### 1NC --- OFF

#### States ought to ban commercial space exploration only if subject to a prior, binding, and genuine consultation that obtains free, prior, and informed consent from tribal nations.

#### Space is politically, culturally, and socioeconomically important to indigenous people, ensuring space security – BUT, free, prior, and informed consent through tribal consultation is necessary to recover indigenous connection to space and avoid unjust policy

Neilson and Cirkovic 21 [Hilding Neilson Elena Cirkovic Consulting Canadians on a Framework for Future Space Exploration Activities: A Response to the Canadian Space Agency (CSA) - Part I, Völkerrechtsblog, 28.07.2021, doi: 10.17176/20210728-135814-0.]/ISEE

We would like to start this two-part post with a reference to two very different and recent news articles from Canada: First, the positive: The Walrus article on First Nations astronomy in Canada. The second, is the news about a mass grave containing the remains of 215 children has been found in Canada at a former residential school set up to assimilate indigenous people. These two are related because they refer to indigenous peoples and their knowledge, and the attempts to erase that knowledge. This post is an expanded version of a response the authors wrote to the Canadian Space Agency (CSA) call for consultation with Canadians on Artemis Accords. In October 2020, Canada signed the US-led bilateral Artemis Accords, in order to establish a framework for future space exploration activities. The Accords provide a set of guidelines surrounding the Artemis Program for crewed exploration of the Moon. The project aims to return humans to the moon by 2024 and establish a crewed lunar base by 2030. Our objective is to look at this process from the perspective of Canadian constitutional rights of indigenous peoples, and the relevance of their knowledges for human activities in outer space. Part I focuses on the constitutional and treaty-based relationship between the government of Canada and indigenous peoples, and Part II will focus on the narratives of space exploration and the impact of satellite constellations. Canada’s position of support and leadership in space exploration has a positive and impressive history. From the development of the CanadaArm and the participation in work on the International Space Station (ISS) to the new scientific contributions with respect to lunar and Martian exploration, Canada has many reasons to be proud. However, it is worth noting that Canada’s role in space exploration has traditionally neglected to include Indigenous peoples, Indigenous knowledges, and Indigenous rights. In general, the history of Canadian participation in space exploration did not have a substantial and direct impact on Indigenous peoples’ rights in Canada. With accelerating technological developments in the past twenty years, space has become more accessible for humans. With these transformations, the current and proposed future of space exploration has the potential to negatively impact Indigenous peoples across Canada. One of the emerging issues for astronomers and various traditions including traditions of Indigenous peoples in Canada and elsewhere, is the launching of so-called satellite mega constellations, such as the SpaceX’s Starlink. Increasing the number of satellites in the Lower Earth’s Orbit (LEO), impacts further research. For various human cultures, Dark Skies have, among others, navigational and spiritual significance. Finally, the objective of our post is to emphasize the need for greater scientific understanding of the universe, which is achieved through research, education and outreach, and inclusion of multiple knowledges and ontologies. Without consultation with multiple knowledges of multicultural and multinational Canada, future space activities might contribute to the ongoing culture of colonization. We present arguments for the ethical and legal requirements for the CSA to consult with and to be inclusive of Indigenous rights and concerns as Canada moves to support the Artemis Accords. The Accords trigger a variety of issues in the outer space sector, which are beyond the scope of this brief post. The authors come to this work from two perspectives: the first being a Mi’kmaw astronomer who grew up in Newfoundland and is a status member of the Qalipu Nation, and co-author, a Bosnian-Canadian legal scholar. Thereby we stress that our contribution is an opinion and has no intent to speak for Indigenous peoples in general and/or any Indigenous-led organization in Canada, or any particular group or community in Canada. Please note that we will be using the terms Indigenous, and Aboriginal interchangeably as we engage with the language of domestic (Canadian) and international documents, publications, institutions, and relevant regulatory and/or administrative bodies. The terms Indigenous and Aboriginal refers to the three different categories of Indigenous peoples in Canada – First Nation, Inuit, and Métis. We reflect upon the CSA’s obligation to consult Indigenous peoples in Canada via two lenses: Firstly, where does Outer Space Law intersect with the modern and historic treaties between the First Nations and Canada (Crown)? Do these treaties include the skies and outer space? Secondly, considering its status as an international (and bilateral) agreement, where the Artemis Accords trigger the application of the United Nations Declaration on the Rights of Indigenous Peoples. Assuming that the Artemis Accords might, and in the situations where they do, trigger any responsibilities and obligations of Canada under the UNDRIP and its domestic laws to consult the First Nations, what are the CSA’s and Canada’s obligations to First Nation, Inuit, and Métis communities and Nations? We engage with these two points considering the following: That the questions of Indigenous rights and title in Canada, including the treaty rights, have significant impacts on how Canada consults with the First Nations and other communities and nations in Canada and pursues the ongoing and future space exploration accordingly; That these questions also require a revisiting of the allegedly prevailing narrative as proposed by some scholars and members of the global outer space sector, generally speaking, which treats space exploration as an analogy of the colonization of the Americas. The legal framework of our argument is that of Canadian Constitutional obligations towards indigenous peoples. The relevant cases are discussed and listed in the rest the following sections. Brief Consideration of Indigenous Rights in Canada Canada’s obligations to Indigenous peoples under the Canadian Constitution cannot be superseded or undermined by commitments under a bilateral agreement such as the Artemis Accords. These legal obligations include those recognized and affirmed by Section 35 of the Constitution Act, 1982, and those set out in self-government agreements. We recognize that, in 1985, the Supreme Court of Canada (SCC) concluded that treaties between Indigenous peoples and the Crown were not international treaties but were sui generis treaties (Simon v The Queen, [1985] 2 SCR 387 at para 33). However, it is worth considering that ‘[f]or many Indigenous peoples, treaties concluded with European powers…are, above all, treaties of peace and friendship, destined to organize coexistence in – not their exclusion from – the same territory and not to regulate restrictively their lives…under the overall jurisdiction of non-Indigenous authorities’ (para 117). While the United Nations, in documents including the UNDRIP, has recognized the potentially international character of Indigenous Crown treaties (UNDRIP Preamble, art 37(1)), we recognize that Canadian law has yet to consider this international recognition in domestic law. Nevertheless, as Henderson argues ‘any Crown authority over First Nations is limited to the actual scope of their treaty delegations. If no authority or power is delegated to the Crown, this power must be interpreted as reserved to First Nations, respectively, and is protected by prerogative rights and the common law since neither can extinguish a foreign legal system.’. There are plural and ongoing discussions on the status of Aboriginal title in Canada, as well as treaty obligations. It is beyond the scope of our comment to address the extensive international and domestic jurisprudence on the topic. However, we stress the existence of the Crown’s fiduciary duty to Aboriginal People as an aspect of various activities, including Canada’s activities in outer space (See, Annex I). Indeed, ‘The doctrine of Aboriginal rights exists… because of one simple fact: when Europeans arrived in North America, Aboriginal peoples were already here, living in communities on the land, and participating in distinctive cultures, as they had done for centuries. It is this fact, and this fact above all others, which separates Aboriginal peoples from all other minority groups in Canadian society and which mandates their special legal status.’ (Chief Justice Lamer in R. v. Van der Peet, para 30).

#### Ought means Should

Merriam Webster, No Date – Merriam Webster’s Learner’s Dictionary, “ought”, <http://www.learnersdictionary.com/definition/ought>  
ought /ˈɑːt/ verb  
Learner's definition of OUGHT [modal verb] 1 ◊ Ought is almost always followed by to and the infinitive form of a verb. The phrase ought to has the same meaning as should and is used in the same ways, but it is less common and somewhat more formal. The negative forms ought not and oughtn't are often used without a following to. — used to indicate what is expected They ought to be here by now. You ought to be able to read this book. There ought to be a gas station on the way. 2 — used to say or suggest what should be done You ought to get some rest. That leak ought to be fixed. You ought to do your homework.

#### Should = Certainty and Immediacy

Summers 94 (Justice – Oklahoma Supreme Court, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13)

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling in praesenti.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record.[16](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn16) [CONTINUES – TO FOOTNOTE] [13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) In praesenti means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is presently or immediately effective, as opposed to something that will or would become effective in the future *[in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

#### Consult counterplans are good for Neg Ground – Consult CPs are key to Neg ground where Space generics don’t spill-downward to specific countries or type of appropriation activity since there’s no scope of link. Consult CPs are the only way to generate stable generic contestation on an unlimited Aff topic. Neg Ground outweighs Aff Ground – key to Clash since Aff has infinite prep time to choose but we’re bound by the Aff’s choices – Clash makes every impact valuable since it’s distinct to debate.

