## util

#### the standard is hedonistic Utilitarianism. Prefer:

#### [1] Util is a lexical pre-requisite to any other framework: Threats to bodily security and life preclude the ability for moral actors to effectively utilize and act upon other moral theories since they are in a constant state of crisis that inhibit the ideal moral conditions which other theories presuppose – so, util comes first and my offense outweighs theirs under their own framework.

#### [2] Only natural observable moral facts exist:

**Papineau 07,** David Papineau, “Naturalism,” Stanford Encyclopedia of Philosophy, 2007//SS

#### Moore took this argument to show that moral facts comprise a distinct species of non-natural fact. However, any such non-naturalist view of morality faces immediate difficulties, deriving ultimately from the kind of causal closure thesis discussed above. If all physical effects are due to a limited range of natural causes, and if moral facts lie outside this range, then it follow that moral facts can never make any difference to what happens in the physical world (Harman, 1986). At first sight this may seem tolerable (perhaps moral facts indeed don't have any physical effects). But it has very awkward epistemological consequences. For beings like us, knowledge of the spatiotemporal world is mediated by physical processes involving our sense organs and cognitive systems. If moral facts cannot influence the physical world, then it is hard to see how we can have any knowledge of them

#### [3] Actor-specificity: side constraints freeze action b/c government policies always require trade-offs—the only justifiable way to resolve those conflicts is by benefiting everyone.

**[4] Ethical frameworks must be theoretically legitimate. Any standard is an interpretation of the word ought-thus framework is functionally a topicality argument about how to define the terms of the resolution. Prefer my interpretation:**

**A] Ground: Both debaters are guaranteed access to ground to engage under util – ie Aff gets plans and advantages, while Neg gets disads and counterplans. Additionally, anything can function as a util impact as long as an external benefit is articulated, so all your offense applies. Other frameworks deny 1 side the ability to engage the other on both the impact and the link level.**

**B] Predictability: Debaters are most prepared to engage in a util debate since it is the most common framework read on the entirety of the west coast. Hyper-specific theories will always mean people have little to no prep on the issue.**

**[5] Use epistemic modesty for evaluating the framework debate: that means compare the probability of the framework times the magnitude of the impact under a framework. Prefer on Clash—disincentives debaters from going all in for framework which means we get the ideal balance between topic ed and phil ed—it’s important to talk about contention-level offense**

## DA

#### Competition in space between private entities lowers costs and barriers of entry for other companies increasing technological innovation

Lizzy Gurdus, FEB 27 **2021**, CNBC, “Private companies such as SpaceX are driving costs down for everyone in the space race, says man behind UFO ETF”, [https://www.cnbc.com/2021/02/27/private-companies-like-spacex-are-driving-industry-costs-down-ceo.html] ahs ja

Private space companies are paving the industry’s path to profits, says the man behind the Procure Space ETF (UFO). By taking part in the rapidly developing “space race,” billionaire-backed entities such as Elon Musk’s SpaceX and Jeff Bezos’s Blue Origin are lowering costs across the board, ProcureAM CEO Andrew Chanin told CNBC’s “ETF Edge” this week. “They’re able to get the cost of launch down and that’s going to allow more companies to send things into outer space cheaper,” Chanin said in the Wednesday interview. “They’re really opening up the entire environment for space companies and future would-be space companies to lower those barriers of entry.” They’re also lowering costs for government-sponsored space programs by competing amongst themselves for NASA contracts, Chanin said. “They’re actually freeing up more of NASA’s budget to be able to invest in other areas of space, he said. “This competition I think is very healthy. Not necessarily every company’s going to be a winner, but hopefully this competition can drive down prices and also let the best technologies win.” NASA now also has contracts with more than 300 publicly traded U.S. companies, said Chanin, whose UFO ETF counts Loral Space & Communications and Gilat Satellite Networks as its top two holdings. “It’s not just necessarily a pure-play space company that might get a contract,” the CEO said. “It’s really opening up opportunities for everyone.” That’s why it’s important to look beyond name recognition in this particular area of investing, Matthew Bartolini, State Street’s head of SPDR Americas research, said in the same “ETF Edge” interview. State Street offers the SPDR S&P Kensho Final Frontiers ETF (ROKT), the first space ETF to hit the market. The fund’s top three holdings are Maxar Technologies, Virgin Galactic and Aerojet Rocketdyne. Bartolini recommended “to not just look at the high-flying names like SpaceX or Blue Origin that are in the private markets, but showcase what companies in the public markets help supply them.” Aerojet Rocketdyne, which defense giant Lockheed Martin is buying in hopes of competing with private space companies, played a key role in Blue Origin’s New Shepard rocket launch, Bartolini said. “You can see the derivative effects of a private company impacting the public markets just from that one example of Lockheed and Aerojet,” he said. “It helps underscore the opportunity that you’re seeing in space.” As space companies embrace greater efficiency, more government support and more commercial applications on Earth in areas such as satellite technology, that opportunity is likely to grow and continue to filter into public markets, Bartolini said. Morgan Stanley has said the global space industry could produce revenues of over $1 trillion by 2040. Current global revenues are roughly $350 billion. UFO and ROKT both fell by more than 1% on Friday. UFO is up over 14% year to date, while ROKT is up nearly 2%.

