary satel-lites. Destroying a satellite requires highly accurate locational data that can be quickly transmitted to the anti-satellite weapon operator. If the targeting information from a space surveillance network is out-of-date because of a minor satellite maneuver, for ex-ample, the anti-satellite weapon could miss its target. For countries like Iran and North Korea that have the capability to build rudimentary kinetic anti-satellite systems, their

space surveillance networks are likely not robust enough to field an effective weapon. Given the technical challenge involved, it is not clear if even the space surveillance net-works of China and Russia can reliably target U.S. satellites or vice versa. While these adversary programs should be monitored, the United States and its allies should not overreact to them. To prevent the arms competition in space from becoming even more dangerous, Washington should work with its allies and adversaries to establish a mora-torium on testing kinetic weapons in space. Concerns about verification mechanisms have been the primary impediment to progress on limiting kinetic space weapons. Dur-ing the Cold War, U.S. officials believed the Soviet Union would be able to effectively conceal ground- and space-based weapons. Debris generated from tests cannot, how-ever, be hidden. Focusing on banning kinetic testing is a feasible and immediate step to be taken. Due to increased awareness about space security issues among U.S. allies, now is the time to collectively develop a framework for preventing these harmful tests that create long-term hazards for both civil and military space operations. A War That No One Wins The United States should prepare for any and all contingencies, includ-ing a war that extends into outer space. Space security concerns have been a source of anxiety for American officials going back to nearly the beginning of the space age. History provides important lessons about space policy. For example, American and Soviet intelligence satellites operated unimpeded during the Cold War, which was an essential source of nuclear stability. However, it is also essential to recognize changes in the strategic environment. Space is a contested military domain that is now inex-tricably linked to the global economy. The Cold War mentality of matching any and all Soviet capabilities should not be the framework employed for responding to space threats in the 21st century. In the immediate future, the United States should establish an international moratorium on weapons tests involving the destruction of man-made objects in space. This could be a useful framework for ensuring that spacefaring coun-tries do not create debris that harms other states operating in the space domain. As Charles Powell noted, Beijing and Moscow have shown renewed interest in a Proposed Prevention of an Arms Race in Space Treaty. It is unrealistic to expect the United States, China, and Russia to develop a framework that bans all kinetic space weapons. This would require an effective verification mechanism, and monitoring treaties involving space systems is especially difficult. A ban on kinetic anti-satellite tests involving the elimination of a target is, however, a realistic and necessary development. Four decades after Adm. Stansfield Turner said that "the Russians can kill us in space," America's ad-versaries still have the ability to destroy U.S. satellites with kinetic weapons. However, that doesn't mean that the United States should respond in kind with kinetic capabili-

ties of its own. The United States can achieve lethality in space without resorting to the permanent destruction of adversary satellites. Striking this balance is key to securing American interests in space.

6.3 AT: Planetary Defense

6.3.1 Not Key

It's a NASA mission, not Space Force.

McIntyre 20

Jamie McIntyre (senior writer at the Washington Examiner), "Space Force and NASA sort out who's defending the planet from threats from the heavens and on Earth," Wash-ington

Examiner, 2-10-2021,

https://www.washingtonexaminer.com/policy/defense-national-security/space-force-and-nasa-sort-out-whos-defending-the-planet-from-threats-from-the-heavens-and-on-earth

A massive asteroid is on course to slam into Earth and cause a natural disaster of epic proportions. Who are you going to call? The Space Force? Or NASA? It turns out that the planetary defense mission falls to NASA, which would deploy a spacecraft to attempt to knock the threatening space rock off course or, as a last resort, blow it up with a nuclear weapon.

6.3.2 Planetary Defense Fails

Planetary deflection fails – insufficient power.

Nye 20

Logan Nye (Army journalist), "Space Force's most dire job just got a little harder," We Are The Mighty, 4-29-2020, https://www.wearethemighty.com/mighty-culture/space-force-asteroid-defense-nasa/

