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# SILVER BULLET BRIEFS

MARCH 2021

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



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# WHY SBB?

As debaters and coaches, we have always hunted for the “silver bullet” that will slay our debate monsters: the perfect meta-analysis, the unbeatable narrative, or the argument that is so inherently true that there is no response. We learned that the elusive silver bullet was as much a myth as the monsters that it was designed to slay, but the aspiration of finding it pushed us to gain a deeper understanding of every topic. Thus, we created Silver Bullet Briefs with two goals in mind:

First, debate provides an invaluable opportunity to learn, and we hope to advance that opportunity. Debate teaches competitors not only to research and prepare, but to think on their feet and consider solutions to real-world problems. It teaches young people the significance of viewpoint diversity and gives them an awareness of real-world issues. Most importantly, it leaves competitors with the power and confidence to advocate for themselves – to argue for the things in which they believe. Silver Bullet is an extension of debate. We believe that true success does not come from the evidence that a debater reads. Instead, it stems from the knowledge that a debater can reap from that evidence, and the story that they can tell using it. SBB is not meant to provide an endless stream of redundant evidence, but to give debaters a deeper understanding of each topic and the real-world issue behind it.

Second, we hope to level the playing field. Debate is an unequal activity. Gender minorities are less likely to win rounds and participate in the activity in the first place. The same is true for black and Hispanic debaters, as racial stereotypes and implicit biases limit their success. The structure of the activity has also made debate increasingly inaccessible. Tournament entry fees, travel and hotel expenses, private coaches, summer camps, and even tournament attire are only available to those with the means to afford them. While the advent of online competition has alleviated some of these problems, it has created others. Competition now requires stable internet connection and access to a personal computer. All of these factors have made debate inaccessible for many.

Doing our part: We created Silver Bullet Briefs as a way to increase accessibility to debate. Therefore, while SBB intends to sell debate briefs to those who can afford them, we will provide our briefs at a reduced cost to those who cannot, **AND** we will donate **100%** of the profits from the sale of these briefs to organizations that increase equity and access within the debate community, such as the National Association of Urban Debate Leagues.

**Let's make a difference together.**

# ABOUT US

**Maggie Mills** competed in Public Forum debate for Chagrin Falls High School for all four years of high school. Maggie served as President and Vice President of Chagrin Falls High School's Speech and Debate team. Throughout her four-year career, she and her partner, Sasha, qualified for the Ohio state speech and debate tournament four times and for the Tournament of Champions three times. During her senior year, Maggie and Sasha won the Ohio state tournament without dropping a ballot. In June, the team won the 2020 NSDA national championship. Maggie plans to study Economics and Political Science as a member of the University of Chicago's class of 2024.

**Sasha Haines** competed in Public Forum Debate for Chagrin Falls High School for four years and was a co-captain of the team during her junior and senior year. Sasha often competed nationally, reaching elimination rounds at numerous national tournaments including the Sunvitational, the Season Opener at UK, UPenn, and Stanford. Throughout her career, Sasha qualified three times to the Gold division of the Tournament of Champions, was the Ohio State Champion and won the 2020 NSDA Nationals. Sasha plans to study Public Affairs and Philosophy, Politics, and Economics at The Ohio State University.

**Albi Manfredi** did Public Forum Debate for five years at Lake Mary Prep in Orlando, Florida. Throughout his time as a competitor, he amassed a total of 17 bids to the Tournament of Champions, semi-finaled at the Yale Invitational and the Tournament of Champions, was the Florida State Runner-Up, and championed the Blue Key Round Robin, the Crestian Tradition, and the Sunvitational. Individually, he achieved top speaker at the Blake Tournament, Emory's Barkley Forum, and Florida States. He finished his career placing 5th at NSDA Nationals. As a first year out, Albi has been a successful coach, most recently helping Sasha and Maggie win the prestigious NSDA national tournament. Albi is a sophomore at the University of Pennsylvania studying Chemical and Biomolecular Engineering and Legal Studies.

**Ana Kevorkian** competed in Public Forum debate for Chagrin Falls High School for 3 years. During her senior year, she served as Secretary of the school's Speech and Debate team, handling tournament registration and results reporting. She also founded the Ohio chapter of Beyond Resolved and served as the organization's first Director of Research and the Director of the Clothing Drive Initiative. In high school, she was a National Merit Scholar, National AP Scholar, AP Capstone Diploma recipient, and graduated Cum Laude. Ana spent the fall organizing on a Senate campaign and is currently on a gap year.

**Richard Haber** has been the Coach of Public Forum Debate at Chagrin Falls High School for 8 seasons. He first became involved as a debate coach when his daughter Victoria began competing as a freshman in High School. Leveraging his 30 years as a trial lawyer, he continued to coach even after Victoria graduated because he believed in the value of the activity. As an accomplished trial lawyer, Richard has been honored as an Ohio Super Lawyer® from 2004 to the present; as one of the top 100 lawyers in the state of Ohio from 2010 to 2017; and has been named from 2010 to the present in The Best Lawyers in America® published by Best Lawyers in conjunction with U.S. News Media Group. As a debate coach, Richard has coached two teams to state championships in the last 3 years; qualified three teams to NSDA Nationals, coached teams to four Tournament of Championship qualifications in the last three years and along with Albi Manfredi coached Maggie and Sasha to the 2020 National Speech and Debate Association Public Forum Championship. Richard is a devout advocate of traditional public forum debate and helped found Silver Bullet Briefs to promote this style of debate.

# TOPIC ANALYSIS

## History and Context

The idea of fighting a war in space may seem like science fiction, but since the beginning of the Space Race, the ties between military power and space exploration have been strong. Back in the 1950s, the U.S. and the Soviet Union were locked in the Cold War, with both countries vying for political, economic, and military hegemony. In 1957, Russia launched Sputnik, the world's first artificial satellite, and sent the U.S. government into a frenzy. While Sputnik was a great achievement in the realm of science, Americans worried that Russia would use space to wage war and that satellites would become the new vehicles of nuclear warheads<sup>1</sup>. In 1958, the U.S. launched its own satellite, Explorer I, and celebrated the creation of the National Aeronautics and Space Administration (NASA). The Space Race escalated when Russia became the first country to put a man into orbit, and President John F. Kennedy vowed that by the end of the decade, the U.S. would put a man on the moon. In the early 1960s, NASA's budget increased almost 500%, but the expenses paid off in 1969 when Neil Armstrong became the first man to step foot on the moon.

Throughout the Space Race, military officials and the Department of Defense consistently sought to test the usefulness of space in the realm of war<sup>2</sup>. Most of these operations focused on satellite technology, but the possibility of launching missiles from space or putting soldiers in orbit was never dismissed. In the 1970s, a major military breakthrough occurred with the development of the Global Positioning System, or GPS, which gave American soldiers a significant advantage against adversaries in the 1991 Gulf War<sup>2</sup>. Reconnaissance, missile tracking, nuclear detonation detection, and many other military operations improved dramatically with the advent of satellite technology.

While space provided significant advancements in military technology, soon after the end of the Space Race, NASA's funding dropped substantially. Since then, interest in the space program has waned. At least, that is, until private investors began to start their own private space companies. While private space companies have been around since the 1980s, they have picked up steam over the course of the last decade or so with companies like Virgin Galactic and SpaceX investing billions of dollars in new

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<sup>1</sup> "The Space Race." *The History Channel*. 21 February 2020. <https://www.history.com/topics/cold-war/space-race>

<sup>2</sup> "Military Involvement in the Space Program." *Oxford University Press, Encyclopedia.com*. 7 February 2021. <https://www.encyclopedia.com/history/encyclopedias-almanacs-transcripts-and-maps/space-program-military-involvement>



technology. As private companies, satellites, and space technology began to proliferate, military leaders around the globe once again started to reassess the military capabilities of space. In 2019, former President Donald Trump signed a \$738 billion defense spending bill and created the U.S. Space Force (USSF), the first time since 1945 that the U.S. has introduced a new branch of the military. During the signing ceremony, President Trump said, “Space is the world's newest war-fighting domain. Amid grave threats to our national security, American superiority in space is absolutely vital.”<sup>3</sup> Almost instantly, the USSF became the butt of countless jokes and late-night television roasts. (For example, the USSF logo bears an uncanny resemblance to the insignia of Star Trek’s Starfleet Command.) However, military officials were quick to condemn humorous denouncements of the program, citing very legitimate concerns over whether or not the creation of a space force would spur proliferation or was happening at too quick a pace. Through the program is associated with the Trump Administration, the Biden Administration has thus far announced no plans to disband the space force<sup>4</sup>. Through a combination of government programs and partnerships with private companies, the USSF will continue to invest in the militarization of space.

## Analysis of the Resolution

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

The first important portion in this month’s resolution is the use of “On balance.” Debaters who debated the urbanization topic most likely have a better grasp of the significance of this phrase in the context of a debate round. On balance resolutions directly ask debaters to use a cost-benefit analysis when comparing arguments. The resolution itself concedes that the topic, in this case the Space Force, produces both positive and negative outcomes. It is the debater’s job to not only explain the pros or cons of a resolution, but to convince the judge that the benefits outweigh the costs, or vice versa. This means weighing, specifically impact calculus and comparison between warrants and impacts. It is important to remember the Space Force has already been created, so no policy change will occur in either worlds of the resolution. Thus, debaters

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<sup>3</sup> Kennedy, Merrit. “Trump Created The Space Force. Here's What It Will Actually Do.” *NPR*. 21 December 2019. <https://www.npr.org/2019/12/21/790492010/trump-created-the-space-force-heres-what-it-will-do>

<sup>4</sup> Insinna, Valerie. “With Biden’s ‘full support,’ the Space Force is officially here to stay.” *Defense News*. 3 February 2021. <https://www.defensenews.com/space/2021/02/03/with-the-full-support-of-the-biden-administration-the-space-force-is-officially-here-to-stay/>

should focus on the implications of the Space Force in the past, but also predict what might occur as a result of further implementation.

The second focal point of the resolution is the United States Space Force. The branch, created in 2019, has equal standing to other portions of the military such as the Air Force or Army. Led by a four-star general, the Space Force will control military endeavors in space. As many as 1,000 enlisted personnel and 130 officers currently in Air Force cyber security jobs will be asked to join the U.S. Space Force. The cyber experts will join more than 2,400 space professionals who are in the process of transferring to the Space Force. Concerns have been raised over the readiness and experience of the Force. Unlike other branches of the military, such as the Navy or Air Force, the Space Force lacks the mass amounts of personal, battle experience, coherent doctrine, and structure other branches possessed at their inception.

## Why are we debating this resolution now?

Effectively since World War II, the US has attempted to militarize space, and there have been lingering debates over how our military space operations ought to be organized ever since<sup>5</sup>. However, the idea of creating a fifth branch of the military, a Space Force, was largely a fringe idea until then-candidate Donald Trump proposed it as part of his 2016 presidential run. When President Trump took office, he made the creation of a Space Force a critical piece of his goal to supposedly reinstate the US as a military superpower. On December 20, 2019, President Trump signed the United States Space Force Act into law, and the US Space Force officially became the world's only independent space force<sup>6</sup>.

While the global pandemic would seem the more present topic to discuss, space advancements are by nature much more long-term projects. That being said, debaters will certainly attempt to place this topic in the midst of our current context and could draw connections between space and satellite technology and contact tracing to better our pandemic response.

With the results of the 2020 election ushering in a new administration promising to, in large part, undo the legacy of the Trump administration, many wonder if President Biden will leave the Space Force in place, despite its high level of politicization. At the time of writing, the Biden administration claims to be in “full support” of the Space Force but Press Secretary Jen Psaki recently came under fire for

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<sup>5</sup> Hollingham, Richard. “The Nazi rocket that launched the space age.” *BBC*. 7 September 2014.  
<https://www.bbc.com/future/article/20140905-the-nazis-space-age-rocket>

<sup>6</sup> Robitzki, Dan. “The US may soon have the world's first Space Force.” *Futurism*. 18 June 2018.  
<https://futurism.com/trump-announces-space-force>

appearing to mock the branch's legitimacy<sup>78</sup>. These mixed signals make it clear that the Space Force's survivability is definitely up for debate and discussion.

## Argument Rundown

At the core of this topic is a discussion of United States' militarism and whether or not its expansion into unknown frontiers will, on balance, bring more harm than good. Pro teams will need to create a sense of urgency, something that is difficult to justify when the world is faced with more current, pressing problems. Most of these threat constructions will revolve around an imminent Chinese, Russia, Iranian, or North Korean threat. Most complex is the threat China poses. They are already on track to oust the United States as the global economic superpower and have made huge strides in anti-satellite and other space technology. Giving China a military edge could spell disaster for US hegemonic military interests. In addition to challenging our adversaries, developing space technology could give the United States an upper hand in other forms of conflict as radar, satellite, and long-range weapons are improved upon.

Con teams take an opposite approach to United States militarism, arguing that the peaceful exploration of space in the status quo is preferable to escalating and militarizing space. If the US were to take unnecessary military strides, other countries could retaliate, grinding relations in space to a halt and increasing tensions that risk arms races and, at worst, armed conflict. While we are nowhere near the catastrophic space battles from Star Trek, anti-satellite, long-range ballistic missiles, and other technologies exist that can ensure conflict in space has a ripple effect that has severe consequences on the ground.

The other central question to this debate deals with space exploration and scientific advancement. Pro teams will be quick to point out the space race with the Soviet Union in the 1960s and 1970s produced some of the greatest scientific feats known to man. Those incentives for competition create an urgent need for technology, and without that impetus and more importantly funding, the scientific community would not have the same technology it enjoys today. Furthermore, if Russia or China win in militarizing space first, they would have primary control to accessing research and technology. If and when conflict occurs, the "western world" could be completely shut out to space developments.

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<sup>7</sup> Insinna, Valerie. "With Biden's 'full support,' the Space Force is officially here to stay." *Defense News*. 4 February 2021. <https://www.defensenews.com/space/2021/02/03/with-the-full-support-of-the-biden-administration-the-space-force-is-officially-here-to-stay/>

<sup>8</sup> Rupar, Aaron. "Jen Psaki's Space Force comment and the ensuing controversy, explained." *Vox*. 5 February 2021. <https://www.vox.com/2021/2/5/22268047/jen-psaki-space-force>

Con teams push back against this and advocate for a joint, global effort to tackle outer space. Peaceful expansion enables global collaboration, improved diplomacy, and lower-risk access to technological advancement. If the US rejects a multilateral approach to space exploration, Russia and China would shut them out and cease cooperation. This is particularly worrisome when it comes to accessing the International Space Station or other technologies that were previously designed for collaboration.

Furthermore, effort to militarize space comes at the cost of investing in other NASA research programs. All resources are diverted towards who can make the most powerful weapon, rather than to seek an understanding of the universe or lay the foundation for privatized space exploration. Overall, most of these arguments will come down to the incentive structures for different actors and the strategic military calculus they will make when deciding whether to escalate or collaborate in space, “The Final Frontier”.

# PRO ARGUMENTS

# ECONOMY AND JOBS

## What's the argument?

Some proponents of a Space Force argue that, in addition to its purported defense benefits, it can stimulate the economy through job creation as well as facilitating public-private partnerships and granting defense contracts, a trend common throughout the entire military. Already, we've seen the Space Force partner with small businesses in order to identify innovative solutions to the problems the Force faces ("Space Force... First Pitch Day"). This stimulation of small businesses is critical as it widens the field of solutions, developing a symbiotic relationship as the Space Force receives better input and the businesses stand to benefit financially.

Beyond just small businesses, larger military contractors see a huge opportunity for profit in the creation of a Space Force. Specifically, "Lockheed Martin, Northrop Grumman and Harris Corporation may be particularly well-positioned to benefit from Trump's Space Force" (Gregg and Davenport). In just the state of Massachusetts, experts argue that "tech companies and defense contractors... stand to make millions – if not billions – in new contracts". Additionally, in the long run, the Space Force develops STEM talent and investment, setting communities up for long term economic prosperity (Enwemeka).

This benefit of a Space Force is bipartisan, as both Presidents Obama and Trump turned to the private sector to commercialize and militarize space. The Obama administration, for example, opened the door for private companies to resupply the Space Station. The Trump administration furthered this initiative by directing "the U.S. government to be even more open to commercial space opportunities" (Cheng).

## Why does the argument matter?

Private sector innovation, across a variety of contexts, is critical to developing better and more efficient solutions. In fact, the private sector is often integral in "making something cheaper, faster, more flexible" (Cheng). Most impactful innovation, historically, has come from the private sector, and we can expect no different in space. Experts say that "the surging commercial space industry views a Space Force as a much needed nexus between the military and the business community... [and] 'we as a nation will benefit from that innovation'" (Erwin).

## Main Players

Military contractors, private sector researchers, small businesses

## Strategy Considerations

This argument is strategic in the sense that it allows teams to circumvent the expected clash on this topic: whether or not military dominance in space is important. By ignoring the primary purpose of a Space Force and discussing a tangential benefit, teams may be able to take their opponents off guard as well as set themselves up as the clearest path to the ballot. However, this argument essentially requires teams to argue in favor of the military-industrial complex and could face a strong rebuttal which draws parallels to traditional warfare and the profit made off of forever wars in the Middle East in order to outweigh the argument on magnitude. Thus, teams must be extremely thoughtful in how they construct their argument.

# Evidence for Economy and Jobs

## The Space Force partners with small businesses

“Space Force asks for the help of small businesses in first pitch day.” *SciTec*. 26 February 2020. <https://scitec.com/space-force-asks-for-the-help-of-small-businesses-in-first-pitch-day/>

The newest branch of the armed forces is opening its doors to contractors and small businesses since its founding in December of 2019. They were quick to the get-go for the acquisition of new and emerging technologies, specifically in the areas of “weather, business systems and information technology that facilitate spacelift mission success.” The first Space Force Pitch Day will be March 4th. This event will be the first chance for defense and information technology contractors to get a feel for the newly launched branch and leave directly with a contract and necessary funds. This initial pitch day emulates the Air Force’s Small Business Innovation Program. The SBIP held \$40 million in contracts for innovative technologies for secure communications, down-range battlefield operations, and digital technologies. The Air Force, the parent branch of Space Force, recognized the potential in innovation that small businesses – those with less than 500 employees – could deliver with the backing of the U.S. government. For small defense contractors, this expansion brings mass opportunities for projects put on the backburner or dynamic concepts in need of funding. According to the Contracting Opportunities brief, “The Space Force intends to obtain ‘innovative’ solutions or potential new capabilities that fulfill requirements, close capability gaps or provide potential technology advancements.” During their initial lunch, Space Force is focused on seemingly simple installation and housekeeping issues, but are just as important to ensuring readiness and the success of operations. In regards to installation problem areas, asks of contractors include quality control, human resources, communications, civil engineering, transportation, environmental, business systems and information technology. SciTec is looking forward to contributing to the innovative advancements in the Department of Defense. We expect that Space Force is going to come out with another broader set of topics and focuses once the newest branch of government gains more traction and defined direction.

## Several companies stand to profit from the creation of a Space Force

Gregg, Aaron and Christian Davenport. “Here are the companies that could profit from Trump’s Space Force.” *Washington Post*. 14 August 2018.

<https://www.washingtonpost.com/business/2018/08/14/here-are-companies-that-could-profit-trumps-space-force/>

The cosmic rhetoric of a Space Force seeking “American dominance in space,” as President Trump puts it, conjures images of stormtroopers, laser guns and X-wing fighters – technology straight out of science fiction. But the Pentagon is already working on technology designed to fight a war in space: rockets that could launch daily; missiles that would fly at five miles per second; satellites the size of shoe boxes; and robots that could repair them in orbit. Such efforts already amount to billions of dollars in government spending each year, much of it shrouded under classified military programs. And as the White House pledges to push for a Space Force as a sixth military branch and the first new service since the Air Force was created in 1947, a group of government contractors sees a chance to profit. Byron Callan, a prominent defense stock analyst with Capital Alpha Partners, said Lockheed Martin, Northrop Grumman and Harris Corporation may be particularly well-positioned to benefit from Trump’s Space Force. The new service could line their pockets for years to come, assuming Congress embraces the idea. “Because [the Space Force] will be a smaller service with fewer resources, it may be more dependent on industry for technical advice and policy input,” said Loren Thompson, a consultant with the nonprofit Lexington Institute, which receives funding from defense contractors. It “would likely be more of a creature of industry than if the Air Force were kept intact.” Throughout the history of human space travel, NASA has tended to get most of the glory. But the Defense Department has been focused on the stars since before Sputnik caused a national panic in 1957 – and led to what is now known as the Defense Advanced Research Projects Agency, or DARPA, the Pentagon’s research arm. Today, DARPA is working on a few



programs that could ultimately fit under the mantle of a Space Force. Last year, it selected Boeing for its "Experimental Spaceplane," or XS-1, program, which is meant to develop a spaceplane capable of flying 10 times in 10 days.

## Massachusetts businesses could make millions through a Space Force

Enwemeka, Zeninjon. "What a Space Force could mean for Greater Boston." *WBUR*. 19 October 2018. <https://www.wbur.org/bostonomix/2018/10/19/space-force-massachusetts-impact>

Space is big business for companies in Massachusetts, though they tend to be tight-lipped about it. But some acknowledge that a space force could be really good for business. Aerospace giant Boeing, which is establishing a major research center in Kendall Square, sees Space Force as an opportunity. The company's CEO Dennis Muilenburg discussed it on a recent earnings call. "I'm very encouraged about the U.S. government leaning forward and investing in space," he said. "It's good for business. It creates growth opportunities for us. It's also a great way to develop STEM talent for the future." Other companies say a space force may not change much. In a statement, Waltham-based Raytheon said its space business "will continue to thrive no matter how the services are structured." The sentiment is similar over at Draper, the Cambridge company that worked on guidance systems for the Apollo moon missions. "It wouldn't be that much different from our perspective, because we still protect the assets in space, we help them navigate places, we help communications. That would not change for us. There's still a growth," said Jennifer Jensen, the vice president of national security and space at Draper. "We're just as interested in, as everybody else is, how are they going to organize." While efforts are underway to create the Space Force, it needs approval of Congress to become a new branch of the military. Legislation to establish that Space Force branch is expected to be included in the Pentagon's budget proposal next year. Jensen said companies like Draper will be watching. "Until money is moved into the Space Force and they actually put out for contracts, then it really doesn't impact this side of it," Jensen said. If the Space Force branch is established, tech companies and defense contractors in Massachusetts stand to make millions — if not billions — in new contracts.

## Obama and Trump administrations have turned to the private sector to commercialize space

Cheng, Dean. "Does the United States need a Space Force?" *The Heritage Foundation*. 2020. <https://www.heritage.org/space-policy/heritage-explains/does-the-united-states-need-space-force>

Cheng: Well one of the things that the Obama administration opened the door to was the use of private companies to do things like resupply the Space Station. And Space X for example, probably the most well known, really got its start when the previous administration opened that door. The Trump administration with space directives one, two, and three has now basically directed the U.S. government to be even more open to commercial space opportunities. And I think that when you look at where innovation tends to come from, where more efficient use of resources tends to come from, tends to come from the private sector. There are certain things, building things like the Hubble, the James Webb Space Telescope probably can only be done by the government. Basic research, there's not much of a profit there, and it's a long term investment. But when it comes to commercializing something, to making something cheaper, faster, more flexible, that's the private sector. And one of the things that the administration has done now is it has tried to neck-down and streamline the bureaucracy because that's been one of the great obstacles to allowing the commercial sector to really flower with regards to space. And I'm fairly hopeful that we are going to see the Commerce Department, and the Transportation Department really sort of get on top of how do we create a real one-stop shop. If you want to put a satellite up, if you want to do space tourism, go here, fill out these forms, check these boxes, and hey welcome to virgin galactic.

## Space Force will encourage private sector innovation

Erwin, Sandra. "Why a Space Force could be good for business." *SpaceNews*. 29 April 2019.

<https://spacenews.com/why-a-space-force-could-be-good-for-business/>

In the contentious Space Force debate, many of the questions have been about its cost and whether a separate military branch would do a better job than the Air Force at defending satellites and preparing for a future conflict in space. But not much has been said about what a

Space Force could mean for business. Carissa Bryce Christensen, CEO of Bryce Space and Technology, said **the surging commercial space industry views a Space Force as a much needed nexus between the military and the business community**.

"There is the potential benefit of being able to build a more integrated national and even international space community around military and intelligence space needs," Christensen said on Monday at the Future of War conference hosted by New America and Arizona State University. "We're seeing billions of dollars of new money in commercial space driving innovations in small satellites and launch vehicles," she said. "That community is not well connected to the military and the intelligence community." If a Space Force can help bridge that gap, **we as a nation will benefit from that innovation**," Christensen said. "A Space Force could provide a focal point for building those relationships."

# RESEARCH AND DEVELOPMENT

## What's the argument?

This argument relies on the concept that the Space Force will drive innovation and research and development in the field of space exploration. The USSF can have civilian spillover, meaning that ties between the private sector, the USSF, and NASA will cause greater communication between industries and will allow for better innovation overall (Farley). Militarizing space also creates incentives for innovation (Klein). Peacetime innovation allows servicemembers “to advocate for those necessary resources that enable success” (Klein). Another way in which the USSF can drive innovation is through private sector partnerships. According to Erwin, the USSF will rely on partnerships with companies like SpaceX and Virgin Galactic to produce new technologies and get them off the ground (literally). Because private companies have more resources to focus on key areas of interest, federal grants to companies or contracts with companies can lead to much more efficient and effective outcomes. This approach can “keep the pipeline full” with new technology (Erwin).

## Why does the argument matter?

This argument is important because it deals with the most vital part of the Space Force's operations: innovation. Without innovative ideas and models, the USSF will fail to compete with the rapidly developing space forces of adversaries like Russia. Already, USSF partnerships have already produced positive outcomes. The SpaceX Dragon capsule recently made it to orbit in a partnership that saved NASA billions of dollars (Erwin). The SSPIDR satellite has had promising results regarding U.S. solar energy innovation and communication technology (Erwin). In essence, innovation and private companies make sure that the USSF is spending its money effectively.

## Main Players

Private space companies, the USSF, other countries' space forces

## Strategy Considerations

This argument is effective because it provides good clash with the common con argument of “privatization of space bad.” Because this argument outlines reasons why private partnerships are beneficial to the USSF and the country, it can effectively undermine any reasoning as to why private companies are bad for space travel. If teams are interested in running this argument, they should be prepared to weigh their argument of better innovation over their opponents’ argument of “private companies bad.”

# Evidence for Research and Development

## Space Force civilian spillover can lead to innovation

Farley, Robert. "Space Force: Ahead of its time, or dreadfully premature?" *Cato Institute*. 1 December 2020. <https://www.cato.org/publications/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

One of the most exciting implications of the Space Force's creation involves its relationship to civilian space agencies and private space firms. For its part, the Space Force maintains that its existence is necessary to enable and protect the civilian exploitation of space, both in terms of economic development and scientific exploration.<sup>57</sup> At the same time, the Space Force can draw on the experience of civilian-government and private-sector space organizations. For example, NASA's experience is considerably valuable with respect to maintaining the health of personnel stationed in space.<sup>58</sup> The integration of NASA's wealth of tacit and explicit knowledge about space flight will be one of the Space Force's most important challenges. **At the same time, Space Force research regarding space will potentially have beneficial civilian spillovers.**

The ties between NASA and the military agencies managing space are extensive and cross-cutting, including personnel, technology, and various communications platforms. The establishment of the Space Force is not expected to have any direct impact on NASA, although second-order effects associated with the militarization of space may have some effect on how the agency handles its responsibilities.<sup>59</sup> The Space Force could also draw funding and expertise from NASA if it takes responsibility for any dual-hat civilian-military missions. Some space infrastructure could also contribute to both the Space Force and NASA missions.<sup>60</sup> Undoubtedly, a tighter relationship between NASA and the Space Force carries some dangers, as existing civilian missions could become targets for enemy action if they are too closely associated with the Space Force. Pressure from the Space Force could also compromise elements of NASA's scientific mission by prioritizing military goals. Part of the point of the Space Force is to create pathways for personnel to develop expertise in space issues, making it particularly appropriate for facilitating outreach to the civilian space sector. Several analysts have suggested the potential for significant gains from the development of a Space National Guard or a Space Reserve.<sup>61</sup> **Part-time service members in a Space Force guard or reserve could bring the know-how developed in the military to the civilian world and could bring civilian innovations into their military organizations.** They could also assess the needs and capabilities on either side of the divide and figure out how to meet those needs. We do not yet know whether the Space Force will have a guard or reserve component. The Department of Defense and the 50 states maintain Army and Air National Guard formations. In a few states (Colorado, for example) members of the National Guard participate in space-oriented activities.<sup>62</sup> Given the extent to which space activities cross over with the civilian space-maintenance infrastructure, the idea of taking advantage of civilian expertise through some form of guard or reserve component makes a great deal of sense.