### 1NC --- OFF

#### Innovation high now but aff trades off

Raghavan 21[Seetha Raghavan, Seetha Raghavan is a professor in UCF’s Department of Mechanical and Aerospace Engineering. 8-4-2021, "The Impact of Innovation in the New Era of Space Exploration," University of Central Florida News | UCF Today, https://www.ucf.edu/news/the-impact-of-innovation-in-the-new-era-of-space-exploration/]/ISEE

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.

#### Commercial space innovation stops extinction

Charles Beames 18, Chairman of the SmallSat Alliance, Executive Chairman of York Space Systems, former Principal Director of Space and Intelligence in the Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics (OUSD(AT&L)), Col. (ret.) in the USAF where he served 23 years in space & intelligence leadership positions around the world, 8/8/18, “Op-ed | SmallSat Alliance is on a path toward a new space horizon,” <https://spacenews.com/op-ed-smallsat-alliance-is-on-a-path-toward-a-new-space-horizon/>

We find ourselves still at the dawn of a new space century, mindful of the victories and setbacks of our past, eager to pass the torch to the next generation of space visionaries, scientists, engineers, and enthusiasts. We look to the future not just to see how much bigger, faster, or higher we can reach, but also how the United States, and specifically the U.S. space community, can again inspire the nations of the world to align with us, as it did in the 20th century. The SmallSat Alliance is an alliance of companies developing, producing, and operating in all segments of the ‘next generation’ space economy; championing renewed U.S. leadership in the burgeoning commercial space economy, and advocating for the transformation of government-led space capabilities. We are experienced space professionals who have chosen to join with others leveraging our decades of hard-won experience, to develop smarter ways to explore space in the 21st century. A wonderful outgrowth of the legacy space program is the commercial, entrepreneurial, and job-creating commercial space business that it bequeathed. These next-generation enterprises range from multi-million-dollar startups providing rideshare opportunities or components for small satellites to multi-billion-dollar space data-analytic platforms reinventing urban car service and agricultural production. The early returns of this economic revolution are already on our doorstep: space data capabilities are exponentially growing elements of the 21st century world economy. Beginning with the dreams and funding by successful tech entrepreneurs, enormous venture investments are already delivering wondrous benefits to the world. Commercial Space – Profit and Non-Profit There are really two major categories in the commercial sector, the profit driven and the non-profit. The classic for-profit companies include not only those designing, building, launching, and operating satellites but also the tech sector that is turning that raw space data into gold through machine-learning analytics. Since for-profit companies are no longer dependent upon the revenues generated by the Cold War space race culture of a bygone era, this new generation of space companies is able to more efficiently capitalize on Moore’s Law, the nonstop exponential growth in chip density, and the associated networking technology co-evolving with it. This new generation is building profitable businesses helping to clean up our oceans of garbage and debris with satellite surveillance, reconnoitering to assist in enforcing laws that protect our oceans from illegal, unregulated, unlicensed fishing, something that is rapidly depleting the world’s most valuable and essential lifeforms. It’s leading in the innovative use of low-cost satellite constellations to produce ubiquitous remote-sensing data, enabling small business owners to be more profitable and less wasteful. For example, precise timing signals from space are already optimizing transportation of people, goods, and services, with even further gains anticipated with the introduction of artificial intelligence to assist drivers, perhaps even someday replacing them entirely. The non-profit sector is the other side of commercial space, concerned more for the general welfare of society, but every bit as integral to this new space enterprise. Much like every century before it in human history, ours is not without its unique challenges, some of which have been a consequence of the last, and all of which the space data domain can be leveraged to help solve. Examples are endless, but one challenge that this new space community is uniquely well-adapted for is to further inform worldwide resource allocation for the 21st century and beyond. These two primary resources are sustainable water and the materials needed for adequate housing for an ever-increasing human population. As cities and urbanization continue to expand, governmental planning challenges such as transportation design optimization for goods and services are only the beginning. Additionally, through using inexpensive remote sensing technologies, some members are designing space data analytics to mitigate human suffering from plagues, contain outbreaks, and combating illegal poaching. Some are connecting with other non-profits to curtail human trafficking for the sex trade or forced labor for migrant debt repayment. Still others are helping non-governmental organizations in their work to expose the use of children as soldiers. Addressing these challenges has little to do with resuscitating dreams conceived by long deceased science-fiction writers and much more to do with turning “swords back into plowshares” to solve real threats to humanity. Other non-profit initiatives include pursuing an even more foundational understanding of who we are and how to be the best custodians of our environment. Much as exploring and monitoring the world’s oceans has advanced civilization through a better understanding of human life and the planet, so too does exploring and monitoring from space. Low Earth orbit (LEO) provides a unique vantage point to look back on the planet and understand what is happening, anticipate what might happen and prepare for the future. In addition to better understanding Earth, responsible and rapid exploitation of the low Earth orbit domain will enhance the understanding of the solar system and the rest of the universe. Small satellites already offer low-cost platforms to study and explore what lies beyond the Earth. Other members are pioneering the use of zero-carbon, hydrogen-based reusable propulsion systems to ensure we don’t worsen our atmosphere using kerosene-fueled rockets for the coming tsunami of satellite launches. Finally, a mission ensuring the general welfare and planet survival for the next thousand years is finally confronting the existential threat that asteroids and comets pose to humanity. These extra-terrestrial, deep-space threats are passing dangerously close to our planet, and today we have no solar map of them and no defense.

#### That’s key to getting off the rock

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Why Mining? **Technological innovation**—primarily brought about by **commercial players** such as Elon Musk[2] and Jeff Bezos[3]—is **changing the landscape** of space exploration. **Leading the way** in this new-era race are the **startups** including Planetary Resources, Deep Space Industries, Ispace, and Kleos Space.[vii] Research into the feasibility of human and robotic missions to asteroids is being conducted by both governmental organisations, like NASA and JAXA (Japan Aerospace Exploration Agency), as well as private companies such as Planetary Resources.[viii] However, for realising affordable space travel and space industrialisation, it is **essential** to find **extraterrestrial materials** such as metals, minerals and water that do not have to be transported from Earth. Thus, the first objective in carrying out asteroid mining activity is to obtain elements that are critical for basic sustenance on Earth. It has been identified that the asteroid belt in our solar system contains eight-percent metal-rich (M type) asteroids and 75-percent volatile-rich carbonaceous (C type) asteroids.[ix] The second incentive for celestial mining companies is to haul precious minerals and cargo raw materials to Earth to fuel its fast depleting resources. This would significantly increase the mining company’s valuation and greatly impact the global economy. According to a 2012 Reuters interview with Planetary Resources, a 30-meter-long (98-foot) asteroid can hold platinum worth somewhere from US$25 billion to US $50 billion.[x] These metals are highly useful and valuable, both on Earth and in space.[xi] Third, asteroids give humans the potential to create tools in space, since iron, nickel and cobalt are in abundance.[xii] Chris Lewicki, Planetary Resources CEO, has said, “Using 3D printing technology one can grab material off asteroids and 3D print something that never has to be on a rocket. Tools, machines and even habitats can then be built off Earth, reducing the cost of exploration even further.[xiii] Fourth, resource extraction is also becoming a focus for many Middle Eastern nations.[xiv] The Middle Eastern oil states, such as Saudi Arabia and the United Arab Emirates are investing heavily in this industry as they are looking at space as a way to diversify out of the earthly benefits of fossil fuel.[xv] Fifth, countries such as India and China are looking to mine the Moon for extracting Helium-3, which is considered a clean and efficient form of energy. It is thought that this isotope could provide safer nuclear energy in a fusion reactor, since it is not radioactive and would not produce dangerous waste products.[xvi] Finally, the water available in outer space could be used to make rocket propellants. According to scientists, since water is abundant in outer space, in some or the other form, it could be extracted and electrolysed to derive hydrogen and oxygen, the key ingredients of rocket fuel.[xvii] Thus, instead of carrying one’s own fuel all the way, asteroids could serve as extraterrestrial/orbital “gas stations” for fuelling future deep space missions. This would simultaneously make space travel more cost-effective and productive. Such ventures are also seen to be intrinsic to further science and discovery, in addition to revolutionising commercial development in outer space. The mining of asteroids could also provide a near-infinite supply of the precious resources for Earth to use. [xviii]

#### Extinction’s inevitable – only tech can sustain colonization and solve.

**Skran 16** [Dale Skran is Executive Vice President of the National Space Society and a member of the Board of Directors of the Alliance for Space Development. “Settling space is the only sustainable reason for humans to be in space,” <http://www.thespacereview.com/article/2915/1>]

