### 1

#### PIC text: States except for the Republic of India ought to ban the appropriation of outer space for mining activities by private entities. The Republic of India ought to increase funding for the appropriation of outer space by private entities.

#### China is ramping up aggression in outer space

Broad 21 [(William J, is a science journalist and senior writer.) "How Space Became the Next ‘Great Power’ Contest Between the U.S. and China," 1-24-2021 updated 5-6-2018, https://www.nytimes.com/2021/01/24/us/politics/trump-biden-pentagon-space-missiles-satellite.html] TDI

For years, the Chinese studied — with growing anxiety — the American military, especially its invasions of Afghanistan in 2001 and Iraq in 2003. The battlefield successes were seen as rooted in space dominance. Planners noted that thousands of satellite-guided bombs and cruise missiles had rained down with devastating precision on Taliban forces and Iraqi defenses.

While the Pentagon’s edge in orbital assets was clearly a threat to China, planners argued that it might also represent a liability.

“They saw how the U.S. projected power,” said Todd Harrison, a space analyst at the Center for Strategic and International Studies, a Washington think tank. “And they saw that it was largely undefended.”

China began its antisatellite tests in 2005. It fired two missiles in two years and then made headlines in 2007 by shattering a derelict weather satellite. There was no explosion. The inert warhead simply smashed into the satellite at blinding speed. The successful test reverberated globally because it was the first such act of destruction since the Cold War.

The whirling shards, more than 150,000 in all, threatened satellites as well as the International Space Station. Ground controllers raced to move dozens of spacecraft and astronauts out of harm’s way.

The Bush administration initially did little. Then, in a show of force meant to send Beijing a message, in 2008, it fired a sophisticated missile to shoot down one of its own satellites.

Beijing conducted about a dozen more tests, including ones in which warheads shot much higher, in theory putting most classes of American spacecraft at risk.

China also sought to diversify its antisatellite force. A warhead could take hours to reach a high orbit, potentially giving American forces time for evasive or retaliatory action. Moreover, the speeding debris from a successful attack might endanger Beijing’s own spacecraft.

In tests, China began firing weak laser beams at satellites and studying other ways to strike at the speed of light. However, all the techniques were judged as requiring years and perhaps decades of development.

Then came the new idea. Every aspect of American space power was controlled from the ground by powerful computers. If penetrated, the brains of Washington’s space fleets might be degraded or destroyed. Such attacks, compared with every other antisatellite move, were also remarkably inexpensive.

In 2005, China began to incorporate cyberattacks into its military exercises, primarily in first strikes against enemy networks. Increasingly, its military doctrine called for ~~paralyzing~~ early attacks.

In 2008, hackers seized control of a civilian imaging satellite named Terra that orbited low, like the military’s reconnaissance craft. They did so twice — first in June and again in October — roaming control circuits with seeming impunity. Remarkably, in both cases, the hackers achieved all the necessary steps to command the spacecraft but refrained from doing so, apparently to reduce their fingerprints.

#### Chinese aggression makes escalation inevitable – draws in other powers

Fabian 19 [Christopher David Fabian, Bachelor of Science, United States Air Force Academy. (“A Neoclassical Realist’s Analysis Of Sino-U.S. Space Policy”, *University of North Dakota Scholarly Commons*, January, Available Online at: <https://commons.und.edu/cgi/viewcontent.cgi?article=3456&context=theses>]

Second, Chinese strikes on U.S. space assets must not result in uncontrolled escalation. The advantage of possessing soft-kill technology is the suitability for low-intensity conflicts, while the use of destructive/non-reversible attacks will not be constrained during high-intensity conflicts.234 The use of exclusively non-lethal versus a combination of lethal and non-lethal capabilities can serve as strategic signaling about the phase of combat. However, due to a capability and vulnerability gap, combined with a lack of credible retaliatory threat, a tit-for-tat strategy along a clearly defined escalation ladder may not be a legitimate strategy for the Sino-U.S. relationship. 235 Counterspace action intended to have a tactical/operational effect may cross American strategic red lines, resulting in unintended escalation. For example, an attack on American overhead persistent infrared (OPIR) sensors would degrade their capability to detect conventional medium range ballistic missiles, with targets in the first island chain also interfering with the early detection of nuclear capable ICBMs launched against the U.S.236 Concerningly enough, there is evidence that the implication of interfering with or destroying strategically important U.S. capabilities has only been appreciated on the tactical and operational levels within the Chinese military.

237 Similarly, a Chinese attack on U.S. space systems at the outset of a low-grade conflict could raise the likelihood of a “space Pearl Harbor,” which could, in turn, provoke the United States to contemplate pre-emptive attacks or horizontal escalation on the Chinese mainland.238 In addition, commercial-military integration and combined efforts may result in escalation with third parties. A significant portion of U.S. military communication and imaging capabilities are purchased from commercial companies or provided by allied nations, meaning that to adequately degrade U.S. military capabilities, an attack on non-military and/or non-U.S. assets is required.

