# Framework: Preventing Extinction

**Numbers prove – extinction outweighs all else.**

**Bostrom 13** writes [Nick Bostrom (Faculty of Philosophy & Oxford Martin School University of Oxford). “Existential Risk Prevention as Global Priority.” Global Policy 2012.]

But even this reflection fails to bring out the seriousness of existential risk. **What makes existential catastrophes especially bad is** not that they would show up robustly on a plot like the one in figure 3, causing a precipitous drop in world population or average quality of life. Instead, their significance lies primarily in the fact **that they would destroy the future.** The philosopher Derek Parfit made a similar point with the following thought experiment: I believe that if we destroy mankind, as we now can, this outcome will be much worse than most people think. Compare three outcomes: (1) Peace. (2) A nuclear war that kills 99% of the world's existing population. (3) A nuclear war that kills 100%. (2) would be worse than (1), and (3) would be worse than (2). Which is the greater of these two differences? Most people believe that the greater difference is between (1) and (2). I believe that the difference between (2) and (3) is very much greater. ... The Earth will remain habitable for at least another billion years. Civilization began only a few thousand years ago. If we do not destroy mankind, these few thousand years may be only a tiny fraction of the whole of civilized human history. The difference between (2) and (3) may thus be the difference between this tiny fraction and all of the rest of this history. If we compare this possible history to a day, what has occurred so far is only a fraction of a second. (Parfit 1984, pp. 453-454). **To calculate the loss associated with an existential catastrophe, we must consider how much value would come to exist in its absence. It turns out that the ultimate potential for Earth-originating intelligent life is literally astronomical.** One gets a large number even if one confines one's consideration to the potential for biological human beings living on Earth. If we suppose with Parfit that our planet will remain habitable for at least another billion years, and we assume that at least one billion people could live on it sustainably, then the potential exist for at least [ten-to-the-sixteenth-power] 1016 human lives of normal duration. These lives could also be considerably better than the average contemporary human life, which is so often marred by disease, poverty, injustice, and various biological limitations that could be partly overcome through continuing technological and moral progress. However, the relevant figure is not how many people could live on Earth but how many descendants we could have in total. One lower bound of the number of biological human life-years in the future accessible universe (based on current cosmological estimates) is 1034 years.7 Another estimate, which assumes that future minds will be mainly implemented in computational hardware instead of biological neuronal wetware, produces a lower bound of 1054 human-brain-emulation subjective life-years (or 1071 basic computational operations) (Bostrom 2003).8 If we make the less conservative assumption that future civilizations could eventually press close to the absolute bounds of known physics (using some as yet unimagined technology), we get radically higher estimates of the amount of computation and memory storage that is achievable and thus of the number of years of subjective experience that could be realized.9 **Even if we use the most conservative of these estimates, which entirely ignores the possibility of space colonization and software minds, we find that the expected loss of an existential catastrophe is greater than the value of 1016 human lives. This implies that the expected value of reducing existential risk by a mere one millionth of one percentage point is at least a hundred times the value of a million human lives.** The more technologically comprehensive estimate of 1054 human-brain-emulation subjective life-years (or 1052 lives of ordinary length) makes the same point even more starkly. Even if we give this allegedly lower bound on the cumulative output potential of a technologically mature civilization a mere 1% chance of being correct, we find that the expected value of reducing existential risk by a mere one billionth of one billionth of one percentage point is worth a hundred billion times as much as a billion human lives. One might consequently argue that even the tiniest reduction of existential risk has an expected value greater than that of the definite provision of any "ordinary" good, such as the direct benefit of saving 1 billion lives. And, further, that the absolute value of the indirect effect of saving 1 billion lives on the total cumulative amount of existential risk — positive or negative — is almost certainly larger than the positive value of the direct benefit of such an action.1

**Ethical uncertainty means we should seek to ensure the survival of humanity.**

**Bostrom 2012** [Nick Bostrom (Faculty of Philosophy & Oxford Martin School University of Oxford). “Existential Risk Prevention as Global Priority.” Global Policy 2012.]

