### CP

#### Counterplan text - The space faring states will:

#### Have private entities submit a public environmental impact assessment of all planned appropriation.

#### Enforce a public application system for tradeable property rights with a limit of 1 grant per celestial body

#### Counterplan competes and creates the least environmentally damaging version of the aff.

William R. Kramer, PhD Polisci/Futures Studies @ U of H Manoa, Currently HDR Inc. Extraterrestrial Environmental Analyst, 2014, “Extraterrestrial environmental impact assessments A foreseeable prerequisite for wise decisions regarding outer space exploration, research and development” Space Policy 30 (2014) 215-222

To be most effective, all spacefaring nations and enterprises would voluntarily participate in assessing their extraterrestrial environmental impacts prior to undertaking actions in space. A hypothetical chronology of such a process might include: (1) Impact assessments are prepared by the action proponent and submitted to an impartial international panel or board; (2) The panel determines the assessment's sufficiency; (3) The assessment is published in an electronic or other format accessible to the public followed by a comment period; (4) The action proponent addresses comments and submits responses to the panel; (5) The panel publishes its approval or concerns; (6) The action proceeds, is modified or is abandoned; and (7) should the action proceed, periodic reports of the action's progress and impacts are filed for future reference in a digital format to allow broad access. The process would support the spirit of both NEPA to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations” (42 USC x4331(b)(1)) and Article 4(1) of the Moon Agreement's directive that “due regard shall be paid to the interests of present and future generations.” Given the likelihood that all states would appreciate the need for maintaining extraterrestrial environments and landscapes for both future research and exploitation, pressure from peer states and space industries may be sufficient to encourage a trend of compliance. Such a review and approval system (perhaps similar to NEPA's relationship with the Council on Environmental Quality and its oversight function) could be attempted within the structure of the UN, such as within the UN Office of Outer Space Affairs. The spirit of an extraterrestrial environmental assessment program would be likely to fit within the mandate of the organization. However, amending the Outer Space Treaty or otherwise developing an administrative UN capacity to achieve the goals proposed in this paper would require a level of international commitment and cooperation that may be both lengthy and difficult to achieve. Spacefaring nations and international organizations are already invited to submit annual reports on their space activities and research to the UN Committee on the Peaceful Uses of Space, so a precedent for reporting exists. Presently, however, reports tend to document positive actions and research, not details of extraterrestrial environmental impacts.

#### The counterplan ensures safe extraction of resources and increases outer space R&D.

**Steffen 21** [Olaf Steffen, Olaf is a scientist at the Institute of Composite Structures and Adaptive Sytems at the German Aerospace Center. 12-2-2021, "Explore to Exploit: A Data-Centred Approach to Space Mining Regulation," Institute of Composite Structures and Adaptive Systems, German Aerospace Center, [https://www.sciencedirect.com/science/article/pii/S0265964621000515 accessed 12/12/21](https://www.sciencedirect.com/science/article/pii/S0265964621000515%20accessed%2012/12/21)]