As robotic and artificial intelligence technologies improve and enable increasingly robust exploration without a human presence, eventually there will be only one sustainable reason for humans to be in space: settlement. Research into the recycling technology required for long-term off-Earth settlements will directly benefit terrestrial sustainability. Actively working toward developing and settling space will make available mineral and energy resources for use on Earth on a vast scale. Finally, space settlement offers the hope of long-term species survival that remaining on Earth does not. There are more than seven billion people on the Earth today. No rational space settlement advocate suggests that any significant portion of that population, or even of those who are rich, will be moving to Mars or anywhere else in space. However, a recent essay by Astro Teller, head of Google X Labs, and his wife Danielle, a physician and researcher takes the bold position that “It’s completely ridiculous to think that humans could live on Mars.” This essay, published by Quartz, repeats with little examination some of the hoariest arguments against space settlement. To support this view, the Tellers quote their 12-year-old daughter: “I can’t stand that people think we’re all going to live on Mars after we destroy our own planet.” This quote contains two mischaracterizations that demand refutation: that “we are all” going to live in space and that we are going to live in space after we destroy Earth. Another canard that has long floated about was given form by the recent film Elysium starring Matt Damon: the rich will leave the poor on the Earth and escape to space settlements. Upon examination, all three of these ideas are strawmen. There are more than seven billion people on the Earth today. No rational space settlement advocate suggests that any significant portion of that population, or even of those who are rich, will be moving to Mars or anywhere else in space. Instead, we expect that relatively small numbers of highly qualified individuals, or those who are deeply dedicated to living in space, would form the first settlements. Over a significant period of time, thousands more from the Earth would join those settlements as they become increasingly self-sufficient. Over more time, various possible niches for settlement (Moon, Mars, asteroids, free space, etc.) will be occupied, and eventually the population in space will total many millions, most of whom will have been born in space. So why then do Elon Musk, Stephen Hawking, and many others, including organizations like the National Space Society (NSS) and Alliance for Space Development, believe strongly that space settlement is essential to human survival? Although this may seem surprising, the Earth is not a “safe space.” The destiny of virtually all species on Earth is extinction in a relatively short span of geologic time. The Tellers claim that “we live on a planet that is perfect for us.” This statement is both completely true and total nonsense. We fit well on the Earth because we have evolved over millions of years to become creatures that are both adapted to live here and to like living here. It is truer to say that we are perfect for the Earth than the reverse. In fact, the Earth is not such a commodious place. It is subject to periodic calamities of various sorts, ranging from massive asteroid and comet impacts to titanic volcanic eruptions, and from periodic ice ages to disastrous solar flares. In the short run, the Earth seems balmy and comfortable. Viewed from the perspective of deep time, it starts to look more like a death trap, bedeviled by regular mass extinctions. However, things are actually quite a bit worse. Although there are many potentially bad things that might happen to the human race on the Earth from natural sources, there are many more from unnatural sources. We have been dancing with nuclear disaster for a long time. An apocalyptic atomic war is not inevitable, but it is possible. Add to this scenario the genetically engineered killer virus, “gray goo,” a robot revolt, and other horrors as yet undreamt, and the odds against human survival get longer. Hence, the need to abandon the fiction of Earth as our eternal and unchanging perfect home and to appreciate both the need for, and promise of, space settlement. Not so the rich can escape to an Elysium in the sky, or so we can all leave behind a polluted and overheated Earth, but simply so that the human species and human culture has a chance at surviving and flourishing in the long term. The Tellers believe that sustainability on the Earth has no relationship to what we do in space, but the same technologies that enable deep space settlement will have a profound impact on terrestrial sustainability. The Tellers write, “We haven’t even colonized the Sahara desert, the bottom of the oceans… because it makes no economic sense.” This may be true, but it also makes no sense to settle the Sahara desert, the bottom of the oceans, or Antarctica since these locations are on the Earth, and humans living there will not increase the probability of species survival. Near-Earth free space settlements and lunar bases are just stepping stones to ones much further out that are quarantined from Earth by millions of kilometers of vacuum. Once the motivation of species survival is put front and center, it becomes clear that a settlement in low Earth orbit, on the Moon, at L5, or on the Martian surface is not nearly sufficient. What is needed is a large set of thriving communities distributed throughout the solar system, and even ultimately in the Oort Cloud surrounding the solar system proper. This vision is not a small thing. It will be the work of many generations, just as was the settling of the New World or, even earlier in history, the human diaspora out of Africa along the Asian coast to Australia and beyond. The Tellers believe that sustainability on the Earth has no relationship to what we do in space, but the same technologies that enable deep space settlement will have a profound impact on terrestrial sustainability. Space settlements, of necessity, push the limits of food production per square meter and per liter of water. Space settlement agricultural methods can also be applied to growing food in parched California or in vertical farms in crowded urban areas. Space settlements require humans and technology to co-exist in close proximity. This implies an absolute minimization of pollution and sustained recycling of all waste. Such technologies seem highly applicable to sustainability on Earth as well. We will need to provide the best possible medical care for remote space settlements, which will be far from hospitals on Earth. The technologies that make such medicine effective—“tricorders”, telemedicine, and so on—can also bring medical care to underdeveloped and underserved areas of the Earth. The Tellers raise the specter of “winter-over syndrome” in the Antarctic, writing that “living on Mars would be way, way more miserable than living in Antarctica,” and concluding, “Nobody wants to live there.” Although it is clear that the Tellers will not be going, the large numbers who signed up for Mars One’s sketchy settlement plans suggest that a lot of people do want to live on Mars. There are real challenges to constructing space settlements, but current Antarctic bases are not true settlements. Nobody lives there with their families, with the exception of the coastal Esperanza Base, where about ten families routinely winter over. No real effort is made to create any kind of human environment that is comfortable over a long period of time. Conditions in Antarctica might be better compared to living in a campground than a self-sustaining settlement. Additionally, the current Antarctic Treaty essentially prevents any extraction or use of the natural resources found there, thus making economically independent settlements infeasible. The Tellers think that, from an economic perspective, “Mars has nothing to offer in return.” Here, at least in the short run, they have a point. Let us not shy from the truth. Conditions in the early settlements in the New World were difficult at best, and the casualty rate was high. We should expect the same to hold true for early space settlements. However, Jamestown and Plymouth gave rise to vast cities and a tamed landscape on a scale of hundreds of years. We now bring to the table technological means that would seem magical to the Jamestown settlers. Even as difficult an environment as the Moon can be developed and settled using technology that either exists currently or is an engineering project, as one book suggests. The Tellers think that, from an economic perspective, “Mars has nothing to offer in return.” Here, at least in the short run, they have a point. Although Mars may have more of the natural resources a settlement will need than, say, the Moon, it is at the bottom of a fairly steep gravity well and, for the time being, it is not likely that there will be many Mars-to-Earth exports. However, this is like looking at the resources of the New World via a keyhole, seeing a swamp, and reporting back that there is no point in going there. It is worth keeping in mind the example of “Seward’s Folly.” The purchase of Alaska from Russia was mocked as “Seward’s icebox” and a “polar bear garden.” At the time, the oil and mineral riches of Alaska were undiscovered and undreamt of. Space itself teems with valuable resources, including continuous and abundant solar energy and mineral wealth on a scale beyond imagination just in the near Earth asteroids. Just as the Tellers were dismissing space resources as irrelevant, the US Congress was laying the legal groundwork for asteroid and lunar mining with the passage of the Commercial Space Launch Competitiveness Act, signed by President Obama on November 23, 2015. The Tellers also seem unaware that their leadership at Google, Larry Page and Eric Schmidt, are investors in the asteroid mining firm Planetary Resources. The Tellers say that “we won’t survive [on Earth] unless we learn to live in a resource neutral way.” This statement assumes that that Earth is a closed system, which it is not. The Earth is flooded daily with vast amounts of solar energy that, if exploited, could power just about any civilization we wish to maintain. There is no technical limitation to providing continuous, carbon-free power from space solar power satellites beaming power back to the surface of the Earth anywhere it might be needed. The main opposition to this idea derives from an unwillingness to consider centralized power systems on ideological grounds, combined with the unexpected reality of very cheap natural gas today. Even the most conservative consideration of near-Earth asteroid resources suggests that there is no reason to view the Earth as a closed system to which nothing can be added. The time for the settlement of Mars will come, but first we need to build on our success in developing the resources of Earth orbit, in the form of navigation, Earth observation, communication, and weather satellites, by fully developing the economic potential of the Earth-Moon system. Space settlements must flow out of the development of the economic resources of space if they are to be sustainable in the long term. The NSS has developed a complete description of milestones toward the development of space settlements. In view of the above, Astro Teller was probably right to turn down the “space cadet” who wanted Google X to spend money on Mars settlement. But wait—Google is doing exactly that. A key first step toward space settlement is ensuring a gapless transition from the existing International Space Station to commercially owned and operated LEO space stations as described in the NSS position paper “Next Generation Space Stations.” Next will come the development of the resources of the Moon and neaby asteroids leading to the creation of a self-sustaining Earth-Moon economy. Once we have established an asteroid-Earth-Moon economy that makes the resources found in this region fully available for projects ranging from the construction of solar power satellites to fueling future Mars missions, trips to Mars will be far less of a reach than they are today. In view of the above, Astro Teller was probably right to turn down the “space cadet” who wanted Google X to spend money on Mars settlement. Currently Google’s money would be better spent in low Earth orbit, among the asteroids, and on the Moon, joining forces with the growing number of entrepreneurs seeking their fortunes in space. But wait—Google is doing exactly that by sponsoring the Google Lunar X PRIZE to encourage private groups to send landers to the Moon, and investing $900 million in Elon Musk’s SpaceX. Given that corporate Google (now Alphabet) has just made a massive investment in a company founded to settle Mars, the Tellers’ essay sounds a bit like sour grapes. In any case, the Tellers are completely wrong in their disregard of the potential economic benefits of space development and the underlying motivation for space settlement.