#### This innovation is occurring in the squo – the aff plan will only harm progress

Seetha Raghava, August 4th **2021**, UFC TODAY, “The Impact of Innovation in the New Era of Space Exploration”, [https://www.ucf.edu/news/the-impact-of-innovation-in-the-new-era-of-space-exploration/] ahs ja

Every once in a while, a confluence of discoveries, events and initiatives results in a breakthrough so significant that it propels the entire world to a higher level, redefining what is possible in so many different fields. This breakthrough is taking centerstage now, as the new era of space exploration — catalyzed by increasing launch access — dawns upon us. The surge of innovation that comes with this will create new opportunities and inspire the next generation of doers. When this happens, boundaries between scientific and social impact are blurred. Innovation leading to scientific discovery can benefit society in the same way that social innovation can diversify and support scientific innovators, who can contribute to global progress. To ride this wave of progress, we must all participate and innovate in the new era of space exploration. The intersection of space exploration, innovation and impact isn’t a new phenomenon. In the past, technology developments and spin-offs from space research have consistently found their way into communities worldwide sometimes with lifesaving benefits. The International Space Station supports experiments that have led to discoveries and inventions in communication, water purification, and remote guidance for health procedures and robotic surgeries. Satellite-enabled Earth observation capabilities that monitor natural disasters, climate and crops often support early warnings for threats and mitigation strategies. Space exploration has always been relevant to everyone no matter the discipline or interest. Commercialization of space has been key in many ways to the current boost in “firsts” over the last few years. It has spurred innovation in launch vehicles and related technologies that led to firsts in vertical-takeoff-vertical landing rocket technology, reusability of rocket boosters and privately developed crewed missions to orbit. Concurrently, NASA has continued to captivate our imagination with the first flight of a helicopter in another world, a mission to return an asteroid sample to Earth and sending a probe to make the closest ever approach to the sun. While we celebrate the scientific progress, there is a vastly important question that we all need to focus on: How can we drive the surge in innovation offered by increased access to space, to benefit humankind? Access to low-Earth orbit, and eventually human exploration of space, is a portal to achieve many impactful outcomes. The numbers and completion rate of microgravity experiments conducted by scientists will be greatly increased as a range of offerings in suborbital flights provide more opportunities to advance critical research in health, agriculture, energy, and more. Lunar, planetary, and even asteroid exploration may lead to discoveries of new materials — busting the limitations now imposed on capabilities for energy, transportation, and infrastructure or creating new sensors and devices that enhance safety on Earth. Space tourism —one can hope — has the power to potentially create an awareness of our oneness that may lead to social change. But much like all scientific endeavors, we cannot ignore the importance of pre-emptively identifying and mitigating negative impacts of new ventures some of which may have already taken shape. We need to consider space debris that threatens the very access that facilitates it, safety and rescue readiness to support increased crewed missions and space tourism, national security, and effects of light pollution on astronomy. Much of these can be approached and mitigated with new concepts and ideas that have already been set in motion. One thing is for certain, space has always been the inspiration for the next generation of innovators and creative thinkers. Architects of new ideas in this era will inspire many more. Ingenuity must also come from academic and research institutions building a new space-ready generation through innovative curriculum, scholarships, and research opportunities for key fields at all levels. Most of all, engaging participation is a responsibility anyone can take by steering the conversation and gathering ideas on how we can make this era one of positive benefit for all, while making opportunities inclusive to all.

#### Strong Innovation solves Extinction.

Matthews 18 Dylan Matthews 10-26-2018 “How to help people millions of years from now” <https://www.vox.com/future-perfect/2018/10/26/18023366/far-future-effective-altruism-existential-risk-doing-good> (Co-founder of Vox, citing Nick Beckstead @ Rutgers University)//Re-cut by Elmer