4. The data-centred approach to space mining regulation 4.1. Core description of the regulatory regime and mining rights acquisition process The data gathered in the exploration of a [celestial body](https://www.sciencedirect.com/topics/social-sciences/astronomical-systems) is not only of value for space mining companies for informing them whether, where and how to exploit resources from the body in question, but also for science. The irretrievability of information relating to the solar system contained in the body that will be lost during resource exploitation carries a value for humanity and future generations and can thus be assigned the characteristic of a common heritage for all mankind as invoked in the Moon Agreement. This characteristic makes exploration data an exceptional and unique candidate for use in a mechanism for acquiring mining rights because its preservation is of public interest and its disclosure in exchange for exclusive mining rights does not place any additional burden on the mining company. The following principles would form the cornerstones of the proposed regulatory regime and rights acquisition mechanism based on exploration data: Without preconditions, no entity has a right to mine the resources of a celestial body. An international regulatory body administers the existing rights of companies for mining a specific celestial body. Mining rights to such bodies can be applied for from this international regulatory body, with applications made public. The application expires after a pre-set period. Mining rights are granted on the provision and disclosure of exploration data on the celestial body within the pre-set period, proposedly gathered in situ, characterising this body and its resources in a pre-defined manner. The explorer's mining right to the resources of the celestial body is published by the regulatory body in a mining rights grant. The data concerning the celestial body are made public as part of the rights grant within the domain of all participating members of the regulatory regime. The exclusive mining rights to any specific body are tradeable. The scope of the regulatory body with respect to the granting of mining rights is not revenue-oriented. The international regulatory body would thus act as a curator of a rights register and an attached database of exploration data. The concept is superficially comparable to patent law, where exclusive rights are granted following the disclosure of an invention to incentivise the efforts made in the development process. In the following section, the characteristics of such a regulatory regime are further discussed with respect to the formation of [monopolies](https://www.sciencedirect.com/topics/social-sciences/monopolies), market dynamics, conflict avoidance, inclusivity towards less developed countries and the viability of implementation. 4.2. Discussion and means of implementation The proposed regulatory mechanism has advantages both from a business/investor and society perspective. First, it prevents already highly capitalised companies from acquiring exploitation rights in bulk to deny competitors those objects that are easiest to exploit or most valuable, which would otherwise be possible in any kind of pay-for-right mechanism and could result in preventing market access to smaller, emerging companies. Thus, early monopoly formation can be avoided. The use of data disclosure for the granting of mining rights ensures the scientific community has access to this invaluable source of information. In this way, space mining prospecting missions can lead to a boost in research on small celestial bodies at a speed unmatchable by pure government/agency funded science probes. This usefulness to the scientific community could lead to sustained partnerships between prospecting companies and scientific institutions and could even provide a source of funding for the companies through R&D grants and public-private partnerships. The results of the exploration efforts contribute to research on the formation of planets and the history of the solar system and provide valuable insight for space defence against asteroids. The transition of exploration from a tailored mission profile with a purpose-built spacecraft to a standard task in space flight would also lead to a cost reduction of the respective exploration spacecraft through [economies of scale](https://www.sciencedirect.com/topics/social-sciences/economies-of-scale). This describes the very benefits Elvis [[24](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib24)] and Crawford [[25](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib25)] imagined as possible effects of a space economy. Thus, there is an immediate return for society from the exploitation rights grant. It also reconciles the adverse interests of space development and [space science](https://www.sciencedirect.com/topics/social-sciences/space-sciences) as laid out by Schwartz [[26](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib26)]. It ensures that, by exploitation, information contained in celestial bodies is not lost for future generations.The application period should not be set in a manner that creates a situation that can be abused through the potential for stockpiling inventory rights. Rather, it is intended to prevent conflict in the phase before exploration data gathered by a mission, as a prerequisite to the mining rights grant, is available. In other words, only one exploration effort at a time can be permitted for a specific body. The time frame between the application and the granting of mining rights (meaning: availability of the required exploration data set) should be tight and should only consider necessary exploration time on site, transit time and possibly a reasonable launch preparation and data processing markup. These contributors to the application period make it clear that the time frame could be dynamic and individualistic, depending on the exploration target (transit time and duration of exploration) and the technology of the exploration probe (transit time). After the expiration of the application period, applications for the exploration target would again be permissible. To prevent the previously mentioned stockpiling of inventory rights, credible proof of an imminent exploration intention would need to be part of the application process, for example, a fixed launch contract or the advanced build status of the exploration probe. Such a mechanism would not contradict the statement in the OST that outer space shall be free for both exploration and scientific investigation. Applications would not apply to purely scientific exploration. An application would only be necessary as a prerequisite for mining. Even resource prospecting could take place without an application (for whatever reason), with a subsequent application comprising in situ data already gathered. For such cases, the application process would need to provide a short period for objections to enable the secretive explorer to make their efforts public. The publication of the application for the mining rights, which is nothing more than a statement of intention to explore, thus provides a strong measure for avoiding conflict. The transparency of where exploration spacecraft are located and, at a later stage, where mining activities take place, provides additional benefits for the sustainable use of space, trust building and deterrence against malign misuse of mining technology. Involuntary spacecraft collisions of competitors in deep space are prevented by the reduction of exploration efforts at the same destination through the application for mining rights by one applicant at a time. As pointed out by Newman and Williamson [[20](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib20)], this is relevant because space debris does not de-orbit in deep space as in the case of LEO. Deep space may be vast, but the velocities involved mean that small debris particles are no less dangerous. Considering NEO mining with fleets of small spacecraft, malfunctions and/or destructive events could create debris clouds crossing Earth's orbit around the sun on a regular basis, presenting another danger to satellites in Earth's own orbit. Thus, by effectively preventing the collision of two spacecraft, one source of debris creation can be mitigated through this regulation mechanism. With respect to Deudney's [[11](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib11)] scepticism of asteroid mining and the dual-use character of technology to manipulate orbits of celestial bodies, it has to be stated that this potential is truly inherent to asteroid mining. An asteroid redirect mission for scientific purposes was pursued by NASA [[49](https://www.sciencedirect.com/science/article/pii/S0265964621000515#bib49)] before reorientation towards a manned lunar mission. In one way or another, each type of asteroid mining will require the delivery of the targeted resource to a destination via a comparable technology as formerly envisioned by NASA, be it as a raw material or a useable resource processed in situ, even if this is not necessarily done through redirecting the whole asteroid and placing it in a lunar orbit. However, to be misused as a weapon, space mined resources would have to surpass a certain mass threshold to survive atmospheric entry at the target. This seems unfeasible for currently discussed mining concepts using small-scale spacecraft as described in this article. Redirecting larger masses or whole asteroids would require far more powerful mining vessels or small amounts of thrust over long periods of time. The continuous, (for a mining activity) untypical change in the orbit of an asteroid would make a redirect attempt with hostile intent easily identifiable, effectively deterring such an activity in the first place by ensuring the identification of the aggressor long before the projectile hits its target. The proposed database would provide a catalogue of asteroids with exploration and mining activities in place that should be tracked more closely because of their interaction with spacecraft. This would, in fact, be necessary per se as a precaution to avoid catastrophic mishaps, such as the accidental change of a NEO's orbit to intercept Earth by changing its mass through mining.