## CASE

### 1NC – 1

#### The role of the ballot

#### Inclusion is wrong – trix worse because they rely on tiny drops

#### We solve reciprocity – affirming and negating

#### They have contradicted themselves – they have said that the role of the res I’

#### Permissibility plus pres flow neg

#### Aff must prive and obligatiob == proving something is permissible is not an ob

#### Regect aprioris and semantics their arg doesn’t have a warrant it distracts from debate

#### They re ableist – they will spam thibgs with drops

#### Group paradozxes No application to res – there are no warrants

#### We don’t presuppose truth – obvi we are saying they are wrong --- presupposing truth is not the same as being true

#### Perf cons aren’t independent voters the neg gets to test the aff from multiple angles

#### Not the form of the res also no warrant

### 1NC – 6

#### CD

### 1NC – 2

#### We concede extinction first

### 1NC – 3

#### War is inevitable BUT delays cause worse wars

Eugene Romer and Richard Sokolsky 20 {Rumer, a former national intelligence officer for Russia and Eurasia at the U.S. National Intelligence Council, is a senior fellow and the director of Carnegie’s Russia and Eurasia Program. Richard Sokolsky is a nonresident senior fellow in Carnegie’s Russia and Eurasia Program. 9-8-2020. “Etched in Stone: Russian Strategic Culture and the Future of Transatlantic Security.” https://carnegieendowment.org/2020/09/08/etched-in-stone-russian-strategic-culture-and-future-of-transatlantic-security-pub-82657}//JM

New U.S. and Russian conventional weapons could have a profound impact on strategic stability, crisis stability, and arms race stability because they are unconstrained by existing arms control treaties and not subject to any rules or limitations. Absent mutual restraint, the integration of new technologies into the military doctrines and force postures of both countries is likely to have a profoundly destabilizing impact across the board.

THREATS TO STRATEGIC STABILITY

The integration of new conventional weapons technologies into the arsenals and war-fighting plans of the United States and Russia is bound to affect their threat perceptions. The following scenario could be highly destabilizing: a decapitating first strike against strategic command-and-control and early-warning surveillance systems, followed by strikes on offensive systems to blunt a retaliatory strike. The addition of missile defenses to this mix would add to concerns about ensuring survivable second-strike capabilities and strategic stability.

THREATS TO CRISIS STABILITY

Crisis stability—the ability to keep a crisis or confrontation from escalating into a nuclear war—will be threatened if and when the deployment of new weapons systems creates greater incentives to use nuclear or conventional weapons first in a crisis and, particularly, to attack quickly before there is time to collect reliable information and carefully weigh all available options and their consequences.61 As previously noted, some of the new conventional weapons can be delivered from the same platforms as nuclear warheads, making it nearly impossible to determine whether they are carrying either type. This “warhead ambiguity” will be more prevalent and worrisome in the future as the United States and Russia field large numbers of hypersonic boost-glide ballistic and cruise missiles, which travel at tremendous speeds and fly trajectories that make defense against them exceedingly difficult.62 These emerging threats to crisis stability put a much greater premium on preventing and managing crises that could escalate to conventional or nuclear war and mitigating the risk that such a crisis could lead to an inadvertent conflict through misunderstanding or miscommunication.63

These technical and doctrinal innovations pose new threats to European security. They could compromise crisis stability in the conventional military balance in Europe. The United States and Russia will likely seek to deploy these capabilities to offset what they perceive to be their vulnerabilities in a conflict: the United States to compensate for its relative weakness in a short war limited to NATO’s eastern flank and Russia to mitigate the risks it sees in a protracted conflict with NATO. Both countries will put a premium on cyber, artificial intelligence, and hypersonic weapons because of their potential of these to knock out the command, control, communications, computers, intelligence, surveillance, and reconnaissance capabilities of the other side and to disrupt the mobilization of forces—and thus to prevail in a conventional conflict.

The potential for losing a conventional war in Europe, from either side’s perspective, is dangerous because it increases the possibility that the United States or Russia or both might be tempted to believe that limited tactical nuclear weapon strikes could stave off conventional defeat, raising in turn the risk of strategic nuclear escalation. Hence Russia’s flirtation with the “escalate to de-escalate” notion, which has been echoed in its recently released official paper on nuclear deterrence.64

THREATS TO ARMS RACE STABILITY

Arms race stability is typically defined as the absence of incentives to build up nuclear forces, qualitatively or quantitatively.65 Three developments could create such incentives. First, the demise of New START and the inability of the United States and Russia to agree on a follow-on treaty will eliminate many of the treaty-based transparency and verification measures that made their bilateral strategic relationship more predictable. Second, the end of Russian and U.S. overflights of each other’s territory as part of the Open Skies Treaty will also reduce transparency of conventional forces. And, third, the deployment of new conventional technologies as discussed above, if unaccompanied by mutual restraint measures.

The end of the INF Treaty is likely to stimulate a competition to deploy new INF-range systems in Europe and/or air and naval forces on and around the continent with deep-strike capabilities. Overlaying these two challenges on arms race stability is a third: an arms race that will be stimulated as each side introduces new weapons technologies into their force structure, many of which will be able to put second-strike capabilities at risk and defend national territory against retaliatory strikes.

CONCLUSIONS AND IMPLICATIONS

Looking ahead, it is tempting to hope that changes in Russia’s domestic politics or its economic difficulties will trigger shifts in its foreign policy similar to those of the Gorbachev era, and consequently that East-West relations will improve dramatically. However, the framework of Russian strategic culture suggests that such a turn of events is highly unlikely for three reasons.

First, the Gorbachev period in Russian foreign policy was brief—a decade, arguably even less, after which the antagonistic relationship between Russia and the West gradually resumed.

Second, strategic culture is a product of a nation’s domestic political traditions, history, and geography and, by definition, provides an enduring framework for its foreign and security policy. This is not to say that it is permanent and cannot change, but it is unlikely to change as a result of domestic political shifts, which in Russia’s case have proved to be less dramatic than initially anticipated and assessed.

Third, major shifts and retreats in Russia’s foreign and security policy have occurred during periods of domestic weakness, as happened in 1918 after the Bolshevik Revolution and in 1991 after the collapse of the Soviet Union. In both instances, however, attempts to return to the status quo ante began as soon as the country regained even a fraction of its domestic stability and capabilities to project power beyond its borders.

As evident from the above discussion of Russia’s strategic culture, the country’s national security policy has long emphasized control over the periphery and preventing other powers from establishing their foothold there. The invasion of Ukraine is but the latest example of overreaction by Russia’s leaders to the threat, as they see it, of foreign encroachment upon their desired buffer zone and sphere of influence. The experience of U.S. and European efforts in the aftermath of the Cold War to establish a mutually acceptable security regime with Russia for all of Europe demonstrates that the gap is unlikely to be bridged in the foreseeable future, if ever.