If you care about improving human lives, you should overwhelmingly care about those quadrillions of lives rather than the comparatively small number of people alive today. The 7.6 billion people now living, after all, amount to less than 0.003 percent of the population that will live in the future. It’s reasonable to suggest that those quadrillions of future people have, accordingly, hundreds of thousands of times more moral weight than those of us living here today do. That’s the basic argument behind Nick Beckstead’s 2013 Rutgers philosophy dissertation, “On the overwhelming importance of shaping the far future.” It’s a glorious mindfuck of a thesis, not least because Beckstead shows very convincingly that this is a conclusion any plausible moral view would reach. It’s not just something that weird utilitarians have to deal with. And Beckstead, to his considerable credit, walks the walk on this. He works at the Open Philanthropy Project on grants relating to the far future and runs a charitable fund for donors who want to prioritize the far future. And arguments from him and others have turned “long-termism” into a very vibrant, important strand of the effective altruism community. But what does prioritizing the far future even mean? The most literal thing it could mean is preventing human extinction, to ensure that the species persists as long as possible. For the long-term-focused effective altruists I know, that typically means identifying concrete threats to humanity’s continued existence — like unfriendly artificial intelligence, or a pandemic, or global warming/out of control geoengineering — and engaging in activities to prevent that specific eventuality. But in a set of slides he made in 2013, Beckstead makes a compelling case that while that’s certainly part of what caring about the far future entails, approaches that address specific threats to humanity (which he calls “targeted” approaches to the far future) have to complement “broad” approaches, where instead of trying to predict what’s going to kill us all, you just generally try to keep civilization running as best it can, so that it is, as a whole, well-equipped to deal with potential extinction events in the future, not just in 2030 or 2040 but in 3500 or 95000 or even 37 million. In other words, caring about the far future doesn’t mean just paying attention to low-probability risks of total annihilation; it also means acting on pressing needs now. For example: We’re going to be better prepared to prevent extinction from AI or a supervirus or global warming if society as a whole makes a lot of scientific progress. And a significant bottleneck there is that the vast majority of humanity doesn’t get high-enough-quality education to engage in scientific research, if they want to, which reduces the **odds that we have enough trained scientists to come up with the breakthroughs** we need as a civilization to survive and thrive. So maybe one of the best things we can do for the far future is to improve school systems — here and now — to harness the group economist Raj Chetty calls “lost Einsteins” (potential innovators who are thwarted by poverty and inequality in rich countries) and, more importantly, the hundreds of millions of kids in developing countries dealing with even worse education systems than those in depressed communities in the rich world. What if living ethically for the far future means living ethically now? Beckstead mentions some other broad, or very broad, ideas (these are all his descriptions): Help make computers faster so that people everywhere can work more efficiently Change intellectual property law so that technological innovation can happen more quickly Advocate for open borders so that people from poorly governed countries can move to better-governed countries and be more productive Meta-research: improve incentives and norms in academic work to better advance human knowledge Improve education Advocate for political party X to make future people have values more like political party X ”If you look at these areas (economic growth and technological progress, access to information, individual capability, social coordination, motives) a lot of everyday good works contribute,” Beckstead writes. “An implication of this is that a lot of everyday good works are good from a broad perspective, even though hardly anyone thinks explicitly in terms of far future standards.” Look at those examples again: It’s just a list of what normal altruistically motivated people, not effective altruism folks, generally do. Charities in the US love talking about the lost opportunities for innovation that poverty creates. Lots of smart people who want to make a difference become scientists, or try to work as teachers or on improving education policy, and lord knows there are plenty of people who become political party operatives out of a conviction that the moral consequences of the party’s platform are good. All of which is to say: Maybe effective altruists aren’t that special, or at least maybe we don’t have access to that many specific and weird conclusions about how best to help the world. If the far future is what matters, and generally trying to make the world work better is among the best ways to help the far future, then effective altruism just becomes plain ol’ do-goodery.

## DA

#### **Space debris is rising to dangerous levels**

Choudhury 18’ – Saheli Roy Choudhury, Saheli Roy Choudhury is a reporter for CNBC.com. She reports on technology news in Asia Pacific, with a focus on artificial intelligence, 5G and cybersecurity. She also covers India and writes on market moves in the region, “Space junk is a big problem and it’s going to get worse”, CNBC, 09/18/18 [<https://www.cnbc.com/2018/09/18/wef-tianjin-space-junk-is-a-big-problem-and-its-going-to-get-worse.html>] Accessed 12/12/21 AHS//AP

Space debris has become a huge problem. Their accumulation in Earth’s orbit has become a hindrance and can endanger future missions to the moon or Mars, according to the chief of a company that’s trying to solve the issue. A surge in aggressive space ventures in recent years has seen a build-up of space junk, and they are set to grow exponentially, Nobu Okada, founder and CEO of Astroscale, told CNBC at the [World Economic Forum’s](https://www.cnbc.com/tianjin--world-economic-forum/) Annual Meeting of the New Champions in Tianjin, [China](https://www.cnbc.com/china/). “Over the last 5 to 7 years, we saw (about) 2,000 space ventures in the world. Their plans are so aggressive, they’re going to launch 10,000 to 20,000 satellites over the next 5 to 10 years,” he said. “We see the exponential growth of objects in space.” There are [more than 500,000 pieces of junk](https://www.nasa.gov/mission_pages/station/news/orbital_debris.html) floating around Earth’s orbit, including defunct satellites, rocket boosters, nuts and bolts, all of which pose a substantial threat to astronauts and spacecraft, according to U.S. space agency NASA. [The European Space Agency said](https://www.esa.int/Our_Activities/Operations/Space_Debris/Space_debris_by_the_numbers) that as of January 2018, there are about 29,000 objects larger than 10 centimeters, around 750,000 objects that range between 1 cm to 10 cm and about 166 million objects between 1 millimeter to 1 cm in size. Okada said that pieces of debris fly around the Earth throughout the day, and there are plenty of near-miss situations where two objects almost collide. When they do hit each other, those collisions end up creating even more debris. “Even the small particle caused by the collision has enough power to blow up a satellite,” he said. “If we continue the chain reactions of the collisions, we won’t be able to put our space assets into space. So it’s now (that) we have to remove large objects from space.”

#### Private companies are key to cleanup

Moore and Burken 21’ – Adrian Moore and Rebecca van Burken, Adrian Moore is vice president and Rebecca van Burken is a senior policy fellow at Reason Foundation, where they are authors of the report, “U.S. Space Traffic Management And Orbital Debris Policy.”, “It's time for US to get serious about cleaning up space junk”, The Hill, July 27th, 2021, [https://thehill.com/opinion/technology/564945-its-time-for-us-to-get-serious-about-cleaning-up-space-junk] Accessed 12/14/21 AHS//AP