**Space Innovations are essential to stop multiple extinction level issues**

**Beames 18** – Chairman of the SmallSat Alliance & Exec Chairman of York Space Systems, former Principal Director of Space & Intel-Office of UnderSecDef AT&L

Charles Beames, 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)), active early stage investor in entrepreneurial space, former President of Vulcan Aerospace where he was responsible for asset allocation within a privately held aerospace investment portfolio exceeding $1B, Col. (ret.) in the USAF where he served 23 years in space & intelligence leadership positions around the world, SmallSat Alliance is on a path toward a new space horizon, first appeared in the July 2018 issue of SpaceNews Magazine, available at <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 **child**ren 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.

### DA

#### Link Story

#### First, Commercial space creates structure that maintains liberal order deterrence

Dr. John J. Klein 19, Senior Fellow and Strategist at Falcon Research, Inc. and Adjunct Professor at George Washington University’s Space Policy Institute. He frequently writes on space policy, strategy, and deterrence. Dr. Klein is the author of the forthcoming book Understanding Space Strategy: The Art of War in Space (2019), 3-25-2019, "The Influence of Commercial Space Capabilities on Deterrence," Center for New American Security, https://www.cnas.org/publications/reports/the-influence-of-commercial-space-capabilities-on-deterrence

The commercial space sector directly promotes mission assurance and resilience efforts. This is in part due to the distributed and diversified nature of commercial space launch and satellites services. Distribution refers to the use of a number of nodes, working together, to perform the same mission or functions as a single node; diversification describes contributing to the same mission in multiple ways, using different platforms, orbits, or systems and capabilities.11 The 2017 U.S. National Security Strategy, in noting the benefits derived from the commercial space industry, states that DoD partners with the commercial sector’s capabilities to improve the U.S. space architecture’s resilience.12 Although U.S. policy and joint doctrine frequently acknowledge the role of the commercial space sector in space mission assurance and resilience, there is little recognition that day-to-day contributions from the commercial industry assists in deterring would-be adversaries. The commercial space sector contributes to deterrence by denial through multi-domain solutions that are distributed and diversified. These can deter potential adversaries from pursuing offensive actions against space-related systems. Commercial launch providers enhance deterrence by providing options for getting payloads into orbit. These include diverse space launch capabilities such as small and responsive launch vehicles, along with larger, reusable launch vehicles; launch rideshares for secondary payloads; and government payloads on commercial satellites. Various on-orbit systems also promote deterrence. For example, if an aggressor damages a commercial remote sensing satellite during hostilities, similar commercial satellites in a different orbital regime, or those of the same constellation, may provide the needed imagery. If satellite communications are jammed or degraded, commercial service providers can reroute satellite communications through their own networks, or potentially through the networks of another company using a different portion of the frequency spectrum. Regarding deterrence by punishment efforts, the commercial space sector can play a role, albeit an indirect one, through improved space situational awareness (SSA) and space forensics (including digital forensics and multispectral imagery). The commercial industry may support the attribution process following a hostile or illegal act in space through its increasingly proliferating network of SSA ground telescopes and other terrestrial tracking systems. The DoD may also leverage the commercial space sector’s cyber expertise to support digital forensic efforts to help determine the source of an attack. By supporting a credible and transparent attribution process, commercial partners may cause a would-be adversary to act differently if it perceives that its aggressive, illegal, or otherwise nefarious actions will be disclosed. Doing so can help bolster the perceived ability to conduct a legitimate response following a hostile attack, which may improve deterrence by punishment efforts. Commercial space capabilities may also facilitate the application of force to punish a potential aggressor. In addition to traditional military space systems, commercial satellite imagery and communication capabilities may be used in cueing and targeting for punitive strikes against an aggressor. Although the commercial space sector is not expected to be involved directly in the use of retaliatory force following a hostile act, commercial partners may help in providing the information used to identify those responsible and to facilitate any consequent targeting efforts.