The development of new, highly destabilizing conventional and nuclear technologies holds the promise of revolutionary changes in transatlantic security. These changes will likely make obsolete most, if not all, existing approaches to strategic stability and arms control as well as the very idea of treaty-based security arrangements between the United States and its European allies and Russia. To manage this new security environment, which will continue to suffer from deep-seated antagonisms and fundamentally different worldviews, a new approach to conventional and nuclear arms control, strategic stability, and theater-wide European security is needed.

The technical approach to arms control, which prevailed throughout the Cold War and the post–Cold War years, and which presumes that there is an elegant technical solution for challenges to mutual deterrence and stability, is far too apolitical. It is inadequate to ensuring strategic stability for a new era of unregulated competition in conventional weapons technologies. This model for arms control tends to focus on the hardware aspects of the competition and more often than not fails to take into account the less intangible drivers of that competition, such as a nation’s strategic culture and threat perceptions.

#### The United States would respond to Russian attacks against them OR allies with a devastating counterforce – that crushes Russia.

Lonsdale **’**19 [David Lonsdale is the Director of the Centre for Security Studies at the University of Hull, UK, “The 2018 Nuclear Posture Review: A return to nuclear warfighting?,” *Comparative Strategy* 28:2, pub. online, May 17, 2019]

The important question is: what objectives would the U.S. pursue within a nuclear conflict, and how would they be achieved? It appears that the primary objectives sought would be damage limitation (an important component of warfighting) and the reestablishment of deterrence. This fits with the preliminary qualifying statement to this section of the review, in which it is stated that the U.S. would use nuclear weapons in compliance with the law of armed conflict.86 Indeed, the NPR is at pains to note that nuclear forces would only be used for defensive purposes. One assumes that this rules out counter-value targeting (deliberate attacks against enemy population centers). This leaves counterforce operations as the only option. Strikes against enemy nuclear forces and their command and control, in conjunction with active ballistic missile defenses (BMD), would help ensure damage limitation for the U.S. and its allies.87 A focus on counterforce options is reminiscent of later Cold War strategy, when the U.S. increasingly procured weapon systems with increased accuracy and penetrative capability designed for warfighting. Indeed, Lieber and Press argue that increases in accuracy and remote sensing have enhanced the potency of counterforce options, to the point that low-casualty counterforce options are possible for the first time.88 One can reasonably assume, although it is not explicitly noted in the review, that the restoration of deterrence would be achieved through a combination of intra-war deterrence by denial (as noted above in relation to counter-escalation strategies) and punishment for coercive purposes. Inclusion of the latter is premised on references to “unacceptable consequences” resulting from nuclear attack elsewhere in the NPR. 89 However, in the face of no counter-value targeting, it is reasonable to question how these costs would be inflicted. There are three possible answers, although none of them is discussed in the NPR. First, it may be that the enemy values highly their nuclear forces; so that the loss of them would inflict unacceptable costs. Alternatively, there may be an unwritten assumption that counterforce strikes would inevitably produce “bonus” counter-value damage. Much of the nuclear force infrastructure (including command and control, airbases, etc.) is within or near population centers. Thus, even a limited counterforce strike is likely to have a significant detrimental effect on counter-value targets. This assumption, however, is somewhat thrown into question by the stated desire to procure accurate limited-yield weapons and to operate within the norms of the war convention. Low-yield accurate weapons would be ideal for counterforce missions and would minimize damage to counter-value target sets. Thus, bonus damage is likely to be limited. Finally, although again not explicitly noted in the NPR, perhaps there is a return to the notion of attacking targets associated with political control. Yet again, though, concerns over collateral damage would likely restrict a campaign aimed at the means of political control. We are, thus, left with many questions concerning how the coercive effects of nuclear weapons would be administered. This is problematic, for as Thomas C. Schelling eloquently noted, “The power to hurt can be counted among the most impressive attributes of military force.” 90 It has to be concluded that the uncertainties in this area of strategy reflect either a paradox or incomplete strategic thinking in the NPR. Clarity on these matters would be welcome, especially as it would enhance deterrence credibility still further. Although countervailing is back on the agenda in the 2018 NPR, there is no mention of prevailing in a nuclear conflict. Indeed, the review quotes Defense Secretary Mattis, echoing the early thoughts of Brodie, that nuclear war can never be won, and thus must never be fought.91 This is both curious and disappointing from a warfighting perspective, and speaks to the need for the further development of strategic thinking in U.S. nuclear strategy under Trump. Damage limitation and the reestablishment of deterrence are perfectly admirable goals within the context of nuclear conflict. However, if the U.S. is to achieve its objectives in a post-deterrence environment, it must have a comprehensive theory of victory. Damage limitation and the reestablishment of deterrence are limited negative objectives. They do not provide a positive driving force for the use of nuclear weapons. To reiterate, victory refers to a policy objective that must be achieved in the face of the enemy. And, as Clausewitz reminds us, the will of the enemy must be broken by destroying his ability to resist, or putting him in such a position as his defeat is inevitable.92 If we consider the conditions under which U.S. nuclear weapons could be used, as stipulated by the 2018 NPR, then we can assume that an enemy power (likely) Russia, China, North Korea, or a state-sponsored terror group) has launched a substantial attack on either the U.S. or one of its allies. We can think in terms of a Russian assault on the Baltic States, a North Korean attack on South Korea, or perhaps a Chinese invasion of Taiwan. Alternatively, the U.S. may have been subjected to a substantial strategic attack, involving either weapons of mass destruction (including biological or chemical) or a crippling cyberattack. In any of these scenarios, more expansive objectives would be required. As Lieber and Press note, “In some cases, wars may be triggered by events that compel U.S. leaders to pursue decisive victory, conquest, and/or regime change.” 93 Thus, in order to achieve its objectives, the U.S. would variously need to: punish an aggressor to reinstate deterrence; defeat enemy forces for damage limitation or to reclaim lost territory; and, in the North Korean case, presumably overthrow a communist regime. In some of these cases, damage limitation and the reestablishment of deterrence would not be enough. Enemy forces would have to be defeated, removed, destroyed, or coerced (to withdraw from allied territory). Any operations in pursuit of these goals would need a theory of victory built on a detailed understanding of the use of nuclear weapons in the service of military objectives; i.e., nuclear warfighting. This could include defeating enemy nuclear forces for force protection of U.S. and allied conventional forces. Alternatively, U.S. nuclear forces may be required to defeat regionally superior enemy conventional forces. And yet, as previously noted, the NPR rules out a return to nuclear warfighting. This is a significant disjuncture in U.S. nuclear strategy. It is even more curious when one considers the range of modern forces the Trump administration seeks to acquire under the 2018 NPR.

#### Limited nuclear war won’t cause extinction, but solves future use

Daniel Deudney 18. Associate Professor of Political Science at Johns Hopkins University. 03/15/2018. “The Great Debate.” The Oxford Handbook of International Security. www.oxfordhandbooks.com, doi:10.1093/oxfordhb/9780198777854.013.22. //reem

Although nuclear war is the oldest of these technogenic threats to civilization and human survival, and although important steps to restraint, particularly at the end of the Cold War, have been achieved, the nuclear world is increasingly changing in major ways, and in almost entirely dangerous directions. The third “bombs away” phase of the great debate on the nuclear-political question is more consequentially divided than in the first two phases. Even more ominously, most of the momentum lies with the forces that are pulling states toward nuclear-use, and with the radical actors bent on inflicting catastrophic damage on the leading states in the international system, particularly the United States. In contrast, the arms control project, although intellectually vibrant, is largely in retreat on the world political stage. The arms control settlement of the Cold War is unraveling, and the world public is more divided and distracted than ever. With the recent election of President Donald Trump, the United States, which has played such a dominant role in nuclear politics since its scientists invented these fiendish engines, now has an impulsive and uninformed leader, boding ill for nuclear restraint and effective crisis management. Given current trends, it is prudent to assume that sooner or later, and probably sooner, nuclear weapons will again be the used in war. But this bad news may contain a “silver lining” of good news. Unlike a general nuclear war that might have occurred during the Cold War, such a nuclear event now would probably not mark the end of civilization (or of humanity), due to the great reductions in nuclear forces achieved at the end of the Cold War. Furthermore, politics on “the day after” could have immense potential for positive change. The survivors would not be likely to envy the dead, but would surely have a greatly renewed resolution for “never again.” Such an event, completely unpredictable in its particulars, would unambiguously put the nuclear-political question back at the top of the world political agenda. It would unmistakeably remind leading states of their vulnerability It might also trigger more robust efforts to achieve the global regulation of nuclear capability. Like the bombings of Hiroshima and Nagasaki that did so much to catalyze the elevated concern for nuclear security in the early Cold War, and like the experience “at the brink” in the Cuban Missile Crisis of 1962, the now bubbling nuclear caldron holds the possibility of inaugurating a major period of institutional innovation and adjustment toward a fully “bombs away” future.