#### India space participation is crucial to India’s soft power – independently Indian norm setting curbs Chinese militarization

Castro ’17. [Bhavani Castro Fellow of Indian Studies at the Getulio Vargas Foundation in São Paulo, 03-03-2017, "Why India Should Help Shape Norms for Outer Space Activities," The Diplomat, <https://thediplomat.com/2017/03/why-india-should-help-shape-norms-for-outer-space-activities/>] TDI

The past years have been groundbreaking for the Indian Space Program. In 2014, its first interplanetary mission, Mangalyaan, entered into Mars orbit, putting the Indian Space Research Organization (ISRO) into the select group of space agencies to reach Mars, and the first one to succeed entering its orbit in the first attempt. In 2015, the agency launched its first space observatory, Astrosat, aimed to observe distant planets and astronomical objects, a first-class technology mastered by few countries. Last year, India also set a record by launching 20 satellites at once, many from other countries. However, India could go one step further in the space business and engage in a much more rewarding activity for its ambitions: taking the lead in shaping norms for outer space activities.

As the ISRO achieved a new world record in February – the launching of 104 satellites on a single rocket – Prime Minister Narendra Modi should consider giving new focus to the diplomacy surrounding the use of space. India has not been very active in the ongoing international efforts to update the outer space regime. It has not supported the European Union’s proposal for a Code of Conduct for Outer Space Activities, and it also watched silently while China and Russia joined efforts to issue a draft for a treaty on the prevention of the placement of weapons in outer space. However, if India aims for greater recognition in the international scenario, it is about time to take a more proactive stance on the creation of new norms and rules in global governance.

The existing international space regime includes several outdated treaties – mainly the Outer Space Treaty from 1967 and the Moon Treaty from 1979. These documents do not deal with urgent issues for today’s space exploration, including the prohibition of non-nuclear weapons tests in space and the creation of risky debris from the destruction of old satellites. The entrance of new actors, specifically in the space communications industry, makes it increasingly difficult to coordinate the positioning of new satellites in an already overcrowded orbit. Moreover, it is still unknown how those new actors – including China and India – will behave in space: whether they will choose to follow the peaceful use of space, or whether militarization will be their path.

It is crucial for India to work actively for new norms in the current scenario because of a variety of reasons. First, India needs to consider its national security interests. The vacuum created by the slow growth of the US and Russia on space capabilities is being filled by China, whose intentions are not entirely clear. In 2007, Beijing launched an anti-satellite weapon (ASAT) to destroy an old satellite. This move, not previously notified to the international community, not only produced thousands of harmful debris in orbit, but also evidenced China’s growing military capacity. If India wants to curb potentially harmful Chinese activities in outer space, it needs to endorse rules that fit its national interests.

India also needs to promote the regulation of space activities to enhance its cooperation with other space-faring nations – possibly including China, if the two countries decide for cooperation instead of competition. Vital sectors of the economy, as finance and communications, are dependent on space technologies, which makes cooperation essential for countries in a globalized world. India is proud of the indigeneity of its space technology, but it is about time to engage in technology sharing and commercial agreements with other countries. Space technologies are economic stimulants and useful tools in communication, resource management, and disaster prevention activities, all of which are essential assets for emerging economies like India.

More importantly, engaging in and committing to the creation of a new space governance framework would project India as an agenda-setter in a field of increasing importance for international relations. As in other realms of global governance, the future of space research is in the hands of Asia.

India can promote the creation of a more comprehensive regime for the use of outer space in a variety of ways. It is possible, for example, to start discussions within organizations like the BRICS (Brazil, Russia, India, China, and South Africa), IBSA (India, Brazil, South Africa), and the Shanghai Cooperation Organization. India can also actively engage with existing forums, such as the UN Committee on the Peaceful Use of Outer Space and ongoing discussions held by the European Union on the creation of a code of conduct.

The Outer Space Treaty will be celebrating its 50th anniversary this year; 2017 might be a good year for India to start an active campaign for an upgrade in the space regime. It might be difficult for India to build a new international institution or create legally binding treaties, but it can work on the promotion and creation of new conventions, cooperation agreements, and consensual norms.

#### Private sector is key

Rajagopalan ’20 [Dr Rajeswari (Raji) Pillai Rajagopalan is the Director of the Centre for Security, Strategy and Technology (CSST) at the Observer Research Foundation, New Delhi., 5-24-2020, "India’s Space Programme: A role for the private sector, finally?," ORF, <https://www.orfonline.org/research/indias-space-programme-a-role-for-the-private-sector-finally-66661/>] NChu

India’s finance minister Nirmala Sitharaman announced last week that India’s private sector will play a key role in augmenting India’s space programme, and that the government intends to share the facilities of the Indian Space Research Organisation (ISRO) with the private sector. This announcement was part of the Narendra Modi government’s call for new and bold reforms in an effort to promote its ‘self-reliant India’ mission. It is the fourth segment of the Rs 20 lakh crore Aatma Nirbhar Bharat Abhiyan special economic stimulus.

Sitharaman’s announcement entails a role for the private sector, possibly with the goal of greater investments in technology development and acquisition, capacity-building and space exploration, including planetary exploration. The minister, while announcing these reforms, appeared to understand that the private sector can help augment India’s space capability. While praising the work done by ISRO, she also pointed out that the private sector is also doing a lot of work in developing space technology. She also acknowledged that the existing regulations prevent private entities from using or even testing their products.

Therefore, to level the playing field, the government “will make a provision for the private sector to benefit from the assets which are available to ISRO and for India (in general) to benefit from.” The minister also said the new reforms would allow the private sector to play an active role in “satellites, launches and space-based services”.

But as always, implementation is key. Properly executing these reforms will require enabling policies and appropriate regulatory frameworks.