Urgency means committing to better space traffic management, and tracking and removing orbital debris. Orbital debris management is not well organized within the government. Right now, the Department of Defense (DOD) does most tracking of space debris for the U.S. out of the need to protect military satellites and national security interests. NASA has its own less advanced systems for tracking debris. However, orbital debris management is not just about tracking debris anymore. It is also about forming collision warning systems and safely managing traffic in space. To do this efficiently, we need a civil repository for all orbital debris components, [something that many commercial space companies have already created on their own](https://www.axios.com/space-junk-tracking-business-a365462b-a82e-4926-849b-5f292dd1b164.html) to stay aware of orbital debris and help protect their satellites in space. Tracking debris may be a national security priority, but providing space traffic control is not really in the Defense Department’s mission. We should be utilizing the private sector’s expertise and advancements in this area. For example, Astroscale has contracts with both the Japanese and European space agencies to develop orbital debris removal capability. And responsibility for developing collision warnings and space traffic management [would be best suited for the Office of Space Commerce](https://reason.org/policy-brief/u-s-space-traffic-management-and-orbital-debris-policy/), an office with existing connections to the commercial space industry, NASA and DOD. Partnering with the debris tracking and removal systems private companies are developing while freeing up DOD to focus on military awareness and NASA to focus on research and development would be the most efficient way forward. If government works with private industry through strategic public-private partnerships, the U.S. can best address the threats posed by orbital debris and create sustainable policies for safe space exploration.

#### Space debris damages lead to war and economic collapse

**Blatt 20 -** Talia M. Blatt, I am a rising sophomore at Harvard, considering a joint concentration in Social Studies and Integrative Biology with a citation in Chinese. I specialize in East Asian geopolitics and security issues, "Anti-Satellite Weapons and the Emerging Space Arms Race," Harvard International Review, May 26th, 2020, [https://hir.harvard.edu/anti-satellite-weapons-and-the-emerging-space-arms-race/] Accessed 12/12/21 recut AHS//AP

ASAT testing, rather than deployment, risks the exponential accumulation of debris, which endangers satellites and creates a host of other problems. KE-ASATs rely on smashing satellites into thousands of pieces, so each test adds tremendous amounts of space debris. The 2007 Chinese KE-ASAT test alone increased the number of objects in orbit by 20 percent, producing more than two thousand pieces of debris large enough to be tracked and likely thousands more too small to be counted that will remain in orbit for centuries. Even the smallest pieces of debris can do great damage; traveling at more than 15,000 miles per hour, they can crash into other debris in a proliferation known as the Kessler Syndrome. The situation in space could approach a critical mass in which collision cascading occurs even if all launches were halted, choking orbits with debris until all satellites are destroyed and spaceflight rendered impossible. Compared to the negligible debris created during commercial launches, ASAT tests—especially if the arms race continues to escalate and countries with less developed space programs join with cruder designs—may accelerate the debris in space closer and closer to this critical mass. If debris knocks out a satellite, an increasingly likely possibility in a world with ASAT tests, then the aforementioned conflict scenarios become more likely. Conflict aside, ASAT-based debris clouds are terrifying in their own right. Public health, transportation, climate science, and a litany of other crucial infrastructures are dependent on satellites that are now at risk. Satellite GPS is a cornerstone of the modern economy; some pundits believe that the slightest glitch in GPS satellites could shock the stock market and further destabilize an unstable global economy. During the pandemic, satellites are playing a crucial role in geospatial data collection for infectious disease modeling.

#### Conflict scenarios escalate to nuclear war 0 leads to extinction.

**Van der Meer 19:** Sico van der Meer: Drs. Sico van der Meer is a Research Fellow at the Clingendael Institute. His research is focussing on non-conventional weapons like Weapons of Mass Destruction and cyber weapons from a strategic policy perspective. He graduated from the Radboud University Nijmegen in 1999 with a Master’s in History. Before joining the Clingendael Institute, he worked as a journalist and as a Fellow of a think tank on civil-military relations. In 2016 he was seconded to the Taskforce International Cyber Policies of the Netherlands Ministry of Foreign Affairs. “NUCLEAR ARMS CONTROL: THE END OF AN ERA?” [https://spectator.clingendael.org/en/publication/nuclear-arms-control-end-era] NPR recut ahs//emi