#### Absent war---Russia develops AI---extinction

Mike Rogers 17 (Mike Rogers is a former US Representative from Michigan, chairman of the House Permanent Select Committee on Intelligence, “Artificial intelligence — the arms race we may not be able to control," TheHill, 9-21-2017, https://thehill.com/opinion/technology/351725-artificial-intelligence-is-the-new-arms-race-we-may-not-be-able-to-control)(Shiv)

“Whoever becomes the leader in this sphere will become ruler of the world,” [said](https://www.theverge.com/2017/9/4/16251226/russia-ai-putin-rule-the-world) Vladimir Putin. The sphere the President of Russia is referring to is artificial intelligence (AI) and his comments should give you a moment of pause. Addressing students at the beginning of our Labor Day weekend, Putin remarked “Artificial intelligence is the future, not only for Russia, but for all humankind,” adding, “It comes with colossal opportunities, but also threats that are difficult to predict.” For once, I find myself in agreement with the President of Russia, but just this once. Artificial Intelligence offers incredible promise and peril. Nowhere is this clearer than in the realm of national security. Today un-crewed systems are a fact of modern warfare. Nearly every country is adopting systems where personnel are far removed from the conflict and wage war by remote control. AI [stands](https://www.nytimes.com/2016/10/26/us/pentagon-artificial-intelligence-terminator.html) to sever that ground connection. Imagine a fully autonomous Predator or Reaper drone. Managed by an AI system, the drone could identify targets, determine their legitimacy, and conduct a strike all without human intervention. Indeed, the Ministry of Defence of the United Kingdom issued a press [statement](https://www.theverge.com/2017/9/12/16286580/uk-government-killer-robots-drones-weapons) in September that the country “does not possess fully autonomous weapon systems and has no intention of developing them,” and that its weapons systems “will always be under control as an absolute guarantee of human oversight and authority and accountability.” Let’s think smaller. Imagine a tiny insect-sized drone loaded with explosive. Guided by a [pre-programmed AI](https://www.amazon.com/Life-3-0-Being-Artificial-Intelligence/dp/1101946598), it could hunt down a specific target — a politician, a general, or an opposition figure — determine when to strike, how to strike, and if to strike based on its own learning. Howard Hughes Medical Center [recently](https://qz.com/1000011/scientists-attached-an-electronic-backpack-to-a-genetically-modified-dragonfly-and-turned-it-into-a-drone/) attached a backpack to a genetically modified dragonfly and flew it remotely. These examples are, however, where humans are involved and largely control the left and right limits of AI. Yet, there are examples of AI purposely and independently going beyond programed parameters. Rogue algorithms led to a [flash crash](http://gizmodo.com/rogue-algorithm-blamed-for-historic-crash-of-the-britis-1787523587) of the British Pound. In 2016, in-game AIs created super AIs weapons and [hunted down](http://www.kotaku.co.uk/2016/06/03/elites-ai-created-super-weapons-and-started-hunting-players-skynet-is-here) human players, and AIs have [created](https://www.forbes.com/sites/tonybradley/2017/07/31/facebook-ai-creates-its-own-language-in-creepy-preview-of-our-potential-future/#1cf69787292c) their own languages that were indecipherable to humans. AIs proved more effective than their human counterparts in producing and catching users in spear phishing programs. Not only did the AIs create more content, they successfully [captured](https://www.blackhat.com/docs/us-16/materials/us-16-Seymour-Tully-Weaponizing-Data-Science-For-Social-Engineering-Automated-E2E-Spear-Phishing-On-Twitter.pdf) more users with their deception. While seemingly simple and low stakes in nature, extrapolate these scenarios into more significant and risky areas and the consequences become much greater. Cybersecurity is no different. Today we are focused on the hackers, trolls, and cyber criminals (officially sanctioned and otherwise) who seek to penetrate our networks, steal our intellectual property, and leave behind malicious code for activation in the event of a conflict. Replace the individual with an AI and imagine how fast hacking takes place; networks against networks, at machine speed all without a human in the loop. Sound far-fetched? It’s not. In 2016, the Defense Advanced Research Projects Agency held an AI on AI capture the flag contest called the [Cyber Grand Challenge](https://www.youtube.com/watch?v=qSgYu3w3DMM) at the DEF CON event. AI networks against AI networks. In August of this year the founders of 116 AI and robotics companies signed a letter petitioning the United Nations [to ban](https://www.theverge.com/2017/8/21/16177828/killer-robots-ban-elon-musk-un-petition) lethal autonomous systems. Signatories to this letter included Google DeepMind’s co-founder Mustafa Suleyman and Elon Musk who, in response to Putin’s quote [tweeted](https://twitter.com/elonmusk/status/904638455761612800), “Competition for AI superiority at national level most likely cause of WW3 imo (sic)”. AI is not some far off future challenge. It is a challenge today and one with which we must grapple. I am in favor of fielding any system that enhances our national security, but we must have an open and honest conversation about the implications of AI, the consequences of which we do not, and may not, fully understand. This is not a new type of bullet or missile. This is a potentially fully autonomous system that even with human oversight and guidance will make its own decisions on the battlefield and in cyberspace. How can we ensure that the system does not escape our control? How can we prevent such systems from falling into the hands of terrorists or insurgents? Who controls the source code? How and can we build in so-called impenetrable kill switches? AI and AI-like systems are slowly being introduced into our arsenal. Our adversaries, China, Russia, and others are also introducing AI systems into their arsenals as well. Implementation is happening faster than our ability to fully comprehend the consequences. Putin’s new call spells out a new arms race. Rushing to AI weapon systems without guiding principles is a dangerous. It risks an escalation that we do not fully understand and may not be able to control. The cost of limiting AI intelligence being weaponized [could vastly exceed](https://www.belfercenter.org/sites/default/files/files/publication/AI%20NatSec%20-%20final.pdf) all of our nuclear proliferation efforts to date. More troubling, the consequences of failure are equally existential.

### 1NC-- 4

#### No Taiwan war.

Natasha Kassam 20. Research Fellow in the Diplomacy and Public Opinion Program at the Lowy Institute, Bachelor of Laws (Hons I) and a Bachelor of International Studies from the University of Sydney, and Richard McGregor, Senior Fellow at the Lowy Institute, Former Fellow at the Wilson Center and Visiting Scholar at the Sigur Center at George Washington University. “Taiwan’s 2020 Elections”. *Lowy Institute*. 1-7-2020. https://www.lowyinstitute.org/publications/taiwan-s-2020-elections

In Taiwan, political leaders worry that Xi wants to cement his legacy with a breakthrough on Taiwan. Once shy about revealing its strengths, Beijing under Xi has adopted a different approach, flaunting its wealth and power and strengthening the People’s Liberation Army to deter any challengers. Regionally, the conventional balance of military power is tipping towards China. The People’s Liberation Army has long equipped itself and planned for a cross-straits conflict. However, a full-frontal Chinese invasion of Taiwan remains unlikely in the near term. There are numerous factors that would deter such an invasion, including Taiwan’s unwelcoming geography and climate, the difficulties of staging an amphibious landing, the unknown appetite in the United States for intervention and Japan’s interests in the Taiwan Strait. Other military options which would be less risky, and potentially less disruptive to trade, include a targeted naval blockade.[36] Even if Beijing were to take over Taiwan militarily, Hong Kong has illustrated how difficult it would be to occupy the island in the face of near certain local resistance. The resulting political and security crisis for China and the broader region would be unprecedented since World War II. Taiwanese resistance, both on the island and by a mobilised Taiwanese diaspora, would be a test for national politics around the world, including in Australia. The People’s Liberation Army is untested, both in battle and in the business of occupation, and China’s institutions and military resources would be stretched by such a war.[37] It is unsurprising then that Beijing is pursuing its current strategy of multi-front hybrid warfare against the island to force an opening of talks, rather than military action.

#### It’s extremely unlikely due to PLA vulnerability, U.S. deterrence, and financial risks

Lawrence Chung 19, Taiwan and Foreign Correspondent for the South China Morning Post, MA in Journalism, Former Correspondent for Reuters and the AFP, Former Deputy Editor in Chief of The China Post, “Surprise Attack on Taiwan by China’s PLA ‘Unlikely’, According To Taipei Think Tank”, South China Morning Post, 2/20/2019, https://www.scmp.com/news/china/diplomacy/article/2186828/surprise-attack-taiwan-chinas-pla-unlikely-according-taipei

A surprise attack on Taiwan by the mainland would be highly unlikely, according to a Taipei-based think tank, thanks to the United States’ powerful electronic monitoring systems.