#### And, the US is leading in space due to the private sector, but it’s at the brink

**Cahan and Sadat 1/6** [(Bruce Cahan, J.D) (Dr. Mir Sadat, ) "US Space Policies for the New Space Age: Competing on the Final Economic Frontier," based on Proceedings from State of the Space Industrial Base 2020 Sponsored by United States Space Force, Defense Innovation Unit, United States Air Force Research Laboratory, 1/6/21, https://www.politico.com/f/?id=00000177-9349-d713-a777-d7cfce4b0000] TDI

Today, China’s commercial space sector is in its infancy but is set to grow with continued national and provincial support, which have been rapidly increasing over the past three years.64 Since 2004, the United States and China accounted for 74% of the $135.2 billion venture capital (VC) invested in commercial space. 65 The early 2020s are pivotal, as it would be far cheaper for China and Chinese commercial space firms to acquire space technologies from the United States or allied nation companies seeking revenues or facing cashflow constraints, than to build the companies and their teams and technologies from scratch in China. The tight coupling of Chinese military goals and an economy organized to achieve those goals magnifies the economic threats and market disruptions that the United States must immediately address, in order for DoD and national security operations to rely on US commercial space capabilities.

3. ISSUES AND CHALLENGES

Peaceful Uses of Space and Space Exploration Space has been primarily a shared, not a warfighting, domain.67 With each passing second of Planck time,68 space enables a modern way of life, provides instantaneous global imagery, assures telecommunications, and captures humanity’s imagination for civil space exploration. As a result, space is a burgeoning marketplace and territory for commercial ventures and investors. Strengthening the US commercial space industrial base is vital to and beyond US national security. Civil space activities are a source of US “soft power” in global commerce, cooperation, and investment. 69 The civil space sector, led by NASA, is fundamental to America’s national security. 70 NASA is on an ambitious critical path to return to the Moon by 2024,71 along with developing the capabilities and infrastructure for a sustained lunar presence. NASA’s lunar plans provide a lunar staging area for missions to Mars and beyond. They offer a strategic and economic presence for the United States on the Moon. Congress, the White House, DoD, and NASA must recognize that economic and strategic dominance in service of national security requires catalyzing and accelerating growth of a vibrant, private US industrial and cultural expansion into the Solar System. Human visitation and eventual settlement beyond the Earth require sustaining visionary leaders, aided by, and aiding, US national security. A recurring theme in US policy is “maintaining and advancing United States dominance and strategic leadership in space” because US global competitors and adversaries are competent and capable of outpacing American space capabilities. 72 The stakes are high: At this historic moment, there is a real race for dominance over cislunar access and resources.   
Regulations Should Foster US Commercial Space as a National Asset   
Leveraging the reimagination and disruption of terrestrial industries, the US commercial space industry is pushing the frontiers of the United States and global space economics and capabilities. A pre-COVID19 assessment by the US Chamber of Commerce projected that the US space market will increase from approximately $385 billion in 2020, to at least $1.5 trillion by 2040. 73 This projection represents a seven percent (7%) annual compound average growth rate (CAGR), driven largely by expanded business opportunities in Low Earth Orbit (LEO). Total addressable market (TAM) for US commercial space companies could be far larger were they to have federal and financial support for initiating cislunar space operations and opportunities. Recent advancements in commercial space technologies and business models have driven down costs and unlocked new areas of economic growth and space capabilities that outpace and de-risk acquiring capabilities through traditional US government economic development, research and development (R&D), procurement and regulatory policies and processes. US regulations must ensure that US companies lead in commercial space. In specific, technological advances that lower access costs and expand space mission capabilities, content, continuity, and redundancies must be fully supported by or incorporated into US government programs, budgets, requirements, and acquisition processes. Until commercial space offerings are fully incorporated, and federal acquisition policies and personnel commit to innovation, US government fiscal buying power, intelligence and program support will lag and remain inadequate in comparison to US private sector companies and the nation’s global competitors and adversaries in space.