That the new reforms will allow private sector players to use ISRO facilities is a big deal. This indeed must be music to the ears of commercial players who have been seeking to get a fair share of the pie in terms of manufacturing of satellites and propellant technologies, among other areas. It should not be too difficult for India’s private space sector because there is a sizeable talent pool available outside ISRO. More importantly, the entry of the private sector, as in the telecom sector, can bring several advantages in terms of cost and access.

Following the announcement, ISRO tweeted that it will follow the government’s guidelines to allow the private sector to undertake space activities in the country. Though this did not seem particularly welcoming of the government’s initiative, ISRO’s support is critical to making it a success.

ISRO has in the last few years been opening up to the Indian private space sector in a gradual manner – mostly as a matter of compulsion because ISRO simply does not have the in-house capacity to address India’s growing requirements. Today, the Indian space programme is not just about civilian applications for remote-sensing, meteorology and communication, as in the early decades. India’s space sector and its requirements have grown enormously in the last decade to include television and broadband services, space science and exploration, space-based navigation and, of course, defence and security applications.

Among others, Ambassador Rakesh Sood has articulated the need for legislation to facilitate ISRO’s partnership with industries and entrepreneurs. Narayan Prasad and Prateep Basu, two prominent faces in the Indian space start-up segment, have argued that despite ISRO’s successes, “India’s space competitiveness has suffered from the absence of a globally reputed, private space industry.”

The private sector, especially the NewSpace industry and start-ups, have an advantage in terms of low-cost operations, which itself should be a big incentive for the government to make it an active stakeholder. A certain amount of democratisation of space technology with the participation of the private sector can ensure costs are kept low. And expanding the number of stakeholders will also ensure more transparency and better accountability and regulatory practices. This has been missing in India’s space sector. The same agency has undertaken promotion, commercialisation and regulatory functions – which is not healthy.

Following the minister’s announcement, I spoke to a few key players in the private sector to capture their sense of the reforms in the pipeline. Sadly, the general mood is not one of excitement but rather to wait and watch. To them, as stated earlier, the key is implementation. One of them, who did not wish to be named, argued that unless there is a conducive structure for the private sector to engage with, the announcement is more lip service. Narayan Prasad said that there need to be basic changes for the reforms to be effective. The private sector is particularly concerned about issues such as sharing intellectual property for products developed by the private sector. Prasad argued that IP-centric policymaking has to be taken for real reform.

Right now, ISRO thinks they will use the suppliers only as manufacturing or services partners. So all IP is controlled by ISRO and suppliers just replace ISRO technicians and production facilities. This means most suppliers have no real IP of their own, and just depend on cost plus contracts from ISRO for business. The only way to change that is to create reforms where local industry can invest in building their own IP and/or products that can match global standards.

This in turn means that policymakers will need to view industry as more than sweatshops and look at what steps can be taken for IP/product development by private industry. This is the only way to integrate India’s private sector into the global supply chain. Prasad adds that if ISRO is serious about partnering with the private sector, it must spell out the requirements and select the best available. Several private-sector actors have articulated the need for an independent regulator.

This is an area that has been a common thread in many of my conversations with Indian entrepreneurs. Rohan M. Ganapathy, CEO and CTO of Bellatrix Aerospace in Bengaluru, also made a strong case for an autonomous regulator, and acknowledged a need for the government to clarify R&D risk funding, which is crucial to realise new technologies.

It is not that ISRO has not engaged the private sector. ISRO has long been associated with private firms like Larsen & Toubro, Godrej and Walchand Nagar Industries. It is just that the mode of participation envisaged through the new reforms is very different. The current mode of work, more of an outsourcing model, is becoming inadequate. In the last few years, because of significant capacity deficit, ISRO began to work with a few in the private sector such as the Bengaluru-based Alpha Design Technologies, contracted to build satellites. Similarly, Bellatrix Aerospace began to work with ISRO on advanced in-space propulsion systems. But these remain exceptions.

But ISRO does recognise the new compulsions and has been trying to change. The newly formed commercial enterprise called the NewSpace India Limited (NSIL), under the Department of Space, is an initiative to engage the private sector. NSIL is meant to help the private sector with transfer of some technologies to the private sector, especially the small satellite launch vehicle that is being developed and even the older PSLV. But the pace of ISRO’s engagement with the private sector needs to quicken.

Followed up effectively, the new government initiatives could help. Indeed, ISRO needs to expand its operations significantly if it has to remain competitive, both from a domestic and international outlook. The Indian space programme has several advantages, the most important being cost: the ability to provide reliable launches in a cost-effective manner is a big advantage. The Polar Satellite Launch Vehicle remains a tried and tested launch vehicle and has managed to remain the cheapest for launching small satellites into space. But competition in this sector is picking up.

Jeff Bezos’ Blue Origin, Elon Musk’s SpaceX and start-ups from China want a share of the global commercial market, estimated to be worth around $350 billion (Rs 26.46 lakh crore). If ISRO does not improve its launch infrastructure and increase the number of launches, it will be at a disadvantage. And despite India’s cost advantages, it has a mere 2% share of this, worth $7 billion. India can gain significantly if ISRO and the country’s private space sector can cooperate effectively and synergistically. This requires the government to actually act on the initiatives it announced.