Arms control appears to be in a state of crisis. This Clingendael Spectator series explores the different dimensions of this global challenge. In the second episode: the return of nuclear weapons in international politics. Investments in arsenals have increased, rhetoric on nuclear weapons returned and arms control agreements are in trouble. Is nuclear war becoming an actual option? While nuclear weapons may have disappeared from the attention of the general public after the end of the Cold War, they kept playing an important role in international relations. In the last few years they re-entered the spotlights: all nuclear-armed states are investing enormous amounts of money in modernising and expanding their arsenals, various nuclear arms control agreements are abandoned or under pressure and nuclear weapons are even back in political rhetoric by world leaders. What is happening? Weapons not for use Only two nuclear weapons have ever been used in war: the bombs destroying the Japanese cities of Hiroshima and Nagasaki in 1945. Those two rather primitive nuclear bombs killed approximately 105,000 people immediately and many more people died later due to injuries.[1] Even today, survivors and their descendants suffer from health problems caused by the radiation released by the bombs. Simplified, the fact that nuclear weapons have not been used in warfare after 1945 has two reasons. Firstly, nuclear weapons proved to be so destructive that only threatening to use them was enough to make them effective policy tools. Attacks from other states could be deterred just by having the ability to use nuclear weapons, since any attack could result in a nuclear counter-attack which the attacking state would not survive. Next to this practical consideration, there is also an ethical aspect: nuclear weapons are generally considered to be too horrible to be used because of their humanitarian consequences. Apart from the potentially huge number of victims in nuclear war, the radiological fall-out causes long-term health consequences for survivors and their descendants. Moreover, climate scientists warn for serious climate problems resulting from nuclear war. The so-called ‘nuclear winter’ effect causes a drop in global temperature because ash and soot in the atmosphere would block the sunlight.[2] In case of a relatively limited nuclear war, this effect may already cause famine all over the world, and in case of **a large-scale nuclear war it may even extinct humankind**.[3] A recent scenario by Princeton University showed that a conflict between the US and Russia escalating to nuclear weapon use could cause more than 90 million people dead and injured within only the first few hours of the conflict.[4] Successes in arms control Soon after the bombings of Hiroshima and Nagasaki, politicians in many countries started urging for international agreements to prevent the production and use of nuclear weapons. This led to many decades of nuclear arms control negotiations with many impressive results. To mention only a few successes: Non-Proliferation Treaty The Non-Proliferation Treaty (NPT), dating from 1968, prohibits states from obtaining nuclear weapons. The five states that had already developed nuclear weapons by 1968 - the United States, the So iet Union, China, the United Kingdom and France - promised in the treaty to work towards elimination of their stockpiles. The treaty is very effective: it almost halted the proliferation of nuclear weapons over the world. After 1968 only five more states developed nuclear weapons: Israel, South Africa, India, Pakistan, and North Korea (South Africa dismantled its nuclear weapons in 1989). Comprehensive Test Ban Treaty The Comprehensive Test Ban Treaty (CTBT), dating from 1996, preceded by the Partial Test Ban Treaty (PTBT) of 1963, prohibits nuclear test explosions. Even though the treaty did not yet enter into force because some required ratifications are missing, it effectively set a broadly supported norm against nuclear testing. Bilateral arms control agreements Various bilateral arms control agreements between the US and the Soviet Union (and later Russia) were highly successful as well. Being by far the largest possessors of nuclear weapons (together these two states possess more than 90 percent of all nuclear weapons), agreements among them had a huge influence. Especially the series of treaties limiting the maximum number of deployed nuclear weapons in both countries caused the total number of nuclear weapons in the world to drop from almost 70,000 in the 1980s to some 15,000 nowadays.[5] The latest treaty in this series is New START, signed in 2010. The US and the Soviet Union also negotiated agreements on banning specific types of nuclear weapons or related systems, such as anti-ballistic missile systems in the Anti-Ballistic Missile (ABM) Treaty of 1972 and ground-launched intermediate-range missiles in the Intermediate-Range Nuclear Forces (INF) Treaty of 1987. Declining public attention For many years after the end of the Cold War, the risk of nuclear weapons seemed to be taken care of and faded from public attention. The various arms control agreements did their work, the number of nuclear arms decreased and almost no-one talked about using them anymore. Yet, something went wrong. The trend of decreasing numbers slowed down and nuclear deterrence continued to be a keystone of defence policies in the nuclear armed states and their allies. Moreover, of the five states that developed nuclear weapons after the NPT came into existence, three tested their first nuclear bombs several years after the end of the Cold War: India and Pakistan in 1998, North Korea in 2009. It is hard to pinpoint when the first clear cracks in the nuclear arms control system appeared. It may well have been the unilateral US withdrawal from the ABM Treaty in 2002, or maybe the enlargement of NATO in the late 1990s, which increased distrust in Russia about the intentions of the US and its European allies. Even though nuclear disarmament ideas got some new boost when President Barack Obama entered the White House in 2009, in practice he achieved very little. Trillions of dollars Slow and (for most people) hardly visible developments brought us to the current situation: all nine nuclear armed states are investing heavily in modernising and/or increasing their nuclear arsenals and related delivery systems, such as missiles.[6] The US modernisation programme alone is already estimated to cost between 1.2 and 1.5 trillion US dollars.[7] Some investments, for example in low-yield nuclear weapons and cruise missiles with nuclear warheads, are dangerously lowering the threshold for use as well as blurring the line between conventional and nuclear weapons. This may more easily lead to nuclear war because of misperceptions. Moreover, nuclear weapons are back in political rhetoric: leaders of nuclear armed states are openly boasting about their arsenals and threatening to use them.[8] Combined with other geopolitical developments, such as the Russian annexation of the Crimea and support of armed rebels in eastern Ukraine, tensions in the international strategic environment increased even further. While tensions grew, trust in nuclear arms agreements dropped. **Arms control under stress In 2018 the US withdrew unilaterally from the nuclear deal with Iran** (officially: the Joint Comprehensive Plan of Action, or JCPOA). **President Donald Trump stated it was “a horrible, one-sided deal that should have never, ever been made”, especially because it still allowed Iran a residual (though very restricted) nuclear programme and did not include limits on Iran’s “other malign behaviour.”[**9] The US withdrawal came only after Iran had significantly downscaled its nuclear programme and was in full compliance with the deal. This is why the US withdrawal is expected to have a long-time negative influence on any diplomatic arms control and non-proliferation negotiations: many states will doubt whether they could trust any promise by the US. In 2019 both the US and Russia withdrew from the INF Treaty after accusing each other of violating it. The unwillingness of both sides to save the treaty was a clear show of distrust. Especially Europe, which is in the direct range of the missiles that were prohibited under the INF Treaty, expressed worries about its demise The US signalled that a new agreement on some categories of (nuclear) missiles could be negotiated, but only if China would be involved. Yet, China reiterated that it would only join any nuclear weapons-related negotiations after the US and Russia would have reduced their nuclear arsenals significantly; while China has some 290 nuclear weapons, the US and Russia possess more than 6000 each.[10] Meanwhile, the New START Treaty is due to expire in February 2021. Russia has expressed a wish to extend or renew the treaty several times, but so far the US has been reluctant to engage in any serious talks on the issue. Many experts fear that New START will not be extended or succeeded, which means that both the US and Russia are free to deploy as many nuclear weapons as they wish.[11] **This risks a new Cold War style arms race including increased instability and dangerous escalation potential.** Also in 2019, the US accused Russia of violating the CTBT by secretly conducting limited nuclear weapon testing. Even though the CTBT did never enter into force - one of the main reasons being the US’ unwillingness to ratify the treaty - this non-substantiated accusation could damage trust in the CTBT and sour US-Russian relations even more. Cornerstone under pressure In the meantime, the NPT, often called ‘the cornerstone of the global non-proliferation regime’, also faces increasing criticism. For several years, many non-nuclear armed states complain about the lack of nuclear disarmament by the five nuclear armed NPT-member states, who in Article 6 of the treaty promised to “to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”[12] The investments and rhetoric described above are only fuelling this frustration further. The 2015 NPT Review Conference failed to reach any consensus document. The prospects for the next Review