These reflections on moral uncertainty suggest[s] an alternative, complementary way of looking at existential risk; they also suggest[ing] a new way of thinking about the ideal of sustainability. Let me elaborate. **Our present understanding of axiology might well be confused. We may not now know — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet be able to imagine the best ends of our journey. If we are indeed profoundly uncertain about our ultimate aims, then we should recognize that there is a great option value in preserving** — and ideally improving — **our ability to recognize value and to steer the future accordingly.** [but] Ensuring that there will be a future version of humanity with great powers and a propensity to use them wisely is plausibly the best way available to us to increase the probability that the future will contain a lot of value[s]. **To do this, we must prevent any existential catastrophe.**

**As an observation, ethics is all relative. Thus, the neg’s only burden is prove the private sector is better than the public sector; it is not necessarily to prove the private sector is good.**

**Contention 1: The appropriation of space is inevitable.**

**Countries are looking to venture into space. The status quo proves.**

**Reedy 17**. When Will the First Human Space Colony Be Established? <https://futurism.com/when-will-the-first-human-space-colony-be-established>. Published on August 17th, 2017. Accessed on December 14th, 2021. Christian Reedy is a staff writer for Futurism.

The **technologies have enticed governments** and companies around the world **to take the idea of space colonization seriously.** The two most popular targets for human occupation are currently Mars and the Moon. The Moon gets a little less attention these days, but [scientists have estimated](https://futurism.com/colonize-moon-2022and-cost-less-aircraft-carrier/) that we could build a colony there over the pan of six years and for as little as $10 billion. **The Chinese and European space agencies are**[**carefully examining the possibility**](https://futurism.com/global-superpowers-are-racing-to-build-a-base-on-the-moon/)**of a Moon base**, as such a resource would greatly reduce the cost of traveling to other planets — including Mars. On the Mars front, **the United Arab Emirates (UAE) has announced its intention to**[**establish a settlement**](https://futurism.com/4-mars-2117-project-the-uae-joins-the-race-for-the-red-planet/)**on the Red Planet** by 2117. Other nations are likely to beat the UAE in reaching this goal, however, as **the U.S. government has tasked NASA with**[**getting humans on Mars**](https://futurism.com/us-government-issues-nasa-demand-get-humans-to-mars-by-2033/)**by 2033, and China has set an**[**even more ambitions goal**](https://futurism.com/china-announces-new-ambitious-plans-to-reach-mars-by-the-end-of-the-decade/)**: by the end of the decade.** These government efforts align with readers’ predictions.

**These countries are willing to undermine international law as necessary to pursue their goals of space appropriation.**

**Stuart 17**. [https://theconversation.com/the-outer-space-treaty-has-b](https://spacenews.com/warfare-satellite-innovation-2019/)een-remarkably-successful-but-is-it-fit-for-the-modern-age-71381. The Outer Space Treaty has been remarkably successful – but is it fit for the modern age? Published on January 27th, 2017. Accessed on December 14th, 2021. Jill Stuart is a Visiting Fellow, Department of Government, London School of Economics and Political Science.

Although there are many points to consider in the treaty, one of the most important is that outer space is to be used for “peaceful purposes” – weapons of mass destruction cannot be used in space. Another is that celestial territory (such as the moon or Mars), is not subject to “**national appropriation**” – in other words, no country can lay claim to them. These **points have been subject to challenges since the treaty came into play – the first example** of such a challenge **was the**[**Bogota Declaration**](http://djilp.org/3494/the-bogota-declaration-and-the-curious-case-of-geostationary-orbit/)**in 1976. A group of eight countries tried to claim ownership of a segment of an orbit that was in the space situated above their land** - since if their borders projected into the heavens, any “stationary” satellite there would always be within their borders. They claimed that this space did not fall under the definition of “outer space” by the Outer Space Treaty and was therefore a “natural resource”. This declaration was not seen as an attempt to undermine the treaty, but rather to say that orbits that go around the Earth’s equator, or in the direction of the Earth’s rotation, must be owned by the countries beneath. However this was was eventually dismissed by the international community. **In**[**2007**](http://news.bbc.co.uk/1/hi/world/asia-pacific/6289519.stm)**China was thought to have violated the treaty when it shot down one of it’s own weather satellites with a “ground-based medium-range ballistic missile”.** This was seen as “aggressive” by Japan, but since the missiles did not come under the definition of “weapons of mass destruction”, it was found that it did not violate the treaty. There was, however, international outcry because of the [debris cloud](http://www.space.com/3415-china-anti-satellite-test-worrisome-debris-cloud-circles-earth.html) it caused within the orbit. We could do with some updates Despite its importance, we must recognise that the Outer Space Treaty does have some specific failings in the modern era – mainly since it is focused on countries only. Many private companies, such as [lunarland](https://www.lunarland.com/), have exploited this and have offered to sell plots of land on celestial bodies such as the moon. Agents doing this justify their activity because the treaty says that territory is not subject to national appropriation – and therefore, this technically means that private companies or individuals could however make claims to celestial territory, since they are not countries. In an attempt to tackle some of the modern-day shortfalls of the treaty, **the US government** passed the [**Space Act of 2015**](https://www.newscientist.com/article/dn27583-us-space-act-extends-easy-ride-for-commercial-space-ventures/), which says that US citizens may engage in the commercial exploration and exploitation of space resources. Although this seems to undermine the space treaty’s ban on anyone owning celestial territory, the Space Act has a clause stating, in simple terms, that the US does not lay claim to, or own, any such thing. This conflict, that **indicated that the US “may” be able to claim celestial territory**, while not violating the treaty, remains an issue of key debate. Despite these **obvious legal loopholes and challenges**, the treaty has long formed the basis for an international law with regards to outer space and it remains as the important backbone of outer-space governance. The intention that it embodied when it was first written, to create law in space, remains important – and whether any changes will be made in the future to reflect changing political and commercial circumstances is yet to be seen.