## Militarizing space creates incentives for important long-term innovation

Klein, John J. "The Creation of a US Space Force: It's Only the End of the Beginning." *War on the Rocks*. 2 January 2020. <https://warontherocks.com/2020/01/the-creation-of-a-u-s-space-force-its-only-the-end-of-the-beginning/>

**Through the creation of a Space Force and its eventual unique service culture, Space Force professionals will unleash innovation.** Stephen Rosen notes that military innovation and change is best done during peacetime, **and peacetime innovation is a process that has successfully built U.S. military capabilities. Space Force innovation will include optimizing for effective and efficient operations and developing distinctive thinking.** First, space-minded service members will be able to focus on the employment of military means in, from, or through space. **This will lead to a better understanding of the most effective and efficient methods to protect national security interests in space. Both the Air Force and Marine Corps provide aircraft supporting air domain operations, but each**

service has discerned differently how to employ its available capabilities in the best manner possible, given dissimilar mission requirements. Likewise, Space Force servicemembers will develop improved architectures and doctrine for conducting effective and efficient space operations. These servicemembers will learn to advocate for those necessary resources that enable success during a conflict initiated in or extending into space. Through this advocacy, improved space capabilities and services can be developed, procured, and optimized. Second, a Space Force will eventually develop distinctive thinking from combat experience. Thucydides observed that “war is a violent teacher.” A U.S. Space Force will learn important lessons from successes and failures during conflicts initiated in or extending into space. Warfare can be unforgiving in the errors of strategy, operational art, and organizational constructs. From combat experience, Space Force professionals will eventually develop novel ways of thinking, including new frameworks for considering strategic space theory. Although it is unforeseeable how Space Force culture will eventually evolve, experience from the other services suggests that this culture will be foundational for understanding of how space operations fit within the larger joint warfighting construct.

## *Space Force provides funding for private-sector innovation*

### Space Force is working to finance private sector innovation

Erwin, Sandra. “Space Force buyers make recruiting pitch to tech companies.” *Space News*. <https://spacenews.com/space-force-buyers-make-recruiting-pitch-to-tech-companies/>

The Pentagon contracting process can be a major deterrent to tech companies interested in selling products to the military. The U.S. Space Force is aware of that problem and is trying to incentivize suppliers that are developing cutting-edge technologies, officials said Sept. 29 during a virtual conference organized by the U.S. Air Force. “The space renaissance happening on the commercial side is fantastic, there is innovation we can use,” Col. Eric Felt, director of the Air Force Research Laboratory Space Vehicles Directorate said at the AFWERX “EngageSpace” event. AFWERX, an Air Force program created to attract commercial companies to the defense market, picked 172 space companies from more than 800 that competed for the opportunity to connect virtually with potential government buyers over the two-day conference. The AFRL Space Vehicles Directorate is looking for companies with which to partner, Felt said. “We have limited funding in our budget for science and technology .. We have to leverage dual-use technologies.” The Space Vehicles Directorate serves as the research and development arm of the U.S. Space Force. Felt said companies can apply for CRADA’s – cooperative research and development agreements – that give them access to government facilities and mentoring in exchange for sharing their technology with AFRL. “We have test facilities, experts, capabilities we can provide if you want to bring your technology,” he said. “We can do testing and evaluation, and give you advice on how to mature your technology.” CRADAs have been signed with companies that develop solar panels for satellites, for example, and data analytics firms that are working with AFRL develop a hybrid architecture of remote sensing imagery. “The government is super slow,” said Felt. But he noted there are benefits to being involved with AFRL and with the Space Force’s Space and Missile Systems Center because these are the organizations that set standards for the space systems that DoD will buy. “We lead effort to establish interoperability standards, to accelerate commoditization,” said Felt. Most recently, AFRL and SMC developed technical standards for optical communications equipment to be used to connect satellites in space. “We don’t want everybody having their own standards,” said Felt. AFRL also created a repository of space data collected by companies that operate their own sensors. The “unified data library” is to help companies format their data so it’s compatible with government software applications. “Yes, the government has cumbersome contracting, and we’re getting after that,” said Felt. The Space Enterprise Consortium run by SMC moves contracts much faster than traditional programs, he said. The consortium awards contracts for prototypes and those companies selected to build prototypes have the inside track if SMC decides to buy it in quantities. “If you compete a prototype from SpEC you go straight to production without competing the prototype,” said Felt. An example is the AFRL-funded navigation satellite NTS-3. The satellite is an experiment but if SMC chooses to buy it can use the same contract to go

directly to production. Felt said companies find it difficult in the defense market to talk directly to customers and to the actual users of products. AFRL helps with the “customer discovery process,” he said. “We let companies interview customers to discover what they like and don’t like. We can provide access to the operators and program offices.” Col. Russell Teehan, SMC’s portfolio architect, said Space Force leaders are open to hearing ideas from companies on how their products and services could be acquired differently than the traditional methods. Space Force buyers may not know how to procure nontraditional technology, or may not have thought of a different way of providing a capability, said Teehan. “Companies have to tell us,” he said Teehan’s advice: “Don’t take the government literally. There may be a different concept of operations. You can help us transition to a different contract vehicle. You can get the Space Force to do things differently.”

## Space Force provides R&D funds for government projects, but also supports private sector innovators

Erwin, Sandra. “Planting the seeds of technology for the future Space Force.” *Space News*. 19 June 2020. <https://spacenews.com/planting-the-seeds-of-technology-for-the-future-space-force/>

The U.S. Space Force is small in size but big on technology. To stay ahead of rivals that are trying to compete with U.S. military might, the Space Force needs a research-and-development organization that brings a broad pipeline of ideas. That essentially is the role of the Air

Force Research Laboratory’s Space Vehicles Directorate, Col. Eric Felt explained during a June 4 SpaceNews webinar. The Space Vehicles Directorate, based at Kirtland Air Force Base, New Mexico, works to “keep the pipeline full” and mature the technologies that might be needed in the future. Felt compared his organization to a gardener who carefully selects, plants and cultivate seeds “so I’ve got the right stuff in the garden ready for harvesting when it needs to be.” Following are highlights of the wide-ranging discussion edited for clarity. The directorate is one of 23 organizations that Air Force Secretary Barbara Barrett designated to transfer to the Space Force. What that means is that about 700 billets and a certain portion of our dollars will move to the Space Force. But we will remain an AFRL unit so that we can still take advantage of all the synergies and the capabilities. We are one of 10 directorates within AFRL and we are the one that is focused on satellite technology. We have a long history of maturing the components of satellites and then demonstrating new capabilities on orbit with integrated flight experiments and then transitioning those into operational capabilities. There are a lot of technologies that are used in both the air domain and the space domain. So we’re going to have one AFRL perform science and technology functions for two services. We will have a part of AFRL that’s traceable to the Space Force and another part traceable to the Air Force. The Space Force is going to be the most high tech and the most dependent on technology of all of the services. We want to make sure we have a pipeline that’s developing the things that will be needed. Having that pipeline is an element of strategic deterrence all by itself. If you think about it, your enemy knows that whatever they do, you will be able to quickly respond because you have this robust science and technology pipeline. So that is a part of our mission every day that influences the strategic calculus of our adversaries in space. In early January, shortly after the Space Force was stood up, we met in Colorado Springs with the leaders and architects of the Space Force. The direction we got from the chief of space operations Gen. [John] Raymond was inspiring. He said, hey, you’ve got a blank sheet of paper. Everything you thought was wrong with the Air Force and not optimized for space, go fix it so we make our service the envy of all the other services. That was a really inspiring vision for us to dig in and figure out. In my lane in science and technology, I have to figure out how should this process work, how should I make sure I take the inputs from the current programs and how do I push technology into military capabilities. We want to make sure that we have robust processes to do that. We will be working with the Space and Missile Systems Center which is going to be the Space Systems Command. Last year we started a solar energy experiment we call “spider” (Space Solar Power Incremental Demonstrations and Research, or SSPIDR). It is our vision for beaming power from space. It’s essentially a demonstration on a very small scale for converting solar energy directly into RF [radio-frequency] energy. And then you could beam that wherever you need it. You could beam it to a forward operating base on the ground. You could send it to a moving ground vehicle or an unmanned aerial vehicle, or to another satellite. We call that power on demand. That could become a logistical infrastructure capability that we might be able to offer to our nation. So I put that in the category of the pipeline that could be really game changing in 10 years. It is a super exciting program. The SSPIDR program builds on some of the early Naval Research Laboratory work. We’ve discovered that while the idea has been around for a long time it wasn’t technically possible until recently. Now we actually see no insurmountable technical barriers to actually making this technology work. You’ve got the solar cells as mature as they need to be. We have the large structures in space. We are now at the point where they’re mature enough to go on to this next phase of the demo. We will put a 2-square-meter panel up in low Earth orbit and then begin to actually beam a



tiny bit of power to the ground to prove the basic technologies. In the future we want to mature power beaming so that it will be ready to be harvested. I was excited to see NASA launching astronauts on the SpaceX Crew Dragon vehicle. That's an example of public-private partnerships that saved NASA billions of dollars. We see that as a powerful model for the Defense Department. At AFRL we are doing public-private partnerships on a smaller scale. One area is in space domain awareness. AFRL, the Defense Innovation Unit and the Space and Missile Systems Center have been talking about setting up a "space commodities exchange" where products and services like space situational awareness data could be traded like commodities. It opens up the financial engine to optimize the price and the quality, where you establish certain quality standards for what you're going to need. Space domain awareness data might be a great example of the kinds of things that the Space Force could purchase through a space commodities exchange. Innovative partnerships is one thing that the government can do to help the industrial base. We were concerned and are still concerned about the impact of COVID-19 on the space industry especially for folks that rely on venture capital investment, and that's really 80% of the tech investment that's going on right now. So there's a big impact when venture capital dries up. OneWeb already went bankrupt. We've had a couple of other examples. Our nightmare scenario is that key space technologies will get bought at fire sale prices by foreign competitors. And that is a great concern to us. And so we don't want that to happen. Our future and our continued lead and innovation in this area depends on that robust commercial side of things. It requires a very proactive view. We have to ensure we are all working toward this end state where we can maintain a robust commercial space entrepreneurial culture in the U.S. That is the key to our continued success as a nation in space.

## Space Force is looking into many small companies for tech

Beames, Charles. "Where the Space Force finds innovation." *Forbes*.

<https://www.forbes.com/sites/charlesbeames/2019/08/16/where-the-space-force-finds-innovation/?sh=6fd74b454546>

During the opening panel of the symposium, two of the panelists from the Defense Department were quite unambiguous in their replies that both the Army and the Air Force are actively seeking to explore the possibilities in commercial space. Separately reported in

SpaceNews, Jim Pruneski, Army Space and Missile Defense Command space and strategic systems director, said, "We are very interested in working with industry to identify new innovative [space] applications." As Colonel Dennis Bythewood, the USAF's Program Executive Officer for Space Development said, it's now up to this next generation of smallsat companies to demonstrate to him which of their concepts have the technical chops and the pricing to merit consideration for true national security missions. Equally as interesting was the perspective of Jimi

Crawford, founder and CEO of Orbital Insight, a commercial space data and AI company. His insight to the audience is that the military's needs are remarkably similar to his current commercial customers from other economic sectors, including agriculture and investment banking. Evidently, another space rubicon has been crossed: there will never again be enough analysts to leverage the valuable tsunami of exponentially increasing data collected from space. His company and others are combining machine learning tech from e-commerce with space data to improve gains all across the private sector. This community of small satellites, next-generation launch systems and advanced analytics is starting to see the green shoots of a government renaissance. Not only has the Air Force established a fast yet disciplined acquisition approach to leveraging this commercial capability, it is already awarding real performance contracts instead of only



studies. The Space Enterprise Consortium or SpEC Program is demonstrating that the Air Force knows what it needs from this community and is eager to contract for it. In other sessions and private conversations throughout the week, senior executives from the U.S. government were routinely using a new term, hybrid space architectures, to describe large and small satellites constellations working together synergistically. The

rhetorical regularity of the expression implies an almost foregone conclusion to at least one aspect of future government resilient architectures. This generation of government leaders may finally accomplish something their predecessors could not—both leverage and support the commercial space community. Aside from associated cost savings, there was also significant discussion around the need for a strength in numbers approach to out-maneuver and endure against an imminent threat. Much like the special operations community maintains its agility by leveraging off the shelf technology in new and innovative ways, the military now needs tailored space capabilities fielded in a matter of a few months rather than several years, which is how long current strategic systems require. These recent public proclamations and the discrete contract actions of the Air Force and others indicate the national security need for these capabilities has shifted from nice to have to essential in a domain that has become contested militarily in only a few years. Along with the political deliberations regarding a separate Space Force, the last twenty years have seen an internal government debate about the proper role it must take in addressing, leveraging and promoting the commercial space industry. The official National Space Policy is periodically updated and Presidential Policy Directives are occasionally issued, most famously NSPD-27 which provides direction to all branches of the federal government. For the most part, however, the government and the commercial industries have operated side by side, rarely having much to do with one another outside regulatory matters. Both sides of the space economy now see the necessity and are ready to engage again in a more fulsome discussion. Government policy must be readdressed at all levels from acquisitions to export control because it will have profound implications for the direction a Space Force takes in defending America and its ally's interests. Done with the necessary forethought, the entire U.S. space industry will emerge strengthened and competitive for the future. If the government misses the mark this time, it may be eclipsed by an international industry that is growing exponentially every year and leaving the American industry, its progenitors, in its wake

# USSF HELPS NASA

## What's the argument?

For decades, NASA has been at the forefront of US space operations. However, especially in recent years, NASA has begun to flounder. In fact, many experts feel the Biden administration will spell disaster for NASA, as Biden did not make space a priority during his campaign (Kluger). However, a Space Force could be the boost NASA needs to continue its relevance, as the USSF and NASA have committed to collaborate across common objectives ("NASA, US Space Force... Collaboration").

This partnership is critical as it could create norms of peace in space. In fact, the last NASA administrator, Jim Bridenstine, indicated that, despite having vastly different goals, the two institutions had "a lot of synergies, a lot of overlap" and that their collaboration could serve as a "tool of diplomacy for the nation" (Gohd). To elaborate, the collaboration between NASA and the USSF aims to use soft power to make space safer for everyone. With the USSF's help, NASA is able to further programs such as Artemis, which aims to return astronauts to the moon, which can be used as a tool of diplomacy (Scoles). The US government is much quicker to fund military operations than it is long-term research projects, so the Space Force collaboration with NASA could also make up the lack of funding and bureaucratic support that NASA so desperately needs.

In summary, despite the different objectives of NASA and USSF, both institutions have a vested interest in making space safe and stable, and minimizing things such as space debris. The partnership seeks to establish norms of behavior in the space domain and furthering partnerships with our allies (Schradin).

## Why does the argument matter?

Establishing and maintaining positive norms in the space domain is a critical objective for anyone seeking to keep space safe for two main reasons. First, space debris is already becoming a major problem. Since the Sputnik launch in 1957, the amount of space debris has been accumulating, leading to the number of useless, discarded satellites vastly outpacing the operational objects in orbit. While some steps have been taken to address this issue, they are not "keeping up with the sheer scale of space junk" (Starr). This is deeply problematic as space debris can interfere with the effective use of newer satellites, leading the head of the European Space Agency's

Space Debris Office to say space debris mitigation guidelines are “essential for the sustainable use of space” (Starr).

Even more terminally, the lack of guidelines regarding space conduct makes the environment ripe for war. Despite many more countries developing their space programs and beginning to toy with the militarization of space, guidelines and regulations have remained stagnant over the years (Skibba).

## Main Players

NASA, USSF, diplomats

## Strategy Considerations

This argument is incredibly strategic as it has very high magnitude impacts of ensuring global stability and the long-term viability of space. Additionally, there is a plethora of evidence indicating that the USSF and NASA intend to partner on furthering norms in space. For that reason, teams will be able to easily weigh their impacts at the end of the round.

The biggest weakness of this argument is that it relies heavily on the words of USSF and NASA officials, rather than precedent or empirical evidence (this is a problem throughout this topic, but I digress). Thus, it is difficult to say with certainty what will actually happen, given that the Space Force is so new.

# Evidence for Helps NASA

## Biden likely to cut NASA spending

Kluger, Jeffrey. "As a candidate, Biden said little about space. Here's what he might do as President." *Time*. 10 November 2020. <https://time.com/5907796/biden-space-program/>

With the additional money, NASA has been able to proceed with its plans for the Artemis program, which aims to return astronauts to the moon by 2024; support the commercial crew program; continue funding the James Webb Space Telescope; and bankroll interplanetary missions like the Perseverance rover, now on its way to Mars, as well as the Dragonfly mission to the Saturnian moon Titan and the Europa Clipper mission to the Jovian moon Europa, both of which are planned for launch later in the 2020s. Notably, Trump also

established the U.S. Space Force as a sixth branch of the armed forces. Funding for the Force does not come out of NASA's shallow pockets but the Pentagon's far, far deeper ones—in any case, it is one more sign of a growing and ambitious U.S. presence in space. That, however, could change under Biden. As a candidate, he said almost nothing about space, breaking his silence only in May to celebrate the SpaceX crew launch. The topic did not come up in either presidential debates and was never a staple—or even a topic—of Biden's stump speeches. That doesn't mean he's gone entirely cold to space—especially since the pandemic and the economy made it hard to talk about much else, particularly something like space which feels, to many voters, like a pricey luxury. For starters,

Biden will surely continue robustly backing the commercial crew and cargo program as it has his fingerprints all over it and it's been a clear and so-far unalloyed success. The Space Force might be a different matter. Critics argued that it was little more than a vanity project for Trump—a chance to unveil a new logo, new uniforms, and a new seat at the table of the Joint Chiefs of Staff, all in the service of work that the U.S. Air Force is doing anyway, such as protecting U.S. assets in low-Earth orbit. Biden could scrap the new branch and fold its services back into the Air Force both to save money and to divorce his Administration from so conspicuously Trump-branded a program. The same could be said about the Artemis lunar program, especially since the 2024 target date—which has never been realistic, given that none of the flight hardware needed for a lunar landing has been flown, or is even fully built yet—was picked to coincide with the last year of a possible

Trump second term. What's more, the day after the election was called for Biden, NASA Administrator Jim Bridenstine—a champion of the 2024 plan—told Aviation Week that he would be stepping down and allowing the new president to pick his own space agency chief. But bet on Artemis at least to survive. Way too much of that hardware is already being built and way too many years have gone

into developing it for a new Administration to throw it away now. The Space Launch System (SLS)—the 21st century answer to the Saturn V moon rocket—has been in the works since 2004, as has the Orion crew capsule, and both are planned for their first flight sometime in 2021. Plus, NASA recently announced the signing of the Artemis Accords, an international partnership to get to the moon, similar to the 15-nation consortium that built and maintains the ISS. In both cases, partner nations would provide hardware like habitation modules and cooperate to launch and maintain them. Biden spent no shortage of campaign-trail oxygen condemning Trump's flouting of international agreements like the Paris climate accord and the Iranian nuclear deal to make one of his first acts in office walking away from even a modest pact like Artemis. What's all but certain to change is the 2024 landing date—both because it is likely to be logistically impossible anyway and because there is no Trump second-term deadline to satisfy.

## NASA and Space Force intend to collaborate

"NASA, US Space Force establish foundation for broad collaboration." *NASA*. 22 September 2020. <https://www.nasa.gov/press-release/nasa-us-space-force-establish-foundation-for-broad-collaboration>

While advancing plans for unprecedented lunar exploration under the Artemis program, NASA also is building on a longstanding partnership with the Department of Defense with a new memorandum of understanding announced today by NASA Administrator Jim Bridenstine and U.S. Space Force (USSF) Chief of Space Operations Gen. John "Jay" Raymond. The agreement, discussed during a Sept.

22 Mitchell Institute virtual event, commits the two organizations to broad collaboration in areas including human spaceflight, U.S. space policy, space transportation, standards and best practices for safe operations in space, scientific research, and planetary defense. “NASA’s partnerships are vital to ensuring America continues to lead the world in the peaceful uses of outer space,” Bridenstine said. “This agreement with the U.S. Space Force reaffirms and continues our rich legacy of collaboration with the Defense Department and provides a critical foundation to investigate areas of mutual interest for our distinct civil and defense roles in space.” The memorandum replaces an agreement signed 14 years ago between NASA and the U.S. Air Force Space Command, under which the two organizations exchanged research and development information, sought to reduce duplication of system development, and collaborated in the long-term planning of each organization’s space roadmaps. “NASA and the military share a long history dating back to the late 1950s; there is power in our partnership,” Raymond said. “A secure, stable, and accessible space domain underpins our nation’s security, prosperity and scientific achievement. Space Force looks forward to future collaboration, as NASA pushes farther into the universe for the benefit of all.” Freedom of action in space provides NASA and allied-nation space agencies the ability to explore and discover, and will enable America’s return to the Moon and subsequent exploration of Mars. The USSF will secure the peaceful use of space, free for any who seek to expand their understanding of the universe, by organizing, training and equipping forces to protect U.S. and allied interests in space. As part of its Artemis program, NASA plans to send the first woman and next man to the lunar surface in 2024 and establish a sustainable presence there by the end of the decade. The agency will use the Moon to prepare for its next giant leap – human exploration of Mars. Learn more about how NASA is returning to the Moon to prepare for Mars, go to:

## *NASA and USSF partnership can create norms of peace in space*

### NASA and USSF will team up to create international norms for future space exploration

Gohd, Chelsea. “NASA and US Space Force team up for planetary defense, moon trips and more.” *Space.com*. 22 September 2020. <https://www.space.com/nasa--space-force-moon-planetary-defense-collaboration.html>

NASA and the United States Space Force are banding together for the future of human spaceflight. As the agency moves forward with its Artemis program, which aims to return humans to the lunar surface by 2024, NASA is also working on its relationship with the newly-minted Space Force, which was formed Dec. 2019. Today (Sept. 22), NASA Administrator Jim Bridenstine and U.S. Space Force Chief of Space Operations Gen. John “Jay” Raymond announced a memorandum of understanding (MOU) between NASA and the U.S. Space Force. This agreement officially joins the two entities in collaboration with regard to “human spaceflight, U.S. space policy, space transportation, standards and best practices for safe operations in space, scientific research and planetary defense,” NASA said in a statement. NASA and the Space Force have penned this MOU to “affirm a strong interest in continuing their longstanding partnership for mutually beneficial collaborative activities in furtherance of space exploration, scientific discovery, and security,” the MOU reads. While NASA is focused on exploration, science and technology, the Space Force is a military operation. But while the two have very different missions and overall goals, “we share the same domain and we’re operating in the same environment. So there’s a lot of synergies, a lot of overlap,” Bridenstine said today during a Mitchell Institute virtual event. “NASA and the military share a long history dating back to the late 1950s; there is power in our partnership,” Raymond said in the same statement. “A secure, stable, and

## accessible space domain underpins our nation's security, prosperity and scientific

achievement. Space Force looks forward to future collaboration, as NASA pushes farther into the universe for the benefit of all." "In the case of NASA, it's way more than just sharing data ... we sit on the floor together, we do the analytical work together, it's a partnership that is really, really tight," Raymond added during the event today. While NASA doesn't dabble in military power and defense, the agency, especially now with this collaboration, is an integral piece of National power, which comprises diplomatic, informational, military and economic powers, in the U.S., Bridenstine explained. "We are an instrument of national power," Bridenstine added. "It is soft power, it is diplomatic power, information power, economic power," he said about NASA's role in working with other nations in space through ongoing programs like the International Space Station, the steps the agency has taken in commercializing space and more. "This is really a tool of diplomacy for the nation," he said about the agency, "but we can't do any of those things if space is not secure. And that's why it was important to create the Space Force, that's why it's important for NASA to partner with the Space Force." In "securing" space, NASA aims to, with the support of the U.S. Space Force, "have their international collaborators "agree to basic norms of behavior," which will ultimately be "what will preserve space for humanity." Bridenstine said. With this MOU, the agency and the military branch aim to adhere to the Outer Space Treaty but take it even further, by collaboratively creating these "norms" so that, as companies and space agencies work to launch their own missions to space, they take into account "what are the norms of behavior that all nations need to abide by in order for us to be able to sustain space for a long time," Bridenstine said.

## NASA and USSF partnership aims to use soft power to keep space safe

Scoles, Sarah. "NASA, Space Force partnership aims to make space exploration safe."

*American Association for the Advancement of Science.* 22 September 2020.

<https://www.sciencemag.org/news/2020/09/nasa-space-force-partnership-aims-make-space-exploration-safe>

NASA Administrator Jim Bridenstine sometimes gets mistaken for the leader of a different agency. "A lot of people ask me about the Space Force," he said today at an event called the Space Power Forum. "They say, 'So how's the Space Force coming along?' and, 'Congratulations on the Space Force.'" Bridenstine wants them to understand the big difference between his civil space agency and the military space branch led by Gen. John Raymond, who appeared virtually next to Bridenstine at the forum. But despite the different missions, Bridenstine continued, "We share a very similar—in fact, we share the same—domain." Orbit, and beyond. That shared focus is deepening with the announcement at the forum of a new partnership between NASA and the Space Force, an independent branch within the U.S. Air Force. The memorandum of understanding commits the two organizations to "broad collaboration in areas including human spaceflight, U.S. space policy, space transportation, standards and best practices for safe operations in space, scientific research, and planetary defense," according to a NASA statement. As NASA moves forward with programs like Artemis, its plan to send humans back to the Moon, it wants space to remain safe, even as the region becomes increasingly congested, contested, and competitive—the "three Cs." This new memorandum aims to add another C to the mix: calm. "We share the desire for security in space," Raymond said. The agreement replaces one put in place 14 years ago by NASA and the Air Force Space Command. But blurred boundaries between the U.S. civil and military space enterprises stretch much further into the past. "The history of collaboration between NASA and the Air Force, as the predecessor service that had space capabilities, is very long and extensive and goes back basically to the beginning," says Robin Dickey, a space policy and strategy analyst at the Aerospace Corporation, a federally funded R&D center. The first astronauts, for instance, were all military pilots. Many today still come from the service. The Space Shuttle sometimes landed not at Kennedy Space Center but at Edwards Air Force Base. NASA has launched classified payloads. "The U.S. space program, from the very beginning, has been inherently military in nature," says Victoria Samson, Washington, D.C., office director of the Secure World Foundation, a space sustainability think tank. Samson says a deeper or more apparent marriage between the organizations could present challenges for NASA as it pursues joint missions with other nations, if they see the space agency as too attached to the military. "The question is, does that affect others' perceptions of NASA?" Samson says, although she notes that because the agreement builds on an existing one, "it's not as big of a change as it might seem." The question is particularly relevant as NASA seeks international



partners for Artemis. In fact, at today's event, Bridenstine cited Artemis's appeal as a diplomatic tool, a way to establish norms of good behavior in space. He noted that a recent Artemis meeting to foster collaboration drew representatives from 26 countries. At the same time, programs like Artemis—plus increased commercial activity in space—could need an expanded military presence for protection and peacekeeping. As major stakeholders working in the same space, Samson says, they are both invested in establishing and reinforcing good behavior. "There's obviously interest in keeping that space stable and predictable," she says. "It makes sense you'd have a whole-government approach." Although NASA is a civil and scientific organization, it still can play a political role for the nation, Bridenstine said at the forum. "We are an instrument of national power," he said. "It is soft power. It is diplomatic power. It is information power. It is economic power. But ... we can't do any of those things if space is not secure. And that's why it was important to create the Space Force. That's why it's important for NASA to partner with the Space Force."

## NASA and USSF both want norms that promote safe space travel and keep things like space debris under control

Schradin, Ryan. "NASA's Artemis Program and the US Space Force discuss future of space exploration." *The Government Satellite Report*. 8 October 2020. [https://ses-  
gs.com/govsat/defense-intelligence/nasas-artemis-program-and-the-u-s-space-force-  
discuss-future-of-space-exploration/](https://ses.gs.com/govsat/defense-intelligence/nasas-artemis-program-and-the-u-s-space-force-discuss-future-of-space-exploration/)

NASA and the U.S. Space Force collaborate to ensure that the global commons of space are safe, can be utilized for future discovery, and can have an adequate level of situational awareness for safe operations. With this ensured, the moon is again within reach. And Mars, enabled by

new lunar possibilities and space partnerships, may see its first human explorers. In a recent Space Power Forum hosted by the Mitchell Institute, NASA Administrator, Jim Bridenstine, and Chief of Space Operations for the U.S. Space Force, General John "Jay" Raymond, discussed the intricacies of the space domain and the future of space exploration. The two agencies, despite having distinctly separate missions, collaborate and bolster the work of each other, requiring that both Administrator Bridenstine and Gen. Raymond interact and rely on the others' ongoing work. Together, they have a complete picture of both the current situation in space and the path that the U.S.

government and military look to forge in the areas of space domain defense and exploration. "We share the same goal of

having norms of behavior to drive safe and professional behavior in the space domain...one of the things that I'm most proud of in the first nine months of the

existence of the U.S. Space Force is how far we have come on developing partnerships

with our allied partners," Gen. Raymond elaborated. "The Outer Space Treaty is a key

component of these partnerships. It makes countries responsible for their actions in

space and it prohibits national appropriation of areas of space." A good example of the

necessity of partnerships and space-based diplomacy is the International Space Station (ISS). Fifteen different countries share responsibility for the ISS, and 103 countries have had experiments on the ISS. Shared

responsibility like this requires agreements and understandings between the parties involved. As Administrator Bridenstine explained, "We have currently over 700 active agreements with nations all around the world." Treaties and agreements between countries operating in the space domain allow for research and development on the ISS, and is opening the door to further visitation and exploration on the moon. This will begin with NASA's recently announced and upcoming Artemis program, which will send astronauts back to the moon within the next five years. Artemis, in Greek mythology, is the twin sister of Apollo. And this mission will ensure a woman sets foot on the moon by 2024 with the goal of making commercial partnership and sustainable exploration possible by 2030. This research and development is

important for the goals of NASA. Administrator Bridenstine explained, "We have found hundreds of tons of water ice. Water ice is life support. It's air to breathe. It's water to drink. It's also hydrogen. Hydrogen, of course, is the same rocket fuel that powered space shuttles...It's hundreds of millions of tons of hydrogen on the surface of the moon. Let's use it." One of the longer-term goals of the Artemis program is to send astronauts to Mars. In order to do this, research and development of propulsion need to continue. And, now it will be able to be explored from beyond the atmosphere of Earth. But there is another concern that faces both NASA and the Space Force in the space domain – congestion and debris. With many satellites orbiting in MEO, LEO, and GEO, and with objects randomly traveling through space from beyond, situational awareness is a key function of the Space Force. "You have to understand what's going on in the domain around you. And, you have to be able to navigate the precision navigation and timing. And so, all of those things out beyond what we have traditionally operated in, which is geosynchronous orbit and below, now are expanded. Again, this is enabled by a close partnership with NASA," said Gen. Raymond.