## DA

#### **Deadly solar flares will hit soon**

Crane 17’ – Leah Crane, Leah Crane is the physics and space reporter at New Scientist, based at the US office, “A tech-destroying solar flare could hit Earth within 100 years”, NewScientist, 10/16/17, [https://www.newscientist.com/article/2150350-a-tech-destroying-solar-flare-could-hit-earth-within-100-years/] Accessed 12/13/21 AHS//AP

The sun could be one of our biggest threats in the next 100 years. If an enormous solar flare like the one that hit Earth 150 years ago struck us today, it could knock out our electrical grids, satellite communications and the internet. A new study finds that such an event is likely within the next century. “The sun is usually thought of as a friend and the source of life, but it could also be the opposite,” says [Avi Loeb](https://www.cfa.harvard.edu/~loeb/) at Harvard University. “It just depends on circumstances.” Loeb and [Manasvi Lingam](https://itc.cfa.harvard.edu/people/manasvi-lingam), also at Harvard, examined data on other sun-like stars to see how likely solar “superflares” are and how they might affect us. They found that the most extreme superflares are likely to occur on a star like our sun about every 20 million years. The worst of these energetic bursts of ultraviolet radiation and high-energy charged particles could destroy our ozone layer, cause DNA mutations and disrupt ecosystems. But in the shorter term, the researchers say that less intense superflares of a type we know can happen on our sun could still cause problems. In 1859, a [powerful solar storm](https://www.newscientist.com/article/2146617-the-sun-just-belched-out-the-strongest-solar-flare-in-12-years/) sent enormous flares towards Earth in the first recorded event of its kind. Telegraph systems across the Western world failed, with some reports of operators receiving shocks from the huge amounts of electrical current forced through the wires. “Back then, there was not very much technology so the damage was not very significant, but if it happened in the modern world, the damage could be trillions of dollars,” says Loeb. “A flare like that today could shut down all the power grids, all the computers, all the cooling systems on nuclear reactors. A lot of things could go bad.” Loeb says an event as powerful as the 1859 one could cause about $10 trillion of damage to power grids, satellites and communications. A flare just a bit stronger could even damage the ozone layer. Previous work has shown that such an event seems likely to occur in the next century, with a 12 per cent chance of it happening in the next decade, but nobody seems to be all that worried, Loeb says. [Asteroid impacts](https://www.newscientist.com/article/dn25080-earth-is-prepared-enough-for-the-next-asteroid-strike/) get all the attention when it comes to life-threatening space events, but Loeb and Lingam found that superflares would be just as deadly and are just as likely. “I’m not lying awake in bed at night worrying about solar superflares, but that doesn’t mean that someone shouldn’t be worrying about it,” says [Greg Laughlin](http://astronomy.yale.edu/people/gregory-laughlin) at Yale University.

#### Private sector key to early warnings.

USGPO 19’ – Chairwoman Kendra Horn, “SPACE WEATHER: ADVANCING RESEARCH, MONITORING, AND FORECASTING CAPABILITIES”, U.S Government Publishing Office, October 23rd, 2019, [https://www.govinfo.gov/content/pkg/CHRG-116hhrg38122/html/CHRG-116hhrg38122.htm] Accessed 12/14/21 AHS//AP

Our Nation's infrastructure is not all that is threatened by space weather events. I proudly represent the Johnson Space Center, the home to NASA's Astronaut Corps. These are the astronauts who currently work on the International Space Station (ISS) more than 200 miles above the Earth's surface and will one day serve on missions to the Moon and Mars. While we have developed techniques and technology to reduce the threats posed by increased radiation exposure due to a severe solar event, we have more work to do to mitigate these hazards to our astronauts. As the Ranking Member of the Space and Aeronautics Subcommittee, I've supported efforts to spur the commercialization of low-Earth orbit by private sector companies. These new entrants into the space economy have a vested interest in protecting their assets. However, they also offer an opportunity to provide data and resources to our Federal agencies as we seek to improve our space weather efforts. As this Committee potentially considers legislation relating to space weather monitoring and research, we must be certain that whatever legislation that we mark up is not a top-down legislative mandate and ensures a role for the commercial sector. The Weather Research and Forecasting Innovation Act, which was passed by this Committee and signed into law 2 years ago, serves as a template for how we could accomplish this. The Weather Act took steps to integrate commercial weather data into NOAA's forecast models, and a similar model should guide us when developing space weather legislation. NOAA is also advancing our research to operations processes. This includes a new program, the Earth Prediction Innovation Center or EPIC. EPIC will use partnerships with academia, the private sector, and relevant agencies to test and validate new capabilities and transition these capabilities from research to operations, thereby improving our existing forecast and warning capabilities. NOAA is also exploring with NASA the potential for a space weather testbed to further accelerate the transfer of research to operations and operations to research. Strong public-private partnerships are essential to maintain and approve the observing networks, conduct research, create forecast models, and supply the services necessary to support our national security and our economic prosperity…NOAA is committed to working toward the growth of the private sector as our national infrastructure and technological base becomes more sensitive to the impacts of space weather, thus demanding more improved space weather services. NOAA will continue to explore partnerships with the commercial and academic community as we work to maintain and improve our operational capabilities. In closing, NOAA appreciates the ongoing support we have received from Congress for our critically important space weather program. We will continue to work with other Federal agencies, the private sector in this effort to develop and strengthen our activities in space weather research and forecasting, and I look forward to answering your questions.