Regardless of whether or not you vote aff or neg, the appropriation of space will happen. It’s merely a question of if you trust the private sector or the government to handle it better.

With that in mind, the negative position is that private sector appropriation is better than government-led appropriation.

**[1] DA: Innovation**

**The private sector is more innovative than the public sector in space.**

**Werner 19**. https://spacenews.com/warfare-satellite-innovation-2019/. Debra earned a bachelor’s degree in communications from the University of California, Berkeley, and a master’s degree in Journalism from Northwestern University. She is a recipient of the 1989 Gerald Ford Prize for Distinguished Reporting on National Defense. Her *SN Commercial Drive* newsletter is sent out Wednesdays. Published on October 9th, 2019. Accessed December 17th, 2021. “Military turns to private sector for rapid space innovation.”

Decades ago, the U.S. Defense Department led innovation in communications and remote sensing technology. **Increasingly, U.S. military agencies are turning to the private sector for innovative communications and Earth observation products and services**, according to government and industry executives at the Satellite Innovation 2019 conference here. **“In terms of cost, capacity and volume, it would be hard for the military to beat what commercial industry is doing**,” Rick Lober, vice president and general manager for Hughes Network Systems’ Defense and Intelligence Systems Division, told SpaceNews. The Defense Department is trying to speed up access to innovative commercial technologies through a variety of contracting mechanisms like other transaction authority as well as pilot and pathfinder programs aimed at testing new technologies and system architectures. U.S. Air Force Space Command, for example, is focused on replacing stove-pipe communications networks with enterprise architectures. Air Force Space Command [took over responsibility](https://spacenews.com/air-force-space-command-officially-takes-over-as-chief-buyer-of-satellite-communications-for-the-defense-department/) in December for procuring the Defense Department’s commercial satellite communications services from the Defense Information Systems Agency. “We have a number of initiatives that our office has put in effect with more to come,” said Mike Nichols, chief of commercial satellite communications for Air Force Space Command’s Satellite Solutions Branch. Gen. John Raymond, who leads Air Force Space Command, “told us get after it: enterprise architecture, real-time provisioning, real-time situational awareness,” Nichols said. However, the Defense Department faces cultural challenges when it tries to quickly adopt commercial technology, said Ken Peterman, Viasat Government Systems president. Private sector innovation in space, cybersecurity and mobile networking are prompting changes in acquisition policy, practice and culture, Peterman said. “An acquisition system predicated on invention has to turn into one that can assess, adopt, apply and then evolve more effectively than ever before,” he added. **As an example, Peterman points to Apollo program. “When we put a man on the moon, there were probably 10,000 NASA contracts to invent everything from aluminum foil to Tang, the breakfast drink,” Peterman said. “If NASA wanted to put a man or woman on Mars today, the fastest, most effective way to do that, might be to write a one or two-page statement of objectives and let Elon Musk, [Jeff] Bezos, Richard Branson and some others bid on that.”** If government agencies don’t embrace commercial innovation, the consequences could be grave, according to a panel of experts discussing the implications of space as a warfare domain. “The U.S. **government’s ability to maintain dominance in space will be heavily dependent on their ability to work quickly to take advantage of all the commercial innovation we’re talking about** here,” said Chris DeMay, HawkEye 360 chief technology officer and co-founder. “We see enemy nations investing in their own companies with parallel capabilities that will exceed ours if the U.S. government can’t continue to invest at a faster rate.” Rajeev Gopal, advanced programs vice president for Hughes Network Systems’ Defense and Intelligence Systems Division, suggested **government agencies gain access to commercial innovation with brief documents describing their needs instead of publishing 100 pages of requirements.** He also suggested the government award fixed price contracts. “Give the high-level requirements and let commercial solutions emerge,” Gopal told SpaceNews. “With fixed price contracts, there is some risk but there is also flexibility to innovate.” Hughes has found that flexibility in its work applying artificial intelligence and machine learning to improve interoperability and network management, Lober said. In July, Hughes won an $11.8 million contract to help the U.S. Army improve satellite communications resiliency and interoperability. Specifically, Hughes plans to apply machine learning and artificial intelligence to improve network management, automated control and interoperability of narrowband satellite communications architectures for the Army’s Combat Capabilities Development Command Space and Terrestrial Communications Directorate. When networks are built for interoperability, “service can be ported from one satellite to another and from one beam to another,” Gopal said. “If one asset is compromised you have to others to take its place. That is happening today with automation, modular architecture and machine learning.”