With better understanding of the hazards of space operations, and exploration of new propulsion and sustainability from the lunar surface and the ISS, new horizons may be possible. If threats can be diminished through treaties, and situational awareness can be maintained, and new technologies can be established, once unreachable ideas may now be grasped. "The goal here is to be able to travel to Mars in a matter of months, maybe two or three months, not nine months..." Administrator Bridenstine confirmed. From the moon, new technologies, and mined resources may give NASA the means to reach Mars and do something once unthinkable. And, it's through diplomacy, exploration, and partnerships that this may be possible.

## *NASA and USSF norm-setting good for conflict prevention*

### Space debris getting worse

Starr, Michelle. "Earth's space debris problem is getting worse, and there's an explosive component." *Science Alert*. 13 October 2020. <https://www.sciencealert.com/the-space-debris-problem-is-getting-worse-not-better>

Before humans first started sending objects into Earth orbit, the pocket of space around our planet was clear and clean. But the launch of Sputnik 1 in October of 1957 changed everything. Since then, the space debris has been accumulating, with the amount of useless, defunct satellites vastly outnumbering the operational objects in our orbit. A new annual report from the European Space Agency (ESA) has found that while we have become aware of the problem and taken steps in recent years to mitigate it, those steps are currently not keeping up with the sheer scale of space junk. All spacefaring nations have contributed to the problem, which is significant: as more and more defunct objects populate near-Earth space, the risk of collision rises - which, as objects crash and shatter, produces even more space debris. The hazards have been prominent in the last year. We have not only watched as two large dead satellites very nearly collided, but the International Space Station has had to undertake emergency manoeuvres three times to avoid colliding with space debris. But collisions are not even close to being the biggest problem, according to the ESA's report. In the last 10 years, collisions were responsible for just 0.83 percent of all fragmentation events. "The biggest contributor to the current space debris problem is explosions in orbit, caused by left-over energy - fuel and batteries - onboard spacecraft and rockets," said Holger Krag, head of the ESA's Space Safety Programme. "Despite measures being in place for years to prevent this, we see no decline in the number of such events. Trends towards end-of-mission disposal are



improving, but at a slow pace." The space junk problem was first raised in the 1960s, but it took a long time for mitigation measures to be identified and implemented. Now, spacefaring nations are much better at planning for what happens to satellites and rockets at the end of their missions. Reusable rockets are a big one, although the technology is still in its infancy. For decades, rocket boosters were just left to drift away once they'd delivered their payloads into low-Earth orbit. Some of those discarded boosters have been out there for decades. Other mitigation measures include designing and building spacecraft that can better withstand the harsh environment of space without disintegrating; releasing stored energy and fuel to make defunct spacecraft less likely to explode; and, once a spacecraft's mission is over, moving it to a safer orbit. This would mean either a "graveyard orbit" high above the low-Earth space used for operational spacecraft, or bringing it down into Earth's atmosphere to burn up on reentry as a neat disposal system. But even with these measures in place, 12 fragmentation events have taken place every year for the past two decades. That number is rising, with each fragmentation event potentially introducing thousands of pieces of small debris in Earth orbit. At orbital velocities, even the tiniest pieces of debris can disable an operational satellite. According to the ESA's statistical model, there are over 130 million pieces of anthropogenic space debris smaller than a millimetre. The only way we can hope to do anything about the problem is by working together. The good news is that, in the past decade, there has been an increase in the number of spacefaring nations complying with international guidelines. Those that don't comply with orbit guidelines are growing increasingly likely to comply with space debris mitigation measures. But how we use space is changing. Satellite swarms, smallsats and "constellations" are becoming more common. SpaceX's StarLink alone has put hundreds of satellites in low-Earth orbit. So, the ESA says, it's more important than ever that everyone cooperates to keep our little corner of space as clean as we can. "The accelerating increase of satellites launched into low-Earth orbit is starkly visible in our latest report," said Tim Florer, Head of the ESA's Space Debris Office. "To continue benefiting from the science, technology and data that operating in space brings, it is vital that we achieve better compliance with existing space debris mitigation guidelines in spacecraft design and operations. It cannot be stressed enough - this is essential for the sustainable use of space." The ESA is actively working towards solutions. It has commissioned a project to attempt to collect space debris, with the proof-of-concept planned to launch in 2025. They're also trying to develop technology to automate collision avoidance manoeuvres, so that human controllers don't need to track and control every piece of equipment or decommissioned satellite in low-Earth space. And measures such as a Space Sustainability Rating can help nations developing space technologies by providing a baseline by which to adhere. "Space debris poses a problem for the near Earth environment on a global scale, to which all spacefaring nations have contributed and for which only a globally supported solution can be the answer," the ESA wrote in its report.

## Lack of guidelines in space conduct makes space a new frontier for war, so better frameworks are necessary

Skibba, Ramin. "The ripple effects of a space skirmish." *The Atlantic*. 12 July 2020.

<https://www.theatlantic.com/technology/archive/2020/07/space-warfare-unregulated/614059/>

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 technologies that disrupt spacecraft, by, for instance, blocking data collection or transmission. 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 reports 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 Newport, 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 community 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 already 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 program, 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 satellites 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.

# SPACE MILITARIZATION GOOD

## What's the argument?

The United States currently stands and negotiates from a place of weakness within the space realm. The lack of development and exploration means we fall far behind those making advancements and strides into the stars. Our biggest adversaries, Russia and China, have already formed Space Forces of their own and currently are in the process of militarizing (Cheng). The US relies on thousands of satellites orbiting Earth in order to function on a day-to-day basis and keep citizens safe. Indeed, 90% of US military intelligence comes from space (Firth). We have our hands tied and helplessly jeopardize one of our most valuable resources. The threat of detrimental hacks is very real. China is currently in the process of developing jammers that could target a wide range of frequencies and cause immense amounts of damage (Firth). Cheng furthers that the next conflict involving a major or mid-sized power will take place in space.

The formation of a Space Force is crucial to increase protection measures and ensure readiness in the event of a strike or war. This protection is a necessity not only for US Citizens, but also US allies incapable of developing space technology or protecting themselves (Salam). Advancing in space not only serves as a means of defense, but also as a means to deter our adversaries (Insinna). Most importantly, the institution of a Space Force allows the US to level the playing field and approach other countries from a position of power instead of weakness. Indeed, the US intends to gain the “command of the global commons” and regulate militarization within the space realm (Salam 15). In order to establish hegemony, the Space Force must advance and surpass our adversaries (Defense Intelligence Agency).

## Why does the argument matter?

Allowing our adversaries to set a norm in the space realm is not wise. Not only would the results likely go against US beliefs and militaristic practices, but it would put the country and their allies at risk in the face of a conflict or war. “In addition to protecting the homeland, the U.S. has long sought to possess what the MIT political scientist has called “command of the global commons.” The global commons can be defined as “the sea-lanes and the airspace that are so central to global commerce, as well as low Earth orbit, a nearby region of space that is thick with satellites” (Salam 15).

Preserving hegemony over these territories is crucial. The U.S. military must protect the homeland and allies to preserve the US led global alliance. Allowing other countries to advance far beyond us hinders our ability to catch up or ever fall into a position of power in space.

## Main Players

The United States, China, Russia, US allies

## Strategy Considerations

Due to precedent and the current trajectory of US international relations, this argument proves to be rather intuitive. Teams running this argument ought to understand the importance in deterring countries such as Russia and China and why the United States' position as the global hegemon is so important. Finally, teams must be prepared to respond to the con version of this argument: escalation. While asserting dominance in the space realm is certainly important to maintaining the upper hand in the event of control, it will encourage our adversaries to engage in arms, or in this case, space, race. This would drastically increase the likelihood of conflict.

# Evidence for Space Militarization Good

## China and Russia have already created Space Forces and are militarizing space

Cheng, Dean. "Does the United States need a Space Force?" *The Heritage Foundation*. 2020. <https://www.heritage.org/space-policy/heritage-explains/does-the-united-states-need-space-force>

But the truth is, Trump's Space Force is no laughing matter. Did you know that **our most powerful adversaries already have a Space Force? In 2015, Russia actually combined their Space Force that manages their satellites and associated tracking and control networks with their Air Force and aerospace and missile defense force to create what they now call their Russian Aerospace Forces.** That same year **China engaged in a massive reorganization of their military which saw the creation of the PLA Strategic Support 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. Dean Cheng: 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. Cordero: Dean Cheng is a senior research fellow in Heritage's Davis Institute for National Security and Foreign Policy. Dean also sits on NASA's National Space Council Users' Advisory Group. 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 next conflict will involve operations in space and satellite technology

Cheng, Dean. "Does the United States need a Space Force?" *The Heritage Foundation*. 2020. <https://www.heritage.org/space-policy/heritage-explains/does-the-united-states-need-space-force>

Cheng: **In the next conflict, if it involves a major power or even a mid-size power increasing, it will have operations in space.** And by the way, those operations in space while we tend to focus on the really cool images of a kinetic anti-satellite weapon just colliding with and blowing up into fragments, could also include cyber attacks where the satellite turns itself off for example. And a lot of countries are developing that set of capabilities. **So because a lot of people will have the ability to operate in space, because of the importance of space to us, we need to be thinking about that set of capabilities that is encompassed by our space systems.** For better or worse, the only way you're going to do that at this point it seems is to have a service, a Space Force if you will, whose job is to be thinking about this. Living, eating, breathing, sleeping space. And thinking about what kinds of systems to acquire and part of that of course is how to pay for it.

## US is increasingly vulnerable to space attack; for example, 90% of US military intelligence comes from space

Firth, Niall. "How to fight a war in space (and get away with it)." *MIT Review of Technology*.

26 June 2019. <https://www.technologyreview.com/2019/06/26/725/satellite-space-wars/>

**Today, much more civilian infrastructure relies on GPS and satellite communications, so attacks on them could lead to chaos.**

The military leans more heavily on satellites too: data and video feeds for armed UAVs, such as the Reaper drones that the US military has flying over Afghanistan and Iraq, are sent via satellite to their human operators.

Intelligence and images are also collected by satellites and beamed to operations centers around the world. **In the assessment of**

**Chinese analysts, space is used for up to 90% of the US military's intelligence.**

"When people look at war in space, they think about it happening in the future and [think] it will be cataclysmic. But it's happening now," says Victoria Samson, Washington office director at the Secure World Foundation. Space is so intrinsic to how advanced militaries fight on the ground that an attack on a satellite need no longer signal the opening shot in a nuclear apocalypse. As a result, **"deterrence in space is**

**less certain than it was during the Cold War.**"

says Todd Harrison, who heads the Aerospace Security Project at CSIS, a think tank in Washington, DC. Non-state actors, as well as more minor powers like North Korea and Iran, are also gaining access to weapons that can bloody the noses of much larger nations in space. As the dominant player in space for decades, the US now has the most to lose. The DIA report points out that both China and Russia reorganized their militaries to give space warfare a far more central role. (President Donald Trump's revival of the idea of a Space Force, while much ridiculed, may boost its importance in military thinking.) And

there are fears among the US military that the US has lost its edge. **"Russia and China are making advances in**

**developing counterspace systems faster than we are protecting our satellites, which**

**makes us increasingly vulnerable to attacks in space.**" Harrison says. In response, the **US military is**

**starting to make satellites tougher to find and attack.**

For instance, the NTS-3, a new experimental GPS satellite scheduled for launch in 2022, will have programmable, steerable antennas that can broadcast at higher power to counter jamming. It's designed to remain accurate even if it loses its connection with ground controllers, and to detect efforts to jam its signal.

## US adversaries have hacked into satellites in the past and can increasingly use them for conflict

Firth, Niall. "How to fight a war in space (and get away with it)." *MIT Review of Technology*.

26 June 2019. <https://www.technologyreview.com/2019/06/26/725/satellite-space-wars/>

That doesn't necessarily mean blowing up satellites. **Less aggressive methods typically involve cyberattacks to interfere with the data flows between satellites and the ground stations. Some hackers**

**are thought to have done this already.**

For example, in 2008, a cyberattack on a ground station in Norway let someone cause 12 minutes of interference with NASA's Landsat satellites. Later that year, hackers gained access to NASA's Terra Earth observation satellite and did everything but issue commands. It's not clear if they could have done so but chose not to. Nor is it clear who

was behind the attack, although some commentators at the time pointed the finger at China. Experts warn that **hackers could**

**shut off a satellite's communications, rendering it useless. Or they could permanently**

**damage it by burning off all its propellant or pointing its imaging sensor at the sun to**

**burn it out. There are strong suspicions that Russia has been jamming GPS signals**

**during NATO exercises in Norway and Finland, and using similar tactics in other conflicts.**

"Russia is absolutely attacking space systems using jammers throughout the Ukraine," says Weeden. Jamming is hard to distinguish from unintentional interference, making attribution difficult (the US military regularly jams its own communications satellites by accident). A

recent report from the US Defense Intelligence Agency (DIA) claims that **China is now developing jammers that can**

**target a wide range of frequencies, including military communication bands. North Korea**

**is believed to have bought jammers from Russia, and insurgent groups in Iraq and**

**Afghanistan have been known to use them too.**

## China is amassing an arsenal of anti-satellite weapons and is on track to become the global space power

Erwin, Sandra. "Pentagon report: China amassing arsenal of anti-satellite weapons." *Space News*. 1 September 2020. <https://spacenews.com/pentagon-report-china-amassing-arsenal-of-anti-satellite-weapons/>

**WASHINGTON – China is progressing with the development of missiles and electronic weapons that could target satellites in low and high orbits,** the Pentagon says in a new report released Sept. 1. China already has operational ground-based missiles that can hit satellites in low-Earth orbit and "probably intends to pursue additional ASAT weapons capable of destroying satellites up to geosynchronous Earth orbit," says the Defense Department's annual report to Congress on China's military capabilities. DoD has been required by law to submit this report since 2000. The Pentagon says Chinese military strategists regard the ability to use space-based systems and to deny them to adversaries as central to modern warfare. **China for years has continued to "strengthen its military space capabilities despite its public stance against the militarization of space,"** the report says. China has not publicly acknowledged the existence of any new anti-satellite weapons programs since it confirmed it used an ASAT missile to destroy a weather satellite in 2007, but the nation has been steadily advancing in this area, the report says. So-called counterspace capabilities developed by China include kinetic-kill missiles, ground-based lasers, orbiting space robots and space surveillance to monitor objects across the globe and in space. Besides strengthening its anti-satellite weapons technology, the report notes, **China is advancing space capabilities across the board – in satellites, launch vehicles, sensors and lunar systems, all intended to help fulfill China's long-term goal of becoming the world's most powerful space power.**

## Military, commercial, and civilian space sectors depend on US space hegemony over Russia, China, Iran, and North Korea

"Challenges to security in space." *Defense Intelligence Agency*. January 2019.

[https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space Threat\\_V14\\_020119\\_sm.pdf](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space%20Threat_V14_020119_sm.pdf)

**Space-based capabilities provide integral support to military, commercial, and civilian applications.** Longstanding technological and cost barriers to space are falling, enabling more countries and commercial firms to participate in satellite construction, space launch, space exploration, and human spaceflight. Although these advancements are creating new opportunities, new risks for space-enabled services have emerged. Having seen the benefits of space-enabled operations, some foreign governments are developing capabilities that threaten others' ability to use space. China and Russia, in particular, have taken steps to challenge the United States: **Chinese and Russian military doctrines indicate that they view space as important to modern warfare and view counterspace capabilities as a means to reduce U.S. and allied military effectiveness. Both reorganized their militaries in 2015, emphasizing the importance of space operations.** Both have developed robust and capable space services, including space-based intelligence, surveillance, and reconnaissance. Moreover, they are making improvements to existing systems, including space launch vehicles and satellite navigation constellations. These **capabilities provide their militaries with the ability to command and control their forces worldwide and also with enhanced situational awareness, enabling them to monitor, track, and target U.S. and allied forces.** Chinese and Russian space surveillance networks are capable of searching, tracking, and characterizing satellites in all earth orbits. This capability supports both space operations and counterspace systems. **Both states are developing jamming and cyberspace capabilities, directed energy weapons, on-orbit**



capabilities, and ground-based antisatellite missiles that can achieve a range of reversible to nonreversible effects. Iran and North Korea also pose a challenge to militaries using space-enabled services, as each has demonstrated jamming capabilities. Iran and North Korea maintain independent space launch capabilities, which can serve as avenues for testing ballistic missile technologies. The advantage the United States holds in space—and its perceived dependence on it—will drive actors to improve their abilities to access and operate in and through space. These improvements can pose a threat to space-based services across the military, commercial, and civil space sectors.

## US needs the Space Force to deter adversaries from risking conflict

Insinna, Valerie. “Air Force leaders on space deterrence: ‘At some point, we’ve got to hit back’.” *Defense News*. 16 April 2019. <https://www.defensenews.com/space/2019/04/16/air-force-leaders-on-space-deterrence-at-some-point-weve-got-to-hit-back/>

There may come a point where we demonstrate some capabilities so that our adversaries understand that they will not be able to deny us the use of space without consequences.” Air Force Secretary Heather Wilson told reporters during a Wednesday roundtable. “That capability needs to be one that’s understood by your adversary. They need to know that there are certain things we can do, at least at some broad level.” she said, adding that uncertainty was also a key component to deterrence. “How confident are they that they know everything we can do?” Adversaries must understand that the U.S. military can — and will — react if its space assets are threatened during conflict. Air Force Chief of Staff Gen. Dave Goldfein said in his April 9 speech at the conference. “It’s not enough to step into the ring and just bob and weave, block and parry, and absorb punches. At some point, we’ve got to hit back. And adversaries must know we possess this capability. So we’ll rapidly develop and field the technology needed to counter adversary systems from any domain at the time, place and manner of our choosing,” he said.

## US military must protect the homeland and allies to preserve the US led global alliance

Salam, Reihan. “The United States Doesn’t Spend Enough on its military.” *Slate*. 12 November 2015.

[http://www.slate.com/articles/news\\_and\\_politics/politics/2015/11/military\\_spending\\_the\\_case\\_for\\_spending\\_more\\_not\\_less.html](http://www.slate.com/articles/news_and_politics/politics/2015/11/military_spending_the_case_for_spending_more_not_less.html)

What do we expect of our military? First and foremost, it is the job of the U.S. military to protect the homeland from foreign invasion. That’s a fairly straightforward job, as the U.S. is shielded from powerful rivals by the Atlantic and the Pacific Oceans. In addition to protecting the homeland, the U.S. has long sought to possess what the MIT political scientist has called “command of the global commons.” By the “commons,” Posen means the sea-lanes and the airspace that are so central to global commerce, as well as low Earth orbit, a nearby region of space that is thick with satellites.

As Posen explains, command does not mean that the U.S. has exclusive use of the commons, or even that others can’t make use of the commons for military purposes. Rather, it means that if the U.S. felt that it needed to deny the use of the global commons to some rival state, it could so. Moreover, command means that if some rival state were foolish enough to prevent the U.S. from making use of the commons, the U.S. could make them regret they ever tried. The reason command of the commons is so important is that the U.S. is and has long been a trading nation, and if rival states could deny the U.S. access to the commons, the U.S. would always be at the mercy of these



rival states. The U.S. managed to get by when the British Empire had command of the commons in an earlier era, but we have little experience of a world in which access to the commons was controlled by an unfriendly power. One of the chief arguments for the U.S. involvement in the First and Second World Wars was that if some other power grew dominant on the Eurasian landmass, it might then achieve command of the global commons and tie an economic noose around America's neck. Command of the commons is extremely valuable, yet America has had it for so long that we tend to take it for granted. That is a mistake. And command of the commons is getting more expensive to maintain. The other thing we expect of our military is that it be able to protect

not just the U.S. homeland, but also our allies around the world. The United States is pledged to defend every other NATO member state if they're ever under attack. To be sure, every other NATO member state has also pledged to defend the U.S. But let's just say that in practice, the U.S. is not banking on the Estonians to ride to the rescue in case of an invasion while the Estonians are certainly banking on the U.S. having their back if the Russians come knocking. And NATO is just the tip of the iceberg. Michael Beckley, a political scientist at Tufts, has observed that since World War II, the United States has signed defense pacts with more than 60 countries. This U.S.-led global alliance contains 25 percent of the world's population and generates 75 percent of global GDP. America's allies have primary responsibility for their own defense, to be sure. Yet they really do count on the U.S. to step up when the going gets tough.

Why does the U.S. extend security guarantees to so many different countries, including rich ones? One way to think about it is that U.S. allies are by definition countries that the U.S. will never have to fight against. Instead of building up their militaries in ways that might threaten the U.S. or their neighbors, former rivals like Germany and Japan have militaries that are almost exclusively devoted to territorial defense. Whereas both Germany and Japan once had imperial designs, neither country could conquer a faraway land if they tried. What they can do is meaningfully contribute to U.S.-led efforts to defend not only their own homelands but also other democracies in their respective regions. The U.S.-led global alliance has created a vast zone in which interstate

conflict is largely unknown, and commerce can flow freely. American leadership allows and encourages our allies to cooperate, and it makes it effectively impossible for them to wage war on each other. This is a far cry from the years before 1945, when the world's richest and most powerful countries were at each other's throats. Could it be that the remilitarization of Germany and Japan outside of the American security umbrella would be welcomed by their neighbors? Might the Middle East be safer if Saudi Arabia had to fend for itself, and it devoted its oil wealth to, say, building its own nuclear arsenal? I'm skeptical, and frankly I think it would be unwise for us to roll the dice to find out.

# CYBER SPACE

## What's the argument?

Over the past few years, China and Russia have been aggressively expanding into space with technology that far surpasses that of the United States. These new counter-space weapons include, but are not limited to, jammers, ground-based lasers, ground and space-based kinetic weapons, attacks against ground facilities that support space operations, or a nuclear detonation in space (Harper). As aforementioned, these technological advancements far surpass the militaristic capabilities and strategic environment of the United States, putting the country in grave danger and susceptible to many risks (Strout). In order to remain competitive and develop the ability to defend themselves, the United States must focus in and develop their space capabilities.

The solution lies within the Space Force. The creation of this branch means designating a group to specifically thwart the ever so daunting threat of our adversaries in the sky and beyond. "As many as 1,000 enlisted personnel and 130 officers currently in Air Force cyber security jobs will be asked to join the U.S. Space Force." In conjunction, 2,400 more space professionals are in the process of transferring to the new branch. "The Space Force is building up its cyber security human capital and technical capabilities as satellites and ground systems become increasingly vulnerable to intrusions and electronic attacks" (Erwin). Indeed, the organization has the potential to not only level the playing field, but also reestablish the United States' position as the global, militaristic hegemon. Through the use of cyber operations, the country would possess the ability to take out a strike and also attack an adversary without having to use traditional explosives (Cohen).

## Why does the argument matter?

Space is predicted to be the next frontier of conflict and war so developing and catching up US technology is paramount to protecting the country. Without the Space Force, this is not possible. Developing a group dedicated to protecting and defending Space serves as the only feasible solution and response to Russia and China. Indeed, as a result of our immense dependency on cyber tech and satellites, "the U.S. has the most to lose in a space-based conflict" (Roberts). A successful attack or strike from an adversary would send ripples across national and international populations. The ability for citizens to communicate and live their daily lives would be severely hindered. In addition, the United States military would struggle to handle the conflict due to a lack

of satellite access. For example, troops overseas could not contact control centers, the US could not detect incoming missiles (which both the US and their allies depend on), and military bases could go offline. Overall, the impact of an attack from China or Russia would be catastrophic and without the Space Force the US has everything to lose.

## Main Players

The United States, US adversaries, Russia, China

## Strategy Considerations

Along with the other arguments regarding strengthening the military, this is one of the most obvious and intuitive arguments on the topic. As a result, it will be the easiest to explain, impact, and weigh this argument in a round. However, escalation and tension that results from space militarization is not taken into account in this argument. Thus, it will be crucial that teams running this argument prepare blocks responding to this argument flipped to the con side.

## Evidence for Cyber Space

### Russia and China have been expanding aggressively into space

“Russian president warns over expansion of US space force.” *BBC*. 4 December 2019.

<https://www.bbc.com/news/world-us-canada-45171311>

Last year, US leaders signalled their desire to have a military space force, announcing a sixth branch of the armed forces to fight potential wars in space. President Trump warned about the military advances made by America's rivals. "I've seen things that you don't even want to see," he said. Vice-President Mike Pence said China and Russia had been developing airborne lasers and anti-satellite missiles that need to be countered. "The space environment has fundamentally changed in the last generation," said Mr Pence. "What was once peaceful and uncontested is now crowded and adversarial." In practice, major world powers have used space for military purposes such as communication or surveillance for many years. There are both military and civilian operations in space, but they can overlap. Satellite navigation technology using the Global Positioning System (GPS) was invented by the US military and only later permitted for civilian use. "People possibly don't know that space already is a military environment," says Alexandra Stickings, a space security expert at the Royal United Services Institute (Rusi). "Space has been militarised since the 60s."

### Adversaries have access to weapons far beyond our current technology

Harper, Jon. "Breaking: Space Command Hints at New Capabilities to Counter China, Russia." *National Defense*. 21 August 2020.

<https://www.nationaldefensemagazine.org/articles/2020/8/21/us-space-command-hints-at-new-capabilities-to-counter-china-russia>

Chinese and Russian counter-space weapons have Pentagon officials worried, but new capabilities are on the way to mitigate the threat, a top U.S. Space Command official said Aug. 21. Adversaries currently have the ability to use jammers, ground-based lasers, ground- and space-based kinetic weapons, attacks against ground facilities that support space operations, or a nuclear detonation in space to put U.S. and allied assets at risk.

Army National Guard Maj. Gen. Tim Lawson said during remarks at the National Defense Industrial Association's Space Warfighting Industry Forum, which was held virtually due to the COVID-19 pandemic. China has already tested anti-satellite missiles, while Russia has deployed on-orbit systems that could threaten U.S. satellites, noted Lawson, the mobilization assistant to the commander of Spacecom and the acting deputy commander of Spacecom. "As a geographical combatant command focused on the space domain, those are the things that keep us up at night," he said. However, secretive, classified technology that's in the works can help the U.S. military stay ahead of those threats, he said without going into specifics. "I would love to sit behind some closed doors and have this discussion on some of the things we really think we need," Lawson said when asked about the types of capabilities Spacecom is seeking.

### The US space program prior to the Space Force was not capable of handling this threat

Strout, Nathan. "Pentagon releases its defense space strategy to counter Russia and China."

*C4ISRNet*. 17 June 2020. <https://www.c4isrnet.com/battlefield-tech/space/2020/06/17/pentagon-releases-defense-space-strategy-to-counter-russia-and-china/>

The strategy reflects the Defense Department's shift to approaching space as a war-fighting domain, which includes the establishment of both U.S. Space Command and U.S. Space Force in 2019 as well as the ongoing efforts to bolster those two organizations. Space Command in particular has been vocal in calling out the counter-space capabilities being built and fielded by Russia, such as direct ascent weapons and potential on-orbit kinetic weapons. But the threat extends beyond kinetic threats to include electronic warfare, ground-based lasers that can blind space-based sensors, and cyberattacks. "The U.S. space enterprise was not built for the current strategic environment," Kitay said, adding that the U.S. has historically approached space as a supporting domain, where satellites are launched into orbit and relied upon to deliver capability without interruption. Now, however, the U.S. military is preparing for conflicts that could extend into the space domain, threatening on-orbit assets that war fighters rely on for communications, navigation and intelligence. The self-stated purpose of the strategy is to ensure the space domain is secure, stable and accessible for U.S. and allied activities over the next 10 years through American military strength. Further, it will leverage its space capabilities to employ power across all domains throughout the spectrum of conflict. "The Defense Space Strategy is the next step to ensure space superiority and to secure the nation's vital interests in space now and in the future," Defense Secretary Mark Esper said in a statement. "We desire a secure, stable, and accessible space domain that underpins our nation's security, prosperity, and scientific achievement. However, our adversaries have made space a war fighting domain and we have to implement enterprise-wide changes to policies, strategies, operations, investments, capabilities, and expertise for this new strategic environment. This strategy identifies a phased approach on how we are going to achieve the desired conditions in space over the next 10 years."