The U.S. Space Force, if fully formed, will eventually be in charge of all U.S. space op-erations, doctrine, training, and leadership. It's least common mission is also one of the most threatening if they fail: stopping space threats like asteroids. Unfortunately for them, it turns out that asteroids are more resilient than scientists thought. NASA currently tracks near-Earth objects but, unfortunately, even these maps fail to track all the potential threats to the planet since we haven't found many of them. Researchers at Johns Hopkins University applied a new computer model to asteroid collisions, specifi-cally one where an asteroid with a 25-kilometer diameter slams into an asteroid with a 1-kilometer diameter. Older models expected that the larger asteroid would break apart on impact, but the new models—which take many more factors into account—show that asteroids are stronger than previously thought and would likely survive. Both models agree that cracks would form in the target asteroid, and earlier models thought this would result in a large cluster of rocks loosely held together by gravity. But the newer models expect that the smaller asteroid would deposit too little energy for the cracks to completely break apart the larger asteroid. So, if the Space Force needed to destroy an asteroid that threatened the Earth, they would need much more explosive or kinetic power. A composite image of a comet. Space objects can contain large amounts of valu-able minerals, but they also threaten to strike the Earth and destroy all life on the planet. "We used to believe that the larger the object, the more easily it would break, because bigger objects are more likely to have flaws. Our findings, however, show that asteroids are stronger than we used to think and require more energy to be completely shattered," said Charles El Mir, a Ph.D. graduate of Johns Hopkins University's Department of Me-chanical Engineering. So, if it's time to live out the plot of Armageddon, Spacemen need a few more nukes and at least one more Steve Buscemi. Luckily, Space Force will likely fall in on NASA's plans for asteroids, and those include deflection, where explosives, rockets, or even reflective paint can be used to change the course of an asteroid.

Planetary defense fails – no secondary deflection, large NEOs are highly improbable, no known large NEO threat, nonnuclear tech solves, and the case outweighs.

Graham and Schweickart 8

Thomas Graham, Jr. (served as special representative of the president for arms control in the 1990s and now chairs Thorium Power Ltd., which develops proliferation-resistant reactor fuel), Russell L. Schweickart (a former astronaut who flew on Apollo 9, heads the B612 Foundation, which champions the testing of spacecraft designs that can de-flect NEOs), "NASA's Flimsy Argument for Nuclear Weapons", Scientific American, 3-1-2008, https://www.scientificamerican.com/article/nasas-flimsy-argument-for-nuclear-weapons/

On January 4, 2007, the Wall Street Journal published an op-ed entitled "A World Free of Nuclear Weapons," written by an impressive array of statesmen: former secretary of state George Shultz, former secretary of defense William Perry, former secretary of state Henry Kissinger and former senator Sam Nunn of Georgia. In the article the authors worried that the likelihood of international terrorists acquiring nuclear weapons is in-creasing. They asserted that "unless urgent new actions are taken, the U.S. soon will be compelled to enter a new nuclear era that will be more precarious, psychologically dis-orienting and economically even more costly than was Cold War deterrence." Invoking President Ronald Reagan's call in the 1980s for the abolition of all nuclear weapons, they endorsed "setting the goal of a world free of nuclear weapons and working energetically on the actions required to reach that goal."

Recently, however, a counterargument has been advanced—by NASA. In 2005 Congress ordered the space agency to analyze the alternatives that it could employ to divert a near-Earth object (NEO)—an asteroid or comet—if one was found to be on a collision course with our planet. Last March, NASA submitted a report entitled "Near-Earth Object Survey and Deflection Analysis of Alternatives," having first coordinated its response with the White House, the Department of Defense and the Department of Energy. In its report NASA chose to analyze only the highly improbable threat posed by large NEOs, which very rarely strike Earth, in lieu of the more realistic danger of a collision with one of the cohort of smaller NEOs, which are far more numerous. What is more, the report emphasized the effectiveness of nuclear explosions in providing the force to deflect an NEO from a collision course, but it completely neglected the need for precision in such a procedure.

This analysis is seriously flawed. It is important not only to deflect an NEO from a colli-

sion course with Earth (primary deflection) but also to avoid knocking the object into a potential return orbit that would cause it to come back a few years later (secondary de-flection). Nuclear explosions are not controllable in this way. But a nonnuclear kinetic impact—that is, simply smashing a spacecraft into an NEO—can provide the primary deflection for the vast majority of objects, and a precise secondary deflection, if neces-sary, could be performed by an accompanying gravity-tractor spacecraft, which would be needed in any event to observe the NEo deflection and its aftermath [see "Gravita-tional Tractor for Towing Asteroids," by Edward T. Lu and Stanley G. Love, in Nature; November 10, 2005].

Nuclear explosives would be needed only for deflecting the largest NEOs, which are the least common and most easily detectable objects. Scientists are not concerned about a collision with an extremely large NEO—say, 10 kilometers in diameter—because all these objects have been discovered and none currently threatens Earth. Big things are easy for astronomers to find; the smaller objects are what we have to worry about./Of the estimated 4,000 NEOs with diameters of 400 meters or more—which includes all objects that might conceivably require nuclear explosives to divert them—researchers have so far identified about 1,500. And if NASA meets the search goals mandated by Congress, it will locate 98 percent of these objects and calculate 100-year projections of their orbits by 2020.