**AND innovation is key to preventing extinction**

**Potomac Institute, 2015**. Published in October of 2015 issue. Accessed on December 17th, 2021. <https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex>. The Potomac Institute for Policy Studies is an independent, 501(c)(3), not-for-profit public policy research institute. The Institute identifies and aggressively shepherds discussion on key science, technology, and national security issues facing our society. [Global Extinction or a Space-Industrial Complex](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex)

These words still elicit powerful emotions both from those who experienced them at the time and those born well after Neil Armstrong, Buzz Aldrin, and Michael Collins returned to Earth. Clearly, this rich history in space exploration and fierce protection of our culture was founded on the existential threat of a Soviet Union that would dominate space and command intercontinental missiles with nuclear weapons. Regardless of whether the threat was real or perceived, the vision along with presidential leadership mobilized a nation to accomplish tasks that benefitted the US in innumerable ways. Yet, the bigger existential threat of annihilation of all humanity, by nuclear holocaust or natural forces, is currently considered too remote to be taken seriously. **The geological record has preserved the rise and decline of many species throughout earth’s history, whether their extinctions were the result of asteroid impacts, volcanic activity, solar flares, or gamma ray bursts from distant star systems. To think humanity above the historical trends of the universe is conceited and illogical. Perhaps it is time to reconsider the annihilation threat and to entertain the need for an off-Earth sustainable colony. Humanity might not get a second chance at survival.** The idea of an extinction event has long been fuel for science fiction writers, and is exemplified in the novel by Neal Stephenson entitled Seveneves.[3](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes) In Seveneves, **humanity will be wiped out on Earth within two years unless nations collaborate to put a small group of astronauts and scientists on the International Space Station in hopes they survive and repopulate the planet.** Science fiction has been known to become science fact, both in ways that are beneficial to society, and in ways that have negative consequences. A study of threats and a dystopian future is also inculcated into academia, with Niklas Bostrom, the founder of the “Future of Humanity Institute,” as a recognized leader. While the risk in any given year might be quite small, there is almost certainly an eventual global extinction event. With a growing population and the speed of destructive technological advancements, the annual risk of humanity’s downfall may be increasing. When the inevitable is presented as a certain future, or happens before we can react, what will be humanity’s last collective thought? Given our current technological prowess, perhaps the time to take action is now. During a Wall Street Journal All Things Digital conference,[4](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes) Elon Musk said: Either we spread Earth to other planets, or we risk going extinct. An extinction event is inevitable and we’re increasingly doing ourselves in. World renown physicist Steven Hawking agrees and recently told a gathering at the Big Think:[5](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes) I believe that the long-term future of the human race must be in space. It will be difficult enough to avoid disaster on planet Earth in the next hundred years, let alone the next thousand, or million. The human race shouldn’t have all its eggs in one basket, or on one planet. Let’s hope we can avoid dropping the basket until we have spread the load. The timing and the nature of this event remains truly unknown. Predictions suggest an existential event may come from space or be the product of our own hand, but we will likely remain ignorant of the cause until its near arrival. What we do know is that if humanity is still inhabiting only one planet, our unique life stories will be tragically and permanently erased. Thus, we confront the realization of the likelihood of a global extinction event that we have absolutely no control over, that we currently have no defense for, and no plans to escape from. We are deluded into believing that since an extinction event is rare, it can not occur in our lifetime. Consider the attitude expressed in the Jet Propulsion Laboratory’s Near Earth Object program’s website[*6*](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes) which states: On an average of every several hundred thousand years or so, asteroids larger than a kilometer could cause global disasters … No one should be overly concerned about an Earth impact of an asteroid or comet. The threat to any one person from auto accidents, disease, other natural disasters and a variety of other problems is much higher than the threat from [Near Earth Objects] NEOs. Over long periods of time, however, the chances of the Earth being impacted are not negligible so that some form of NEO insurance is warranted. At the moment, our best insurance rests with the NEO scientists and their efforts to first find these objects and then track their motions into the future. We need to first find them, then keep an eye on them.