## The US Space Force is building technology specifically designed to deter and combat these threats

Erwin, Sandra. "More than 1,000 Air Force cyber security operators to transfer to Space Force" *Space News*. 8 October 2020.

<https://spacenews.com/more-than-1000-air-force-cyber-security-operators-to-transfer-to-space-force/>

Maj. Gen. Kim Crider said space "will become the next front of the cyber conflict"

WASHINGTON – As many as 1,000 enlisted personnel and 130 officers currently in Air Force cyber security jobs will be asked to join the U.S. Space Force, a senior official said Oct. 8. The selected airmen from cyber security career fields also have expertise in space programs and could be transferring to the Space Force in fiscal year 2021, said Maj. Gen. Kimberly Crider, Space Force chief technology and innovation officer. The officers and enlisted personnel were hand picked to join the Space Force as the service experiences a growing demand for cybersecurity talent, Crider said Oct. 8 at the CyberSatGov virtual conference. "We worked this out very closely and carefully with our Air Force partners across the Department of the Air Force,"

Crider said. these cyber experts are needed for "defensive operations," she said.

The cyber experts will join more than 2,400 space professionals who are in the process of transferring to the Space Force. Crider said the Space Force is building up its cyber security human capital and technical capabilities as satellites and ground systems become increasingly vulnerable to intrusions and electronic attacks. "Cybersecurity is an ever advancing area, and we always want to stay in front of that threat," she said. She noted that the Trump administration on Sept. 4 issued Space Policy Directive 5 focused on the cyber security of space systems. "We recognize that as cyber warfare and hybrid threats become the weapon of choice for state and non state actors, and the global economy and daily life grow increasingly dependent on space space systems, will well become the next front of the cyber conflict," Crider said. She said the Space Force is investing in technologies to protect satellites and ground systems.

The commander of the Space Force's Space and Missile Systems Center Lt. Gen. John Thompson on Monday spoke about the service's growing demand for cyber security expertise and technologies. "We need cybersecurity systems that can detect and mitigate attacks," he told a virtual conference hosted by California Polytechnic State University. "We've seen a lot of action in recent months from certain countries, notably China and Russia," said Thompson. China is developing electronic jammers and offensive cyber capabilities. Kinetic threats like missiles "are easy

to see.” But a cyber attack against a command and control site or against a particular spacecraft “could be just as devastating to the system and our warfighters.”

## The US cyber operations from space have the ability to combat strikes or threats before they cause any harm

Cohen, Rachel. “Space Force’s plan for cyber warriors.” *Air Force Magazine*. 29 May 2020.

<https://www.airforcemag.com/space-forces-plan-for-cyber-focused-airmen/>

The Space Force at first is looking at bringing in about 130 cyber officers and around 1,000 enlisted members. Those transfers will largely handle defensive cyber operations, though Space Force cyberspace operations division chief Col. Aaron Gibson indicated that may change.

Offensive cyber operations are “definitely something we’re looking at as we’re starting to write our cyber strategy.” Gibson said May 7. Having that option is a priority for senior leaders who are embracing cyber as

part of a broader information warfare strategy. Cyber operations can take out threats before they have a chance to harm the U.S., and offer a way to strike adversaries without turning to

traditional explosives. USSF cyber operators would still continue to handle typical space-focused missions like protecting communications transmissions, assuring the ability to control satellites, working in the U.S. Cyber Command-affiliated mission defense teams, partnering with the National Reconnaissance Office, and more. But the service is also offering them a chance to work more closely with space operators, like those who manage satellites, and to do more with less by using emerging technology such as artificial intelligence.

The Space Force suggests AI can help humans defend more than 180 space mission

systems for which there aren’t enough people to handle the cyber workload. The service plans to overcome that by collecting data from the systems and sending it to the Cyber Defense Correlation Cell for Space for analysis. The cell stood up last year as an operations center tailored to respond to cyber threats. Space Force Operations and Communications Director Brig. Gen. Deanna Burt indicated the Space Force could consider replacing some of its contractors that do maintenance and other work on assets like ground-based radars with USSF personnel.

## The US will experience the largest impact as a result of War in Space

Roberts, Thomas González. “Why we should be worried about a war in space.” *The Atlantic*.

15 December 2017. <https://www.theatlantic.com/science/archive/2017/12/why-we-should-be-worried-about-a-war-in-space/548507/>

Although there has never been a military conflict in space, the history of human activity above our atmosphere is not entirely benign. In 1962, the United States detonated a 1.4 megaton nuclear weapon 250 miles above the Earth’s surface. The blast destroyed approximately one third of satellites in orbit and poisoned the most used region of space with radiation that lasted for years. Although the United States, Russia, and others soon agreed to a treaty to prevent another nuclear test in space, China and North Korea never signed it. In 2007, China tested an anti-satellite weapon, a conventionally-armed missile designed to target and destroy a satellite in orbit. In the process, it annihilated an old Chinese weather satellite and created high-velocity shrapnel that still threatens other satellites. Even though demonstrations like this have consequences for everyone, countries are free to carry them out as they see fit. No treaties address this kind of test, the creation of space debris, or the endangerment of other satellites.

The U.S. has the most to lose in a space-based conflict. With by far the most satellites in orbit, the U.S. has the most to gain by establishing norms, but also the most to lose. Almost half of all operational satellites are owned and operated by the United States government or American commercial companies. That’s twice as many as Russia and China, combined.

Space may seem distant, but what happens there affects our everyday lives on the ground. When we use our phones to plan a trip, we depend on American GPS satellites to guide us. When the U.S. military deploys troops overseas, satellite communications connect forces on the ground to control centers. When North Korea launches an

intercontinental ballistic missile, the U.S. and its allies depend on early-warning satellites to detect it. On one hand, if the global space powers agreed to put limits on space-based weapons and other related technologies, it could make space safer for everyone. But because the U.S. may have spent time and resources developing exactly the type of weapons that a code of conduct would ban, it could also curtail the most advanced space-based developments, erasing years of research and progress. In the first space age, from the launch of the first human-made satellite in 1957 through the fall of the Soviet Union, the United States and the USSR were responsible for over 90 percent of all satellites. Their race to perfect space technology, dominated by both national security interests and scientific discovery, far outpaced everyone else.



# IMPROVES SATELLITE TECHNOLOGY

## What's the argument?

The Space Force has multiple avenues it can take to militarize space. However, none of those paths are viable without the protections and expansion of satellite technology. As such, the space force has increased the rate of launching satellites into Earth's orbit, made them cheaper and more efficient, in addition to protecting them from cyberattacks (Barbier). In order for satellites to be efficient, they need to be widespread so that everyone on Earth has access. If adversaries can hack and jam them, it can disrupt global communications and productivity. Finally, improving their observation technology makes it easier to target them and gather data. In order to complete this, last year the space force requested \$43 million in satellite research and development grants to improve communications and services (Strout). The link to the argument is very simple; however, it has incredibly wide-ranging impacts that have serious, tangible effects on the globe.

## Why does the argument matter?

First, most pertinent to this topic, improved US satellite technology could improve military intelligence and improve operations. For instance, a recent Space Force satellite now provides improved weather data and important intelligence in the Indian Ocean and South China Sea regions (Erwin). These massive improvements in communications make military operations far more accurate, which ends up reducing civilian casualties and saving lives by making sure conflicts do not draw out longer than they have to. Space force improvements to GPS software in 2017 cut the number of bombs needed for Iraqi operations to only  $\frac{1}{4}$  of the original amount, significantly reducing collateral damage to civilians ("Global Positioning System").

While drone strikes are an all-too-familiar argument made in debate topics, improved satellite technology has actively reduced the number of civilian casualties in drone operations. That coupled with other drone tech improvements have overall reduced civilian casualties from around 30% to 1.5% despite a large increase in operations and this has been backed by non-military aligned, independent sources (Plaw). Additionally, drone strikes have been found to reduce terrorist attacks in places like Pakistan by 5%, eliminating over 3,000 operatives (Johnston).



Outside of US military operations, improved satellite technology has the ability to structurally change global qualities of life. With proper applications to agricultural yields, water access, deforestation and climate initiatives, satellites can help us reach 12 of all 17 UN sustainable development goals. Most important is the expansion of broadband to help developing economies. In Sub-Saharan Africa for instance 25% still live outside of internet coverage. However, in other developing countries, access to broadband lowered extreme poverty by 7% after two years of access corresponding to 2.5 million people lifted out of extreme poverty (Castells).

## Main Players

Private companies, US military intelligence, developing economies, terrorist regimes, drones

## Strategy Considerations

This argument has great potential for high level debate rounds. The link is extremely simple and the impacts are potentially massive, making it very easy to weigh doing impact calculus. It has the probability that the Space Force will, if they have not already, improve satellite communications, and has already lifted millions out of poverty. The one caveat is that it is hard to know just how unique the Space Force is in improving this technology and it is difficult to quantify their contributions. Nonetheless, the past examples of success in addition to the large amounts of funding earmarked specifically for space communications make it so it is very tangible and a very impactful argument that can be very strategic in debate rounds.

## Evidence for Improves Satellite Technology

### Improved technology has reduced the number of civilian casualties from drone strikes

Plaw, Avery, Matthew Fricker, and Brian Williams. "Practice makes perfect?: The changing civilian toll of CIA drone strikes in Pakistan." *Terrorism Research Initiative*. December 2011.

U.S. officials have recently claimed that the CIA has sharply reduced the number of civilian casualties resulting from covert Predator and Reaper drone strikes in the Taliban-controlled agencies of Northwest Pakistan. Critics, especially in Pakistan, along with human rights NGOs have, however, questioned these claims. This article examines independent databases tracking the drone strikes and finds that there is significant support for the U.S. officials' claims, or at least for their more moderate assertions. It also briefly reviews the explanations that have been offered for the declining civilian death toll from drone strikes. It shows that there is reason to believe that this development is the deliberate result of adjustments to CIA targeting procedures and improvements in spy networks and technology, and thus is likely to prove broadly sustainable at least for the immediate future. The three databases offer strong evidence that the accuracy of CIA drone strikes in Pakistan has improved significantly in the last year and three quarters. As Table 1 indicates all three databases show a sharp drop in estimated civilian deaths from 2009 to 2010 (from 163 to 40 for the New America Foundation, from 43 to 14 for the Long War Journal, and from 39 to 13 for UMass DRONE). This drop in civilian fatalities occurred in spite of a sharp increase in the total number of strikes from 2009 to 2010 (from 53 to 118 according to the New America Foundation, from 53 to 117 according to the Long War Journal and from 54 to 131 according to UMass DRONE). Correspondingly, the proportion of those killed in the drone strikes who appeared to be civilians fell very noticeably in each case (from 29.8% to 5% according to the New America Foundation, from 8.5% to 1.72% for the Long War Journal, and from 6.7 to 1.51% for UMass DRONE). In sum, the sharp drop in civilian casualties which registered across all three databases provides some clear support for U.S. officials' claims of improved accuracy at least for 2010.

### Drone strikes reduced militant attacks by 5%

Johnson, Patrick. "The impact of US drone strikes on terrorism in Pakistan." *RAND Corporation*. 2015. <http://patrickjohnston.info/materials/drones.pdf>

This study analyzes the effects of US drone strikes on terrorism in Pakistan. Some theories suggest that drone strikes anger Muslim populations, and that consequent blowback facilitates recruitment and incites Islamist terrorism. Others argue that drone strikes disrupt and degrade terrorist organizations, reducing their ability to conduct attacks. We use detailed data on U.S. drone strikes and terrorism in Pakistan from 2007-2011 to test each theory's implications. The available data does not enable us to test whether drone strikes have resulted in increased recruitment, but it does allow us to examine whether these strikes have resulted in changes in terrorist activities. We find that drone strikes are associated with decreases in the incidence and lethality of terrorist attacks, as well as decreases in selective targeting of tribal elders. While our findings do not suggest that these effects are long-term, the results do lend some credence to the argument that drone strikes, while unpopular, have bolstered U.S. counterterrorism efforts in Pakistan. The 2FESL estimate in column 4 of Table 3 shows that drone strikes are associated with an average decrease in militant attacks of almost 5 percentage points. This result is statistically significant at the one percent level. From 2007 through 2011, the average agency suffered roughly 0.88 militant attacks per week. During weeks in which a drone strike occurred, agencies suffered an average of about 0.68 attacks

## Space Force improvement to GPS has reduced collateral damage in Iraqi operations using ¼ of the normal required bombs and missiles

“Global Positioning System.” *US Space Force*. 22 March 2017.

<https://www.spaceforce.mil/About-Us/Fact-Sheets/Article/2197765/global-positioning-system/>

The GPS Master Control Station (MCS), operated by Delta 8 at Schriever AFB, is responsible for monitoring and controlling the GPS satellite constellation. The GPS-dedicated ground system consists of six U.S. Space Force dedicated monitor stations (MS) and four ground antennas (GA) located around the world. The MSs use GPS receivers to passively track the navigation signals on all satellites. In 2007, GPS added 10 more shared monitor stations (part of the National Geospatial-Intelligence Agency – NGA network of monitor stations) increasing the overall accuracy of the system to all users. Information from the MSs is processed at the MCS to update the satellites’ navigation messages to include commanding (telemetry). In 2007, GPS added ten shared MSs that are (part of the National Geospatial-Intelligence Agency network) to increase the overall GPS accuracy for all users. The GPS Program Office is working to enhance many of the capabilities provided by the current satellites and user equipment. In April 2014, the pre-operational broadcast of navigation messages began for additional civil signals (L2C and L5). Additionally, the next generation of satellites will provide increased signal accuracy and reliability to operate through a contested environment. Applications such as mapping, aerial refueling and rendezvous, geodetic surveys, and search and rescue operations will benefit from these enhancements. GPS capabilities were put to the test during the U.S. involvement in Operations Desert Shield and Desert Storm. Allied troops relied heavily on GPS to navigate the featureless Arabian Desert. During operations Enduring Freedom, Noble Eagle and Iraqi Freedom, GPS contributions increased significantly. During Operation Iraqi Freedom, the GPS satellite constellation allowed the delivery of 5,500 GPS-guided Joint Direct Attack Munitions with pinpoint precision that reduced collateral damage. This was almost one-fourth of the total bombs and missiles coalition forces released against Iraqi targets. GPS continues to fill a crucial role in air, ground and sea operations guiding countless service members and equipment to ensure they are on time and on target. The U.S. Space Force’s Space and Missile Systems Center at Los Angeles AFB, Calif., acts as the executive agent for the Department of Defense for acquiring GPS satellites and user equipment.

## One of the Space Force’s key missions is to improve satellites and increase their number

Barbier, Reed. “The purpose and mission of the Space Force.” *American University School of International Service*. 23 July 2020. <https://www.american.edu/sis/centers/security-technology/the-purpose-and-mission-of-the-space-force.cfm>

One strategy the Space Force is pursuing to protect satellite capabilities, adopted from Space Command, is to foster an explosion in the number of satellites in orbit, so that the loss of one or several would not represent an existential threat to military operations. The first way to do this is to increase the tempo of launches from Earth into orbit and thus increase the overall number of satellites. Private companies are playing a crucial role in this expansion of American launch capabilities, demonstrated in Space Force’s first official operation, which saw SpaceX lift an advanced military satellite into geostationary orbit. The second method of increasing the number of satellites is to decrease their size so that they are cheaper and more easily deployed. Indeed, recent years have seen a proliferation of small satellites in orbit, a technology the Space Force is actively pursuing to increase the resilience of U.S. space capabilities. An alternate defensive strategy would be to find ways to directly protect satellites from physical strikes and cyber-attacks. This is a much more difficult proposition, as it would likely involve placing some form of missile defense in space, which is controversial both

legally and politically and could lead to dangerous escalation. Upgrading the cyber defenses of satellites is a growing priority, but many older satellites will be vulnerable to attack regardless of current efforts. Air Force Space Command contended with the same issues and ultimately decided to concentrate its limited resources on satellite proliferation rather than direct defense. Pentagon officials were cool to the costs of space-based satellite defenses and doubtful of political support for such a project. The Space Force is similarly relying on satellite proliferation rather than active satellite defenses.

## Space Force requested \$43 million in satellite research and development to improve communications and services

Strout, Nathan. "US Space Force developing a strategy to improve satellite communications." *C4ISRNet*. 9 September 2020. <https://www.c4isrnet.com/smr/defense-news-conference/2020/09/09/space-force-developing-a-strategy-for-implementing-its-enterprise-satcom-vision/>

WASHINGTON – As the U.S. Space Force builds out its fiscal 2022 budget, the nascent service is developing a new strategy to govern how it builds and leases satellite communications and services. Lt. Gen. Bill Liquori explained during the Defense News Conference Sept. 9. While the service was able to include some aspects of that Enterprise SATCOM Vision in the fiscal 2021 budget, that budget process was already well underway when the Space Force was formally established in December. That budget request included \$43 million in research, development, test & evaluation funding to develop the Fighting SATCOM Enterprise, a new designation emphasizing the ability to roam between various communications satellites, regardless of whether they are commercial or government operated.

## Improving satellites could help reach 12 of the 17 UN Sustainable Development Goals including ending world hunger, cleaning water, preventing climate change, and providing broadband internet

Marshall, Will. "Space technology is improving our lives and making the world a better place. Here's how." *World Economic Forum*. 17 July 2017.

<https://www.weforum.org/agenda/2017/07/using-space-to-help-global-development/>

The global coverage of satellites offer a unique, fact-based perspective that can help us overcome our greatest challenges. Information from these spacecraft can help us improve agricultural yields and protect habitat loss and stop deforestation. They discovered the hole in the ozone layer and their data today remains key to fighting climate change; and they've helped us to connect the world through internet and communication, an intangible service for millions. Satellites in space have done much for us so far and, in the future, they will offer much more. As the world turns its attention to the Global Goals, we should look systematically at how satellites can help us reach those Earthly targets. Thus, my colleagues and I analysed the goals and found that 12 of the 17 SDGs

could be reached with the help of satellites. Here are seven of the goals and examples of how satellites can help:

Satellite imagery can tell crop yield on a pixel by pixel basis – enabling farmers to better decide when to add water or fertilizer and when to harvest. By imaging the land using special spectral

bands (such as near infra-red) we can develop a vegetation index that represents crop vigour and productivity. Agricultural land represents 37% of the land area of earth and satellites are uniquely capable of collecting this data across such a vast territory. For example, my own company, Planet, images the whole land mass of Earth daily to help with these efforts. Satellite images enable broad and

efficient monitoring of reservoir water levels, providing early warning of shortages and uniform data across different countries that share water sources, increasing transparency

and consistency in water delivery. Often the earliest and clearest indications of climate change can be observed in very remote regions of the world. Earth-observation satellites enable global monitoring of deforestation, pollution levels in bodies of water, status of ice caps and desertification, and enable early and immediate action to prevent these events. Just 50% of Earth's 7.5 billion people have access to the internet. A global network of communications satellites, such as those being developed by SpaceX and OneWeb, could enable internet connectivity to a clear majority of people, especially those in remote regions where infrastructure and development is scarce. With access to the internet comes increased knowledge sharing, the benefits of the best doctors and teachers via tele-medicine and education, and greater communication.

## Space Force satellite collects weather data in Indian Ocean operating theaters

Erwin, Sandra. "NOAA's former satellite now providing weather data to the US military." *Space News*. 8 September 2020. <https://spacenews.com/noaas-former-satellite-now-providing-weather-data-to-the-u-s-military/>

WASHINGTON – The U.S. Space Force announced that a geostationary weather satellite previously owned by the National Oceanic and Atmospheric Administration is now in service for the military providing coverage over the Indian Ocean. A satellite that NOAA first launched in 2006 and retired in 2018 has been repurposed as the Electro-Optical Infrared Weather System – Geostationary, or EWS-G1. The Space Delta 2 at Peterson-Schriever Garrison, Colorado, declared the satellite operational on Sept. 1. NOAA is operating EWS-G1 for the military collecting weather imagery over the Indian Ocean region in support of U.S. Central Command. "EWS-G1 is the first Department of Defense owned geostationary weather satellite," the Space Force Space and Missile Systems Center said Sept. 8 in a news release. "The satellite provides timely cloud characterization and theater weather imagery to DoD in the Indian Ocean region, addressing needs across Central Command and other operating theaters."

## Broadband access has lifted 2.5 million out of poverty, decreasing extreme poverty by 7%

Castells, Pau. "Expanding mobile broadband coverage is lifting millions out of poverty." *World Bank*. 10 December 2020. <https://blogs.worldbank.org/developmenttalk/expanding-mobile-broadband-coverage-lifting-millions-out-poverty>

Surfing the web or connecting to social media at home, in the office or at school has become a natural part of daily life for many in the world. It may seem unthinkable, then, that millions of people in developing countries still remain disconnected from the digital world. In Sub-Saharan Africa, for instance, a quarter of the population still live outside mobile broadband coverage compared to 7 percent globally (GSMA). So what did we find? Not only did mobile broadband improve welfare but its effects were larger for those households that were exposed a longer period of time to areas with a broadband signal. Specifically, after a year or more of mobile broadband coverage, the total consumption of households studied increased by about 6 percent. After two years of coverage, this rate increases to 8 percent (Figure 1). The results are similar regarding poverty reduction. Extreme poverty for these households declined by about 4 percentage points after one year of gaining mobile broadband coverage; and about 7 percentage points

after two or more years of coverage (at the \$1.90 per day poverty line) (Figure 2). This corresponds to lifting approximately 2.5 million people out of extreme poverty in the country. The welfare effects were particularly pronounced for rural households. These results attest to the critical role that mobile broadband plays in poverty reduction in Nigeria, and potentially more broadly across Africa.

# CON ARGUMENTS

# SPACE MILITARIZATION BAD

## What's the argument?

This argument directly pushes back against the pro-militarism stance PRO teams, as well as defense officials, often use to justify action. It seeks to look behind the threat construction and paints the United States as the aggressor, rather than the reactor. Through establishing a more authoritative stance on activity in space, the United States serves to only escalate preexisting conflict, threatening peace and destroying long-term usability of the global space commons (Fraleley 2020). The Space Force would establish a norm of space use and therefore encourages rapid expansion by our adversaries and allies. Thus, this argument functions in a similar fashion to proliferation. As more actors join the militarization of space, the bar is lowered for the probability of conflict. This is extremely problematic as our most threatening adversaries, Russia and China, continue to advance and develop technologically and already have far surpassed the United States. Establishing a Space Force serves as a conflict multiplier, signaling to other countries to begin the race of who can dominate first.

While conflict could not only stem from escalation, but also as a result of the inherent lack of organization. Unlike other branches of the military, such as the Navy or Air Force, the Space Force lacks the mass amounts of personal, battle experience, coherent doctrine, and structure other branches possessed at their inception. A great “degree of uncertainty looms because the precise organizational structure of the service is unsettled.” As a result, the foundation and infrastructure is extremely weak and therefore susceptible to failure. “In the short term, it runs the risk of disrupting existing procedures and relationships that enable the U.S. military to function. In the long term, it runs the risk of distorting the procurement and force structure of U.S. space capabilities” (Farley). This is especially problematic due to the lack of norms established in space on how to conduct relations and conflict. The combination of uncertainty and a lack of precedent is very dangerous, especially considering the impact a space war would have on the world.



## Why does the argument matter?

As discussed in the pro version of this argument, the threat of war in space, or even an attack, poses a great danger. Moreover, the United States has the most to lose in space-based conflict due to our immense dependency on satellites. In the event of a strike, the majority of citizens both in the United States and abroad would lose connection with one another. The military would struggle to function and track incoming attacks and life as we know it would drastically change for the worse (Roberts). The best way to ensure this does not happen is to not put our adversaries on the defensive. The Space Force does the exact opposite of this and therefore drastically increases the likelihood of a detrimental attack that could result in a cyber war.

## Main Players

The United States, US adversaries (specifically Russia and China)

## Strategy Considerations

This argument is one of the most probable implications of the Space Force as we have already seen escalation transpire in other military realms (i.e., Nuclear Weapons, Cyber Tech, etc.). For that reason, precedent as well as the tension that currently exists within international relations, this argument not only serves as a block to pro militarization arguments but has enough legs to stand as a strong argument on its own. Teams running escalation of conflict have probability and logic on their side, making it an easy argument to win off of. That being said, teams also should prepare strong blocks to pro militarization arguments as the link of expanding the military will be very popular on both sides.

## Evidence for Space Militarization Bad

The Space Force is extremely unorganized and ill prepared to launch and therefore would act poorly as a branch of the military

Farley, Robert. "Space Force: Ahead of its time, or dreadfully premature?" *Cato Institute*. 1 December 2020. <https://www.cato.org/publications/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

The Space Force is the first new independent U.S. service since the creation of the Air Force in 1947. At its inception, the Air Force had hundreds of thousands of personnel, several years of battle experience, a coherent body of doctrine, and a robust organizational culture. Even so, the creation of the Air Force sparked bitter interservice conflict for the first decade of its existence. However, the Space Force lacks a strong institutional basis, an identifiable organizational culture, and an established foundation of strategic theory. In the short term, it runs the risk of disrupting existing procedures and relationships that enable the U.S. military to function. In the long term, it runs the risk of distorting the procurement and force structure of U.S. space capabilities. Does the United States need a military presence in space? Most informed opinions suggest that the answer is yes. Does the United States need a new independent service for managing that military presence? The answer is less obvious. In December 2019, Congress created the U.S. Space Force, which is meant to bolster U.S. military capabilities in a domain that the existing services have not prioritized. The wisdom of creating a new service is uncertain in the best of times, given the need of forces to coordinate across organizational borders. In the case of the Space Force, an even greater degree of uncertainty looms because the precise organizational structure of the service is unsettled. Indeed, most of the arguments against the creation of the Space Force have focused on either the lack of strategic necessity for creating a new service or the price tag associated with standing up a new organization.<sup>1</sup>

Space militarization can threaten peace and destroy long-term usability of the global space commons

Farley, Robert. "Space Force: Ahead of its time, or dreadfully premature?" *Cato Institute*. 1 December 2020. <https://www.cato.org/publications/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

The increasing militarization of space has spurred discussion of the need for additional space governance.<sup>63</sup> War in space could threaten the long-term health and usability of the "space commons" by distributing fragments of destroyed satellites across a wide range of orbits, including those commonly used by civilian spacecraft. This could result in severe short-term economic dislocation, even for noncombatants, and pose a long-term obstacle to the human exploitation of space. Two combatants could cause catastrophic damage to the infrastructure that enables modern social and economic life, making the establishment of some "rules of the road" imperative. The reasoning behind this opposition is clear: Strategic bombing (and later the delivery of nuclear payloads through intercontinental ballistic missiles) provided the rationale for the autonomy, independence, and primacy of the Air Force. Limitation of these weapons would not only require significant revision of doctrine and force structure but also would strike at the core cultural stories that undergirded the services. Moreover, compliance with the restrictions of a multilateral governance regime can be onerous in terms of financial, human resources, and intelligence demands.<sup>71</sup> Most modern arms limitation regimes demand transparency on the part of the participants, which services tend not to welcome. Given that services tend to pursue autonomy, the Space Force could pose some obstacle to future efforts for multilateral arms control in space. To be sure, neither the navies nor the air forces of the 20th century managed to prevent arms control. Nevertheless, if the Space Force manages to acquire the

bureaucratic heft it needs to accomplish its core missions, it could act as an interest group within government to prevent the execution of strong multilateral arms control agreements.

The record offers qualified reasons for concern about the role that the Space Force could play in future arms control negotiations. Services tend to resent the imposition of external limits on their procurement and force structure, although the extent of this resentment depends on organizational priorities. Still, the Space Force is unlikely to spearhead a drive for arms control within the U.S. government and probably will resist limitations imposed by such arms control on its core interests.

## Adding more people to space creates immense tension and could lead to a war in space where the US would have the most to lose

Roberts, Thomas González. “Why we should be worried about a war in space.” *The Atlantic*.

15 December 2017. <https://www.theatlantic.com/science/archive/2017/12/why-we-should-be-worried-about-a-war-in-space/548507/>

Although there has never been a military conflict in space, the history of human activity above our atmosphere is not entirely benign. In 1962, the United States detonated a 1.4 megaton nuclear weapon 250 miles above the Earth’s surface. The blast destroyed approximately one third of satellites in orbit and poisoned the most used region of space with radiation that lasted for years. Although the United States, Russia, and others soon agreed to a treaty to prevent another nuclear test in space, China and North Korea never signed it. In 2007, China tested an anti-satellite weapon, a conventionally-armed missile designed to target and destroy a satellite in orbit. In the process, it annihilated an old Chinese weather satellite and created high-velocity shrapnel that still threatens other satellites. Even though demonstrations like this have consequences for everyone, countries are free to carry them out as they see fit. No treaties address this kind of test, the creation of space debris, or the endangerment of other satellites.