#### Early warnings are key to protect grids

Winick 19 - Erin Winick, MIT Technology Review, March 27th, 2019 “The space mission to buy us vital extra hours before a solar storm strikes” [https://www.technologyreview.com/2019/03/27/136297/the-space-mission-to-buy-us-vital-extra-hours-before-a-solar-storm-strikes/] Accessed 12/15/21 SAO

For minor space weather, more timely warnings could ensure that no spacewalks are scheduled during a storm and that emergency responders on Earth have backup communications ready to go in case their radios go out. In case of a Carrington-like event, satellite operators could shut down their operations, warnings could be issued to the general public that their GPS devices will shut down, and power grid operators could be given the chance to protect their equipment.

#### Grid collapse—9 of 10 American’s will die

Pry 15’ - PETER VINCENT PRY Executive Director of the Task Force on National and Homeland Security, EMP TASK FORCE ON NATIONAL AND HOMELAND SECURITY, 2-28-2015["Terrorism–An Existential Threat", http://www.emptaskforcenhs.com/uncategorized/terrorism-an-existential-threat/, 3-24-2019] AWS

Terrorists do not need a nuclear missile to pose an existential threat to the United States, however. Technology has so evolved since World War II and the Cold War that the U.S. and the West have become an electronic civilization. Our prosperity and very lives depend upon a complex web of high-tech information, communications, financial, transportation, and industrial critical infrastructures, all supported by the keystone critical infrastructure–the electric power grid. Admiral Michael Rogers, Director of the National Security Agency and U.S. CYBERCOMMAND, in November 2014, warned that China and other actors could make a cyber attack that would blackout the U.S. national electric grid for 18 months, with catastrophic consequences for society. The Congressional EMP Commission warned that a nationwide blackout lasting one year could kill up to 9 of 10 Americans from starvation and societal collapse. Terrorists and hostile nations are probing U.S. cyber defenses every day and are working hard to develop the cyber equivalent of a nuclear warhead. Terrorists can also pose an existential threat to the United States by attacking its technological Achilles’ Heel the old fashioned way, using bullets and bombs. A study by the U.S. Federal Energy Regulatory Commission, the government agency responsible for grid security, warns that a terror attack that destroys just nine (9) key transformer substations, out of 2,000, could blackout the entire nation for over a year. Terrorists have learned that the electric grid is a major societal vulnerability. Terrorist attacks have already caused large-scale blackouts of 420,000 people in Mexico (October 2013), the entire nation of Yemen (by Al Qaeda in the Arabian Peninsula in June 2014), and 80 percent of the grid in Pakistan (January 2015)–this last a nuclear weapons state. And if terrorists steal a nuclear weapon from Pakistan, buy one from North Korea, or are given one by Iran, they could loft the warhead by balloon or missile to high-altitude over the U.S. to make the ultimate cyber attack–a nuclear electromagnetic pulse (EMP). EMP could blackout the national electric grid and other life sustaining critical infrastructures, perhaps permanently.

## AC

#### roberts

#### Privatization is the only feasible, cost-effective way to explore space – NASA fails and crowds out enterprise.

Boaz 08 (David, VP of the Cato Institute, “Space Privatization – From Cato to the BBC” Sep. 15 2008 <http://www.cato-at-liberty.org/space-privatization-from-cato-to-the-bbc/>) recut mc

Future expeditions to the Moon and beyond will only be politically and financially feasible if they are cut-price ventures. He concludes that fostering good relations with other countries is insufficient justification for the expenditures, and that NASA should move aside and allow the private sector to play a role in manned space flight. The cost of these activities must lessen if they are to continue, and that will only happen with a decrease or removal of government involvement. Rees observes that only NASA deals with science, planetary exploration, and astronauts, while the private sector is allowed to exploit space commercially for things such as telecommunications. However, there is no shortage of interest in space entrepreneurship: wealthy people with a track record of commercial achievement are yearning to get involved. Rees sees space probes plastered with commercial logos in the future, just as Formula One racers are now. Those ideas may sound radical, but not if you’ve been following the work of the Cato Institute. As long ago as 1986, Alan Pell Crawford wrote hopefully “space commercialization … is a reality,” and looked forward to the country making progress toward a free market in space. The elimination of NASA was a recommendation in the Cato Handbook for Congress in 1999. Edward L. Hudgins, former editor of Regulation magazine, wrote a great deal about private options in space. In 1995, he testified before the House Committee on Appropriations that the government should move out of non-defense related space activities, noting the high costs and wastefulness incurred by NASA. In 2001, Hudgins wrote “A Plea for Private Cosmonauts,” in which he urged the United States to follow the Russians (!) in rediscovering the benefits of free markets after NASA refused to honor Dennis Tito’s request for a trip to the ISS. Hudgins testified again before the House in 2001, this time before the Subcommittee on Space and Aeronautics. He noted that since the beginning of the Space Age, NASA has actively discouraged and barred many private space endeavors. This effectively works against the advancement and expansion of technology, while pushing out talent to foreign countries who court American scientists and researches to launch from their less-regulated facilities. In “Move Aside NASA,” Hudgins reported that neither the station nor the shuttle does much important science. This makes the price tag of $100 billion for the ISS, far above its original projected cost, unjustifiable. Michael Gough in 1997 argued that the space “shuttle is a bust scientifically and commercially” and that both successful and unsuccessful NASA programs have crowded out private explorers, eliminating the possibility of lessening those problems. Molly K. Macauley of Resources for the Future argued in the Summer 2003 issue of Regulation that legislators and regulators had failed to take into account “the ills of price regulation, government competition, or command-and-control management” in making laws for space exploration.