**The Potomac Institute [previously cited] continues by concluding that the private sector is best suited to prevent extinction, noting:**

**This strategy is well reasoned and has the potential to save humanity as well as provide a much needed economic boost by creating a space-industrial complex with the nascent private-public partnerships**[**15**](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes)**for mining asteroids, manufacturing propellant on the moon, creating fuel depots, and launching humans into space. The spinoff technologies would fuel real job growth as evidenced by the Apollo program of the 1960s. Rather than a short lived event to win a space race, this modern space age will be designed as a sustained effort in human space colonization. The current roadblocks preventing this strategy from moving forward are budgets, political priorities, and the changeable public interests**; the exact same denouement of the moon landings over 40 years ago. An article posted on the Washington Post website by Joel Achenbach made the following observation:[16](https://www.potomacinstitute.org/steps/views-in-brief/66-global-extinction-or-a-space-industrial-complex#notes)

**[2] DA: Conflict**

**As things stand, the public sector is posing an extreme risk to take the world into devastating space conflict.**

**Skibba 20.** <https://www.theatlantic.com/technology/archive/2020/07/space-warfare-unregulated/614059/>. Published on July 12, 2020. Accessed on December 17th, 2021. The Ripple Effects of a Space Skirmish. Ramin Skibba is a writer based in San Diego. His work has appeared in Undark magazine, New Scientist, and Nature.

**On April 22, after several failed attempts, Iran’s Islamic Revolutionary Guard Corps announced a successful launch of what it described as a military reconnaissance satellite. That satellite joined a growing list of weapons and military systems in orbit, including those from Russia** (which in April tested a missile program designed to destroy satellites) **and India** (which launched an anti-satellite weapon in March 2019). Experts like Brian Weeden, director of program planning at the Secure World Foundation (SWF), a nonpartisan think tank based in Broomfield, Colorado, worry that **these developments**—all confirmed by the newly rebranded United States Space Force—**threaten to lift earthly conflicts to new heights and put all space activities, peaceful and military alike, at risk.** Researchers at SWF and at the Center for Strategic and International Studies (CSIS), a nonpartisan think tank in Washington, D.C., both [released](https://swfound.org/counterspace/) [reports](https://aerospace.csis.org/wp-content/uploads/2020/03/Harrison_SpaceThreatAssessment20_WEB_FINAL-min.pdf) 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. [Read: The growing risk of a war in space](https://www.theatlantic.com/technology/archive/2016/06/weaponizing-the-sky/488024/) “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. “It’s very easy to pollute space,” Burbach said. “The debris doesn’t discriminate. If you create debris, it might just as well come back and hit one of your own satellites. So I think we’re pretty unlikely to see countries actually use those capabilities.” Still, he said, “it would be worrying to see countries showing off that [they] can do it and start testing.”

**The militarization of space has the potential to cause extinction.**

**Clay Moltz 18**. <https://static.dma.mil/usaf/csafreadinglist_2018/zcrowded.html>. James Moltz has delivered a 226-page treatise that, in his words, “offers general readers and students an understanding of the competing trends of completion and cooperation in the past and present of human space activity, while also asking questions about the future” (vii). Because the book does not assume space expertise, or even prior knowledge, it is an excellent resource for building an educated space foundation for Airmen as we deal with the complexity of peer completion, multi-domain operations, and the coming Space Force. Moltz provides thought-provoking discussion and questions throughout. The following are additive discussion items aimed at Airmen and the issues we as an Air Force must come to grips with in the current environment. James Clay Moltz is chairman of the Department of National Security Affairs at the Naval Postgraduate School. Published in 2018. Accessed on December 17th, 2021.