Addressing COVID-19’s Impact on US Commercial Space The COVID-19 pandemic damaged and still challenges the US space industrial base. US domestic investors’ funding of space R&D remains inconsistent across the lifecycle of New Space companies and the spectrum of technologies necessary to grow the space economy. To date, public R&D, government procurements and visionary space entrepreneurs have played a major role in establishing and funding the New Space industrial base. In the last five years, $11 billion of private capital has been invested.74 Traditional private investors may become reluctant to fund space technologies due to perceptions of higher risk over longer time horizons before receiving profitable returns on their capital. Institutional and long-horizon investors who manage patient capital have an appetite for illiquid, but higher yielding, terrestrial alternative asset investments such as commodities, private equity limited partnerships and real estate.75 The COVID-19 pandemic has created economic uncertainties making the New Space’s funding model unreliable. COVID-19 significantly impacted venture capital (VC)-backed companies: the pace of VC space investments fell 85% between April - June, as compared to January – March, in 2020. 76 Pre-COVID-19, the New Space industrial base confronted multiple challenges in raising later stages of venture capital such as (1) the lag between having an early-stage startup with an idea and commercializing a viable revenue-generating product, (2) the lack of market liquidity for founder and private equity space investments to attract and retain talented teams, and (3) the lack of a market to re-sell contracts for space goods and services when customers buy more capacity than needed. Even prior to the COVID-19 pandemic, federal financing of US R&D was at a historically minor level, as compared to businesses and universities.77 US government support for basic research has steadily declined as a percent of GDP. The federal government will experience near- to medium-term budget constraints.78 The vibrant venture community in the United States has taken up a portion of this slack by increasing R&D investment in later-stage and applied research. However, founding teams and VC financing rely on government to fund earlier R&D for basic science and engineering. Therefore, government must resume the sustainable and impactful past levels of support for basic research, an essential role in the space economy’s public-private partnership that ensures US leadership in space.

Space as Existential Terrain for National Security  
  
In this Digital Era, space integrates and drives all elements of US national security. The Cold War may be over, but since the early 2010s, a renewed era of great power competition has emerged across terrestrial land, air, sea, and cyber domains. This competition extends into space, where a great game ensues.79 Space is no longer an uncontested or sanctuary domain. Competent and capable global competitors and peer adversaries are challenging US military, commercial, and civil space interests. The United States, along with its allies and partners, has had to accept and anticipate that space may be a warfighting domain, as suggested primarily by Russian and Chinese counter-space capabilities, military operations, and declarative statements. On December 20, 2019, the bipartisan National Defense Authorization Act (NDAA) for Fiscal Year 202080 authorized the creation of the US Space Force, under the Department of the Air Force, to secure US national interests in an increasingly contested domain.81 Back in October 1775, the Continental Congress established the US Navy to ensure that commercial and government fleets could freely navigate the Atlantic coastline - today, that includes the South China Sea. Likewise, the USSF’s mission is to ensure unfettered access to and the freedom to operate in space. The 2017 National Security Strategy considers space to be a “priority domain.”82 Freedom of navigation is a sovereign right that nations have fought to achieve and defend. 83 The USSF’s main role is to organize, train and equip, as well as to protecting US space interests and supporting terrestrial and joint warfighters (e.g., US Space Command). Thus, USSF must secure US national interests in space, whether military, commercial, scientific, civil, or enhancing US competitiveness for cislunar leadership.

#### Impact Story

**First, space weapons remove the need for conventional forces---that solves US empire, militarization, and foreign occupations that kill millions, while making hegemony sustainable**

**Dolman, 10 -** Professor of Comparative Military Studies at the US Air Force’s Air Command and Staff College (ACSC), Air University’s first space theorist, served at the National Security Agency and the United States Space Command

Dr. Everett Carl Dolman, “The Case for Weapons in Space: A Geopolitical Assessment,” APSA Annual Meeting. September 2010

--UQ – hegemony overstretched now – we have boots on ground and bases all over the world occupying foreign land when we should be using diplomacy

--Causes a slippery slope where we view occupation as answer to everything – Vietnam, Iraq, Afghanistan – why not NoKo, Iran, or Venezuela?

--Space weaponization is super expensive – money taken from bases and boots on ground. No need for ANY conventional military anymore

--We will have made heg sustainable – hold stuff at risk from sky, and no more global empire or threats to sovereignty

With the purpose of domain operations defined, the proper role of the tactical use of military force is discernible—with **serious implications for the militarization of space**. Any activity that contributes to the essential mission, preparing to control or contest the domain within the limits assigned by the political authority, and doing so when called upon, is appropriate. Although the US military is willing to take on any mission the political authority assigns it, and will do its best to carry that mission out, **many roles are simply inappropriate** for its purpose. They do not add value. Specifically, American military force is currently engaged in occupation duties around the globe that are **more properly diplomatic** or policing **than war fighting**.