The U.S. has the most to lose in a space-based conflict. With by far the most satellites in orbit, the U.S. has the most to gain by establishing norms, but also the most to lose. Almost half of all operational satellites are owned and operated by the United States government or American commercial companies. That’s twice as many as Russia and China, combined.

Space may seem distant, but what happens there affects our everyday lives on the ground. When we use our phones to plan a trip, we depend on American GPS satellites to guide us. When the U.S. military deploys troops overseas, satellite communications connect forces on the ground to control centers. When North Korea launches an intercontinental ballistic missile, the U.S. and its allies depend on early-warning satellites to detect it. On one hand, if the global space powers agreed to put limits on space-based weapons and other related technologies, it could make space safer for everyone. But

because the U.S. may have spent time and resources developing exactly the type of weapons that a code of conduct would ban, it could also curtail the most advanced space-based developments, erasing years of research and progress. In the first space age, from the launch of the first human-made satellite in 1957 through the fall of the Soviet Union, the United States and the USSR were responsible for over 90 percent of all satellites. Their race to perfect space technology, dominated by both national security interests and scientific discovery, far outpaced everyone else.

There are more players in space—and less consensus. In the first space age, from the launch of the first human-made satellite in 1957 through the fall of the Soviet Union, the United States and the USSR were responsible for over 90 percent of all satellites. Their race to perfect space technology, dominated by both national security interests and scientific discovery, far outpaced everyone else. The second space age, from 1990 to today, looks remarkably different. Now, more satellites are operated by private companies than militaries, and more space launches and new satellites come from countries other than the United States and Russia.

More players in space—particularly more unpredictable players—means more opportunities for aggressive behavior, like developing anti-satellite technologies or hacking satellite communications. Countries like Iran or North Korea that are newer to space can choose to operate in a way we’ve never seen before. And if their nuclear programs on Earth are any guide, they could pose serious threats if left unchecked.

# HURTS DIPLOMATIC RELATIONS

## What's the argument?

The process of militarizing space comes at the expense of several international norms, treaties and agreements the US either created or is a signatory of. The largest example of this is the Outer Space Treaty (OST) of 1967 that most major superpowers including the United States signed on to in order to ensure space would be used for peaceful purposes and non-aggressive activity. While there is a bit of a legal grey area in terms of what “peaceful purposes” means, for the most part the international community holds that the ambition of dominance in outer space violates international law (Goel 2020). This is coupled by the fact that Russia and China, despite making small-scale strides within their own space programs, are still largely behind the United States. The US military space budget is more than 10 times greater than all other countries’ combined; thus, any action the US takes to militarize space with the space force is in direct violation of international treaties and would be seen as a “military intrusion” (Carr).

Another concern for diplomacy is the power the space force will have in shaping policy as a special interest group in Congress. Other military branches that have a large deal of autonomy push for pro-war, pro-militarist agendas and are often opposed to limitations on their own power. The Space Force could use this leverage to pose another obstacle for arms prevention treaties and prevent the execution of stronger multilateral agreements (Farley). Adding another special interest group to the mix will surely make matters worse for what is already a madhouse of war-mongering lobbyists on Capitol Hill.

Already, the United States’ lack of concern for international space norms recently has led to large-scale diplomatic failures. For instance, the United States failed to support the United Nations Proposed Prevention of An Arms Race in Space (PAROS) treaty (NTI). This treaty sought to prevent space weaponization and promote international peace and cooperation on other conflict fronts with nuclear weapons disarmament, particularly with China and Russia, who were leaning towards cooperation had the United States supported the treaty. Instead, we are left with a lack of diplomatic communication channels and more potential areas for conflict.

## Why does the argument matter?

Foregoing diplomacy for military expansion has very terminal consequences. Generally, diplomacy is viewed as a much more successful mechanism for conflict resolution. Holistically, conflicts that experience diplomatic interventions see a 76% reduction in conflict duration (Regan). However, US diplomacy when it comes to space and technology also matters when it comes to creating good norms for space exploration, travel, and other emerging technologies like cybernorms. US failure to comply with space treaties could moot its efforts on other treaties in the United Nations like cyber norms. Already, they risk losing ground to China and Russia who are two of the largest sponsors of cybercrime (Peters). Current US diplomatic shortcomings risk not only the future of space but could further the \$600 billion financial impact that stems from a lack of international consensus on emergent technologies, cybercrime, and other forms of militarization (Lewis).

## Main Players

United Nations, China, Russia, North Korea, Iran, potentially NATO

## Strategy Considerations

This argument, as with most arguments concerning international relations, is very difficult to terminalize and explain its significance to the average person. The reasoning is very strong and has a plethora of historical examples backing it; however, the impacts of poor space norms probably won't be felt until much later in the future. Thus, the argument is very difficult to weigh against some of the more practical arguments like cyberattacks, satellite disruption, and other forms of military conflict. However, if crafted into a broader narrative about US militarism and its drawbacks, this argument has the potential to be a probable and compelling story for judges in the back of the room, despite its abstraction.

## Evidence for Hurts Diplomatic Relations

The US would be the first to put weapons in space, creating an arms race and destroying international space

Carr, Patrick. "Militarizing space is a very bad idea." *The Global Comment*. 30 August 2018. <http://globalcomment.com/militarizing-space-is-a-very-bad-idea/>

In 2018, the Union of Concerned Scientists reaffirmed the position it took in 2014, writing: "There have been military satellites in orbit since the very beginning of the space age, but so far, no destructive weapons have been deployed there." It seems that having the United States invest in weaponized space technology to counter non-existent space weapons supposedly being deployed by adversaries is not the best way to ensure that "the space domain remain free of conflict." Similarly, voting against a UN resolution supported by both China and Russia which pledged "no first placement of weapons in outer space," as the US did in 2017, would be inimical to keeping the domain unsullied by military intrusion. Arguing in favor of "American dominance" is arguing against change. According to the Council on Foreign Relations, "75 percent of global space funding is by the United States...43 percent of all active satellites are US owned." Theresa Hitchens at the Center for International Security Studies writes "[t]he US' military space budget is more than 10 times greater than that of all the countries in the world combined." With this in mind, it's hard to see how any fear of America being overtaken by a foreign enemy can be validated. However, this is what's necessary if the march towards war in space is to continue. Hitchens writes: A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space...the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades...the US military – backed by the Intelligence Community which operates the nation's spy satellites – seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries. The underlying assumption – a convenient one for advocates of more military spending – is that now there is nothing that diplomacy can do. History has shown that there is quite a bit that diplomacy can do; if the United States had supported the PAROS treaty, all of the world's most powerful nations would have agreed to refrain from actions contrary to "the objective of the peaceful use of outer space...in the interest of maintaining international peace and security and promoting international cooperation." Not only is diplomacy viable, it's becoming increasingly necessary.

### History of the PAROS treaty and its failure

Nuclear Threat Initiative. "Proposed Prevention of an Arms Race in Space (PAROS) Treaty." 23 April 2020. <https://www.nti.org/learn/treaties-and-regimes/proposed-prevention-arms-race-space-paros-treaty/>

In 1959, the UN General Assembly established the Committee on the Peaceful Uses of Outer Space (COPUOS) in Resolution 1472 (XIV). This committee identified areas for international cooperation in the peaceful uses of outer space, devised programs to be undertaken by the United Nations, encouraged research on matters relating to outer space, and studied legal



problems arising from the exploration of outer space. During the 1960s and 1970s a number of agreements were adopted to prevent the weaponization of outer space. These include the Partial Test Ban Treaty, formally titled the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (1963), the Outer Space Treaty, formally titled the Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967), the Rescue Agreement, formally titled the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968), the Agreement Relating to the International Telecommunications Satellite Organization "Intelsat" (1971), the Liability Convention, formally titled the Convention on International Liability for Damage Caused by Space Objects (1972), the Launch Registration Convention, formally titled the Convention on the Registration of Objects Launched into Outer Space (1975), the Moon Agreement, formally entitled the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979).

## Space militarization can threaten peace and destroy long-term usability of the global space commons

Farley, Robert. "Space Force: Ahead of its time, or dreadfully premature?" *Cato Institute*. 1 December 2020. <https://www.cato.org/publications/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

The increasing militarization of space has spurred discussion of the need for additional space governance.<sup>63</sup> War in space could threaten the long-term health and usability of the "space commons" by distributing fragments of destroyed satellites across a wide range of orbits, including those commonly used by civilian spacecraft. This could result in severe short-term economic dislocation, even for noncombatants, and pose a long-term obstacle to the human exploitation of space. Two combatants could cause catastrophic damage to the infrastructure that enables modern social and economic life, making the establishment of some "rules of the road" imperative. The reasoning behind this opposition is clear: Strategic bombing (and later the delivery of nuclear payloads through intercontinental ballistic missiles) provided the rationale for the autonomy, independence, and primacy of the Air Force. Limitation of these weapons would not only require significant revision of doctrine and force structure but also would strike at the core cultural stories that undergirded the services. Moreover, compliance with the restrictions of a multilateral governance regime can be onerous in terms of financial, human resources, and intelligence demands.<sup>71</sup> Most modern arms limitation regimes demand transparency on the part of the participants, which services tend not to welcome. Given that services tend to pursue autonomy, the Space Force could pose some obstacle to future efforts for multilateral arms control in space. To be sure, neither the navies nor the air forces of the 20th century managed to prevent arms control. Nevertheless, if the Space Force manages to acquire the bureaucratic heft it needs to accomplish its core missions, it could act as an interest group within government to prevent the execution of strong multilateral arms control agreements. The record offers qualified reasons for concern about the role that the Space Force could play in future arms control negotiations. Services tend to resent the imposition of external limits on their procurement and force structure, although the extent of this resentment depends on organizational priorities. Still, the Space Force is unlikely to spearhead a drive for arms control within the U.S. government and probably will resist limitations imposed by such arms control on its core interests.

## The Outer Space Treaty is nebulous concerning whether the Space Force violates international law

Fukazawa, James. "Does the US Space Force violate the Outer Space Treaty?" *Denver Journal of International Law and Policy*. 28 April 2020. <https://djilp.org/does-the-u-s-space-force-violate-the-outer-space-treaty/>

The OST is a shining example of diplomacy between competing states with vastly different agendas.<sup>[15]</sup> However, the diplomatic process resulted in ambiguities that are resolved by varying national interpretations.<sup>[16]</sup> For example, the United States and



## Russia 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’ interpretation 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 consensus on the meaning of peaceful purposes, each state conducts their affairs in accordance with their own sometimes conflicting national interpretations.[19] Several problems 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. However, the legal calculus was recently complicated when President Trump signed Executive Order 13914 in April 2020.[23] The United States has already authorized private companies to commercialize and exploit resources in space.[24] The April order submits that exploitation of resources in space is consistent with the OST, and that absent further international agreement, space is not a global commons.[25] There are a host of other threats that exist in nebulous legal territory,[26] almost all of which have been exposed since the turn of the century. The OST is not well equipped to deal with such challenges.[27] To illustrate, In 2006, China targeted a U.S. satellite with a laser, which was interpreted as an anti-satellite experiment.[28] In 2007, China destroyed one of its own satellites in an ASAT weapon test, creating an international enormous amount of dangerous space debris.[29] Although China’s actions drew international condemnation,[30] the conduct was found not to violate the OST, and no country took legal action.[31] More recently, in 2018, Finland and Norway experienced airspace interruptions in GPS and suspected Russia of engaging in strategic disruption during a military exercise as part of the NATO war games.[32] The political insufficiencies of the OST are compounded by its inapplicability to private actors.[33] With technological development far outpacing the law, national legislation may be the only option for bringing space law into modernity.[34]

## Space weaponization could create competition and sabotage preventing access

Calahan, Molly. “Will Space Command help or hurt international relations in space?”

*Northeastern News*. 5 September 2019. <https://news.northeastern.edu/2019/09/05/will-space-command-help-or-hurt-international-relations-in-space/>

The practical reality is that if you mega-size the space debris problem, you cannot control where all those pieces of metal go in low-Earth orbit,” she says. “If you try to destroy something in space through military action, you’re potentially destroying all satellites in orbit.” Both the Chinese and Indian anti-satellite tests created huge amounts of space debris that are still floating in a cloud around the Earth’s orbit.

The ratcheting-up of a military presence in space could also have the unintended consequence of becoming a “self-fulfilling prophecy,” Cross says, in which various countries, so panicked that one another are going to attack, end up creating a conflict instead of avoiding one. “This could become a competition with various forms of sabotage,” she says. Cross is also concerned that the militarization of outer space could hamper international collaboration that has long been the signature characteristic of scientific space exploration. If, for example, a country’s scientific knowledge becomes “more about jealously guarding advancement in space, it might be difficult to keep up this international collaboration,”

Cross says.

## Space Force could violate international law and have large diplomatic ramifications

Goel, Nharatt. "The US Space Force and international law considerations." *The Space Review*. 10 February 2020. <https://www.thespacereview.com/article/3879/1>

The creation of a Space Force will have wide political, diplomatic, environmental, and ethical ramifications. Critics opine that the bureaucratic and budgetary costs outweigh the apparent urgency to have a Space Force. Further, Congressional assent will also determine how the nascent organizational change will be enacted. Furthermore, escalated risk of space debris as a byproduct of military activity will, at least in theory, flout the caveat against unreasonable interference and harmful contamination in the outer space spelled in Article IX of the Treaty, notwithstanding the rare invocation of the article and whether liability will accrue thereupon, as seen from the targeting of the USA 193 satellite in 2008. Given these prescriptions and prohibitions, even though the idea of a Space Force is legally sound, there is a very small legal window for effectively realizing the ambition of "dominance" in the outer space. The US will have an obligation to keep the United Nations and the international scientific community abreast with the nature, conduct, locations, and results of the activities of its Space Force as well as grant access to other nations for projected visits to its stations, installations, equipment, and vehicles in the space, if any. The aforementioned obligation taints the aspiration of "unfettered access" and space control that the US has. It also cements international cooperation as the sine qua non of any development in space and ensures equal access to the global commons.

## Diplomatic interventions reduce conflict duration by 76%

Regan, Patrick. "Diplomacy and other forms of intervention in civil wars." *Journal of Conflict Resolution*. October 2006.

<https://www.jstor.org/stable/pdf/27638519.pdf?refreqid=excelsior%3A6cbf92392b64189bafb04ba60a49f679>

In a second model, we have excluded structural interventions and included the effect of diplomacy and the timing of diplomacy on the length of the conflict. The results show that diplomatic interventions dramatically reduce the expected duration of a conflict. For example, the expected duration for civil conflicts that have experienced diplomatic interventions is reduced by about 76 percent without diplomatic interventions. This interpretation is, however, complicated by the decay function we used to model the effects of inter time, although we will address this issue when we interpret the full model 2).5

## US faces losing international cyber norms to China and Russia

Peters, Alison. "Russia and China are trying to set the UN's rules on cybercrime." *Foreign Policy Magazine*. 16 September 2019. <https://foreignpolicy.com/2019/09/16/russia-and-china-are-trying-to-set-the-u-n-s-rules-on-cybercrime/>

As world leaders gather in New York next week for another session of the United Nations General Assembly, they'll have a number of pressing global security challenges on their minds. But on one key topic—cybercrime—the United States risks losing to Russia and China if it doesn't have a clear strategy for pushing back against their attempts to prevail on the issue. By failing to articulate its own vision for cybersecurity, it would let two countries that have sponsored and harbored cybercriminals set the rules of the game. The playing field has long been set in the competition to create the rules governing how countries deal with cybercrime. On one side, you have a global treaty, known as the Budapest Convention, which was drafted with strong support from the United States and its allies. The convention is the only legally binding international treaty that lays out

common standards on cybercrime investigations and aims to boost cooperation among criminal justice systems around the globe in these cases. On the other side, you have Russia and China, two countries that have long been accused of sponsoring malicious cyberactivity themselves. These countries have refused to join the Budapest Convention and have instead called for a new global cybercrime treaty at the U.N.—one that they could presumably influence the drafting of.

## Lack of cyber norms and cybercrime cost \$600 billion each year

Lewis, James. “Economic impact of cybercrime.” *Center for Strategic and International Studies*. 21 February 2018. <https://www.csis.org/analysis/economic-impact-cybercrime>

The Center for Strategic and International Studies (CSIS), in partnership with McAfee, present Economic Impact of Cybercrime – No Slowing Down, a global report that focuses on the significant impact that cybercrime has on economies worldwide. The report

concludes that close to \$600 billion, nearly one percent of global GDP, is lost to cybercrime each year, which is up from a 2014 study that put global losses at about \$445 billion. The report attributes the growth over three years to cybercriminals quickly adopting new technologies and the ease of cybercrime growing as actors leverage black markets and digital currencies.

# INEFFECACY

## What's the argument?

Some opponents of a Space Force argue that, while military strength in space is important, a standalone Space Force is not the best solution, and the US should stick to the preexisting solution of a Space Command. The first pillar of this argument is that the creation of a Space Force poses no actual structural change to the day-to-day functioning of the military (Grush). Because of this, some experts argue that the military is better off leaving the Space Command as the primary structure conducting military operations regarding space (Deptula).

Additionally, this argument necessitates a critical understanding of how space operations function within the military, and what those space operations entail. Essentially, the vast majority of space operations consist of satellites which facilitate, among other things, communication among elements of the military. For this reason, some analysts purport that space operations ought to be distributed throughout the other branches of the military, as each branch relies upon satellites in different ways. Thus, centralization could be counterproductive in terms of increasing the effectiveness of our military (Hanlon).

## Why does the argument matter?

Ultimately, every decision the federal government makes for the military should work to strengthen US national security and defense. Thus, if a Space Force isn't the most impactful or effective solution to tackle space operations, it only serves as a distraction from whatever is that impactful and effective solution. Detracting resources from a more effective solution towards a less effective solution is never a positive.

## Main Players

Space Command generals, Congressional Appropriations Committee-members

## Strategy Considerations

Teams running this argument must be careful not to cross the line into running a counterplan, which is not allowed in Public Forum. Your advocacy is not any unique benefit of a Space Command or any other institution, but rather that a Space Force is

so ineffective and unimpactful that all its creation does is detract resources from other things. This argument should likely be run in conjunction with another piece of unique offense, as it is difficult to tangibly impact this argument on its own. Thus, from case, teams will have built-in defense (by preemptively negating any benefit of a Space Force that the affirmative reads) as well as separate offense to carry through the round.

## Evidence for Inefficacy

### In practice, the “creation of a Space Force” poses no structural change to how the military functions

Grush, Loren. “Space Force may finally become real – but it won’t be an overhaul.” *The Verge*. 11 December 2019. <https://www.theverge.com/2019/12/11/21004914/space-force-military-branch-ndaa-2020-joint-chiefs>

President Trump’s long trumpeted pet project, the creation of a new branch of the military called the Space Force, is now finally on the cusp of becoming a reality, thanks to a new bill that may be voted on today by Congress. If it does go into effect, the bill will stand up a

Space Force that is much different from what Trump originally proposed – one that won’t require any substantial restructuring within the military. But it’s possible that this watered-down Space Force could eventually lead to changes in

how the military conducts its space operations in the long term. The new provisions are included in the 2020 National Defense Authorization Act, or NDAA, which determines the military’s responsibilities and strategies as well as authorizes funds for the coming year. The bill, if approved, would establish the Space Force as the sixth branch of the United States Armed Forces, making it the first new military branch to be created in more than 70 years. However, the Space Force will still be housed within the already

established US Air Force, similar to how the Marine Corps resides within the US Navy.

The Air Force is already responsible for conducting most of the military’s space-based programs, and the Space Force will simply carry on those same functions under the Air

Force umbrella. That is a far cry from what President Trump initially proposed. In June 2018, Trump directed the Department of Defense to establish the Space Force as something independent of the Air Force. “We are going to have the Air Force, and we’re going to have the Space Force – separate but equal,” he said during the surprise announcement, made during a meeting of the National Space

Council. “It is going to be something so important.” In reality, the pending Space Force would be more of a corps than a

force, and it shouldn’t require any major budget increases to implement. In fact, much of the personnel within the Air Force who currently work on space will simply be transferred to the Space Force, according to the NDAA. In essence, it’s relatively minimal restructuring, but it could be just enough to foster a culture change within the military. “In the immediate future, it’s a little change, a little step,” Kaitlyn Johnson, an associate fellow and associate director of the Aerospace Security Project at the Center for Strategic and International Studies, tells *The Verge*. “But I think it has potential if given the time to grow and the real effort to distinguish it and support the space professionals that are there.” The Space Force is actually one of a couple of ways the Trump administration has sought to restructure space activity within the military. In August, the White House also stood up a new unified combatant command within the military, called US Space Command, aimed at focusing entirely on military space. Space Command isn’t exactly new; it existed before, between 1985 and 2002, until it was folded into US Strategic Command. But it now exists as its own separate entity once again. The function of Space Command, or USSPACECOM, differs from Space Force. As a unified combatant command, USSPACECOM is responsible for space warfighting. The organization decides how to utilize the domain of space in the best interests of national security, whether that’s providing space-based communications capabilities for troops overseas or surveilling certain portions of the globe. The Space Force, on the other hand, is responsible for “operating, training, and equipping” all of the space assets that USSPACECOM needs. That entails acquiring the right surveillance or communications satellites, getting them into space, and training people to operate those vehicles. Up until now, those functions, known as OTE, have mostly been handled by the Air Force Space Command, a division within the Air Force. If the NDAA is enacted, the Space Force will take on all of the Air Force Space Command’s responsibilities as well as most of its

personnel and any other members of the Air Force that are reassigned to the new force. No new positions for military

personnel can be created within the Space Force, according to the NDAA. That means a lot of shuffling personnel around. “This is starting out by rebranding all the Air Force Space Command people to be Space Force,” Brian Weeden, director of program planning for the Secure World Foundation, an organization that promotes sustainable space solutions, tells *The Verge*. There

are still appropriations to think about, too. Though the NDAA will establish the Space Force, the organization hasn’t

received any funding yet. But it may be easier to get funding for the branch if it’s mostly just taking personnel from the Air

Force Space Command. While it may feel as though the Air Force Space Command is simply getting a new name, there are a few key distinctions. For one, the Space Force would get full Title 10 authority, which would give the branch the ability to make its own decisions about operating and training people to use equipment. Under the current regime, the Air Force is the one with Title 10 authority, and it will make decisions based on recommendations from the Air Force Space Command. “That organization doesn’t already have its own independent decision making authority, and this will kind of elevate that out,” says Johnson. The NDAA also establishes that the Space

Force will be run by a newly created chief of space operations who will report directly to the US secretary of the Air Force. This CSO will also be a member of the Joint Chiefs of Staff, a group of senior military personnel that advises the president. So while the CSO will report directly to the Air Force Secretary, they will also have a way to reach the president without a mediator. "They can give some independent advice to the President, alongside the other chiefs," says Weeden. "But they're under the authority of the Secretary of the Air Force when it comes to making decisions." That may seem like a weird hierarchy, but it could be important for establishing the Space Force as its own unique entity. "Part of the argument for Space Force was that space was kind of getting lost within the Air Force, with its focus on air dominance," says Johnson. "Elevating the Space Force by giving it its own four star general a seat at the table at the Joint Chiefs is elevating that voice of space to a higher priority." For now, it seems as though Gen. John Raymond, who oversees USSPACECOM, will also serve as the Space Force CSO for the first year of operations. The Space Force will get a few other key personnel as well, such as an assistant secretary focused on making space acquisitions or acquiring new space technologies. Another assistant secretary would help oversee space warfighting. It may be a Space Force in name, but this organization certainly looks very similar to another organization that was proposed in 2017 by Reps. Jim Cooper (D-TN) and Mike Rogers (R-AL). The two called for the creation of a Space Corps that would live within the Air Force and focus specifically on space training. Though it has a few differences, the Space Force will function in almost the exact same way. "Mike Rogers has been full of glee and grinning like a child on Christmas because they've kind of gotten this through, and I know it's been a lot of effort between him and Jim Cooper – a bipartisan effort in the House to really get this done," says Johnson. Now it just remains to be seen if this will have any lasting impact on the military's way of handling space. Much of the argument for reorganizing military space revolved around how slow it can be to acquire new tech and the difficulty of thinking outside the box. There was a fear that the US military would fall behind in space and its space assets could become vulnerable to foreign adversaries. The idea was that an organization focused specifically on space could come up with better strategies and ideas than one overseen by those more interested in aviation. Will reorganizing part of the Air Force into the Space Force change that? It's possible. "I think leaving a little bit of that Air Force culture, dominated often by fighter pilots, behind will allow the Space Force to really build its own cadre of professionals who have spent eventually all of their career in Space Force and doing space missions and understanding the domain specifically," says Johnson. However, there are still other areas of military space to think about. The Air Force isn't the only military organization to operate space missions. The Army, Navy, and National Reconnaissance Office also operate satellites and use satellite data. The Space Force won't reshuffle any of the space personnel within those organizations at the moment. It's specifically focused on the Air Force for now, and it's mostly just moving people around and giving them a new boss. "It's a new organizational chart," says Weeden. "And there's an opportunity for them to change the culture for buying satellites and training and operating them. It's going to take a long time to do, but this is really the first step down that path."

## A Space Force is not the best solution to the problems facing the US in space

Hanlon, Michael. "The Space Force is a misguided idea. Congress should turn it down."