If the mainland really wanted to attack the self-ruled island, it would choose to partially paralyse Taiwan instead of launching an all-out war, the Kuomintang-backed National Policy Foundation said.

“First, the People’s Liberation Army is not confident in amphibious warfare, given its inadequate supply logistics and the island’s problematic geographic formations which would make landing difficult,” said Lin Yu-fang, head of the think tank’s national security division.

“Second, as there would be unusual signs involving military movements, any surprise attack would be unable to escape the watchful eye of the United States, which is equipped with powerful state-of-the-art monitoring systems, including its intelligence satellites.”

Taiwan’s darkest military secrets revealed by Google Maps

Lin, a former KMT lawmaker who headed the legislature’s foreign and defence affairs committee, said a surprise attack required sweeping military action and, if this could not be achieved, Beijing would drop the tactic in favour of one of its long-time strategies in the event of a cross-strait conflict.

Beijing considers Taiwan a breakaway province that must be brought back to the mainland fold, by force if necessary. It has suspended official exchanges with the island, staged war games around Taiwan and wooed away five of its allies since Tsai Ing-wen, of the independence-leaning Democratic Progressive Party, was elected president and refused to accept the one-China principle.

In January, Chinese President Xi Jinping asked the island to stop stalling unification with the mainland, saying the two sides should choose representatives to hold unification talks based on the “one country, two systems” applied in Hong Kong and Macau under the one-China principle.

Escalating tensions between Beijing and Taipei have prompted Tsai to call for military and diplomatic help from the US. She has also promoted a policy of self-reliance in defence, through building its own weapons, including submarines.

Lin said that, although the mainland had sharply increased its military power in the past decades, it would remain hesitant to wage war against Taiwan due to its financial, diplomatic and domestic concerns.

“Therefore, in addition to improving its defence capability, Taiwan must also build up its ties with other countries to seek their support and maintain a stable relationship with the mainland,” he said.

Lin said he intended to draft a national defence white paper outlining these points as a reference for a future KMT government in drafting its defence policy towards the mainland.

The KMT was defeated by Tsai in the 2016 presidential elections, which also saw the mainland-friendly KMT lose its majority in the parliament.

Tsai Teh-sheng, former director of Taiwan’s National Security Bureau, said the People’s Liberation Army would not want to wage a time-consuming, all-front war as it would require increasing military spending that would hurt China’s domestic economy and the livelihoods of the public.

### 1NC –5

#### Offensive capabilities are weak, there are lots of defenses---their ev is hype

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Star Wars it ain’t, but the Pentagon is increasingly anxious over threats to its satellites, as we’ve reported frequently in recent years. But in this op-ed, scholars Joan Johnson-Freese and Theresa Hitchens argue that war in space is dangerously overhyped. — the editors

In the last two years, we’ve seen rising hysteria over a future war in space. Fanning the flames are not only dire assessments from the US military, but also breathless coverage from a cooperative and credulous press. This reporting doesn’t only muddy public debate over whether we really need expensive systems. It could also become a self-fulfilling prophecy. The irony is that nothing makes the currently slim possibility of war in space more likely than fearmongering over the threat of war in space.

Two television programs in the past two years show how egregious this fearmongering can get. In April 2015, the CBS show 60 Minutes ran a segment called “The Battle Above.” In an interview with General John Hyten, the then-chief of U.S. Air Force Space Command, it came across loud and clear that the United States was being forced to prepare for a battle in space — specifically against China — that it really didn’t want.

Gen. John Hyten: It’s a competition that I wish wasn’t occurring, but it is. And if we’re threatened in space, we have the right of self-defense, and we’ll make sure we can execute that right.

David Martin: And use force if necessary.

Gen. John Hyten: That’s why we have a military. You know, I’m not NASA.

It was explained by Hyten and other guests that China is building a considerable amount of hardware and accumulating significant know-how regarding space, all threatening to space assets Americans depend on every day. If viewers weren’t frightened after watching the segment, it wasn’t for lack of trying on the part of CBS.

Using terms like “offensive counterspace” as a 1984 NewSpeak euphemism for “weapons,” it was made clear that the United States had no choice but to spend billions of dollars on offensive counterspace technology to not just thwart the Chinese threat, but control and dominate space. While it didn’t actually distort facts — just omit facts about current U.S. space capabilities — the segment was basically a cost-free commercial for the military-industrial complex.

In retrospect though, “The Battle Above” was pretty good compared to CNN’s recent special, War in Space: The Next Battlefield. The latter might as well have been called Sharknado in Space – because the only far-out weapons technology our potential adversaries don’t have, according to the broadcast, seems to be “sharks with frickin’ laser beams attached to their heads!”

First, CNN needs to hire some fact checkers. Saying “unlike its adversaries, the U.S. has not yet weaponized space” is deeply misleading, like saying “unlike his political opponents, President-Elect Donald Trump has not sprouted wings and flown away”: A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space. Contrary to CNN, stock market transactions are not timed nor synchronized through GPS, but a closed system. Cruise missiles can find their targets even without GPS, because they have both GPS and precision inertial measurement units onboard, and IMUs don’t rely on satellite data. Oh, and the British rock group Pink Floyd holds the only claim to the Dark Side of the Moon: There is a “far side” of the Moon — the side always turned away from the Earth — but not a “dark side” — which would be a side always turned away from the Sun.

More nefariously, the segment sensationalized nuggets of truth within a barrage of half-truths, backed by a heavy bass, dramatic soundtrack (and gravelly-voiced reporter Jim Sciutto) and accompanied by sexy and scary visuals.

Make no mistake there are dangers in space, and the United States has the most to lose if space assets are lost. The question is how best to protect them. Here are a few facts CNN omitted.

The Reality

The U.S. has all of the technologies described on the CNN segment and deemed potentially offensive: maneuverable satellites, nano-satellites, lasers, jamming capabilities, robotic arms, ballistic missiles that can be used as anti-satellite weapons, etc. In fact, the United States is more technologically advanced than other countries in both military and commercial space.

That technological superiority scares other countries; just as the U.S. military space community is scared of other countries obtaining those technologies in the future. The U.S. military space budget is more than 10 times greater than that of all the countries in the world combined. That also causes other countries concern.

More unsettling still, the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades. Indeed, under the administration of George W. Bush, the U.S. talking points centered on the mantra “there is no arms race in outer space,” so there is no need for diplomat instruments to constrain one. Now, a decade later, the U.S. military – backed by the Intelligence Community which operates the nation’s spy satellites – seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries. The underlying assumption — a convenient one for advocates of more military spending — is that now there is nothing that diplomacy can do.

However, it must be remembered that most space-related technologies – with the exception of ballistic missiles and dedicated jammers – have both military and civil/commercial uses; both benign — indeed, helpful — and nefarious uses. For example, giving satellites the ability to maneuver on orbit can allow useful inspections of ailing satellites and possibly even repairs.

Further, the United States is not unable to protect its satellites, as repeated during the CNN broadcast by various interviewees and the host. Many U.S. government-owned satellites, including precious spy satellites, have capabilities to maneuver. Many are hardened against electro-magnetic pulse, sport “shutters” to protect optical “eyes” from solar flares and lasers, and use radio frequency hopping to resist jamming.

Offensive weapons, deployed on the ground to attack satellites, or in space, are not a silver bullet. To the contrary, U.S. deployment of such weapons may actually be detrimental to U.S. and international security in space (as we argued in a recent Atlantic Council publication, Towards a New National Security Space Strategy). Further, there are benefits to efforts started by the Obama Administration to find diplomatic tools to restrain and constrain dangerous military activities in space.

These diplomatic efforts, however, would be undercut by a full-out U.S. pursuit of “space dominance.” This includes dialogue with China, the lack of which Gen. William Shelton, retired commander of Air Force Space Command, lamented in the CNN report.

Given CNN’s “cast,” the spin was not surprising. Starting with Ghost Fleet author Peter Singer set the sensationalist tone, which never altered. The apocalyptic opening, inspired by Ghost Fleet, posited a scenario where all U.S. satellites are taken off-line in nearly one fell swoop. Unless we are talking about an alien invasion, that scenario is nigh on impossible. No potential adversary has such capabilities, nor will they ever likely do so. There is just too much redundancy in the system.