In his introduction Moltz asks, “…will countries be able to keep the peace as space becomes more crowded (1)?” This question sets the tone for discussions of this book and on the nature of space competition, which has propelled the US to create a Space Force. Will the world remain at peace in space? Will the development of an independent Space Force aid or exacerbate peace efforts? “Getting into Orbit,” chapter 1, synopsizes the history of man’s efforts to enter space. His history also includes **the danger of orbital debris and** argues the **efforts to weaponize space** have failed or shown that they will exacerbate the debris problem. How should his conclusions affect the way we stand up a Space Force aimed at maintaining what President Trump described as our “American dominance in space?” Chapter 2, “The Politics of the Space Age,” states that “Militaries **were pushing the boundaries of ‘peaceful uses’** and avoiding the Outer Space Treaty’s requirement for consultation in advance of harmful activities by claiming their activities were defensive and not subject to the somewhat vague requirements of the treaty (56).” Should the US continue to comply if we believe potential adversaries aren’t? Will the rhetoric revolving around the need for a Space Force imply to other nations that we are preparing to violate the treaty and therefore encourage them to do so? “Civil Space: Science and Exploration” is the theme of the third chapter. In keeping with the near utopia of Star Trek, scientists tend to believe that cooperation in space can provide numerous advantages by forming bridges between spacefaring nations and others while benefiting the public (63). With the growing competition between the US, Russia, China, and others, will the efforts of these scientists suffer in response to varying national interests? Will the civil scientific efforts help moderate the militarization of space (81)? Chapter 4 deals with “Commercial Space Developments.” Here Moltz discusses the challenges that have developed from the burgeoning and maturing commercial space sector. For example, major problems are emerging with geostationary orbital slots and space traffic control, both of which are related to the growth in the number of nations able to access space. Of the problems mentioned, which present the greatest dilemmas for the US, and how should the US proceed to mitigate them? In “Military Space: Expanded Uses and New Risks,” **the author presents several space war scenarios (130)**. Considering the growth of peer competition since the publishing of the book, do you think his scenarios are still useful in analyzing space related threats? Moltz posits that potential adversaries might be deterred from attacking critical military space-based assets as the US would consider such an attack a possible precursor to a nuclear attack. How should the US respond to such an attack? **Will the possible US response deter potential rogue actors like North Korea or Iran**? Chapter 6, “Space Diplomacy,” makes the case that the current space governance framework, constructed mainly under Cold War realities, is fraying and inadequate for the current realities of space usage, capabilities, and competition. As the existing structure falters, should the US pursue a policy of military space dominance, international cooperation, space anarchy, or some alternative (166)? In the final chapter of the book, Moltz articulates what he sees as the “Trends and Future Options” for space. Written from the perspective of 2013, he posits that “there is an increasing realization that acquiring such capabilities [space dominance] would undoubtedly involve such enormous costs and strong foreign reaction that they would never be worth it” (190). Is this a realistic assumption to make about the motives, plans, and actions of our peers or the current US administration? If space dominance is not to be pursued, how is the justification of a Space Force affected? **Building on** an Arthur C. Clarke quote, “Only through spaceflight can Mankind find a permanent outlet for its aggressive and pioneering interest,” Moltz proposes that **threats of extinction from man-made calamities or inbound space objects** will force space cooperation (192). Can the US help facilitate cooperation before the world faces such crises? Does space exploration and potential colonization fall strictly in the civilian realm? Should the Space Force help the US, and the world, prepare for migrating to space in an effort to ensure the survival of man or should their focus be solely on US national interests?

**AND, empirically, devolution of ownership from the public sector to the private sector reduces the probability of conflict.**

**Weede 15.** [Erich Weede. "Does the Capitalist Peace Exist? Yes, it did! but will it Apply to China and the West?" In Governance, Development and Conflict. Published online: 08 Mar 2015; 1-29. Permanent link to this document: <http://dx.doi.org/10.1108/S1572-8323(2011)0000018005>. Accessed on December 17th, 2021.]