As NASA continues to find big NEOs, the calculations of risk change accordingly. A decade ago, before astronomers began to systematically locate NEOs larger than 400 meters in diameter, they estimated that we faced a statistical risk of being struck by such an object once every 100,000 years. But now that researchers have identified and are tracking about 37 percent of these NEOs, the frequency of being hit by one of the remaining large objects has dropped to once in 160,000 years. Unless NASA finds a large NEO on an immediate collision course by 2020 (a very unlikely event), the frequency of a collision with one of the 80 still undiscovered objects (2 percent of 4,000) will drop to once every five million years.

Thus, the probability that nuclear explosives might be needed to deflect an NEO is ex-tremely small. And even this minuscule probability will diminish to the vanishing point as researchers improve nonnuclear interception technologies. After 2020 the need to keep nuclear devices on standby to defend against an NEO virtually disappears. As a result, the decision to move toward the worldwide elimination of nuclear weapons can be made strictly on the basis of human threats to global security. Extraterrestrial dangers need not be considered.

Logistical and political challenges mean the planetary defense doesn't get off the ground – spacecraft fail to reach, fragmentation, no coordination, incentives to not act, banned by i-law, no global agreement process, and causes prolif.

Bartels 19

Meghan Bartels (a science journalist based in New York City. She joined Space.com in July 2018, with previous writing published in outlets including Newsweek and Audubon. Meghan earned an MA in science journalism from New York Univer-sity and a BA in classics from Georgetown University), "Even If We Can Stop a Dangerous Asteroid, Being Human May Mean We Don't Succeed", Space, 5-8-2019, https://www.space.com/asteroid-deflection-human-error-planetary-defense.html

To err is human, and that saying doesn't magically become moot just because the stakes are high.

That was the message political and legal experts offered to scientists gathered at the International Academy of Astronautics' Planetary Defense Conference, held in College Park, Maryland, last week. The conference was dedicated to discussing planetary de-fense — the art of spotting and, if necessary, diverting asteroids that seem to be on track to hit Earth — from a range of perspectives, bringing together asteroid scientists, space-craft engineers, disaster managers and, yes, political and legal experts.

Scientists and engineers know in theory what they could do if an asteroid threatens serious damage to any patch of Earth, depending on how much warning they have. They can send one or more large spacecraft up to block the asteroid's path and slow it enough that it misses its date with Earth. Or they can detonate a nuclear weapon near the asteroid's surface, vaporizing some of the rock and sending the remainder of the body in the opposite direction.

And assuming that they can get good-enough observations of the asteroid, they can do all the math to figure out when to knock it, with how much force, carried on which rockets, launching on what date. What could go wrong? A lot, it turns out!

Some of that room for error comes from the simple nature of spaceflight. In a scenario that conference attendees played out with a fictional asteroid, humanity launched six spacecraft to slow the asteroid down — and then things went wrong: three spacecraft failed to reach the space rock and one broke it into pieces, the smaller of which was still on track to hit Earth.

The intervention saved the original at-risk city of Denver, but simply moved the disaster

irrevocably to New York City. (Again, this was a hypothetical scenario. Scientists don't know of any large asteroids — more than 460 feet (140 meters) across — that could hit Earth in the foreseeable future.)

But spacecraft missions not always going according to plan is nothing new. What sev-eral of the speakers highlighted instead were the societal factors that could stymie or complicate any attempts to divert an asteroid.

First comes the question of who should be able to decide whether to try to divert an as-teroid at all. The experts speaking at the conference were vehement that such a decision shouldn't be the purview of just one country.

"Just the prospect of having one country saving the whole world obviously carries a lot of geopolitical concerns, a lot of concerns of power," Petr Bohacek of Charles University in Prague, Czech Republic, said during a presentation. "As we know from many expe-riences in the past, good intentions themselves, they are not sources of legitimacy, they are not free of power, they are not free of national interests."

But there is no international body that fairly incorporates all the countries that could potentially be affected, Bohacek and others emphasized — even in the United Nations. The U.N. General Assembly can't make binding decisions and gives each country the same voice regardless of their population or risk. The U.N. Security Council includes only 15 countries and can be swayed by the five permanent members with veto power, and the U.N. Committee on the Peaceful Uses of Outer Space only includes spacefaring countries.