The primary issue here is that diplomatic and police authorities have a different focus of effort; their purposes are to minimize or manage violence. When military personnel become **good at occupying foreign lands**, rooting out crime, building political institutions, and sponsoring markets, they are not increasing the skills needed to survive and prevail in the battlespace. This is not to say that all non-war activities are **improper**. Many of the functions necessary to war proficiency are simulated in non-war activities. Delivering humanitarian aid, for example, in a hurricane or earthquake ravaged terrain is excellent training for moving logistics into restricted access or contested territories in times of conflict. In many crisis situations, legitimate governing authority is unable to deliver goods because of lawlessness and threats to civilian personnel. In these situations, military forces carry an implicit threat of violence should bandits try to disrupt distribution activities.

As an ad hoc or temporary crisis response, all such activities have merit. They increase the capacity of civilian authorities to care for distressed populations, and they add valuable real-world training opportunities for legitimate military support functions. **Serious problems emerge when these activities become routine**, however.

For example, long duration support and logistics activities become ensconced over time as scheduled military functions, and drain away personnel and support that should be conserved for military operations. This increases the size of the military in terms of **personnel** and **budget**, and to the extent these actions become permanent (or at least long-term fixed requirements) they detract from the **war fighting capacity** of the services as these assets are not retrievable and mobile should another conflict occur.

Also, the perception of the US military as an **occupying** and **imperial** force grows the longer it is engaged in even humanitarian operations in a given locale. Americans generally believe their military is helping the people in Iraq, Afghanistan, and elsewhere, and I like to think that is the intent. Nonetheless, I can certainly understand that Afghani or Iraqi citizens would be suspicious of America ever returning control of their country after more than eight years (and counting) of significant presence.

The preceding is based on the notion that **military occupation is not going well**, thus its continuance is needed. This is a rather perverse military notion; perpetually reinforcing failure. It is the equivalent logic of the excesses of attrition warfare in WW I, or the body count mentality that extended America’s military involvement in Vietnam. It is the sunk cost dilemma. And it is accurate, to the extent the US has adopted a policy of 100 per cent success—victory— in the so-called War on Terror. The refrain that persists is that America cannot leave, for what is the price of failure?

It is just as important to ask the parallel question, what is the cost of success? Imagine that the US is wildly successful. Five or ten years from now, say, both Iraq and Afghanistan have viable liberal democratic governments with growing economies and friendly attitudes toward America. A few military personnel remain on permanent military bases fairly negotiated and welcomed by the local population. These two states become models for the Muslim world to emulate. What will it do then with this wonderful, state-building military force? Will America move on to the next authoritarian state, **North Korea or Iran**, perhaps? **Why not Venezuela, or Cambodia? Name the state where corruption or oppression exists, the US military can fix it.**

What if, in light of its extraordinary capacity to minimize violence, restore order, build governing institutions and markets, and establish popular governance, a few Americans start disagreeing with their own government’s policies? Imagine a disastrous natural event, an epoch-defining earthquake in the Mississippi basin, perhaps. Add in an economic downturn that pushes unemployment above twenty percent and an irresponsive or bumbling president and congress. No military professional today would answer the call for a military coup—but would the veterans of successful state-building in Iraq and Afghanistan be able to avoid helping their fellow citizens if they came begging for aid?

It is **a slippery slope**, to be sure, and not a danger that looms on the event horizon. But it crystallizes the propriety of use to which America’s military is being put today, and the preference that many **anti-weaponization proponents** have for a conventional response on earth for an attack on assets in space. It suggests a value for placing weapons in space that goes beyond military logic, and confronts the moral high ground claims of those who would avoid weaponizing space in all cases.

The fiduciary and social costs to weaponize space effectively will be **immense**. These are necessary costs if America, or any other state, is determined to have a military force structure that relies on space support and enablement to operate as it does now, increasingly so for the future. And it will have benefits for the military that may not be readily apparent; for **where will the money come for this space weapons capacity?** It will not come from school budgets or foreign aid programs. It will not come at the expense of health care reform or corporate bailouts. **It will come from existing or planned military budgets**, from the capacity of **conventional military capabilities** on the land and sea and in the air. There will be fewer aircraft carriers and high dollar aircraft fighters and bombers. If space weapons capable of targeting the earth are deployed, relatively slow moving ships and aircraft will be conceptually **obsolete**, instantly vulnerable to them. As money is scrounged for space lasers and exotic kinetic kill satellites, the systems these space weapons make defenseless will be scrapped. More funding will come from current ballistic and anti-ballistic missile development and deployment, as global ballistic missile defense from space is more cost and practically effective than comprehensive ground or sea-based systems. And **most importantly, it will come from personnel reductions**, **from ground troops currently occupying foreign territory**. In this way, America will retain its ability to use force to influence states around the world, but it will **atrophy the capacity to occupy their territory** and threaten their sovereignty directly. **The era of US hegemony will be extended, but the possibility of US global empire will be reduced.**