*Brookings Institute*. 20 April 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 Marine 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 smallest 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 personnel 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, uniforms 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 simply 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 priority. 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 proclivity to play down the importance of bomber forces, unmanned systems and other technologies. The Navy might similarly overemphasize aircraft carriers while underemphasizing 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 services 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, communications systems and networks operating in and through space. Integration should be the watchword. Space systems are increasingly vulnerable today, and while we can mitigate 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 watchword. 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 emphasize 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.**

## A Space Force is the wrong solution to a real problem

Kaplan, Fred. "Space Farce." *Slate*. 21 June 2018. <https://slate.com/news-and-politics/2018/06/trumps-space-force-idea-is-a-terrible-solution-to-a-real-problem.html>

President Trump's proposal to create **a Space Force**—a sixth branch of the U.S. military, like the Air Force, "separate but equal," as

he put it in a speech on Monday—**is** not as zany as it may sound, but it's **the wrong solution to a real problem**. The problem is this: The U.S. military depends on satellites for everything—for intelligence, surveillance, navigation, communications, even for the accurate guidance of its weapons (GPS satellites make "smart bombs" smart)—but these satellites are vulnerable to attack and disruption. This became dramatically clear in 2007, when China conducted its first anti-satellite test, destroying one of its own orbiting satellites with a weapon launched by a rocket. Many sounded the alarm, but no one in Washington did anything about it. In 2011, President Obama, alerted to the problem, quietly made a series of decisions—involving procedures, promotions, and the deployment of new sensors and devices in outer space, most of them highly classified—that began to address the problem. Meanwhile, in the years since, China and several other countries have built up their capabilities—with traditional and cyber weapons—against not only satellites but the ground stations that receive and transmit the data. It's not as if the military was unaware of the issues or ill-equipped to deal with them. The Air Force Space Command, founded in 1982 and headquartered in Colorado Springs, has 36,000 personnel and budget this year of \$8.5 billion. The National Reconnaissance Office, or NRO, an extremely secretive branch of the U.S. intelligence community created in 1961, has a budget that some estimate at about \$15 billion. One might think that the directors of these organizations would have an interest in defending their extremely expensive satellites, but they appear not to. This neglect is what has led some, well before Trump, to propose an autonomous Space Force. The idea is that, rather than being stacked with—and reporting to—traditional Air Force officers, most of them fighter pilots with a drive for offensive combat operations, the specialists of the Space Force would be attuned to the needs, properties, and vulnerabilities of satellites and the systems connected to them. But in fact, this is not likely what would happen—and it's certainly not what should happen. The special thing about satellites and the organizations that control or operate them (Air Force Space Command, the NRO, and other smaller outfits) is that they are, by nature, subordinate to other branches of the armed forces—to wars that are fought not in outer space but on Earth or in the atmosphere. Space assets service air, naval, and ground forces by providing them with intelligence, communications, and guidance for missiles and smart bombs. **Placing these vital assets under the command of**

**a four-star general in a separate service**—and imbuing its officers and enlisted personnel with the élan of an elite force that doesn't answer to the other services of the armed forces and that, in fact, competes with them for resources—**would run**

counter to the nation's needs. That was the point that Secretary of Defense James Mattis made last fall, when a few members of Congress pushed for a separate Space Force. In a letter to the Senate Armed Services Committee, Mattis wrote, "I oppose the creation of a new military service and additional organizational layers at a time when we are focused on reducing overhead and integrating joint warfighting functions." The key here was Mattis' emphasis on "joint warfighting functions"—the need for more interservice cooperation rather than building new fiefdoms—but Trump might also want to heed his words about "reducing overhead." A new service would mean a new headquarters, another seat on the Joint Chiefs of Staff (and a few hundred more Pentagon-based staff), more three- and four-star generals (with their attendant pay and benefits), another military academy (with faculty, grounds, scholarships, etc.), more and different uniforms, probably a Space Band, and all the rest. If Trump thinks that U.S.–South Korean military exercises are too expensive, those costs are trivial compared to the infrastructure of a sixth service. More than that, it's not at all clear what a Space Force would do. Long before the National Security Act of 1947, which laid out the distinct roles and missions of each branch of the U.S. armed forces, the basic functions of an Army, Navy, and Marine Corps had been well established. By contrast, in the decade since China's first anti-satellite test, the United States has still not even declared a policy for deterring and fighting that kind of conflict. That is, we have neither firmly stated what we would do in the event of an attack on our vital satellites nor created (and visibly deployed) the means to carry out that response. Yes, we need to set that policy, and soon, but that should be the job of the political and military leaders who rely on the satellites—not on the officers of a special Space Force, who might have different priorities. There's an analogy to this in modern military history. The 1947 act created, among other things, a new and separate Air Force. (Before then, warplanes and their pilots belonged to the Army Air Corps.) World War II ended in 1945 with those planes bombing Germany and Japan, the latter with incendiary explosives and, at the very end, atomic bombs. So the main mission of the new Air Force was to drop bombs on enemy targets with more atomic (and, a few years later, much more powerful hydrogen) bombs, as part of a doctrine that the generals of the new service called "killing a nation." For the next few decades, the Strategic Air Command—the branch of the Air Force that controlled the bomb—dominated the Air Force. Not until the 1970s did the pilots of tactical fighter jets, armed with conventional bombs and air-to-air munitions, rise to the fore; in other words, not until the 1970s did the Air Force pay much attention to missions that involved supporting Army troops and Marines on the ground. And not until the last 15 years, with the development of smart bombs and drones, did the Air Force have any interest in buying airplanes dedicated to those missions. (The best air-to-ground attack plane of the 1990s, the A-10, would have been killed—the Air Force chiefs zeroed it out of their budgets each year—had it not been built in the home district of the chairman of the House Appropriations Defense Subcommittee; after he died, the chiefs shunted the A-10 fleet to the Air National Guard.) It is not known what the chiefs of the Space Force would want to do and buy, but it's a decent guess that they would push for shiny, offensive weapons over defensive measures—and that they wouldn't spend much time or money on the other service chiefs' wish lists. John Hamre, a former deputy secretary of defense and an outspoken advocate of doing more to protect the U.S. military's space assets, told me that his big worry about a Space Force is that "we will spend the next 5-10 years on bureaucratic arm-wrestling and will fall even further

behind our adversaries." Trump's wishes notwithstanding, a Space Force will not materialize all at once. Congress would have to authorize and fund its creation; the Joint Chiefs would then have to make room for it among the other services. Mattis and Gen. Joseph Dunford, the chairman of the Joint Chiefs of Staff, are on record opposing the idea. So are the seniormost Air Force officials as well as many retired generals and senior officials. (In talking with a number of these people, I couldn't find any who support the idea—or know any colleagues who do.) Then again, Trump announced his proposal for a Space Force at a White House meeting of his Space Council, where Gen. Dunford was present. Turning to Dunford, Trump said, "If you would carry that assignment out, I would be very greatly honored ... Got it?" Dunford replied, "We got it." The Pentagon is currently conducting a congressionally mandated study, due Dec. 31, of the whole gamut of space-defense issues. If Trump gives Dunford this "assignment" a few more times between now and then, the general—who, like Mattis, rose through the ranks as a Marine—might have to do something. At some point in the future, it might be a good idea to create a Space Force (or perhaps a Space Corps, which would have the same semi-autonomous relationship to the Air Force that the Marine Corps has to the Navy). But many other things need to be done first: A policy has to be stated; doctrines, strategies, tactics, and training manuals have to be written; specialists need to be given richer incentives—career paths, with steady promotions—to join the existing services' space commands; all the services would need to work jointly on these tasks. One senior aerospace executive, with a military background, said, "What the Air Force Space Command and the NRO need to do, right now, is to boost the number of soldiers, sailors, aircrews, artillery officers, and so forth—people with operational experience—to be part of the process, who can tell the senior officers what AFSC could do to help, say, the 18th Airborne Division. There's no one at senior levels who's doing this now." In other words, what the officers involved in the space commands need is the opposite of a separate Space Force.

## Creating a separate Space Force is unnecessary, given the existence of a Space Command

Deptula, Dave. "Yes To A U.S. Space Command But No To A Separate Space Force."

*Forbes*. 10 April 2019. <https://www.forbes.com/sites/davedeptula/2019/04/10/u-s-space-command-yes-separate-u-s-space-force-no/?sh=2ac5695de3e9>

The administration has also proposed legislation to establish a new armed service to be known as the U.S. Space Force that would be part of the Department of the Air Force, reporting to the Secretary of the Air Force, but with a Chief of Staff of the Space Force separate from the Chief of Staff of the Air Force. Unlike the authority to establish a new combatant command that resides inside the Department of Defense,

establishing a new armed force is the prerogative of the Congress. The purpose of the new Space Force would be to organize, train, and equip forces to present to the combatant commands, particularly the U.S. Space Command, for use in combating threats to U.S. interests in space. Creating a new Space Force is unnecessary. The U.S. Air Force already performs this mission through one of its major commands, Air Force Space Command. Creating a new armed service to provide personnel to conduct space operations would duplicate those efforts. The new Space Force would not deliver any additional value. Here's why the administration's Space Force proposal should be rejected: In proposing the U.S. Space Force, Vice President Mike Pence said on March 1, 2019, that, "Our national-security space program is spread across more than 60 departments and agencies, resulting in a glaring lack of leadership and accountability that undermines our combatant commanders and puts our war-fighters at risk." Yet, while that seems like a reasonable rationale, Space Policy Directive-4: Establishment of the United States Space Force (19 Feb 2019), makes clear that the new U.S. Space Force will "not include the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the National Reconnaissance Office (NRO), or other non-military space organizations or missions of the United States Government." As a matter of fact, the U.S. Space Force proposal does nothing to consolidate the numerous stovepiped space capabilities that are spread across the federal government—it simply creates another one. A prerequisite to creating a new armed service is the ability to arm that service and, by extension, that service's ability to use those arms to achieve military effects commensurate with those of the other armed services. Currently, however, there are no arms in space or, for that matter, military capabilities now in hand to conduct the sort of counter-space combat operations that would be the stock in trade of a separate and independent U.S. Space Force. Until such time as Congress has debated and addressed constraints to fully-weaponized space capability, and space warfare theory and concepts of operation have matured, establishing a separate space armed force will be premature. Personnel staffing requirements are yet to be determined and costs are ill-defined. This is perhaps the most telling point: The only place that sufficient numbers of competent and trained personnel in space operations can come from is Air Force Space Command. What is to be gained by moving these personnel from Air Force Space Command to a new U.S. Space Force if no consolidation among the other 60-plus space organizations across the U.S. government will occur? Not to mention the remaining personnel requirements at Air Force Space Command, and on the U.S. Space Command staff. Of note, the projected size of the proposed Space Force is approximately 15,000 military personnel—more than 30 times smaller than the U.S. Army and about 12 times smaller than the U.S. Marine Corps. The plan itself was rushed and has "glaring problems." There is still much uncertainty as to what problem(s) the standup of a separate armed force for space will solve. A more deeply considered and deliberate approach is essential to guard against unintended consequences. It is most telling that when the House Armed Services Committee proposed in 2017 to build virtually the same organizational construct (a U.S. Space Corps—different name, same structure), both the current Secretary of the Air Force and Chief of Staff of the Air Force strongly opposed such an organization. As Air Force Secretary Heather Wilson said then, a Space Corps, "will make it more complex, add more boxes to the organization chart and cost more money. If I had more money, I would put it into lethality, not bureaucracy." Bingo. The Pentagon has more than enough bureaucracy already. It needs more tooth, less tail. Air Force Chief of Staff Gen. David Goldfein raised a second point: "If you're saying the words 'separate' and 'space' in the same sentence, I would offer, you're moving in the wrong direction... Every mission that we perform in the U.S. military is dependent on space. Now is not the time to build seams and segregate and separate — now's the time to further integrate." The Chief is right. The risks of a premature Space Force are significant: 1) Lack of cohesive spacepower theory will see space assets sub-optimized; 2) More personnel and money spent on space force organization will divert funding from space force operations to feed a new bureaucracy, and 3) Segregation of air and space will undermine the synergy of the well-established integrated effects of aerospace operations already resident in the U.S. Air Force. The U.S. Air Force has led the Armed Forces in establishing the world's best space capability. Breaking that apart solves nothing. Worse, it could do grievous damage, create uncertainty and unintended consequences, while adding unnecessary bureaucracy and cost. Sometimes doing the right thing means going against the momentum. Congress, do the right thing for America's national security space enterprise: Vote 'no' to a new Space Force.

# PRIVATIZATION OF SPACE BAD

## What's the argument?

This argument revolves around the idea that the government will pay private contractors to carry out most of the innovation required to run the USSF. For years, as budgets have been slashed and the allure of the Space Race has faded, NASA has relied on private sector partnerships to keep up with other countries in terms of innovation and progress. The Space Force has already stated that it will rely on similar partnerships with private space companies like Lockheed Martin, Virgin Galactic, and Elon Musk's SpaceX (Erwin). In fact, the Space Force is already having private contractors develop satellite technology (Erwin). The USSF and Air Force have already committed to billion-dollar contracts with multiple companies (Gregg and Davenport). Because the USSF is smaller than other government agencies, it will likely depend on these partnerships for years to come (Gregg and Davenport). All of this public-sector investment has allowed companies like SpaceX to ramp up production, dramatically increasing space travel (Gregg and Davenport). While these partnerships can be a cost-effective way of doing business, they come with many important drawbacks.

## Why does the argument matter?

Private-sector partnerships can help the Space Force get rockets into orbit at a comparatively lower cost than if they were doing it themselves, but there are many reasons that the USSF should proceed with caution. Firstly, private-sector companies, even if they are working for the federal government, are still motivated by market factors and "commercial viability" (Young). Private sector companies may be less daring with innovation for fear of wasting investors' money, and they might cut corners when it comes to product design to save on expenses. According to Young, "Not all applications of space exploration are profitable (at least not immediately) yet their scientific value in terms of progress, development and knowledge is often immeasurable." In short, many important innovations may be discarded because they are not immediately profitable. Secondly, the rapid proliferation of private space companies, fueled by government spending, has caused a surge in dangerous space debris. Within the private sector, there is an emphasis on quantity over quality (SpaceX launched 180 satellites in September alone). This can cause dangerous collisions

between satellites that can endanger expensive technology and astronauts in orbit (Thompson). Too much space traffic could also make space unusable, as an increasingly cluttered low-earth orbit makes it more and more difficult to launch vital satellites or, eventually, rockets to other destinations. Thirdly, private companies don't have to follow the same regulations as government agencies. In a recent bill, the U.S. government has stated that it does not consider itself liable for the behavior of the private companies it employs (Haskins). This means that there are very few frameworks that can provide guidance for what firms can and cannot do. Space debris, weapons testing, and aggressive satellite launches are all regulated loosely (Haskins). All of these negative impacts will only be exacerbated in coming years as the USSF lines the pockets of space companies and as space companies themselves lobby for more autonomy from the federal government (Wheeling).

## Main players

The government, private space companies, other countries with satellites

## Strategy Considerations

This argument is interesting because it can be used in conjunction with general "military-industrial complex bad" arguments. Many judges already have knowledge on the MIC, so the argument will be believable and realistic. There is also good precedent of private space companies causing problems for NASA or other agencies. Time frame weighing will likely be important for this argument; even if, in the short term, private companies save the government money, in the long run they will exacerbate existing hazards in space travel and will limit possible innovation.

## Evidence for Privatization of Space Bad

*USSF will rely on private companies to produce tech needed*

### Space Force plans to engage in partnerships with private space companies

Erwin, Sandra. "Space Force thinking about NASA-style partnerships with private companies." *Space News*. 4 June 2020. <https://spacenews.com/space-force-thinking-about-nasa-style-partnerships-with-private-companies/>

The U.S. Space Force will be far smaller than the other military services but way more dependent on technology to do its job. While the Space Force will develop satellites and other technologies in-house, it also plans to follow the NASA playbook and team up with the private sector, said Col. Eric Felt, head of the Air Force Research Laboratory's Space Vehicles Directorate. Speaking at a SpaceNews online event June 4, Felt said NASA's commercial crew program is "super exciting" and one that the Space Force can learn from. The launch of a SpaceX Crew Dragon capsule on May 30 that took NASA astronauts to the International Space Station was the "culmination of perhaps the most successful private-public partnership of all times," said Felt. The Space Vehicles Directorate, located at Kirtland Air Force Base, New Mexico, is one of the organizations that Air Force Secretary Barbara Barrett agreed to transfer to the Space Force. Felt said his office will remain at its current location but approximately 700 people will be reassigned to the Space Force "The Space Force is going to be the most high tech of all of the services," said Felt. Public-private partnerships like NASA's commercial crew deals with SpaceX and Boeing have saved NASA billions of dollars and serve as a "powerful model" that the Defense Department could adopt, said Felt. AFRL is applying the model albeit on a smaller scale, Felt said. There are many commercial capabilities that can be used to meet military needs, he said. For space systems one way to do that is with a "hybrid architecture." AFRL, for example, is conducting an experiment integrating data from 266 commercial remote sensing satellites with dedicated national satellites "to create a capability that's much more robust and resilient than just any one piece of that all by itself." Another area suitable for public-private

deals are data services to help the Space Force monitor every object in outer space, a discipline the U.S. military calls "space domain awareness." He noted that commercial companies now have powerful sensors and data analytics systems to track and investigate space objects. AFRL, the Defense Innovation Unit and the Space Force's Space and Missile Systems Center have been talking about setting up a "space commodities exchange," for example, where space services could be traded like commodities, said Felt. "It opens up the financial engine to optimize the price and the quality, where you establish certain quality standards for what you're going to need," he said. "The space domain awareness data might be a great example of the kinds of things that the Space Force could purchase through a space commodities exchange." The space commodities exchange is "one of the experimental business models that we're working towards in the public private partnership area," said Felt.



## A handful of military contractors stand to benefit greatly from USSF contracts

Gregg, Aaron and Christian Davenport. "Here are the companies that could profit from Trump's Space Force." *The Washington Post*. 14 August 2018.

<https://www.washingtonpost.com/business/2018/08/14/here-are-companies-that-could-profit-trumps-space-force/>

The cosmic rhetoric of a Space Force seeking "American dominance in space," as President Trump puts it, conjures images of stormtroopers, laser guns and X-wing fighters – technology straight out of science fiction. But the Pentagon is already working on technology designed to fight a war in space: rockets that could launch daily; missiles that would fly at five miles per second; satellites the size of shoe boxes; and robots that could repair them in orbit. Such efforts already amount to billions of dollars in government spending each year, much of it shrouded under classified military programs. And as the White House pledges to push for a Space Force as a sixth military branch and the first new service since the Air Force was created in 1947, a group of government contractors sees a chance to profit. Byron Callan, a prominent defense stock analyst with Capital Alpha Partners, said Lockheed Martin, Northrop Grumman and Harris Corporation may be particularly well-positioned to benefit from Trump's Space Force. The new service could line their pockets for years to come, assuming Congress embraces the idea. "Because [the Space Force] will be a smaller service with fewer resources, it may be more dependent on industry for technical advice and policy input," said Loren Thompson, a consultant with the nonprofit Lexington Institute, which receives funding from defense contractors. It "would likely be more of a creature of industry than if the Air Force were kept intact." Throughout the history of human space travel, NASA has tended to get most of the glory. But the Defense Department has been focused on the stars since before Sputnik caused a national panic in 1957 – and led to what is now known as the Defense Advanced Research Projects Agency, or DARPA, the Pentagon's research arm. Today, DARPA is working on a few programs that could ultimately fit under the mantle of a Space Force. Last year, it selected Boeing for its "Experimental Spaceplane," or XS-1, program, which is meant to develop a spaceplane capable of flying 10 times in 10 days. Boeing's vehicle, known as the Phantom Express, would be designed to fuel up and go, taking off quickly, like a commercial airliner. That is particularly appealing to the Pentagon, which wants to be able to put satellites into orbit quickly if, for example, officials learn that an adversary is preparing to launch a missile or deploy a fleet of ships to sea. And with information-age technologies penetrating further into military operations, even the Army's ground forces rely on support from beyond Earth's atmosphere. The Global Positioning System (GPS) that numerous military systems rely on for geolocation is made possible by bus-sized satellites built primarily by Lockheed Martin and Boeing. Those satellites are hurled into space by firms like Elon Musk's SpaceX and the United Launch Alliance (ULA), a joint venture of Lockheed Martin and Boeing. Concerned that adversaries could jam or interfere with those satellites, the U.S. military has worked to make them more resilient. On Tuesday afternoon, the Air Force announced that it awarded Lockheed Martin a \$2.9 billion contract for just three satellites designed to be survivable against counter-space weaponry, handing the company an initial \$80 million to cover development costs. Alongside such large and expensive systems, defense officials are planning to launch swarms of smaller satellites into orbit, which they think will be harder to destroy or disable. DARPA is developing robots that could fly from satellite to satellite in space, refueling, repairing damage or updating the satellites with new capabilities as we do with our smartphones' operating systems. The prospect that GPS communications could be knocked out through an attack on U.S. satellites has become so worrisome that the U.S. Navy recently added celestial navigation back into its required coursework for officers. Boeing is working on autonomous drones that can navigate without the help of GPS. "The U.S. military is dependent on space across the full spectrum of conflict, from counterterrorism operations in Yemen to a major war with a near-peer adversary like Russia or China," said Todd Harrison, a military analyst with the Center for Strategic and International Studies. "Other countries have taken note of the advantages space provides to the U.S. military and are developing and proliferating counter-space weapons to negate our advantage in space." Another top Pentagon priority is developing a hypersonic missile, one capable of traveling at five times the speed of sound, or more. In his speech at the Pentagon on his need for a Space Force, Vice President Pence said that both Russia and China are "investing heavily" in the technology and that "China claimed to have made its first successful test of a hypersonic vehicle just last week. On Monday the Air Force announced it is awarding a \$480 million contract to Lockheed Martin to develop a hypersonic strike weapon, a project that builds on a similar contract worth almost \$1 billion awarded in April. Boeing also said it was investing in a British company that is working on hypersonic



propulsion systems.”For the time being, the federal space market is considered a niche business with tremendous overhead costs, available only to a handful of gigantic companies with the scale to compete. An analysis by Bloomberg Government found that the Defense Department spends about \$4 billion a year on space vehicles, launches, services and associated support. Most of that money is spent through contracts with three large companies: Boeing and Lockheed’s United Launch Alliance; Lockheed Martin individually; and a California-based nonprofit research center called the Aerospace Corporation. Elon Musk’s SpaceX was the fourth-largest recipient of Defense Department space funding, Bloomberg Government found.Independent analysts were skeptical that the Space Force would give companies such as Lockheed and Boeing much of a bump in business, however, unless its creation comes with a significant increase in defense spending. The Pentagon is expected to outline its plans in greater detail next year as part of its 2020 budget request, Deputy Defense Secretary Pat Shanahan told the Associated Press.

## The privatization of space is accelerating due to federal investment

Thompson, Clive. “Monetizing the Final Frontier.” *The New Republic*. 3 December 2020.

<https://newrepublic.com/article/160303/monetizing-final-frontier>

On May 30, in the midst of a world-threatening pandemic and a surge of protests for racial justice, President Donald Trump arranged a photo op that harked back to the confident heyday of the Cold War American consensus. He flew down to Florida to gaze at the heavens. The skies were blue over the storied NASA launch-ground of Cape Canaveral in mid-eastern Florida when, at 3:22 p.m., Trump peered from a nearby platform. Two astronauts—Bob Behnken and Doug Hurley—hurtled up from the launchpad, on a rocket roaring toward the International Space Station. For longtime enthusiasts of NASA’s human spacefaring, it was a singularly auspicious moment. Ever since NASA’s space shuttles were mothballed in 2011, the agency had no American-owned way of getting people into space. It had been paying the Russian government to fly U.S. astronauts up and back, on Russia’s Soyuz spacecraft. But this flight was different. It was the first time humans had flown in a rocket and a capsule made by a private-sector company: SpaceX, the creation of the billionaire Elon Musk. The launch was also a SpaceX branding bonanza. The astronauts rode up to the rocket in a Tesla, Musk’s fabled luxury electric car; when they’d reached orbit, they broadcast a live video in which they thanked SpaceX for making the flight happen, and showed off the sleek capsule—a genuine marvel of engineering, with huge touch screen control panels that looked rather like the ones inside a Tesla itself. Over the next few years, NASA will pay Musk and SpaceX \$2.6 billion to ferry astronauts to and from the space station six times. For the feds, this price tag is remarkably cheaper than the space shuttle, which cost over \$1 billion per flight. In his speech after the launch, Trump lauded the cost savings that SpaceX had realized on the government’s behalf. SpaceX, he announced, “embodies the American ethos of big thinking and risk-taking.... Congratulations, Elon.” For Musk, though, the launch was more than just a technical

success, and is bigger even than the \$2.6 billion contract. It cements him as a leading player in what might seem the unlikeliest stage of the final frontier’s exploration—the privatization of space. Private-sector activity in space travel is accelerating dramatically—rocketing, one might say. For decades, ever since people first headed for orbit in the 1960s, spaceflight had been mostly the preserve of governments. States were the only actors with the money and technical acumen to blast things into the vacuum and get them safely down again. The private sector didn’t have NASA’s know-how, nor—more important—a business plan that could rationalize the massive outlay of capital required to operate in space. In the last few years, that calculus has changed dramatically. A generation of “New Space” entrepreneurs has begun launching rockets and satellites. Some seek to flood the planet with fast, cheap mobile-phone signals; others want to manufacture new products in zero gravity, harnessing the novel physics of such conditions to engineer substances that can’t be made in Earth’s gravity. Further afield, they’re aiming to harvest water on the moon and even mine asteroids. Backing this burst of entrepreneurial fervor are many billionaires who made their money in the early Wild West of the internet, including Amazon’s Jeff Bezos, with dreams of building space colonies, and Musk, the former PayPal titan who hopes to personally make it to Mars. Barack Obama’s administration made the first major overtures to the space privatizers, signing legislation that paved the way for today’s space boom. But the real land rush has occurred under Trump, via a flurry of executive orders designed to give private firms greater access to “low-Earth orbit.” Trump officials have even touted the idea of privatizing the \$100 billion space station itself—the last signature NASA-sponsored human spacecraft project still aloft. When Trump’s transition team in 2017

pondered the handoff of low-Earth orbit to the private sector, it concluded: “This may be the biggest and most public privatization effort America has ever conducted.” Or as Texas GOP Senator Ted Cruz—at the time the chairman of the Space, Science, and Competitiveness Subcommittee—put it in 2018: “I predict the first trillionaire will be made in space.” The burst of activity and high-tech acumen thrills many space fans. But it is making many others quite nervous. Opening up space to a frenzy of private actors could, they agree, produce measurable benefits back on planet Earth—making crucial scientific research, environmental monitoring, and everyday communication cheaper. But the critics are quick to note as well that the history of privatization is spotty at best, with plenty of civically brutal knock-on effects: concentrations of monopolistic power, enfeebled democratic control, and widespread environmental degradation. We’ve seen all those problems appear on Earth as all manner of traditional social goods, from education and housing to pension plans and mass transit, have been targeted for private-sector control. Next up, it seems, is the great beyond.

## *Private companies bad*

### Precedent: NASA privatization has sometimes failed due to private sector motivations

Young, Chris. “Space, The Private Frontier.” *Medium*. 3 June 2020.

<https://medium.com/swlh/space-the-private-frontier-dbd2f2d0a09b>

Yet, NASA – which pays all these companies for services now rather than hardware – has reached a new kind of tipping point where it is, perhaps, too reliant upon the private sector for space transport and exploration. Many of these companies which NASA has turned to will (pun intended) promise the moon but fall short when it comes to delivering results. The most famous example is perhaps the Lockheed Martin X-33 program, an un-crewed spaceplane developed in the 1990s. NASA invested \$922 million dollars into the project before Lockheed ultimately dropped the X-33 after setbacks in development caused them to reassess the ultimate profitability of these “space planes”. This exemplifies perfectly what is most problematic about an over-reliance on the private sector for space exploration. There will always be competing interests when it comes to private companies funding space exploration. Shareholders and profits are paramount for private companies (and rightfully so) and will always take precedence over public interests. Those motivations will often compete with or run counter to the public good when it comes to space. Not all applications of space exploration are profitable (at least not immediately) yet their scientific value in terms of progress, development and knowledge is often immeasurable. Development based solely upon commercial viability can have hugely negative implications. To be sure, there is a place for shifting some of NASA’s space exploration responsibilities to the private sector. It will do more than a little good and drive innovation while remaining cost-effective. Yet, there is too much at stake to let the balance get too far out of whack. That balance needs to shift back to a kind of equilibrium between public and private investment in space exploration. Government investment needs to increase significantly. That’s the best way to ensure innovation, intent, and security are all aligned and do not leave the US falling dangerously behind in this latest iteration of the space race among nations.

### Rapid investment in space causes the proliferation of dangerous space debris

Thompson, Clive. "Monetizing the Final Frontier." *The New Republic*. 3 December 2020.  
<https://newrepublic.com/article/160303/monetizing-final-frontier>

One particularly grim vision of the future that haunts astronomers is the "Kessler syndrome," proposed by the astrophysicist Donald Kessler in 1978. Kessler hypothesized that space clutter could reach a tipping point: One really bad collision could produce so much junk that it would trigger a chain reaction of collisions. This disaster scenario would leave hundreds of satellites eventually destroyed, and create a ring of debris that would make launching any new satellites impossible, forever. "Near space is finite—it's a finite resource," Jah said. "So now you have this growing trash problem that isn't being remediated.... And if we exceed the capacity of the environment to carry all this traffic safely, then it becomes unusable."

That's why a growing chorus of critics are already making the case that space is the next major environmental area to protect, after the oceans and land on Earth. "People seem to really treat resources in space as being infinite," said Erika Nesvold, an astrophysicist who's the cofounder of The JustSpace Alliance. "As we've seen, people don't really intuitively understand exponential growth." That's the dilemma in a nutshell: The available room in the sky is limited, but the

plans for growth are exponential. SpaceX isn't the only New Space firm looking to toss up satellites. Satellite and rocket start-ups are now lining up en masse, atop new waves of investment.

There are satellites geared up to connect to "the internet of things" so companies can communicate among proprietary networks of household devices. There are floating cameras pointing down—so as to gather "geospatial intelligence," which is to say data streamed from "the vantage point you get from satellites looking down on Earth and giving us information about our planet," as the venture capitalist Anderson told me. And new forms of satellite vision are emerging all the time, such as cameras that can see at night, or are specially designed to see agriculture. Experiments abound, and so satellite launches will inevitably

multiply in their wake. Part of what makes near-Earth orbit so chaotic is that it is, at the moment, remarkably unregulated

—not unlike the internet of the early '90s. An American firm has to get permission from the Federal Communications Commission to launch a satellite, but once it's in orbit, there's no federal agency that can compel it to move out of the path of a collision. Satellite owners generally don't like to move if they can avoid it, because their satellites have a limited amount of fuel; any movement decreases their usable lifespan. On top of that, there are dozens of nations shooting satellites into low-Earth orbit—but no international body coordinating their flight paths. Last fall, the European Space Agency realized one of SpaceX's new Starlink satellites was on a dangerously close path to an ESA satellite. SpaceX said it had no plans to move the satellite; so the ESA decided to fire its thrusters and get clear. This high-stakes negotiation was conducted via email. What's more, space debris is extremely hard to source. If a British satellite slams into yours, you can probably figure out who hit you. But if your satellite is wrecked by a random piece of junk, nobody has any clue where that debris came from. It is, in this way, a neat parallel to the problem of CO<sub>2</sub>, where a ceaseless barrage of tiny commercial decisions creates a sprawling problem—one that's all but designed to ensure that everyone who caused it can deny responsibility. And damage is asymmetric: A company with a small \$60,000 satellite could smash into a wildly expensive one paid for by U.S. taxpayers. "A National Reconnaissance Office satellite is at least a billion dollars, if not more, so they have a lot more to lose if something hits a satellite," Bhavya Lal, a researcher at the IDA Science and Technology Policy Institute, noted. "As more private activity starts to happen, there's more chances of that loss of control, too." One might dismiss all this anxiety as a sort of sci-fi version of hippie environmentalism—except that even the administrator of NASA is deeply worried about the chaos and destruction likely to be sown by commercial activity in near-Earth orbit. Jim Bridenstine, the Trump-appointed head of NASA, is as

pro-market as one can be. He praises SpaceX every chance he gets; he talks about privatizing the space station. But when I asked him about the looming danger of space debris, during a press-conference call, he conceded that it's a huge, unresolved issue.