## C1:

#### [1] OST supports that sovereignty and private property are distinct which flows negative. this ow ur offense bc just principles that hve been deliberated and agreed upon by i-law flow neg.

Pace 11 (Scott Pace is the director of the Space Policy Institute at the Elliott School of International Affairs at George Washington University, and former Associate Administrator for Program Analysis and Evaluation at NASA. “Merchant and Guardian Challenges in the Exercise of Spacepower” Toward a Theory of Spacepower, Chapter 7, February 2011, National Defense University Press, http://www.ndu.edu/press/space-Ch7.html, TDA)recut emi

Current international law recognizes the continued ownership of objects placed in space by governments or private entities. Similarly, resources removed from outer space (such as lunar samples from the Apollo missions) can be and are subject to ownership. Other sorts of rights in space, such as to intellectual property and spectrum, are also recognized. Article II of the 1967 Outer Space Treaty, however, specifically bars national appropriation of the Moon or other celestial bodies by claims of sovereignty or other means. It also says that states shall be responsible for the activities of persons under their jurisdiction or control. Thus, the central issue is the ability to confer and recognize real property rights on land, including in situ resources found on the Moon and other celestial bodies. In common law, a sovereign is generally required to recognize private property claims. Thus, the Outer Space Treaty, by barring claims of sovereignty, is usually thought to bar private property claims. Many legal scholars in the International Institute of Space Law and other organizations support that view. Other scholars, however, make a distinction between sovereignty and property and point to civil law that recognizes property rights independent of sovereignty.34 It has also been argued that while article II of the treaty prohibits territorial sovereignty, it does not prohibit private appropriation. The provision of the Outer Space Treaty requiring state parties to be responsible for the activities of persons under their jurisdiction or control leaves the door open to agreements or processes that allow them to recognize and confer property rights, even under common law.

## c2:

#### Satellites solve poverty.

Borgen Magazine, September 28, 2021, “How Space Travel Can Reduce Poverty”, [https://www.borgenmagazine.com/space-travel/] mc

Satellites orbiting the earth can be a vital new weapon to fight poverty from space because these satellites can closely examine physical living conditions around the world. Many impoverished countries lack the resources to conduct detailed surveys into the state of their people and the best ways to alleviate poverty. In Africa, for example, 14 countries have been unable to conduct any poverty surveys in the last decade. Thanks to new observation technology, satellites can offer an alternative, mapping out towns and villages while assessing economic conditions more cheaply and effectively than a government could. Once the world has more access to information about poverty, it can take steps to treat it. The uses of satellites to identify and fight poverty from space go still farther. India has used its satellite program to better predict rainfall, storms and other weather phenomena. With its system of weather satellites, the Indian government can give farmers recommendations of what foods to plant, and when and where to plant them for optimum results. The many uses of satellites to reduce poverty might explain why a variety of poorer countries have launched their own space programs.

#### Space mining solves poverty.

Borgen Magazine, September 28, 2021, “How Space Travel Can Reduce Poverty”, [https://www.borgenmagazine.com/space-travel/] mc

Yet fighting poverty from space can even extend to the far reaches of the solar system. Many experts and economists expect that the moon and asteroids will become important sources of metals and other minerals within the next few decades. The moon in particular holds large reserves of rare earth metals, essential for most electronics, including phones and computers. At the moment, virtually all of the world’s rare earth metals must be mined from a few very dangerous and inhumane work sites. In China, for example, the toxic byproducts of rare earth metal mining often leak into the water supply, killing livestock and plants, and driving locals away. Space travel provides an alternative to these sorts of exploitative and dangerous labor practices. Experts expect that space mining would cause far less pollution and damage to the landscape than mining on earth. If we got our rare earth metals from space, the people who now work brutal and difficult mining jobs could instead find other professions, perhaps even working in the new space travel industry themselves. Meanwhile, increased supplies of rare earth metals would mean cheaper electronics, bringing connectivity and the information age to every corner of the world. Space travel offers an exciting chance for exploration and discovery, so it’s no wonder that the ultra-wealthy, such as Jeff Bezos and Elon Musk, are interested in going beyond the limits of the earth. Yet we must not forget the need for a globally conscious space exploration program. If we use space travel to reduce poverty on earth, all of humanity can partake in the wonders of space.

[3] their evidence talks about accidents – however those are not limited to just private companiesl