**And, hegemony through space is stabilizing, solves transition wars, and makes liberal internationalism effective avoiding multiple scenarios of extinction**

**Dolman, 10 -** Professor of Comparative Military Studies at the US Air Force’s Air Command and Staff College (ACSC), Air University’s first space theorist, served at the National Security Agency and the United States Space Command

Dr. Everett Carl Dolman, “The Case for Weapons in Space: A Geopolitical Assessment,” APSA Annual Meeting. September 2010

--War inevitable – rising powers like China try to reshape the global order, creating hegemonic wars

--China rising by claiming control of space – space will determine who wins - only response is to make challenges unthinkable via deterrence/military primacy

--IL – crushes heg – military relies on space – we lose hard power, we lose space

--Time is of the essence – China hasn’t seized it yet, but they might in future – we need to seize space now

--AT: Arms Racing 1] We have lead – too expensive to spend hundreds of billions to try to catch us only to lose 2] Nobody will care – we’re hegemon in squo and people accept it – this is no different. People are more scared of China revisionism than continuation of US order 3] Our control would allow commerce/trade in space – it would be seen as stabilizing and a public good 4] It would take money away from military occupation which would assuage concerns about US threats to sovereignty

-- Heg stabilizing – no GPW since 1945 – nobody would dare challenge us if we can hold anything at risk – hegemony over seas by British prove that there won’t be challengers

--K2 commerce and trade – prevents disruptions – sea proves unilateral control is good

Hegemony and Stability:

Almost 2,500 years ago, Thucydides foresaw the inevitability of a disastrous Peloponnesian war due to “the rising power of Athens and the fear it caused in Sparta.” Indeed, whenever an extant international order is **challenged by a rising power**, the dominant power in the system is obligated to respond. Such conditions are relatively rare in history, but when they occur, the resulting war is **not for minor spoils** or border modifications, **but for leadership of a new world order**. It is a great war, **a hegemonic war.**

This is the context in which the world now exists. The relatively stable global hegemony of US dominance since 1945, punctuated by limited wars and shifting balances of opposition, has relied on **technology-dominant global power projection**. Today, that technology is wholly **integrated** and **inextricable from space support**, and no state relies more on space power for its economic and security well-being than the US. **Any effort to deny space capabilities would be a direct challenge to its hegemonic power**, and the United States must **confront the usurper** or abdicate its leadership position.

To be sure, China’s increasing space emphasis and its cultural antipathy to military transparency suggests that **a serious attempt at seizing control of space is in the works**. A lingering fear is the sudden introduction of an unknown capability (call it Technology X) that would allow a hostile state to place multiple weapons into orbit quickly and cheaply. The advantages gained from controlling the high ground of space would accrue to it as surely as to any other state, and the concomitant **loss of military power** from the denial of space to America’s already-dependent military forces could cause the **immediate demise of the extant international system**. The longer the United States dithers on its military responsibilities, the more likely a potential opponent could seize low-earth orbit before America is able to respond.

And in such circumstances, the US certainly would respond. Conversely, **if America were to weaponize space**, it is not at all sure that any other state or group of states would **find it rational** to counter in kind. The entry cost to provide the necessary infrastructure is still too high—**hundreds of billions** of dollars, at minimum. The years of investment needed to achieve a comparable counter-force capability—essentially from scratch—would provide **more than ample time** for the United States to entrench itself in space and readily counter preliminary efforts to displace it. The tremendous effort in time and resources would be worse than wasted. Most states, **if not all**, **would** opt **not** to **counter US deployments directly**. They might oppose American interests with asymmetric balancing, depending on how aggressively it uses its new power, but the likelihood of a **hemorrhaging arms race** in space should the United States deploy weapons first—at least for the next few years—is **remote**.

This reasoning does not dispute the fact that US deployment of weapons in outer space would represent the addition of a potent new military capacity, one that would **assist in extending the current period of American hegemony well into the future**. Clearly this would be intimidating, and America must expect severe condemnation and increased competition in peripheral areas. But such an outcome is less threatening than another, particularly non-liberal authoritarian state doing so, as the necessity of a response in kind is compelling.