#### 2

#### Interp: The affirmative must define “outer space” in a delimited text in the 1AC.

#### “Outer Space” is flexible and has too many interps – normal means shows no consensus

Leepuengtham 17 [Tosaporn Leepuengtham (Research Judge, Intellectual Property and International Trade Division, Supreme Court of Thailand). "International space law and its implications for outer space activities." 01-27-2017, Accessed 12-9-2021. https://www.elgaronline.com/view/9781785369612/06\_chapter1.xhtml // duongie

Those states which favor the precise demarcation of outer space support the spatial approach, whereas those who oppose to such demarcation prefer the functional approach, as the latter allows more flexibility in terms of the development of space technology.34 This lack of a definition and delimitation of outer space is problematic, since certain particular areas are neither explicitly defined as ‘air space’ or ‘outer space’. For example, it is vague whether an area located between 80 km and 120 km above sea level would be classified as either air space or outer space in the absence of demarcation, since 80 km is the maximum attitude for convention aircraft, and 120 km is the lowest attitude in which space activities could be carried out.35 Satellites which are stationed in a geostationary orbit are a good example of this ambiguity. Owing to this lack of any internationally recognized delimitation, equatorial states claim sovereignty over that part of the geostationary orbit which is located over their respective territories;36 whereas technologically developed countries believe that the geostationary orbit is an integral part of outer space.37 This uncertain status of areas leads to legal jurisdictional problems. According to international law, a state has sovereignty over the airspace above its territory.38 However, national sovereignty does not extend into outer space.39 Thus, it is necessary to determine where a state’s airspace ends to ensure that the appropriate legal regime is applied. One possible scenario which might occur and which is relevant to the subject of this book is the creation or infringement of an intellectual work is in just such an ambiguous location. This would cast doubt on the ‘legal’ location of creation or infringement, and the question of which applicable legal regime arises. Should we apply the law of the underlying state or is there no law to apply? For example, would satellite signals transmitted from a satellite stationed in a geostationary orbit located over equatorial countries be considered as works created or, if intercepted, be infringed, in outer space or in the sovereign air space of those respective countries? These hypothetical examples highlight why a boundary is necessary if unpredictability arising from different legal application is to be avoided. While it might be argued that this issue is being overemphasized at this stage, given increasing use of space technology, this problem is worth considering now rather than later.

#### Violation – you don’t.

#### Prefer –

#### 1] Stable Advocacy – they can redefine in the 1AR to wriggle out of DA’s which kills high-quality engagement and becomes two ships passing in the night –We lose access to Tech Race DA’s, Asteroid DA’s, basic case turns, and core process counter plans that have different definitions and 1NC pre-round prep.

#### Fairness is a voter debate is a competitive activity that requires objective evaluation

#### Topicality is a voting issue that should be evaluated through competing interpretations a] it tells the negative what they do and do not have to prepare for b] reasonability is arbitrary and incentivizes judge intervention

#### No RVIs—a] it’s your burden to be topical. Anything else chills real abuse b] forces theory debaters to bait theory and win on it every time

## 2

#### The US commercial space industry is booming – private space companies are driving innovation

**Lindzon 2/23** [(Jared Lindzon, A FREELANCE JOURNALIST AND PUBLIC SPEAKER BORN, RAISED AND BASED IN TORONTO, CANADA. LINDZON'S WRITING FOCUSES ON THE FUTURE OF WORK AND TALENT AS IT RELATES TO TECHNOLOGICAL INNOVATION) "How Jeff Bezos and Elon Musk are ushering in a new era of space startups," Fast Company, 2/23/21, https://www.fastcompany.com/90606811/jeff-bezos-blue-origin-elon-musk-spaces-space] TDI

In early February, Jeff Bezos, the founder of Amazon and one of the planet’s wealthiest entrepreneurs, dropped the bombshell announcement that he would be stepping down as CEO to free up more time for his other passions. Though Bezos listed a few targets for his creativity and energy—The Washington Post and philanthropy through the Bezos Earth Fund and Bezos Day One Fund—one of the highest-potential areas is his renewed commitment and focus on his suborbital spaceflight project, Blue Origin.

Before space became a frontier for innovation and development for privately held companies, opportunities were limited to nation states and the private defense contractors who supported them. In recent years, however, billionaires such as Bezos, Elon Musk, and Richard Branson have lowered the barrier to entry. Since the launch of its first rocket, Falcon 1, in September of 2008, Musk’s commercial space transportation company SpaceX has gradually but significantly reduced the cost and complexity of innovation beyond the Earth’s atmosphere. With Bezos’s announcement, many in the space sector are excited by the prospect of those barriers being lowered even further, creating a new wave of innovation in its wake.

“What I want to achieve with Blue Origin is to build the heavy-lifting infrastructure that allows for the kind of dynamic, entrepreneurial explosion of thousands of companies in space that I have witnessed over the last 21 years on the internet,” Bezos said during the Vanity Fair New Establishment Summit in 2016.

During the event, Bezos explained how the creation of Amazon was only possible thanks to the billions of dollars spent on critical infrastructure—such as the postal service, electronic payment systems, and the internet itself—in the decades prior.

“On the internet today, two kids in their dorm room can reinvent an industry, because the heavy-lifting infrastructure is in place for that,” he continued. “Two kids in their dorm room can’t do anything interesting in space. . . . I’m using my Amazon winnings to do a new piece of heavy-lifting infrastructure, which is low-cost access to space.”

In the less than 20 years since the launch of SpaceX’s first rocket, space has gone from a domain reserved for nation states and the world’s wealthiest individuals to everyday innovators and entrepreneurs. Today, building a space startup isn’t rocket science.