"More satellites mean more risk," he said. "And we as a nation have not yet caught up to the risk that currently exists in space."

In September, a few months after Bridenstine and I spoke, the space station had to fire its thrusters for 150 seconds to move out of the way of dangerously approaching space junk, while the crew huddled in a Soyuz capsule in case the station's hull was breached and they had to flee to Earth. Apart from the fate of the station, one could ask who cares if a commercial stampede blights Earth's orbit, and wrecks anyone's ability to keep satellites aloft? Maybe it'll just hurt a bunch of investors. And maybe we need less surveillance from deathless orbiting eyes, not more. There are, though, plenty of civically

significant reasons to keep low-Earth orbit usable. Satellite monitoring isn't solely a spy activity—these days, it has become a powerful tool for climate scientists to figure out how the oceans are warming, and to puzzle out our adaptations to climate change. Other

nonprofit concerns use satellites to monitor injustices on Earth: Global Forest Watch, for example, takes data from the 140-satellite array of the firm Planet and uses it to help bust illegal deforestation

So it'd certainly be good to keep low-Earth orbit from becoming a junkyard. But there's no ready consensus on how to do that. Some government regulation could help: Bridenstine wants Congress to pass a bill funding a department in charge of "compelling somebody to maneuver if it's necessary." Moriba Jah would like a federal law requiring space firms to openly publish the location of their satellites. (Some, like Planet, already do, but most, as Jah has found, make it very difficult for others to pin down the exact locations of their satellites.) "You can't enforce anything unless you know what's happening," Jah said, and a name-and-shame system could help: "Once people can assign a first and last name, it's like, OK, these assholes aren't complying." Better tech might also assist; the U.S. firm LeoLabs is building a radar-dish array that can track pieces of space junk as small as a few centimeters. Others are working on as-yet-untested ways of actually cleaning up orbital junk, possibly by pushing it down to burn up on reentry.

## Private space companies don't have to follow the same safety regulations as government agencies

Haskins, Caroline. "Private space companies no longer have to follow the law." *The Outline*. 8 May 2018. <https://theoutline.com/post/4469/outer-space-treaty-commerce-free-enterprise-bill-spacex-blue-origin-boeing-lockheed-martin>

The Space Commerce Free Enterprise Bill, which passed the House of Representatives yesterday, works off the Outer Space Treaty, which the United States and dozens of other countries signed in 1967 and serves as a basic framework for keeping space safe and accessible for every country. Countries can't own property on behalf of their own nation, and they're liable for any private activity from their country. But the U.S.'s new bill won't apply every part of the Outer Space Treaty to private companies. In other words, the U.S. doesn't believe that it's liable for activities of private space companies like SpaceX or Blue Origin. The bill also bundles almost all space mission approvals under one roof, the Office of Space Commerce, to try and encourage as many companies as possible to launch objects into space. The office would be in charge of everything from a theoretical asteroid mining industry to private space stations, which have been proposed as tourist attractions by companies like Blue Origin. So it's likely that other countries, um, won't exactly be thrilled about the U.S. disregarding the first major peacemaking treaty for activity in outer space. According to an email to The Outline, Mike Listner, the founder of the private space policy consulting firm Space Law & Policy Solutions, other countries may also be tempted to have a similar disregard for the rules. "The method used by the bill to permit private space activities could create some unfavorable interpretation of international law—and set a bad example for other nations who are enacting private space activities," Listner said. It's also not clear that the Office of Commercial Space would have strict guidelines in place for enforcing the Outer Space Treaty for private companies. The treaty also states that countries can't launch or test "nuclear weapons" or "weapons of mass destruction."

Companies only need to say they don't plan on bringing or using a nuclear weapon or weapon of mass destruction in space, and there are no guidelines in place for evaluating these claims. Military companies like Boeing are already looking to expand into space, and Trump has expressed interest in a "Space Force." It seems less likely than ever that the U.S. respects the idea of space as a war-free commons. "The main criticism I have of the Bill is that [its regulation] is about as 'light touch' as you could possibly get, almost to the point of being 'no touch,'" Brian Weeden, the Director of Program Planning for Secure World Foundation, told The Outline in an email. Weeden said that the State Department should probably be assessing whether a company really has peaceful intentions or not. Instead, the responsibility falls under the Office of Space Commerce, which is under the Department of Commerce—a government agency with a reputation for having a lax stance toward regulation. But Weeden said that the Office of Commercial Space is incredibly small: just 8 people work there. And although the Act proposes a big funding increase—from \$2 million annually to \$5 million—it's unclear if the office will have the resources to keep up with the influx of applications that the Trump administration is explicitly encouraging. Still, private companies will probably love this bill. Weeden said that placing most approvals under one roof will make it easier for these companies to figure out how to get their missions approved. And theoretically, the success of private space companies could help the U.S. economy. According to Brendan Cunningham, an assistant professor of economics for Eastern Connecticut State University who has written about commercial



space, it's also important to consider that in order for the U.S. economy to actually benefit from commercial space activity, we'd have to use space efficiently. But Cunningham said in an email that the bill fails to consider efficiency at all. "Commons resources are susceptible to overuse and degradation—one example is overfishing," Cunningham said in an email to The Outline. "Hazardous debris environment and the risk of [space trash collisions] indicate that space is succumbing to this pattern." It's not exactly surprising that the U.S. is moving toward deregulating outer space—a de facto arena for soft nationalistic power. Space offers a way to acquire information (like weather, GPS, or national security data) or practice ownership over some small slice of valuable space real estate. Basically, whether it's military satellites or private space tourism, anything that the U.S. launches into space has value, and the country has made it clear that these corporate interests take priority over the idea that outer space should serve as a commons for all of humanity. And the U.S. is far from alone in this incentive. Australia just created its first space agency, whose explicit goal is to promote private companies. The UK is investing tremendous resources toward growing its domestic space program since the Brexit vote (with limited success). France, Japan, Russia, and China also want in.

## Private space companies that that work with the federal government are vying for more autonomy

Wheeling, Kate. "Outer Space Treaties Didn't Anticipate the Privatization of Space Travel. Can They Be Enforced?" *Pacific Standard*. 14 August 2019. <https://psmag.com/social-justice/outer-space-treaties-didnt-anticipate-the-privatization-of-space-travel-can-they-be-enforced>

But exactly how much the state has to authorize and supervise the activities of companies like SpaceX or Blue Origin is up for debate. What agency, for example, should companies turn to for approval for space settlements? The questions only get more complicated from there. Under the current law, settlements would be inextricably linked to the nations that authorized them to begin with. So Elon Musk's city on Mars would likely be governed by U.S. law. But what happens when settlers no longer feel like citizens of the U.S.—or even of Earth? "If you have an actual settlement, where people are living and working permanently, at some point that settlement is no longer going to feel represented by its terrestrial state," Blount says. Imagine a second generation that has never set foot on Earth. "It's a 'no-taxation-without-representation' problem all over again," he says. "That's one of those places where you find yourself in the gap in the law." SpaceX and Blue Origin are not so different from the contractors that NASA has always been working with such as Boeing or Lockheed Martin, according to Walkowicz. "Private companies have always had a role in space exploration," she says. The difference is that the new generation of private rocket companies are lobbying for greater autonomy. "There are a lot of companies that are advocating for the ability and right to do whatever they want," Walkowicz says. "Why would you want to have to pay for the protection of another world if your ultimate goal is to exploit it and take its resources?" On multiple occasions, Bezos has outlined his vision for moving heavy polluting industries off of Earth, leaving the planet to be "zoned residential." Other smaller start-ups with less stable capital but equally ambitious plans to mine the moon or asteroids for precious metals and water helped to shepherd through legislation in the U.S. giving private industry more leeway in space. Such bills include the SPACE Act, which President Barack Obama signed into law in 2015—a piece of legislation that, for the first time, gave corporations a right to the resources they extract from other celestial bodies. "It's the same-old, same-old that we see here on Earth all the time," Walkowicz says, "where companies don't want to have to really preserve the environment that they also plan to strip mine, because the two are incompatible." How does that square with the Outer Space Treaty? It doesn't, really. But that's not all that surprising. "A lot of the things people are thinking about, and often expressly making plans for, are in direct conflict with treaties," Walkowicz says. "If you look at the colonization of the Americas in particular, there were lots of treaties that the United States had with American Indian nations—hundreds of them, in fact—all of which have been broken," she says. "What history tells us is that we have to decide whether we want to continue to do things the way that we've always done things, or whether we want to try and uphold some of those high-minded principles that are in the Outer Space Treaty."

**A2 PRO**

# A2 ECONOMY AND JOBS

The Space Force's budget and staff are small, meaning the economic impact will likely be small as well

Burns, Robert. "Space Force becomes first new military service in 72 years." *Christian Science Monitor*. 20 December 2019. <https://www.csmonitor.com/USA/Military/2019/1220/Space-Force-becomes-first-new-military-service-in-72-years>

The division of responsibilities and assets between Space Force and Space Command has not been fully worked out. Space Force will be tiny, compared to its sister services. It will initially have about 200 people and a first-year budget of \$40 million. The military's largest service, the Army, has about 480,00 active-duty soldiers and a budget of about \$181 billion. The Pentagon spends about \$14 billion a year on space operations, most of which is in the Air Force budget. Kaitlyn Johnson, a space policy expert at the Center for Strategic and International Studies, sees the creation of Space Force as an important move but doubts it will prove as momentous as Trump administration officials suggest. Vice President Mike Pence has touted Space Force as "the next great chapter in the history of our armed forces." Defense Secretary Mark Esper earlier this week called this an "epic moment" in recent American military history.

The Space Force crowds out other government spending, which is generally good for the economy

Tiefer, Charles. "President Trump's Space Force Is a Recipe for Wasteful Spending." *The Regulatory Review*. 23 October 2018. <https://www.theregreview.org/2018/10/23/tiefer-trumps-space-force-wasteful-spending/>

President Donald J. Trump has made the news with his proposed Space Force—a military space organization on par with existing services like the Air Force and Navy. This undertaking will be an expensive, rushed intensification of the militarization of space. Militarization aside, what particularly concerns me is that President Trump's enthusiasm for making the initiative as splashy and dramatic as possible will undermine regulation of costs and will consequently drive the cost figures much higher than people realize—into the double digits of billions of dollars. President Trump is the first President to call for a Space Force, although the current Congress has taken a much less dramatic step in this direction by authorizing a space combatant command. Arguments in favor of the Space Force emphasize that the increasing strategic importance of space satellites and missiles warrants greater resources and reorganization to boost space warfare efforts. The whole enterprise of the Space Force is open to broad criticism based on cost concerns. Former Secretary of the Air Force Deborah Lee James reportedly said that "it is a virtual certainty that it will be a huge undertaking that will consume a lot of time, effort, thinking." She is reported to have stated bluntly, "I do not believe we should have a separate space force." Even a former astronaut and an enthusiastic supporter of the Space Force admits that "there would also be significant initial costs to standing up a new Space Force." And President Trump's insistence upon having "American dominance in space" does little to alleviate concerns about the cost of the project.



Boushey, Heather and Michael Ettlinger. "Government Spending Can Create Jobs -- and it has." *Center for American Progress*. 8 September 2011.

<https://www.americanprogress.org/issues/economy/reports/2011/09/08/10257/government-spending-can-create-jobs-and-it-has/>

President Barack Obama swept into office on a mantra of "Yes, we can." Even though our economy was nearly two years into the Great Recession and jobs were being lost at a record pace, he projected a sense of optimism that, together, we could fix it. And history tells us that even when economic times are bleak, there are doable steps that a government can take that make a difference to get the economy back on a path of growth and job creation. Indeed, there's a long history that when unemployment rises, the government steps in to pave the way for job creation. And these policies have been effective. It's time to do so again because, well, yes, we can. There is an

empirically grounded body of literature documenting the effectiveness of fiscal expansion during recessions and the importance of economic multipliers in creating jobs

above and beyond those directly created by one firm or one government project. The New Deal programs of the Great Depression are, of course, the granddaddy of these measures. The New Deal programs stabilized our economy, though it was the massive government job creation fueled by World War II that finally put an end to the economic devastation. Since then, presidents and congresses of all political stripes—including the Bush administration—have embraced short-term, temporary fiscal expansion to create jobs in times of labor market weakness. Each time, they worked as intended. And this isn't just the experience of the United States. Economies around the world reflecting a wide range of economic ideologies understand the importance of government action in the face of economic crises. The role of government in our economy is not, of course, limited to times of economic distress. Government investments in basic

science brought us the Internet, the microwave oven, and satellite communications, and have led the fight against cancer. Government investment in new, innovative businesses has helped many companies grow into household names. The Small Business Investment Company Program, financed by the federal Small Business Administration, helped Nike Inc., Apple Inc., and FedEx Corp. grow into the global business powerhouses they are today. Then there are the basic regulations, which create a level playing field for businesses so, for example, when you go to a gas

station a gallon is a gallon, the aspirin you buy at the pharmacy is really aspirin, and the ground beef is actually beef. These basic kinds of rules prevent economically costly damage to consumers and public health. The courts enforce contracts, and markets are regulated so investors can invest with some confidence that the information they receive is honest. Government spending is also an

important part of the economy. Millions of people work for the government and millions more are employed in government-funded work and all those dollars flowing into the economy create even more jobs. For example, the Federal Highway Administration periodically estimates the impact of

highway spending on direct employment, defined as jobs created by the firms working on a given project; on supporting jobs, including those in firms supplying materials and equipment for projects; and on indirect employment generated when those in the first two groups make consumer purchases with their paychecks. In 2007, \$1 billion in federal highway expenditures supported about 30,000 jobs—10,300 in construction, 4,675 in supporting industries, and 15,094 in induced employment.

# A2 RESEARCH AND DEVELOPMENT

## The weaponization of space precludes international cooperation around scientific advancement in space

Calahan, Molly. "Will Space Command help or hurt international relations in space?"

*Northeastern News*. 5 September 2019. <https://news.northeastern.edu/2019/09/05/will-space-command-help-or-hurt-international-relations-in-space/>

The practical reality is that if you mega-size the space debris problem, you cannot control where all those pieces of metal go in low-Earth orbit," she says. "If you try to destroy something in space through military action, you're potentially destroying all satellites in

orbit." **Both the Chinese and Indian anti-satellite tests created huge amounts of space debris that are still floating in a cloud around the Earth's orbit.**

The ratcheting-up of a military presence in space could also have the unintended consequence of becoming a "self-fulfilling prophecy," Cross says, in which various countries, so panicked that one another are going to attack, end up creating a conflict instead of avoiding one. **"This could become a**

**competition with various forms of sabotage,"** she says. Cross is also concerned that the militarization of outer

space could hamper international collaboration that has long been the signature characteristic of scientific space exploration. If, for

example, **a country's scientific knowledge becomes "more about jealously guarding advancement in space, it might be difficult to keep up this international collaboration,"**

Cross says.

## Preventing a war in space comes before research because debris in the space commons prevents civilian use

Farley, Robert. "Space Force: Ahead of Its Time, or Dreadfully Premature?" *CATO Institute*. 1

December 2020. <https://www.cato.org/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

**The increasing militarization of space has spurred discussion of the need for additional space governance.<sup>63</sup> War in space could threaten the long-term health and usability of the "space commons" by distributing fragments of destroyed satellites across a wide range of orbits, including those commonly used by civilian spacecraft.**

This could result in severe short-term economic dislocation, even for noncombatants, and pose a long-term obstacle to the human exploitation of space. Two combatants could cause catastrophic damage to the infrastructure that enables modern social and economic life, making the establishment of some "rules of the road" imperative. The reasoning behind this opposition is clear: Strategic bombing (and later the delivery of nuclear payloads through intercontinental ballistic missiles) provided the rationale for the autonomy, independence, and primacy of the Air Force. Limitation of these weapons would not only require significant revision of doctrine and force structure but also would strike at the core cultural stories that undergirded the services. Moreover, compliance with the restrictions of a multilateral governance regime can be onerous in terms of financial, human resources, and intelligence demands.<sup>71</sup> Most modern arms limitation regimes demand transparency on the part of the participants, which services tend not to welcome.

## Private companies are the ones spearheading the majority of space innovation

Daley, Beth. "Private companies are launching a new space race - here's what to expect." *The Conversation*. 3 October 2017. <https://theconversation.com/private-companies-are-launching-a-new-space-race-heres-what-to-expect-80697>

The space environment is no longer the sole preserve of government agencies. Private companies have entered the exploration domain and are propelling the sector forward more vigorously and swiftly than would be the case if left to governments alone. It could be argued that a new space race has begun, in which private companies are competing against each other and against government organisations. But this time it is driven by a competition for customers rather than the urge to show dominance by being first to achieve a certain goal. So who are the main players and how will they change the science, technology and politics of space exploration? Put the phrase "private space exploration" into a search engine and a wealth of links emerges. Several have titles such as: "Six private companies that could launch humans into space", "The world's top 10 most innovative companies in space" or "10 major players in the private sector space race". A benefit of the entry of the private sector into space exploration has been recognition of the high-tech companies that contribute to the growth of the economy as valuable targets for investment. Indeed, a recent presentation at an international investment bank – under a heading of "Space; the next investment frontier" – declared that "investment interest has helped reduce launch costs and spur innovation across related industries, opening up a new chapter in the history of the space economy". One of the last engagements of Barack Obama's presidency was to chair the Whitehouse Frontiers Conference, where space exploration was discussed as much within the context of US industry as within the drive to explore new worlds. Contributors to the conference included NASA – but overwhelmingly the speakers were from private technology and investment companies.

# A2 HELPS NASA

## The creation of a Space Force could hurt NASA by triggering a brain drain and co-opting duties

Cobb, Wendy Whitman. "Would a Space Force mean the end of NASA?" *The Conversation*. 18 October 2018. <https://theconversation.com/would-a-space-force-mean-the-end-of-nasa-102472>

Should the Trump administration succeed in establishing a Space Force or something like it, the move may have serious consequences for NASA. Depending on its mission, the Space Force is likely to require launch capabilities for satellites and perhaps human missions. Although a Space Force may be able to purchase these services from companies like SpaceX, if they choose to develop an in-house launch system, they may duplicate already existing NASA efforts. Doing so would also likely cause a brain drain at NASA as in-house engineers and experts migrated to the Space Force with promises of new missions and new funding. There is also a question of whether the Space Force may simply take over current NASA missions. In the wake of the Space Force announcement, the Trump campaign sent out an email to supporters asking them to vote on a potential logo. Although this was a fundraising maneuver, one of the "logos" was themed around Mars with the wording "Mars Awaits." Given that the overall mission of the Space Force remains unclear, there could be a push for human spaceflight efforts to be subsumed under a Space Force. NASA's recent failures in the development of the Space Launch System, or SLS, and the James Webb Space Telescope only further reinforce the image of a NASA spread too thin to accomplish major space endeavors. Finally, NASA's budget is already quite low considering its mission: US\$19.7 billion in 2017 with \$19 billion requested for 2018. This represents less than 0.5 percent of the overall federal budget. A Space Force could feasibly take away funding from NASA, especially for the development of human spaceflight capabilities thus cannibalizing NASA's already low budget.

## NASA and the Space Force have vastly different goals

Kennedy, Merrit. "Trump created the Space Force. Here's what it will actually do." *NPR*. 21 December 2019. <https://www.npr.org/2019/12/21/790492010/trump-created-the-space-force-heres-what-it-will-do>

It's worth pointing out a few things the Space Force will not do. "It's not about putting military service members in space, it has nothing to do with NASA, it's not about protecting Earth from asteroids or aliens," said Harrison.

# A2 SPACE MILITARIZATION GOOD

Militarizing Space triggers escalation that jeopardizes US hegemony whereas a global collaboration and peaceful exploration would expand it

ANANYAVENKATRAMAN. "Boots on the moon: Weighing the pros and Cons of the Space Force." *Berkeley Political Review*. 5 November 2020.

<https://bpr.berkeley.edu/2020/11/05/boots-on-the-moon-weighing-the-pros-and-cons-of-the-space-force/>

With all military strategy, there runs the obvious risk of escalation, and instead of sending a purely defensive or philosophical message, a Space Force may send an adversarial one. The major risk is that we push war into space and trigger a chain-reaction or wartime expansion in space similar to that of a Cold War. It could be catastrophic for the world to enter a scenario where countries are stockpiling satellites or rockets for the purpose of a space war. In fact, the world should avoid military escalation at all costs and the US should make it its mission to push for space to be solely an arena of global collaboration and peaceful exploration. The idea of a Space Force undermines this. Perhaps a less dire drawback would be excessive military bureaucracy and spending. Currently, a large part of the space military is controlled by the Air Force and its leadership does not feel the need to split the Space Force into a different branch. As long as the task of space operations remains manageable to the Air Force, there is no reason to split off and add to an already long bureaucratic process; splitting into a separate branch may complicate and meddle with an already sound system. Secretary Debbie Lee James, the secretary of the Air Force under President Obama argues that the Air Force already invests a significant amount of money and resources into space and several military experts champion the idea of integration within the military instead of establishing several separate branches.

Space force violates international law and hurts US credibility in the international community

Goel, Nharatt. "The US Space Force and International Law Considerations." *The Space Review*. 10 February 2020. <https://www.thespacereview.com/article/3879/1>

The creation of a Space Force will have wide political, diplomatic, environmental, and ethical ramifications. Critics opine that the bureaucratic and budgetary costs outweigh the apparent urgency to have a Space Force. Further, Congressional assent will also determine how the nascent organizational change will be enacted. Furthermore, escalated risk of space debris as a byproduct of military activity will, at least in theory, flout the caveat against unreasonable interference and harmful contamination in the outer space spelled in Article IX of the Treaty, notwithstanding the rare invocation of the article and whether liability will accrue thereupon, as seen from the targeting of the USA 193 satellite in 2008. Given these prescriptions and prohibitions, even though the idea of a Space Force is legally sound, there is a very small legal window for effectively realizing the ambition of "dominance" in the outer space. The US will have an obligation to keep the United Nations and the international scientific community abreast with the nature, conduct, locations, and results of the activities of its Space Force as well as grant access

to other nations for projected visits to its stations, installations, equipment, and vehicles in the space, if any. The aforementioned obligation taints the aspiration of “unfettered access” and space control that the US has. It also cements international cooperation as the sine qua non of any development in space and ensures equal access to the global commons.

## Space force does not change the military and doesn't really advance hegemony

Grush, Loren. “Space Force may finally become real – but it won't be an overhaul.” *The Verge*. 11 December 2019. <https://www.theverge.com/2019/12/11/21004914/space-force-military-branch-ndaa-2020-joint-chiefs>

President Trump's long trumpeted pet project, the creation of a new branch of the military called the Space Force, is now finally on the cusp of becoming a reality, thanks to a new bill that may be voted on today by Congress. If it does go into effect, the bill will stand up a Space Force that is much different from what Trump originally proposed – one that won't require any substantial restructuring within the military. But it's possible that this watered-down Space Force could eventually lead to changes in how the military conducts its space operations in the long term. The new provisions are included in the 2020 National Defense Authorization Act, or NDAA, which determines the military's responsibilities and strategies as well as authorizes funds for the coming year. The bill, if approved, would establish the Space Force as the sixth branch of the United States Armed Forces, making it the first new military branch to be created in more than 70 years. However, the Space Force will still be housed within the already established US Air Force, similar to how the Marine Corps resides within the US Navy. The Air Force is already responsible for conducting most of the military's space-based programs, and the Space Force will simply carry on those same functions under the Air Force umbrella. That is a far cry from what President Trump initially proposed. In June 2018, Trump directed the Department of Defense to establish the Space Force as something independent of the Air Force. “We are going to have the Air Force, and we're going to have the Space Force – separate but equal,” he said during the surprise announcement, made during a meeting of the National Space Council. “It is going to be something so important.” In reality, the pending Space Force would be more of a corps than a force, and it shouldn't require any major budget increases to implement. The Army, Navy, and National Reconnaissance Office also operate satellites and use satellite data. The Space Force won't reshuffle any of the space personnel within those organizations at the moment. It's specifically focused on the Air Force for now, and it's mostly just moving people around and giving them a new boss. “It's a new organizational chart,” says Weeden. “And there's an opportunity for them to change the culture for buying satellites and training and operating them. It's going to take a long time to do, but this is really the first step down that path.”

# A2 CYBERSPACE

## The Probability of a large-scale cyber shut down is once in 200 years

Reuters Editorial Staff. "Cyber attack on U.S. power grid could cost economy \$1 trillion: report," *Reuters*. 8 July 2015. <http://www.reuters.com/article/us-cyberattack-power-survey-idUSKCN0PI0XS20150708>

The report from the University of Cambridge Centre for Risk Studies and the Lloyd's of London insurance market outlines a scenario of an electricity blackout that leaves 93 million people in New York City and Washington DC without power. The scenario, developed by Cambridge, is technologically possible and is assessed to be within the once-in-200-year probability for which insurers should be prepared, the report said. The hypothetical attack causes a rise in mortality rates as health and safety systems fail, a drop in trade as ports shut down and disruption to transport and infrastructure.

## When the US works on cyber attacks they are reverse engineered by adversaries and become its own biggest threat

Parker, Mitchell. "Defense, Security and the real enemies." *CSO Online*. 24 October 2018. <https://www.csoonline.com/article/3315745/defense-security-and-the-real-enemies.html>

In the South China Morning Post International Edition article, "China Never Really Stopped Being a Copycat, and That's Why its Tech Companies Aren't Changing the World," Peter Guy makes the statement that Chinese companies consider it OK to rip off foreign corporations. A visit to the Computer Crimes and Intellectual Property Section of the U.S. Department of Justice shows that a number of Chinese nationals have been successfully prosecuted for trying to exfiltrate data from the United States to China. The biggest threats. The three nations that are the largest cyber threats to the United States are, in no particular order, North Korea, Russia and China. They have been reverse-engineering our technology for a number of years, dating back to the beginning of the Cold War. The originators of some of the most devastating cyber-attacks have been based in these three countries, such as WannaCry and mass cryptocurrency theft (North Korea), Petya/NotPetya (Russia), and multiple data breaches (China). Their governments actively sponsor attempts to reverse engineer our technology and learn from it.

## US Cyber Operations create spirals of escalation that can create full on cyber warfare

Ellers, Maria. "How America's Cyber Strategy Could Create an International Crisis." *National Interest*. 2019. <https://nationalinterest.org/blog/skeptics/how-americas-cyber-strategy-could-create-international-crisis-90526>,

Buchanan argues that Washington's poor understanding of the indistinguishability between offense and defense is the pitfall in current American cyber strategy and that the utilization of traditional militaristic concepts in the cyber domain prevents the United States from identifying how intelligence collection can create unintended escalation. Buchanan remains skeptical that states will be encouraged to self-regulate their behavior in cyberspace. He worries that America's cyber strategy may actually incentivize conflict escalation. Countries that perceive America's defensive strategy to be offensive in nature would be encouraged to attack the United States in order to retaliate or acquire intelligence of their own to ensure their defense in the future. Healey describes this as a tit-for-tat response. Should the United States continue to utilize these strategies, then states will find themselves in a position of "not just persistent, but permanent conflict," according to Healey. Though a



defensive strategy of retaliatory countermeasures may be intended to avoid escalation, friction may instead lead to increasing instability in the cyber realm which could quickly spiral out of control. America's new cyber strategy runs the risk of creating a security dilemma in cyber warfare, an arena in which traditional theories of deterrence are largely inapplicable. According to Healey, there exists a perceived "lack of restraint" in cyber warfare that gives the attacker a dangerous inherent advantage. In the cyber world, "defensive success" does not discourage attackers—advantage comes from the use of capabilities, "not their possession." Thus, in a domain where cyber capabilities are likely to be used as first-strike weapons, "surprising your adversary" is much more important, further decreasing the likelihood that signaling will take place. Further insecurity is created due to rapidly regenerating capabilities in cyberspace, causing any relative superiority gained by the United States to be inherently fleeting and thus deterring an adversary from responding to traditional deterrence strategies. In other words, even if the United States were to gain superiority in the cyber field, it would not last long and would likely encourage other actors to attack the United States using newly developed cyber technology. For Healey, this is the most destructive factor to any strategy that attempts to deter escalating conflict.

# A2 IMPROVES SATELLITE TECHNOLOGY

FCC is giving out money to private sector to improve satellite communication, it's not the Space Force.

Lyons, Kim. "FCC awards SpaceX \$886 million for satellite internet network." *The Verge*. 7 December 2020. <https://www.theverge.com/2020/12/7/22159791/fcc-awards-spacex-886-million-satellite-internet-broadband-rural>

The Federal Communications Commission announced \$9.2 billion in awards to companies providing broadband internet to rural areas across the US, and Elon Musk's SpaceX was one of the biggest winners. The company will receive \$886 million over the next 10 years for its Starlink satellite broadband project, under the Federal Communication Commission's Rural Digital Opportunity Fund.