Already the founding father of modern research on the capitalist peace, Rudolph Rummel (1981, p. 266) summarized its spirit and main policy implication quite well: **If you want peace, then ‘‘minimize the power of government.’’** The idea of a capitalist peace is not limited to assertions that economic freedom or capitalism,1 contract intensity, trade, foreign investment, financial openness, or the avoidance of state property ownership promotes peace, but it also includes the democratic peace. Since democracy depends on economic freedom or the prosperity generated by it (Weede, 2000, 2006, 2009), the democratic peace becomes a mere component of the capitalist peace. **Capitalism and economic interdependence promote peace by two or even three routes, directly and indirectly, through democracy and, possibly, by common memberships in intergovernmental organizations, too.** Admittedly, my argument avoids even discussing the micro-foundations of a capitalist or democratic peace that N. P. Gleditsch and Schneider (2010) believe to be so important. Instead it relies on compiling lots of diverse evidence, some of which is still debated in the scientific community (Weede, 2005a). Not all the evidence is quantitative, some of it is historical and qualitative. It derives from different disciplines: in particular economics, sociology, and political science. It even generates the idea that the capitalist peace might be superior to the democratic peace for two reasons. **First, without capitalism and the prosperity it promotes, democracy might not be viable** (Burkhart & Lewis-Beck, 1994; Inglehart & Welzel, 2 ERICH WEEDE Downloaded by New York University At 02:44 13 February 2016 (PT) 2009; Lipset, 1994).2 But capitalism contributes to democracy not only (or even primarily) because of prosperity.3 Private ownership of newspapers, radio, and TV stations provides sources of information for citizens, which are not under the control of ruling politicians. Moreover, **the private economy provides opportunities for defeated politicians to prosper, whereas in a socialist economy the loss of political power is likely to lead to impoverishment, too.** For democracy to persist, electoral defeat should be tolerable for office-holders. Otherwise, defeated politicians might not quit their offices peacefully. Second, among some politicians democratic peace theory has invited the misconception that one should promote democracy by war (Russett, 2005). After all, the pacific benefits of democracy did not convince the Taliban or Saddam Hussein that they should retire. By contrast, capitalism expands by the power of successful examples. The Chinese and Vietnamese communist parties accepted it because their patriotism prevented them from remaining satisfied by equality in poverty. **The best thing about economic freedom or capitalism is that it does not only benefit those who enjoy it but also benefits even those where their government still obstructs it** (Hayek, 1960). **Ultimately, even the most robust determinant of economic growth, the level of economic development that implies potential advantages of backwardness for poor nations may be understood as an external benefit of economic freedom** (Weede, 2006). Whichever economic miracle in Asia might be one’s favorite, it could not have happened without economic freedom in the West. A full appreciation of the capitalist peace rests on combining the study of economic growth and prosperity with the study of war

Mining is very bad for environment better to move into space

David Oni 2019**(***David is a space industry and technology analyst at Space in Africa. He’s a graduate of Mining Engineering from the Federal University of Technology Akure.* [**https://africanews.space/why-africa-should-consider-asteroid-mining/**](https://africanews.space/why-africa-should-consider-asteroid-mining/) **accessed 12-19-2021 //nk)**

**mining activities have caused severe environmental consequences**, and **Africa has had its fair share too**. While policies and regulations are being put in place by governments and various international bodies to prevent further environmental degradation and protect what is left of the earth’s habitat, **the majority of the African continent has struggled to enforce** these **regulations**, largely **due to weak governmental structures.** Sadly, the African political clime has been plagued with a complicated history of inconsistent legislation and weak law enforcement mechanisms. For most African countries, it is a conundrum. Many mining firms thrive, not only because of the promising prospects but also because of the loopholes in the regulations and policies of most African countries. To them, working under unpleasant conditions is a small price to pay, compared to upholding safety and environmental standards. **Mining**, by nature, **is an exploitative, dangerous and environmentally damaging activity**. Even with strict policies and regulations in place, **mining activities will still release dangerous substances into the atmosphere and surroundings**. It really is a catch-22 with combating environmental degradation, because eventually, it is only a matter of time before the consequent environmental hazards catch up with us.

Oni 2:

In a report given by [Infogalactic](https://infogalactic.com/info/Zamfara_State_lead_poisoning_epidemic), **a series of lead poisonings in Zamfara State**, Nigeria, **led to the deaths of at least 163 people** between March and June 2010, **including 111 children**. Health ministry figures state the discovery of 355 cases, with 46 per cent proving fatal. According to [NASA-compiled data](https://business.financialpost.com/pmn/business-pmn/russias-norilsk-and-s-african-coal-town-kriel-top-so2-emissions-hot-spots-nasa-data), Kriel, **a town in South Africa’s coal mining province** in east Johannesburg, **has the second-highest volume of sulphur dioxide (SO2) emissions in the world.** Mining activities have taken a toll on our environment, which is why **beyond maximizing of mineral resources for space infrastructure and fuelling of propellants, asteroid mining also provides a ready recourse to terrestrial mining activities,** with a view to saving the planet. **Thousands of people are forced to work in mines and are also forced to live under sub-human conditions**. If attention is shifted from terrestrial mining, of course with robots working the mines in space, **these people could not only live elongated lives but also find healthier employment alternatives.**

Oni 3:

The good news is that **significant progress is being made in the space industry.** Our world has gone from baby steps on the moon to giant leaps in space technology. These milestones are now beyond bragging rights, but rather an exigent obligation to keep up with the global paradigm shift. What’s more, **these advancements are extending to the African continent**. A number of **African states have several satellites already launched into space, and more**[**African states already have space programmes running**](https://africanews.space/list-of-space-agencies-in-africa/)**.** Space science and technology is the new black!