Let's assume that conundrum was ironed out — perhaps, as Cordula Steinkogler of the University of Vienna suggested, by creating far in advance an internationally agreed-upon procedure for handling planetary defense decisions. Steinkogler is a member of a legal committee assembled by the Space Mission Planning Advisory Group, an inter-national group of experts focused on planetary defense.

The next challenge would be determining which country or countries will attempt the deflection, presumably from among the spacefaring nations at the time, whether or not those overlap at all with the countries at risk of impact. But because of the way legal regulations and international agreements are currently worded, presenters noted, those countries would have plenty of motivation to leave an asteroid alone.

Steinkogler noted that there are no legal obligations explicitly requiring any country to inform people about a hazardous asteroid or to take action about it. There are only

general statements about a country's obligation to protect human life within its borders, she added.

And there are clauses that may discourage a country from taking action against an as-teroid, even if it is predicted to crash within the same country's borders, David Koplow of Georgetown University Law Center, said during his presentation. In particular, the key risk here would come if the action not only failed to deflect the asteroid from hit-ting Earth, but moved the impact site into another country's territory. At that point, the country or countries behind the mission could have to pay the affected country for the asteroid's damage.

"If the harm occurs on the surface of the Earth … you are required to pay compensation, even if you have done nothing wrong, even if you've behaved according to the highest standards of technical capability," Koplow said. "Nonetheless, the concept is that space activities are hazardous or ultrahazardous, and therefore the harm should not fall on an innocent bystander if damage is inflicted on the surface of the Earth; the country responsible for doing that activity is liable, even if they've not behaved in any negligent or wrongful fashion."

But even if the world comes to an agreement here, too, there's one more knotty issue flagged by the legal and political experts. That comes from one of the tools that human-ity could use to deflect an asteroid, nuclear explosive devices. Steinkogler said that the committee she was part of concluded that language within the Outer Space Treaty, a key treaty that has governed space exploration for decades, bans all use of nuclear devices, even those that aren't intended as weapons.

Even just talking about nuclear devices as a potential technique for averting an asteroid has international consequences, according to the presenters, since it could convey the impression that nuclear devices are a critical resource to protect citizens. That could easily undermine the principles of non-proliferation, which presume that non-nuclear countries can trust their safety without such devices.

All three of these problems — as so many facets of other global-scale threats — are com-plicated because there is no global process that is independent of individual countries. "[When it comes to] deciding about global issues, we do not have much of a good track record, whether it's climate change, whether it's other problems," Bohacek said. "The main concept upon which the international system is based is state sovereignty, and that's a concept from the 17th century.

"I'm not sure how many concepts from the 17th century you are using for your work, but

making political decisions about planetary defense on this dinosaur form of decision-making might not be the best way to deal with that."

6.3.3 No Threat

No threat – asteroids pass by all the time, not big enough, don't strike near population centers.

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Rafi Letzter (writer @ Live Science since 2017, has a bachelor's degree in journalism from Northwestern University's Medill School of journalism; past science reporting at Inverse, Business Insider and Popular Science), "Don't Worry About the 'Great Pyramid-Sized' Asteroid Due to Zip Past the Earth Today", livescience, 7-24-2019, https://www.livescience.com/66012-dont-worry-about-medium-sized-asteroid.html

You might have seen a news alert that an asteroid the size of the Great Pyramid of Giza is going to zip past Earth today (July 24). It's true, but don't worry. If an asteroid were going to kill you, you probably wouldn't hear anything until it was about to knock you on the head.

The reality is that you almost never need to worry about an asteroid that you hear is headed toward Earth. This is mostly because big asteroids pass Earth all the time with-out incident — including asteroids significantly bigger than this one. These space rocks have to be very precisely aimed to hit our little planet. And even if they do make it into our atmosphere, most aren't big enough to cause significant destruction. And of the very rare ones that theoretically are, most don't come near population centers.

There's another reason not to worry: If you're hearing about an asteroid in the news be-fore it approaches, that means NASA has already spotted it and has precisely tracked its path through space. The near-Earth objects (NEOs) that NASA spots and tracks like this aren't the concern; the space agency's Planetary Defense Coordination Office (PDCO) keeps an eye on them and predicts years in advance just how near-Earth they're going to get.

The real (though small) danger comes from the large volume of small to mid-sized aster-oids that fly under NASA's radar and might in theory drop out of the sky at any minute — though such an event is very, very unlikely — and even more unlikely to threaten your life.