Starlink is SpaceX's constellation of satellites that will fly at low altitudes around the Earth, providing internet on the ground below. SpaceX already has launched 900 of the planned 12,000 satellites needed for the Starlink system into low-Earth orbit. Musk has said the company needs 800 satellites in space to provide "significant operational capabilities." SpaceX kicked off its Better Than Nothing Beta for Starlink broadband in October after introducing a private beta over the summer. Other big winners in the FCC auction included LTD Broadband, which will get \$1.3 billion; Charter Communications, which will receive \$1.2 billion; and the Rural Electric Cooperative Consortium, which is getting \$1.1 billion.

Space militarization would destroy the usability for satellites by distributing fragments of debris to prevent access

Farley, Robert. "Space Force: Ahead of its time, or dreadfully premature?" *Cato Institute*. 1 December 2020. <https://www.cato.org/publications/policy-analysis/space-force-ahead-its-time-or-dreadfully-premature>

The increasing militarization of space has spurred discussion of the need for additional space governance.<sup>63</sup> War in space could threaten the long-term health and usability of the "space commons" by distributing fragments of destroyed satellites across a wide range of orbits, including those commonly used by civilian spacecraft.

This could result in severe short-term economic dislocation, even for noncombatants, and pose a long-term obstacle to the human exploitation of space. Two combatants could cause catastrophic damage to the infrastructure that enables modern social and economic life, making the establishment of some "rules of the road" imperative. The reasoning behind this opposition is clear: Strategic bombing (and later the delivery of nuclear payloads through intercontinental ballistic missiles) provided the rationale for the autonomy, independence, and primacy of the Air Force. Limitation of these weapons would not only require significant revision of doctrine and force structure but also would strike at the core cultural stories that undergirded the services. Moreover, compliance with the restrictions of a multilateral governance regime can be onerous in terms of financial, human resources, and intelligence demands.<sup>71</sup>

**A2 CON**

# A2 MILITARIZATION BAD

The Space Force could potentially divert funding from other military branches and hurts private defense contractors, all of which are de-escalatory conflict maneuvers

Gregg, Aaron. "Here are the companies that could profit from Trump's Space Force" The Washington Post. 14 August 2018.

<https://www.washingtonpost.com/business/2018/08/14/here-are-companies-that-could-profit-trumps-space-force/>

"From a business perspective I don't think [the Space Force] changes a whole lot," said Rob Levinson, senior defense analyst with Bloomberg Government. "It's a different office they have to go to, but these companies are basically going to be doing the same thing." Capital Alpha partners analyst Byron Callan described the Space force as "far from an automatic win" for space companies. "They're all diversified enough that you don't know what else is going to get curtailed – that they're counting on – to pay for this," he said. And the prospect of resources being diverted from the Army, Navy and Air Force has military contractors spooked. "Space should be prioritized...but at what cost?" said Wes Hallman, senior vice president for policy at the National Defense Industrial Association. "The challenge with the Space Force is that you worry about creating a few more bureaucratic layers. That won't be good for the warfighter or for industry." President Trump's comments at a recent news conference suggests Lockheed and Boeing's United Launch Alliance could be in trouble if the White House gets its way: "I don't like when Boeing and Lockheed get together because the pricing only goes up," Trump said, later adding "we're going to have to talk about that, your joining those two companies."

The Space Force is far more pedestrian than military and only seems like a military play because of Trump's branding

Graham, David A. "Why the Space Force Is Just Like Trump University" The Atlantic. 10 August 2018. <https://www.theatlantic.com/politics/archive/2018/08/the-space-force-branding-trump-logos/567173/>

The reality is much more pedestrian, and more characteristically Trump-y. What the campaign email is selling is not access and influence, but the illusion of access and influence—an even better scheme, since it demands nothing real in return. The vote will likely have no effect on the eventual logo of the Space Force, should Congress approve it. That's only fitting for a president who campaigned as a populist but has governed by, and to the benefit of, the wealthy and powerful. Such salesmanship is not new for Trump. The branding of the Space Force resembles nothing so much as Trump University. In that program, Trump gussied up a series of drab, clichéd get-rich-quick real-estate seminars by giving it the name and crest of a full-fledged university and promising "handpicked" instructors. It was not a university, nor were the instructors handpicked. In depositions about the project, Trump proved far removed from any of the actual operations, repeatedly saying lieutenants had dealt with this or that matter. In court filings, former employees of Trump University allege that it preyed on the insecurities of its students. Overpromising and underdelivering were staples of Trump's business career—see all the allegedly sold-out luxury buildings that turned out to be undersubscribed or dubiously constructed. Those have become signature moves during his presidency, too. Take his

summit with Kim Jong Un in Singapore, which produced tremendous fanfare but, as becomes clearer each day, little in the way of concrete agreements, despite the president's claims. The same goes for Trump's border wall, which is the subject of repeated announcements of new construction, even though none has started.

## Arms Races force diplomatic solutions by raising the cost of war only 25% of conflicts occur after arms buildups, while 77% happen after non-buildups.

Diehl, Paul. "Arms Races and Escalation: A Closer Look." Journal of Peace Research. 1983.

[https://www.jstor.org/stable/423792?seq=1#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/423792?seq=1#metadata_info_tab_contents)

The relationship between arms races and war is a critical consideration in both peace research and strategic planning. This study reconsiders the work of Michael Wallace which has postulated that arms races significantly increase the probability of a serious dispute escalating to war. A critique of Wallace's coding procedures and arms race index precedes an attempt to replicate his findings. In the replication, serious disputes, taken from the Correlates of War Project, among major powers during the years 1816-1970 serve as the population to be tested.

**Adjustments in coding and index construction from the Wallace work are made. It was discovered that only 25% of those disputes preceded by a mutual military buildup escalated to war, while almost 77% of the wars in this population were preceded by periods lacking armaments competition.**

Controls for inter-century differences and unilateral military buildups failed to alter this apparent lack of a relationship between arms races and dispute escalation. Differences with Wallace's study are analyzed and the implications for peace research discussed.

# A2 INEFFECTICACY

Note: Literally any benefit of a Space Force can be weighed against this argument, making it unnecessary to read a unique response; teams can simply cross apply their case and weigh it against the status quo.

## Space Force encourages private sector investment

Erwin, Sandra. "Space Force seeks to influence private sector investments in space technology." *Space News*. 14 September 2020. <https://spacenews.com/space-force-seeks-to-influence-private-sector-investments-in-space-technology/>

In the contentious Space Force debate, many of the questions have been about its cost and whether a separate military branch would do a better job than the Air Force at defending satellites and preparing for a future conflict in space. But not much has been said about what a Space Force could mean for business. Carissa Bryce Christensen, CEO of Bryce Space and Technology, said **the surging commercial space industry views a Space Force as a much needed nexus between the military and the business community**. "There is the potential benefit of being able to build a more integrated national and even international space community around military and intelligence space needs," Christensen said on Monday at the Future of War conference hosted by New America and Arizona State University. "We're seeing billions of dollars of new money in commercial space driving innovations in small satellites and launch vehicles," she said. "That community is not well connected to the military and the intelligence community." If a Space Force can help bridge that gap, **we as a nation will benefit from that innovation**, Christensen said. "A Space Force could provide a focal point for building those relationships."

## Space Force promotes STEM education

"Space Force's STEM outreach provides critical link to force's future." *Secretary of the Air Force Public Affairs*. 29 December 2020.

<https://www.spaceforce.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=489&Article=2458603>

As a tech-heavy, digital service, the U.S. Space Force relies on Guardians with academic backgrounds in Science, Technology, Engineering and Mathematics to build and fortify its foundation. That reality is why **the Space Force focused on STEM outreach throughout the month of December** as part of the activities leading up to its first birthday, Dec. 20. The campaign was part of an enterprise-wide effort to bring STEM and Space into elementary school classrooms; stand up an organization to streamline innovation and commercial partnerships; and launch a University partnership program to tap into research and innovation at the collegiate level. "As a small service we have an imperative to innovate, to infuse technology throughout our mission areas and processes, and to enhance the digital literacy of Guardians at every level throughout our workforce," said Maj. Gen. Kimberly Crider, Space Force chief technology and innovation officer. "By seeking partnerships with industry and academia, and participating in STEM-focused outreach, we can build connections that will pay dividends not just to our future force, but to the nation as a whole." Targeted for students in grades 3-6, a virtual classroom experience dubbed "DeSTEMber" was originally conceived as a localized outreach program, but quickly blossomed into a nationwide campaign. "This was an incredible way to celebrate the Space Force's first birthday ... giving back through an effort to develop our future," said Chief of Space Operations Gen. John W. "Jay" Raymond. **Guardians across the nation not only taught thousands of students how important space is to their daily lives, but hopefully sparked an interest in STEM-related fields that will endure as these children continue to grow and learn**. Encouraging STEM-focused education at a young age is crucial to our future national security and economic prosperity. "The entire DeSTEMber campaign was conceived by the Space Force birthday planning team as a reflection of the CSO's vision for our new service," said Lt. Col. Raj Agrawal, chief, Space Control Division, Department of the Air Force, and Space Force first birthday planning lead. "It was designed to give back to our communities while making an investment in the future of our service and the nation." "The fact that it grew from a local outreach initiative to a nationwide campaign in a matter of weeks is testament to the dedication of hundreds of Guardians who worked countless hours in addition to their normal duties to make this a success," Agrawal added. DeSTEMber

engagements typically consisted of a 30-45-minute virtual interaction between Space Force Guardian and an elementary school classroom. Guardians opened the sessions with an introductory video and then interacted with students, answering questions about space and their unique experiences in space career fields. “We tailored the introduction video, ‘Space Time with Rocket,’ to be fun and engaging for younger students, to spark their interest before the question and answer session with the presenter,” said Chaplain Lt. Col. William Spencer, Space Force deputy chaplain and DeSTEMber project co-lead. Space Force military and civilian volunteers from the Colorado Springs, Colo., community served as actors in the introductory video. “We had a fantastic group of men and women who donated their time and, with tremendous support from our Public Affairs teammates at Space Operations Command and U.S. Space Command, created this amazing product that allowed the campaign to truly reach the next level and have a profound impact,” Agrawal said. “The DeSTEMber Initiative made the U.S. Space Force tangible for over 17,000 students and their families across all 50 states, Puerto Rico and Washington D.C.,” and opened the eyes of students and teachers alike to how space is woven into the fabric of their daily lives, he added. In addition to the introductory video and virtual question and answer sessions with the Guardians who volunteered, science experiments provided by Civil Air Patrol allowed teachers to continue the STEM education beyond the initial lesson. U.S. Space Force members from across the country—including the CSO and Vice Chief of Space Operations Gen. David D. Thompson—jumped at the opportunity to participate in the outreach campaign. “With close to 200 volunteers, Maj. Dane Skousen, my counterpart on the DeSTEMber planning team, and Ms. Pam Friend, Secretary of the Air Force Public Affairs community outreach division, were critical in bringing schools and volunteers together,” Spencer said. **This initiative not only incentivized STEM education**, but further educated the American public on the critical role the Space Force plays in national security, and garnered overwhelmingly positive reviews.” The newest effort the Air and Space Forces have launched is SpaceWERX, which stood up on Dec. 7. Headquartered at Los Angeles Air Force Base, this initiative exists to streamline innovation and commercial partnerships. “The global space economy continues to grow at rapid rates, and SpaceWERX is going to help us continue our momentum,” said Lt. Gen. John F. Thompson, Space and Missile Systems Center commander and program executive officer for space in a Dec. 8 press release. “The goal is to expand the space industrial base by guiding additional partners, leveraging commercial investment, and pursuing new space technologies that could be game changers for our space warfighters.” This organization will closely align its efforts with space operators and acquisition professionals within the Space and Missile Systems Center co-located at the base. “SpaceWERX will help ensure that the Space Force can tap into cutting-edge space technologies and rapidly deliver it to the field,” Thompson continued in the release. Announced at the AFWERX Accelerate Event in early December, the University Partnership Program is slated to kick off Spring 2021 with 10-12 universities participating. “This past year we had two cohorts participate in the Hyperspace Challenge; John Hopkins University and New Mexico State University,” said Col. Rich Williams, AFWERX/CTIO integration lead. “As interest amongst academic institutions has expanded, we have tailored the Hyperspace Challenge to work with academic institutions.” Originally launched in 2018 targeting startups and industry partners, the Hyperspace Challenge was reimagined to work within the academic setting. “The challenge is a business accelerator that forges valuable relationships between the government and startups to accelerate innovation for the space domain,” Williams said. “There is a significant amount of untapped potential, in terms of research, innovation and people at the collegiate level that directly transcribes to space operations. “Our goal is to be a catalyst for them, to elevate their ideas to the next level. Whether we work directly with them now or later down the road, we want them to know that the Space Force is open for collaboration” he added.

## Centralizing space operations will improve efficacy

Kelly, Ricky B. “Centralized Control of Space.” *Air University Press*. 28 June 1993.

[https://media.defense.gov/2017/Dec/29/2001861991/-1/-1/0/T\\_KELLY\\_CENTRALIZED\\_CONTROL\\_OF\\_SPACE.PDF](https://media.defense.gov/2017/Dec/29/2001861991/-1/-1/0/T_KELLY_CENTRALIZED_CONTROL_OF_SPACE.PDF)

The most important aspect of **a single concept of operations** is that it **offers a way to conceptualize, plan, and execute the use of space forces in support of the theater commander’s overall campaign objectives and to deny the enemy the use of space**. Another name for this single concept of operations is a theater space campaign. The goal of a theater space campaign would be to use space forces to support the theater commander’s campaign operations, while preventing an enemy from using space capabilities or forces.



# A2 HURTS DIPLOMATIC RELATIONS

## The Space Force is legal under International Law

Fukazawa, James. "Does the U.S. Space Force Violate the Outer Space Treaty?" *Denver Journal of International Law and Policy*. 28 April 2020. <https://djilp.org/does-the-u-s-space-force-violate-the-outer-space-treaty/>

The OST is a shining example of diplomacy between competing states with vastly different agendas.[15] However, the diplomatic process resulted in ambiguities that are resolved by varying national interpretations.[16] For example, the United States and Russia 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' interpretation 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 consensus on the meaning of peaceful purposes, each state conducts their affairs in accordance with their own sometimes conflicting national interpretations.[19] Several problems 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. However, the legal calculus was recently complicated when President Trump signed Executive Order 13914 in April 2020.[23]

## Space force creates science collaboration and diplomacy with China and Russia to ease relations

Young, Makena. "Why Cooperation Is Still Possible in a More Militarized Space." *World Politics Review*. 22 September 2020.

<https://www.worldpoliticsreview.com/articles/29076/why-cooperation-is-still-possible-in-a-more-militarized-space>

As space is becoming more diverse, disruptive, disordered—and dangerous—the burden 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 destabilizing 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. Despite recent warning signs, if history is any indication, the future of space will be marked by collaboration and cooperation, regardless of what's happening at ground level. Both documents offer guidelines and describe their separate visions for the future of international 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. 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 participating 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, international 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 replicate in its future missions. For example, in January 2019, NASA shared satellite information 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 collaborate with Chinese government agencies or commercial entities. The sheer number of countries planning to engage in space exploration presents an opportunity 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 Emirates’ 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 successes of their programs, allowing citizens around the world to celebrate shared achievements and benefit from space exploration. Ultimately, these collaborations could bring about more frequent and deeper exploration of space.

**Militarism is necessary to have leverage in shaping diplomacy, this is especially important in space with the new potential for conflict**

Rubin, Michael. “Why Was John Kerry Such a Bad Secretary of State?” 29 December 2016.

<http://www.aei.org/publication/john-kerry-such-a-bad-secretary-of-state/>

Rather than exploit Iran’s desperation, Kerry worked to alleviate it: The Obama administration offered Iran billions of dollars just to come to the table. Nor did Kerry (or Obama) once enunciate what the best alternative to a negotiated agreement was, leading his Iranian counterparts to conclude correctly that they had the upper hand in talks. After all, if Obama and Kerry castigated their critics as warmongers, then how likely were they to join their critics if they believed war the only alternate? Can Kerry alone be blamed? No: US strategy has been incoherent across administrations. Secretaries of State might opine but if there is no

unity of effort to ensure that their diplomacy is set up to succeed, then it won’t be successful. The State Department cannot alone build leverage — that is the job of the Pentagon and perhaps Central Intelligence Agency and should be coordinated by the National Security Council. Kerry’s problem was ego: Perhaps it was his decades immersed in the culture of the Senate, but he seems to have come to believe that his own good faith and rhetoric could substitute for the hard work of crafting coherent strategy. Essentially, his tenure was one giant short-cut. He worked hard, but not effectively. Staff and close advisors who might have offered him a reality check instead recognized that their path to recognition and promotion was to affirm whatever Kerry thought, no matter how destructive or, in some case, factually challenged it could be. Kerry, himself, has always been handicapped by his credulity: He believes what he is told. His adversaries understand that personal charm can lead Kerry to dismiss the accumulated wisdom of those more experienced or knowledgeable than he. Diplomacy that diverges from reality is seldom successful. Kerry did not live in the real world. Nor does diplomacy absent leverage ever work with adversaries or rogue regimes. It is a lesson Kerry never learned, and history will condemn him for it. He has left the United States and its allies in a far worse position than had he done nothing.

# A2 PRIVATIZATION OF SPACE BAD

## Private sector fills in funding gaps for public sector its a symbiotic relationship

Frost, Robert. "The Pros And Cons of Privatizing Space Exploration." *Forbes*. 4 April 2017.

<https://www.forbes.com/sites/quora/2017/04/04/the-pros-and-cons-of-privatizing-space-exploration/?sh=3904706f3319>

The government has needs the private sector can fulfill and through those needs is subsidizing the research and development those private entities need to do to develop their technologies to the point where they can affordably meet the appetites of a market. By providing money to companies like SpaceX, Boeing, and Sierra-Nevada to develop human rated spacecraft to ferry our crews to and from ISS, we are helping them develop human rated spacecraft that they can use to take private paying individuals into space. SpaceX recently announced that they have two interested customers willing to pay to ride that Dragon spacecraft to space, around the Moon, and back to Earth. The more these companies do these things, the more they can amortize the costs. The more they can amortize the costs, the less they need to charge customers. The less they need to charge customers, the larger the potential market of customers. Hopefully, eventually, they will reach a state where they can profit without government business.

## Private sector already accounts for about 75% of global space enterprises

Elin Urrutia, Doris. "How Will Private Space Travel Transform NASA's Next 60 Years?" *Space*. 12 October 2018. <https://www.space.com/42113-nasa-future-private-spaceflight.html>

First, people should understand that about 75 percent of the worldwide space enterprise is already commercial, said Scott Hubbard, an adjunct professor in the Department of Aeronautics and Astronautics at Stanford University. This includes the satellites belonging to DirecTV and Sirius XM radio. What's new s" is the extension of that into the human realm," said Hubbard, who also previously directed NASA's Ames Research Center in Silicon Valley. He served as the agency's "Mars czar," restructuring NASA's robotic Red Planet-exploration program after it suffered several failures in the 1990s. And if private companies can get the price of a suborbital flight down to about \$50,000, "you get a lot of interest," Hubbard told Space.com. The highest-profile program currently in the works between NASA and the private sector is the agency's Commercial Crew Program, said Eric Stallmer, president of the nonprofit Commercial Spaceflight Federation. Commercial Crew is encouraging the development of U.S. spacecraft that will carry astronauts to and from the International Space Station (ISS). Toward this end, NASA has awarded multibillion-dollar contracts to both SpaceX and Boeing, which are building capsules called Crew Dragon and CST-100 Starliner, respectively. These craft are currently scheduled to start flying astronauts sometime next year.

## Private sector innovation makes NASA research and innovation cheaper to improve public sector innovation

Chow, Denise. "Science benefits of private space travel touted." *NBC News*. 20 June 2012.  
<https://www.nbcnews.com/id/wbna47896715>

**By supporting the development of new private spaceships, NASA will be able to buy flights to and from the space station with reduced cost and oversight.** "These two things are

allowing NASA to focus its talents on the bigger goals: **the utilization of the International Space Station and developing the next generation of hardware and skills that will allow us to extend human presence in the solar system beyond low-Earth orbit.**" Gerstenmaier said. NASA is currently relying on

Russian rockets and capsules to ferry American astronauts to and from the orbiting complex, but the agency is hoping to begin flights on homegrown commercial vehicles by 2017. [ Now Boarding: The Top 10 Private Spaceships ] Gerstenmaier stressed that as these spacecraft undergo rigorous testing, there may be setbacks, and it is important for the government to understand the setbacks and not clamp down on the industry in ways that will stifle progress and innovation. "We need to anticipate and not overreact to these problems," Gerstenmaier said. "These problems will occur and should not be viewed as a major failure."

# **INDICTS TO PRO EVIDENCE**

# A2 ZIVITSKI

The US military is critically dependent on satellites: 90% of intelligence is from satellites<sup>9</sup>

For the country who claims to be the global military superpower, they certainly complain about being underfunded and painfully vulnerable too frequently. The recent military story has been that the US dependence on satellites hurts its military stance, China can test anti-satellite technology to compromise this, and 90% of all US intelligence relies on space. However, independent sources have confirmed that this is “not rooted in evidence.” Furthermore, China does not have the capabilities or infrastructure necessary to even disturb satellites on top of not having the incentives to attack military satellites. That could create space debris that could impair their own satellites, so it would be much smarter if they directed a targeted strike instead. Overall, this threat construction is also silly and has no basis in reality.

Sankaran, Jaganath. “Limits of the Chinese antisatellite threat to the United States.” *Strategic Studies Quarterly*. Winter 2014.

<https://www.jstor.org/stable/pdf/26270815.pdf?refreqid=excelsior%3Ab2a25a1b13b832660456def1e5e17894>

The argument that US armed forces are critically dependent on satellites and therefore extremely vulnerable to disruption from Chinese antisatellite (ASAT) attacks is not rooted in evidence. It rests on untested assumptions—primarily, that China would find attacking US military satellites operationally feasible and desirable. This article rejects those assumptions by critically examining the challenges involved in executing an ASAT attack versus the limited potential benefits such action would yield for China. While some US satellites are vulnerable, the limited reach of China’s ballistic missiles and inadequate infrastructure make it infeasible for China to mount extensive ASAT operations necessary to substantially affect US capabilities. Even if China could execute a very complex, difficult ASAT operation, the benefits do not confer decisive military advantage. To dissuade China and demonstrate US resilience against ASAT attacks, the United States must employ technical innovations including space situational awareness, shielding, avoidance, and redundancies. Any coherent plan to dissuade and deter China from employing an ASAT attack must also include negotiations and arms control agreements. While it may not be politically possible to address all Chinese concerns, engaging and addressing some of them is the sensible way to build a stable and cooperative regime in space.

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<sup>9</sup> Zivitski, Maj. “China wants to dominate space, and the US must take countermeasures.” *Defense News*. 23 June 2020. <https://www.defensenews.com/opinion/commentary/2020/06/23/china-wants-to-dominate-space-and-the-us-must-take-countermeasures/>

# A2 US AIR FORCE

Russia and China are ahead of the US in space<sup>10</sup>

As the source may indicate, there is quite the degree of bias in statements made by US military officials when it comes to justifying funding for their own branch. It is their job to construct threats so that they receive funding. This also holds true for private military contractors like SpaceX and Lockheed Martin that profit substantially off of the US government in space. In reality, most of these claims are exaggerated, especially that China and Russia are ahead of the United States. So far, the US military space budget is more than 10 times greater than all other countries combined. The US funds 75% of global space initiatives and owns 43% of all active satellites. No country has even begun to weaponize space, so in reality, we are far from behind when it comes to dominating the space commons.

Carr, Patrick. "Militarizing space is a very bad idea." *The Global Comment*. 30 August 2018. <http://globalcomment.com/militarizing-space-is-a-very-bad-idea/>

In 2018, the Union of Concerned Scientists reaffirmed the position it took in 2014, writing: "There have been military satellites in orbit since the very beginning of the space age, but so far, no destructive weapons have been deployed there." It seems that having the United States invest in weaponized space technology to counter non-existent space weapons supposedly being deployed by adversaries is not the best way to ensure that "the space domain remain free of conflict." Similarly, voting against a UN resolution supported by both China and Russia which pledged "no first placement of weapons in outer space," as the US did in 2017, would be inimical to keeping the domain unsullied by military intrusion. Arguing in favor of "American dominance" is arguing against change. According to the Council on Foreign Relations, "75 percent of global space funding is by the United States...43 percent of all active satellites are US owned." Theresa Hitchens at the Center for International Security Studies writes "[t]he US' military space budget is more than 10 times greater than that of all the countries in the world combined." With this in mind, it's hard to see how any fear of America being overtaken by a foreign enemy can be validated. However, this is what's necessary if the march towards war in space is to continue. Hitchens writes: A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space...the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades...the US military – backed by the Intelligence Community which operates the nation's spy satellites – seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries.

<sup>10</sup> Insinna, Valerie. "Air Force leaders on space deterrence: 'At some point, we've got to hit back'" *Defense News*. 16 April 2019. <https://www.defensenews.com/space/2019/04/16/air-force-leaders-on-space-deterrence-at-some-point-weve-got-to-hit-back/>



**INDICTS TO  
CON EVIDENCE**

# A2 RIDER<sup>11</sup>, WALLACE<sup>12</sup>, GIBLER<sup>13</sup>

## Arms races increase the probability of conflict

Given the resolution significantly increases the United States efforts to militarize, many of the classical arms race authors get brought up as an attempt to quantify impacts. These authors go all the way back to the 1800s to find data on how arms races create aggression. However, most of these studies fall short to create a meaningful impact on the chances of war and ultimately concede that other factors are more likely to cause conflict. The Rider analysis concludes that the probability of war during arms race years goes from 0.001 to 0.003. Wallace's data set was re-analyzed and found the relationship to war was not statistically significant, and Gibler concludes that the highest chance of a dispute occurring is 0.06 (or 6%). If anything, the relationship between arms races and war are reverse causal, since a conflict dispute would likely cause rival states to significantly increase arms proliferation in self-defense. Overall, if any of these sources are thrown around, it is best to argue the causes of conflict are far more complex and stem from additional factors unique to each situation. That way, debaters can use their reasoning specific to the space force topic to argue whether or not conflict would occur rather than rely on data from conventional wars that occurred a century before the invention of the automobile.

Geller, Daniel and J. David Singer. "Nations at war: A scientific study of international conflict." *Cambridge University Press*. 1998.

[https://www.jstor.org/stable/2647967?seq=1#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/2647967?seq=1#metadata_info_tab_contents)

As Siverson and Diehl (1989:214) note, **"If there is any consensus among arms race studies, is that some arms races lead to war and some do not."** Given the **lack of consistent and cumulative findings in this are, it would appear that an additional factor (or factors) must be included in the model which will account for the incongruent results and permit the integration of arms races dynamics in an explanation of war.** Morrow (1989) attempts to solve this problem by developing a formal

(expected-utility) model of an arms race and testing it empirically. He argues that an arms races create transitory advantages that many be exploited; however, the risk orientation of decision makers on both sides will determine whether or not the temporary vulnerabilities will be challenged or resisted, with risk-acceptant actors more likely to initiate arms race wars. The data-based test involves 35 dispute cases and 17

<sup>11</sup> Rider, Toby. "Just part of the game? Arms races, rivalry, and war." *Journal of Peace Research*. 2011.

[http://www.michael-findley.com/uploads/2/0/4/5/20455799/jpr\\_2011\\_ar-rivalry.pdf](http://www.michael-findley.com/uploads/2/0/4/5/20455799/jpr_2011_ar-rivalry.pdf)

<sup>12</sup> Wallace, Michael. "Arms races and escalation: Some new evidence." *Journal of Conflict Resolution*. 1979.

<https://journals.sagepub.com/doi/10.1177/002200277902300101>

<sup>13</sup> Gibler, Douglas. "Taking arms against a sea of troubles: Conventional arms races during periods of rivalry."

*Journal of Peace Research*. May 2005. [https://www.jstor.org/stable/30042270?seq=1#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/30042270?seq=1#metadata_info_tab_contents)

core cases in which major power disputes were preceded by arms races. However, Morrow notes that the tested proportions are supported robustly but not strongly by the data.

## A2 REGAN

Diplomatic interventions see a 76% reduction in conflict<sup>14</sup>

This study is often used to weigh the price of diplomacy against the price of military conflict, a core question that shows up time and time again in debate rounds. This card, while decent for discussing more conventional conflicts, is in no way referencing space or large-scale arms race conflicts. Regan's dataset looks specifically at superpower diplomatic intervention in civil wars. While an interesting theory, we are light years away before the planet Mars has a civil war where Earth has to intervene, and even then, the geopolitics of space conflict and competition are much lower risk in general since most of it is power projection. Overall, space diplomacy is much more abstract and may not really lend itself to physical conflict, so this evidence is not applicable.

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<sup>14</sup> Regan, Patrick. "Diplomacy and other forms of intervention in civil wars." *Journal of Conflict Resolution*. October 2006.

<https://www.jstor.org/stable/pdf/27638519.pdf?refreqid=excelsior%3A6cbf92392b64189bafb04ba60a49f679>