Placement of weapons in space by the United States would be perceived correctly as an attempt at continuing American hegemony. Although there is obvious opposition to the current international balance of power, **the majority of states seem to regard it as at least tolerable**. A continuation of the status quo is thus minimally acceptable, even to states working toward its demise. As long as the United States does not employ its power arbitrarily, the situation would be bearable initially and grudgingly accepted over time.

**Mirror-imaging does not apply here**. An attempt by China to dominate space would be part of an effort to break the land-sea-air dominance of the United States in preparation for a new international order. **Such** an **action would challenge the status quo, rather than** seek to **perpetuate it.** This would be disconcerting to nations that accept, no matter how grudgingly, the current international order—including the venerable institutions of trade, finance, and law that operate within it—and intolerable to the United States. As leader of the current system, the United States could do no less than engage in a perhaps ruinous space arms race, save graciously decide to **step aside and accept a diminished world status**.

Seizing the initiative and securing low-Earth orbit **now**, while the United States is **dominant** in space infrastructure, would do much to **stabilize** the international system and **prevent an arms race** in space. The enhanced ability to deny any attempt by another nation to place military assets in space and to readily engage and destroy terrestrial anti-satellite capacity would make the possibility of large-scale space war or military space races **less likely**, not **more**. Why would a state **expend the effort** to compete in space with a superpower that has the extraordinary advantage of holding securely the highest ground at the top of the gravity well? So long as the controlling state demonstrates a **capacity** and a **will** to use force to defend its position, in effect expending a small amount of violence as needed to prevent a greater conflagration in the future, **the likelihood of a future war in space is remote.**

Moreover, if the United States were willing to deploy and use a military space force that maintained effective control of space, and did so in a way that was perceived as tough, nonarbitrary, and efficient, such an action would serve to **discourage competing states from fielding opposing systems**. It could also set the stage for a new space regime, one that encourages space commerce and development. Should the United States use its advantage to police the heavens and allow unhindered peaceful use of space by any and all nations for economic and scientific development, over time **its control of LEO could be viewed as a global public good**. In much the same way the British maintained control of the high seas in the nineteenth century, enforcing international norms of innocent passage and property rights, and against slavery, the US could prepare outer space for a **long-overdue burst of economic expansion**.

There is reasonable **historic support** for the notion that the most peaceful and prosperous periods in modern history coincide with the appearance of a **strong, liberal hegemony**. America has been essentially **unchallenged** in its naval dominance over the last 60 years and in global air supremacy for the last 15 or more. Today, there is more international commerce on the oceans and in the air than ever. Ships and aircraft of all nations worry more about running into bad weather than about being commandeered by a military vessel or set upon by pirates. Search and rescue is a far more common task for the Navy than forced embargo, and the transfer of humanitarian aid is a regular mission. **The legacy of American military domination of the sea and air has been positive**, and the same should be expected for **space**.

Conclusions:

There is little reason to believe the United States will forego the capacity to influence decisions and events beyond its borders, with military force if necessary. Whether that capacity comes from space as well as the other military domains is undetermined. But, the operational deployment of space weapons would increase that capacity by providing for nearly **instantaneous force projection worldwide**. This force would be **precise**, **unstoppable**, and **deadly**. At the same time, the United States would forgo some of its ability to intervene directly in other states because the necessary budget tradeoffs would diminish its capacity to do so. A space-heavy American military would structurally limit potential American imperial ambitions while simultaneously **extending its global leadership role**. The need to limit collateral damage, the requirement for precision to allay the low volume of fire, and the tremendous cost of space weapons will ensure they are used for high-value, time-sensitive targets. An opposing state’s calculation of survival no longer would depend on interpreting whether or not the United States desires to be a good neighbor; whether it **will invade and occupy its territory**. Without sovereignty at risk, fear of a space-dominant American military will subside. The United States will maintain its position of hegemony as well as its security, and the world will not be threatened by the specter of a future American empire.

Geopolitics is in ascendance because it provides practical guidance to those who perceive the world in realist terms. The primary tenet of geostrategy is simple. In order **to dominate the battlespace, it is necessary to control the most vital positions**. If the most vital positions cannot be controlled, then they must be contested. The opponent cannot have uninhibited access to them. This simple dictum, known by every strategist and tactician but articulated so clearly by Mackinder, is the essence of the geostrategist’s logic. **Control is desirable, contestation is imperative**. This dictum applies to every medium and theater of war.