#### Deterrence and interdependence check

Kyle L. Evanoff 19, Research Associate for International Institutions and Global Governance at the Council on Foreign Relations, “Big Bangs, Red Herrings, and the Dilemmas of Space Security”, Council on Foreign Relations, 6/27/2019, https://www.cfr.org/blog/big-bangs-red-herrings-and-dilemmas-space-security

Analysts pointed to Mission Shakti as a vivid example of growing contestation in the outer space domain. Traditional U.S. dominance in space has eroded as a litany of foreign actors (collaborator and competitor alike) have increased their spacefaring prowess, including through the development and use of ASAT weapons and dual-use uncrewed orbiters capable of space rendezvous and proximity operations [PDF]. Pundits fear that such space technologies could alter the calculus of deterrence to inauspicious effect or, worse, become instruments in an adversary’s enactment of a “space Pearl Harbor.” These fears are valid in some senses, overblown and misleading in others. Developments in space pose significant challenges for strategic stability. Obsessive concern with the remote contingency of kinetic warfare in orbit, however, detracts from efforts to address more pressing space security issues and makes catastrophic outcomes more, not less, probable.

Missiles and Lasers and Viruses, Oh My

Recent years have witnessed burgeoning democratization in the outer space domain as plummeting costs—both for manufacturing satellites and placing them in orbit—and proliferating technologies have enabled new spacefaring actors to deploy assets in Earth orbit. The number of active satellites has ballooned to more than two thousand, and their integration into military operations and civil life has deepened in tandem. Recognition of the indispensability of these orbital assets to numerous areas of strategic competition, and defense planners’ emphasis on offensive capabilities as a deterrence measure, has led states to invest large sums in the development of ASAT weapons of various stripes.

In their April Space Threat Assessment 2019 [PDF] report, Todd Harrison, Kaitlyn Johnson, and Thomas G. Roberts of the Center for Strategic and International Studies outline four categories of counterspace operations: kinetic physical attacks, non-kinetic physical attacks, electronic attacks, and cyberattacks. This litany of potential threats, which vary in their severity, reversibility, ease of attribution, and other aspects, makes U.S. policymakers uneasy. After over half a century of spacefaring pre-eminence, the United States has come to depend on the remote-sensing, telecommunications, and positioning, navigation, and timing capabilities that satellites provide. The resounding defeat of the Iraqi military by American and coalition forces during the Gulf War of the early 1990s underscored the substantial battlefield advantages that orbital capabilities confer, and numerous subsequent conflicts have affirmed the U.S. military’s tactical and strategic reliance on space assets. Proliferating counterspace systems heighten the potential for adversaries to disrupt American command, control, and communications networks, as well as surveillance and reconnaissance operations. In attacking these critical space systems, U.S. adversaries could compromise large segments of the national defense enterprise.

Indeed, an insecure orbital environment poses significant challenges for broader strategic stability. Actors in possession of counterspace capabilities can threaten or attack vital elements of ballistic missile launch detection architectures and other systems integral to national and international security, which opens new avenues for intentional, inadvertent, or accidental dispute or conflict escalation. In this sense, novel satellite vulnerabilities add layers of technical and psychological complexity to already labyrinthine deterrence calculations. The effect compounds in light of the deep integration of satellites into information and communications networks: cyber intrusions into space systems are a tantalizing option for state and nonstate actors, and such operations carry their own elaborate deterrence considerations, not least the difficulty of attribution. The net result is a convoluted deterrence landscape, rife with uncertainty and in constant motion thanks to the rapid clip and often competitive character of technological innovation.

Swords of Many Edges

For staunch deterrence advocates, this uncertainty justifies expanding counterspace arsenals. In their view, preventing a space Pearl Harbor in which a U.S. adversary launches a crippling surprise attack against American orbital assets requires evincing the certainty of a devastating counterattack. One way of accomplishing this is through the unambiguous demonstration of effective counterspace capabilities. The clearer the demonstration, the better. In this sense, ASAT missile tests, which are easy to attribute and spectacular in nature, hold great allure as a means of signaling orbital strike capabilities.

Such tests, however, come with significant drawbacks. The most obvious of these is that they generate large amounts of dangerous space debris, which pose serious hazards to spacecraft. Each new fragment requires monitoring and, in cases of potential collisions, risk assessment and avoidance maneuvers. Debris-generating military operations, in this sense, are a self-defeating proposition. ASAT missile tests also come with nebulous reputational costs, as the corpus of international space law, including the 1967 Outer Space Treaty, emphasizes that uses of space should be peaceful in nature. Likewise, UN Debris Mitigation Guidelines [PDF] affirm the importance of minimizing space junk, a dictum inconsistent with kinetic weapons testing. Western media heaped scorn on India for its violation of the important, if incipient, norm against debris generation, even after the country took pains to destroy a low-altitude satellite in order to minimize the lifespan of the bulk of the fragments.

Another important consideration for would-be ASAT testers lies in the potential for space militarization to ignite or exacerbate international arms races. Although military activities have been a persistent feature of the Space Age, those activities have often furthered peaceful as much as warlike pursuits, as has been the case with many remote-sensing operations and the opening of the U.S. Global Positioning System to civilian use. Militarization is a process rather than a state of affairs, and one that takes various forms at that. Deterrence implications notwithstanding, the development and deployment of counterspace capabilities can drive potential adversaries to develop and deploy similar capabilities, contributing to the erosion of norms of peaceful use.

Some military planners and policymakers’ assertions to the contrary, space is at present less a domain of warfighting than a domain of deep interdependence. The value of combat support functions performed from space, as important as they are to battlefield success, pales in comparison to that of other satellite-facilitated services, which are vital to myriad aspects of contemporary global society. Common space security interests include minimizing debris-generation, coordinating on satellite placement and radio-frequency spectrum use, monitoring terrestrial and space weather and the global environment, ensuring the integrity of global navigation satellite systems, tracking licit and illicit ground, air, and maritime movements, scanning for hazardous comets and asteroids, and conducting scientific observations and experiments. Many of these require states to work together to maximize benefits and minimize risks. Perceptions that one or more countries are attempting in systematic fashion to exert dominance and preclude other actors’ access to the domain and its benefits, then, carry significant dangers. They bend state behavior toward aggression and actual warfighting.

Security in the Heavens and on Earth

National governments, including that of the United States, should be careful not to make active contributions to such perceptions. Although low-level grey zone aggression has become commonplace for space-linked systems due to the relative ease and reversibility of many cyber and electronic attacks, space remains free of kinetic combat at present, as a recent Secure World Foundation report [PDF] emphasizes. Rather than responding to limited attacks by expanding counterspace arsenals, which carries the risk of contributing to arms race dynamics, U.S. and allied policymakers should accept some amount of limited aggression as more or less inevitable. They should place more emphasis on diplomacy—not weaponry—as a tool in mitigating these sorts of attacks. The United States should work with other spacefaring powers to reach consensus on non-binding rules of the road for space, using the International Code of Conduct for Outer Space Activities [PDF] that the European Union proposed in 2008 as a rough starting point. While new international law could be a greater boon still, formal UN discussions on the Prevention of an Arms Race in Outer Space have yielded little progress since the mid-1980s. A joint Chinese-Russian proposal for a Treaty on the Prevention of the Placement of Weapons in Outer Space, for instance, has significant shortcomings and has drawn open condemnation from the United States. Such paralysis, in tandem with the Trump administration’s and U.S. Senate Republicans’ disdain of multilateral treaties, makes a formal agreement a farfetched proposition for now.

More important, U.S. policymakers should avoid making decisions on the basis of a possible, though highly improbable, space Pearl Harbor. They should recognize that latent counterspace capabilities—as exemplified in 2008’s Operation Burnt Frost, which saw the United States repurpose a ballistic missile interceptor to destroy a satellite—are more than sufficient to deter adversaries from launching a major surprise attack in almost all scenarios, especially in light of the aforementioned deep interdependence in the space domain. Adding to the deterrence effect are uncertain offensive cyber capabilities. The United States continues to launch incursions into geopolitical competitors’ critical systems, such as the Russian power grid, and has demonstrated a willingness to employ cyberattacks in the wake of offline incidents, as it did after Iran shot down a U.S. drone last week. Unlike in the nuclear arena, where anything short of the prospect of nuclear retaliation holds limited dissuasive power, space deterrence can stem from military capabilities in various domains. For this reason, an attack on a U.S. satellite could elicit any number of responses. The potential for cross-domain retaliation, combined with the high strategic value of space assets, means that any adversary risks extreme escalation in launching a major assault on American space architectures. Again, well-conceived diplomatic efforts are useful in averting such scenarios altogether.