THE NEXT FRONTIER FOR ENTREPRENEURSHIP

According to the latest Space Investment Quarterly report published by Space Capital, the fourth quarter of 2020 saw a record $5.7 billion invested into 80 space-related companies, bringing the year’s total capital investments in space innovation to more than $25 billion. Overall, more than $177 billion of equity investments have been made in 1,343 individual companies in the space economy over the past 10 years.

“It’s kind of crazy how quickly things have picked up; 10 years ago when SpaceX launched their first customer they removed the barriers to entry, and we’ve seen all this innovation and capital flood in,” says Chad Anderson, the managing partner of Space Capital. “We’re on an exponential curve here. Every week that goes by we’re picking up the pace.”

#### The plan creates a restriction that encourages companies to move their operations to states with lower standards

Albert 14 [(Caley Albert, J.D. Loyola Marymount University) “Liability in International Law and the Ramifications on Commercial Space Launches and Space Tourism,” Loyola of Los Angeles International and Comparative Law Review, 11/1/14, <https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1708&context=ilr>] TDI

A parallel can be drawn here between the commercial space industry and the maritime law concept of the Flag of Convenience. The term has evolved over time, but in this day and age, it is commonly used to mean the owner of a vessel does not want to create an obligation with a country with stricter standards for registry; hence, the owner will register strictly for economic reasons with a country that has a more convenient registry.133 By flying a Flag of Convenience, ship owners are able to avoid taxation on earnings of ships registered under these flags, and in some cases, they can also receive relief from stricter crew standards and corresponding operating costs.134 A Flag of Convenience is flown by a vessel that is registered in one state, which the vessel has little if any connection to, when in reality the vessel is owned and operated from another state.135 This way the vessel avoids any unfavorable economic requirements from its true home state.136 In this sense, “flag shopping” is similar to “launch forum shopping,” similar in that Flags of Convenience are utilized for economic reasons, such as to avoid high taxes and compliance with certain restrictive international conventions, commercial space companies will forum shop when choosing which country to launch from. As of today, there has yet to be a catastrophic commercial launch incident, so for now commercial space companies do not have an incentive to forum shop, but if there is, the indemnification policies described above may lead companies to seek out countries that provide more coverage so they pay less in the event something goes wrong. This comparison to Flags of Convenience brings up two separate yet equally important issues. First, launch companies may try to follow the Flags of Convenience model and soon catch on to the wisdom of their maritime predecessors by “registering” in countries with more favorable conditions. Of course, in this case the concern is not with registration so much as launching. If launch companies follow the Flags of Convenience model, they will seek out the most convenient state for launch, most likely the state that provides the most liability coverage and has the least safety precautions. Launching from states with low safety standards increases the potential for catastrophic launch events. This, in turn, will place states that are potentially incapable of paying for damages from launch disasters in a position they would not normally assume if these commercial companies had not been drawn to their shores with the promise of more favorable regulations. Second, launch customers may also seek out companies located in states with lower cost liability regimes (lower insurance policy limits) since those companies will presumably charge less to launch their payloads. In this scenario, instead of the launch companies seeking out states with lower liability caps and softer regulations, the launch customers themselves will seek companies located in states with lowcost liability regimes. Here, the effect will be the same as above. Under the Liability Convention, the launching state will be liable for any damage caused by a vehicle launched from within its borders; hence, if customers start engaging in “launch forum shopping,” states will be incentivized to put in place low-cost liability regimes, which in turn will increase the states’ potential payout in the event of a catastrophic launch incident. Looking at the indemnification program the United States has in place in comparison to other countries, it is possible to see how either launch companies or launch customers could engage in “launch forum shopping” when a catastrophic launch incident ever occur. It is also important to keep in mind that various factors go into where a company or customer decides to launch from. A state’s indemnification program is just one factor in this decision. With this in mind, it is clear that if a launch incident did occur in the United States, the commercial launch company would be liable for much more than it would in another country. For instance, why would a commercial space company launch in the United States, where it would be liable up to $500 million and the additional costs that the government would not cover? The argument can be made that a catastrophic space incident has yet to occur, and even if it did, it is unlikely to cost above the $2.7 billion covered by the United States government. Other states like Russia or France, which has the two-tier liability system, would simply cover all claims above the initial insurance, which is much lower than the $500 million mark required by the United States. In that case, the commercial company would never have to pay more than the initial liability insurance. If there ever is a catastrophic commercial space incident in the future, it is easy to see why commercial companies or launch customers might be drawn to “launch forum shop” outside the United States.

#### Maintaining US space dominance requires a homegrown commercial space industry – private companies offshoring gives China the advantage they need

**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.

#### US space dominance prevents global war

**Zubrin 15** [(Robert Zubrin, president of Pioneer Energy, a senior fellow with the Center for Security Policy) “US Space Supremacy is Now Critical,” Space News, 1/22/15, <https://spacenews.com/op-ed-u-s-space-supremacy-now-critical/>] TDI