Faleti Joshua April 23, 2021 (Faleti Joshua is an avid lover of space in all its incomprehensible nature. He holds both an LL.B and a B.L degree. Joshua is a lover of music and a lawyer in his free time. <https://africanews.space/a-commercially-driven-african-space-industry/> accessed 12-19-2021

The African space industry is largely government-driven. This can be attributed to a lot of reasons which are not relevant for this analysis. However, **despite its initial success, the African space industry cannot rely only on centralised governmental activity.** Governmental **agencies,** due to a **lack** of **strong incentives for the efficient allocation of resources**, poor aggregation of dispersed information, and resistance to innovation due to reduced competition – amongst others – are severely limited in their capacity to establish a self-sufficient space industry. Herein lies the essential need for a commercially driven space industry. **A centralized, government-led space programme will inevitably focus on “space-for-earth” activities in the public interest, such as national security, basic science, and national pride. This vulnerability is perhaps visible in Nigeria Communications Satellite Limited’s (NIGCOMSAT) struggles, which is almost entirely owned and managed by the government.** Egypt’s NileSat is a good example of the right approach, with its fortunes increasing after it became publicly traded.

**Space debris is better in neg**

1. **No Solvency: Military Entities Create Huge Space Debris**

**Mukherjee, 2021** (Supantha Mukherjee, author, Reuters, Nov. 16, 2021)

**Debris can also be caused by an explosion in space or when countries conduct missile tests to destroy their own satellites by missiles. Apart from Russia, China, the United States and India have shot down satellites, creating space debris.**

1. **Privatization Won’t Increase Space Debris – Two Reasons**

**Dinkin, 2004** (Sam Dinkin, columnist, Space Review, July 26, 2004)

In any case, **there are two reasons that privatization will not substantially change the space debris situation. First, this debris problem will continue if space remains the preserve of big government** even with business as usual**. Second, regulations,** such as the new FCC regulations for a minimum amount of propellant to continue broadcasting**, allow the government to keep the debris situation under control.**

1. **Turn: Public Sector Incapable of Addressing Space Debris**

**Tallis, ‘15** (Joshua Tallis, research & analysis at Security Management Int’l, Strategic Studies Q., Spring 2015)

**First** and most significantly, as of 2006**, no international agreement or UN document uses or defines the term “space debris.” It is impossible to address a problem that is neither identified nor institutionally acknowledged.** Concededly**, Article IX of the OST condemns the harmful contamination of space,** though it does so **in a rhetorical fashion and without mechanisms for enforcement or clear understanding of what contamination means.**

1. **Turn: Structural Disincentives Discourage Public Clean Up Debris**

**Tallis, ‘15** (Joshua Tallis, research & analysis at Security Management Int’l, Strategic Studies Q., Spring 2015)

Additionally**, the government has yet to seriously task any agency with actually performing any debris removal,** adding to the confusion in Washington**. One reason for this disinterest in remediation is** a result of the types of technology space cleanup would produce. Similar to **concerns over** satellite maintenance craft, the ability to dock and tamper with another satellite or fragment thereof leads inevitably to **issues of dual use in space technology.** Dual use is a reference to the civil and military applications of a related hardware.For example, a craft that could patrol and collect small debris could similarly be tasked to deorbit components of satellites belonging to another nation or competitive entity. **The DOD and its counterparts in major spacefaring nations** such as Russia and China **have no interest in promoting the growth of such capabilities. This is** not because these agents favor orbital clutter but **because space debris is so far favorable to the investment in a civil technology that invariably carries with it national security ramifications.** As space trash nears critical mass, such priorities may shift. Until that time, **those in favor of investment in space debris technology and legislation will continue to meet strong opposition among governments.**

Mining will always happen

1. **No Solvency: Space Mining Inevitable**

**Duke, 2020** (Joshua Duke, Intelligence Analyst, Wild Blue Yonder, September 29, 2020)

**Earth's finite resources make lunar and space resource exploitation an inevitability. The most pertinent factor governing future human resource exploitation in space is the question of which nation will achieve a successful and effective industrial supply chain first. The most probable three nations to achieve this are the US, the PRC, and the RF,** and the three areas that need to be navigated to succeed are facility establishment, production/refinement, and transportation. Establishing lunar facilities is the easiest of these goals, especially when lunar resources that can be used for building are taken into account, which decreases the amount of materials needed to be brought to the Moon and the time needed for construction**..**