The United States needs a new national security policy. For the first time in more than 60 years, we face the real possibility of a large-scale conventional war, and we are woefully unprepared. Eastern and Central Europe is now so weakly defended as to virtually invite invasion. The United States is not about to go to nuclear war to defend any foreign country. So deterrence is dead, and, with the German army cut from 12 divisions to three, the British gone from the continent, and American forces down to a 30,000-troop tankless remnant, the only serious and committed ground force that stands between Russia and the Rhine is the Polish army. It’s not enough. Meanwhile, in Asia, the powerful growth of the Chinese economy promises that nation eventual overwhelming numerical force superiority in the region. How can we restore the balance, creating a sufficiently powerful conventional force to deter aggression? It won’t be by matching potential adversaries tank for tank, division for division, replacement for replacement. Rather, the United States must seek to totally outgun them by obtaining a radical technological advantage. This can be done by achieving space supremacy.To grasp the importance of space power, some historical perspective is required. Wars are fought for control of territory. Yet for thousands of years, victory on land has frequently been determined by dominance at sea. In the 20th century, victory on both land and sea almost invariably went to the power that controlled the air. In the 21st century, victory on land, sea or in the air will go to the power that controls space. The critical military importance of space has been obscured by the fact that in the period since the United States has had space assets, all of our wars have been fought against minor powers that we could have defeated without them. Desert Storm has been called the first space war, because the allied forces made extensive use of GPS navigation satellites. However, if they had no such technology at their disposal, the end result would have been just the same. This has given some the impression that space forces are just a frill to real military power — a useful and convenient frill perhaps, but a frill nevertheless. But consider how history might have changed had the Axis of World War II possessed reconnaissance satellites — merely one of many of today’s space-based assets — without the Allies having a matching capability. In that case, the Battle of the Atlantic would have gone to the U-boats, as they would have had infallible intelligence on the location of every convoy. Cut off from oil and other supplies, Britain would have fallen. On the Eastern front, every Soviet tank concentration would have been spotted in advance and wiped out by German air power, as would any surviving British ships or tanks in the Mediterranean and North Africa. In the Pacific, the battle of Midway would have gone very much the other way, as the Japanese would not have wasted their first deadly airstrike on the unsinkable island, but sunk the American carriers instead. With these gone, the remaining cruisers and destroyers in Adm. Frank Jack Fletcher’s fleet would have lacked air cover, and every one of them would have been hunted down and sunk by unopposed and omniscient Japanese air power. With the same certain fate awaiting any American ships that dared venture forth from the West Coast, Hawaii, Australia and New Zealand would then have fallen, and eventually China and India as well. With a monopoly of just one element of space power, the Axis would have won the war. But modern space power involves far more than just reconnaissance satellites. The use of space-based GPS can endow munitions with 100 times greater accuracy, while space-based communications provide an unmatched capability of command and control of forces. Knock out the enemy’s reconnaissance satellites and he is effectively blind. Knock out his comsats and he is deaf. Knock out his navsats and he loses his aim. In any serious future conventional conflict, even between opponents as mismatched as Japan was against the United States — or Poland (with 1,000 tanks) is currently against Russia (with 12,000) — it is space power that will prove decisive. Not only Europe, but the defense of the entire free world hangs upon this matter. For the past 70 years, U.S. Navy carrier task forces have controlled the world’s oceans, first making and then keeping the Pax Americana, which has done so much to secure and advance the human condition over the postwar period. But should there ever be another major conflict, an adversary possessing the ability to locate and target those carriers from space would be able to wipe them out with the push of a button. For this reason, it is imperative that the United States possess space capabilities that are so robust as to not only assure our own ability to operate in and through space, but also be able to comprehensively deny it to others. Space superiority means having better space assets than an opponent. Space supremacy means being able to assert a complete monopoly of such capabilities. The latter is what we must have. If the United States can gain space supremacy, then the capability of any American ally can be multiplied by orders of magnitude, and with the support of the similarly multiplied striking power of our own land- and sea-based air and missile forces be made so formidable as to render any conventional attack unthinkable. On the other hand, should we fail to do so, we will remain so vulnerable as to increasingly invite aggression by ever-more-emboldened revanchist powers. This battle for space supremacy is one we can win. Neither Russia nor China, nor any other potential adversary, can match us in this area if we put our minds to it. We can and must develop ever-more-advanced satellite systems, anti-satellite systems and truly robust space launch and logistics capabilities. Then the next time an aggressor commits an act of war against the United States or a country we are pledged to defend, instead of impotently threatening to limit his tourist visas, we can respond by taking out his satellites, effectively informing him in advance the certainty of defeat should he persist. If we desire peace on Earth, we need to prepare for war in space.

## 3

#### The aff is not a break from dualistic thinking but reifies it. Appeals to space as being the dominion of all humankind, free to explore for the benefit of our common heritage, promote an image of humanity unburdened by its material environment.

Ferrando 16 [(Francesca, Ph.D. in philosophy, M.A. in Gender Studies, Professor.@ NYU) “Why Space Migration Must Be Posthuman”, 2016, http://ndl.ethernet.edu.et/bitstream/123456789/76546/1/147.pdf.pdf#page=136yperlink] TDI

In 2008, NASA released an official Statement on the Environmental Impact (PEIS), which takes into consideration the environmental impact of space tech- nology on Earth, but it does not acknowledge its impact on other celestial bodies, such as the Moon or other planets of the Solar System. Critical to this type of anthropocentric and Earth-centric approach, William Kramer underlines: “there is no comprehensive process required...for assessing human impacts on those extraterrestrial environments” (2014, 216). Space technology and space-based human activity shall be analyzed from a view which takes into account their effects not only on humans and on Earth, but on outer space as well. In order to address this issue, we first need to engage with the question asked by Reinman (2009): is (outer) space an environment? If so, it shall be regulated under specific environ- mental conditions. In Reinman’s opinion, “space at large should not enjoy a moral status equal to Earth” (ibid., 86), as she grants a primacy to Earth based on bio-centric values: “In many ways Earth, with its unique, abundant life, is special. There is nothing quite like it in the Solar System” (ibid.). Although the point raised by Reinman is of key importance to our discussion, from a posthuman perspective, regarding the Earth as “special” because of its life abundance is problematic, being supported by an Earth-centric, bio-centric and quantitative principle which supremacy is not inherently justified; life itself, in fact, is a slippery concept.

The current understanding of life is merely descriptive, not definitive: the border between animate/inanimate is difficult to mark and is often transgressed.24 Viruses, for instance, exhibit some of the characteristics which are common to organic life, while they are missing others, challenging the biological concept of life itself.25 More in general, it can be stated that life is not a clearly defined notion; instead, as Michel Foucault noted: “Life...is a category of classification, relative, like all the other categories, to the criteria one adopts” (1966; Engl. Transl. 1970, 161). Going back to Reinman’s conclusions, she underlines an aspect of strategic relevance for a posthumanist sensitivity: “humans’ actions towards their surroundings will continue to affect people whether we live on Earth or in space” (2009, 86). Let’s reflect further upon this point. The non-human agency of matter (Barad 2007), as high- lighted within the frame of New Materialism, plays a key role in allowing us to recognize agency to planets, stars and asteroids. The relational onto-epistemological approach of New Materialism makes us think on the possible astro-ecological impacts of Moon mining, or of terraforming in Mars,26 on the balance of the solar system and, eventually, on their orbits. Even the environmentally-sound concept of space-based solar power (cf. Ernst 2013) should be considered from perspectives others than Earth. Object-Oriented Ontology, and in particular the notion of “Hyperobjects” (Morton 2013), highlights the material viscosity of objects whose performance exceeds both a particular space and a particular time: reading the current opening of the space market from this perspective will unmask the long-term irreversible consequences of our present actions.

Space is the next frontier, where new resources, habitats and life forms are currently being sought: in November 2015, the United States Government passed the “Commercial Space Launch Competitiveness Act “[t]o facilitate a pro-growth environment for the developing commercial space industry by encouraging private sector investment” (U.S. Commercial Space Launch Competitiveness Act 2015). Although approaching outer space as a resource may spark interest and funding, from an heideggerian perspective, it is ontologically limiting and epistemologically partial, based on an Earth-centered policy sustained by an anthropocentric Weltanschauung. Furthermore, the “Space Act” may contravene the international regulations laid down by the “Outer Space Treaty” (1967), a key document ratified by 104 countries, including the US, which still represents the legal framework for space activity. The Office for Outer Space Affairs of the United Nations summarizes the following principles as the main ones sustaining the Treaty:

the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind; outer space shall be free for exploration and use by all States; outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means; States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner; the Moon and other celestial bodies shall be used exclusively for peaceful purposes; astronauts shall be regarded as the envoys of mankind; States shall be responsible for national space activities whether carried out by gov- ernmental or non-governmental entities; States shall be liable for damage caused by their space objects; and States shall avoid harmful contamination of space and celestial bodies. (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space 1967)

As we can see, this document is based on the principle of the common heritage of humankind, according to which “outer space is not subject to national appropriation by claim of sovereignty”. Conceived during the Cold War, the Treaty inaugurates a post-nationalistic post-bellic approach to space, setting a new paradigm which has departed from the dualistic imprinting of “us” against “them”. Although still within an anthropocentric schemata focussed on the interests of “mankind”, the step is huge. For instance, celestial bodies shall be used “for peaceful purposes” and shall not be contaminated; astronauts are considered the “envoys” of humankind.27 The human frame has been opened and expanded: posthumanism has entered the gates to the heavens.

It is now time to consider the impact of space encountering on human identity and existential insights, by delving into the specific change of perspective brought along by space traveling. This radical shift, known as the overview effect, consists of a series of epiphanies experienced by astronauts looking at the Earth from outer space. In his book The Overview Effect: Space exploration and human evolution (1998), Frank White relates such a shift in consciousness to that specific geographical perspective, stating: “Mental processes and views of life cannot be separated from physical location” (3). Humans are embodied beings; their materiality is a process supported and deeply affected by their surroundings. White further asserts this point by emphasizing the fact that the astronauts in Earth orbits and the lunar astronauts have different types of epiphanies: “The orbital astronaut sees the Earth as huge and himself or herself as less significant. The lunar astronaut sees the Earth as small and feels the awesome grandeur of the entire universe...Both pro- grams change the astronaut’s perception of the Earth and of his or her own identity, but in quite different ways” (ibid., 36). To White, the overview effect is so significant, that he affirms: “It is possible to grasp the true implications of this evolutionary process only by seeing it from the viewpoint of the universe as a whole, and from that perspective, the Overview Effect may point to humankind’s purpose as a species” (ibid., 5). The overview effect is of key importance to space ethics, allowing us to approach the topic of space migration not only from the usual utilitarian perspective, but also from an onto-epistemological standpoint: resonating with Heidegger, space physically becomes “a way of revealing”.

#### Link Wall

Oni 19

The planetary resources company estimates that a single 30-m asteroid may contain 30 billion dollars in platinum

**non-human objects like minerals and asteroids are arbitrarily assigned value, exemplifying the binary between those and humans who are argued to have innate value--nonhuman entities are subjugated so humans can acquire more resources to overtake and eventually consume the nature that we inextricably are.**

**“climate change has become an existential crisis for the human species.”**

**Klein 14 ev**

#### Calls to combat climate change are driven by dualist logic: a human-centric narrative places the fate of the world on humanity, leaving nature locked into a position that is to be saved by humans which shuts down any chance of coexistence. Efforts to curb climate change are necessarily misguided: a focus on material consequences and ignorance of nonhuman agency make effective climate strategizing impossible, as it doesn’t interrogate the root cause, which is our orientation towards dualism.

#### The impact is a state of permanent war—their political discourses surrounding space make militarization inevitable and turns the case.

Dickens and Ormrod 16 [(Peter Dickens, Senior Research Associate in the Department of Sociology at the University of Cambridge, member of the Red-Green Study Group in London, James S Ormrod, Principal Lecturer in Sociology at the University of Brighton), “The Future of Outer Space”, *The Palgrave Handbook of Society, Culture and Outer Space*] TDI

An argument can be made that the conquest of outer space has represented the ultimate victory of abstract space (see also Shaw, 2008, p. 115). Any meaningful distinction between terrestrial space and the rest of the cosmos has been eroded. This is not to say that the whole of outer space has been humanized, which of course it has not, but that space has come to be reconceptualized and re-experienced as a space for accumulation like any other. It is a space thoroughly colonized by terrestrial knowledge and practice (whether considered primarily capitalist, male, white or anything else).

For Benjamin and a host of others (from Klerkx, 2005, to Parker, 2009), the disinvestment in outer space exploration and development came as a result of the bureaucratization of NASA, and its engulfment within the military-industrial complex. With the development of the International Space Station (ISS) and the Space Shuttle (which according to some accounts were each the rationale for the development of the other), space exploration became routine and unexciting. Nothing fundamentally new appeared to be happening in space. Whether or not this is seen as true depends a great deal on perspective. Even if NASA budgets were being cut, this volume has hopefully made clear that a great deal was still happening in space. New space technologies continued to be developed, and these technologies were being integrated into terrestrial life in innumerable ways. But we believe it is also true (and this has been the emphasis of our work elsewhere, see Dickens and Ormrod, 2007) that these developments represent the continuation of terrestrial power relations and social dynamics. Space development is, to put it one way, business as usual. And crucially, any novelty to these developments was undermined by the representation of outer space in similar terms to the representation of terrestrial space. As evidenced in this book, political scientists, geographers and legal scholars had begun to talk about outer space as a knowable, if not actually known, space. The origins of this representation of space can be traced to Copernicus (MacDonald, 2009) and/or Kepler (Zubrin, 1996). But with the routinization of outer spatial practices (from increasing launch rates to the proliferation of satellite-receiving terminals, to the everyday use of satellite services to underpin military operations, communications, entertainment, navigation and so on), these representations were made manifest in the creation of a new social space.

The central problem with the final victory of abstract space was that it obliterated the very ‘absolute spaces’ on which it was founded, and from which it derived its emotional appeal. It is in a way surprising that the development of modern spaceflight was from its inception anchored in a religious or spiritual cosmology. This was true of both Russian and American contexts (see also Geppert, 2007, p. 599). The Russian programme has long roots in the tradition of Russian cosmism (Kohonen, 2009; Siddiqi, 2010). And, as Pop notes, Richard Nixon said to the Apollo 11 astronauts; ‘Because of what you have done, the heavens have become a part of man’s world.’ Pop goes on:

‘Are we today turning mythology into fact?’ – asked Joseph Campbell on the occasion of the Apollo programme. The astronauts walked on the real astronomical moon, as it was; but they walked on the mythical moon of each culture, as thought to be, as imagined. Their trip was physical and metaphysical. They walked through different cosmogonies; through different models of the universe.

(Pop, 2012, personal communication, see also ‘High Flight: A Spiritual History of the Space Age’, in preparation)

This continued relationship was not coincidental. As a number of contributions here show, the appeal of outer space lay in the promise of conquering the wondrous or Godly and hence the elevation of the status of humanity (or, rather more specifically, white men). This is not necessarily that dissimilar to the process Sims describes in his chapter, whereby myths ‘record time’. Ormrod illustrates this in his chapter through analysis of Tsiolkovsky’s science fiction in which the best human beings are able to fly like angels in space. As Kilgore notes in his chapter, Carl Sagan owed his continued appeal to his simultaneous reproduction of wonder as well as knowledge. The British celebrity cosmologist Brian Cox (see Mellor, this volume, for more on him) has arguably taken this even further, such that his popular shows and writing dedicate more time to what is unknown than to knowledge itself. These lacunae became spaces for wild imaginative projects – projects more captivating than any empirical knowledge. It is no wonder that the continued disenchantment and re-enchantment of the universe have become a major theme in recent work. Based largely on studies of astronauts’ experiences, Kilbryde (2015) argues that space exploration can potentially be a means of overcoming the dualism through which outer space is constructed as an object, and thus of experiencing unity. This is provided that the sense of awe and wonder it engenders is not sought as a ‘possession’ of the individual or as something to be subsequently rationalized.

## Case

The warming scenario is absurd, there are 0 widescale policies coming now and we have EO sats, and EO sats definitely aren’t able to solve enough for large scale warming. And a little more info isn’t gonna change the minds of climate skeptics and people on the far right who are causing polarization rn.