# 2NR

### 1NC – T

#### Interpretation – Unjust refers to a negative action – it means contrary.

Blacks Law No Date "What is Unjust?" <https://thelawdictionary.org/unjust/> //Elmer

Contrary to right and justice, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### Violation – The Aff is a positive action – it creates a new concept for Space – ie. OUF fee and mandating levied by the FCC taxing private companies – profit incentive

#### At best their effects-T – proving a world where the resolution is true through some external action and private space industry actions are bad under some circumstances is different from proving a private appropriation is unjust – private companies still go up and avoid fees

#### Vote Neg –

#### 1] Limits – making the topic bi-directional explodes predictability – it means that Aff’s can both increase non-exist property regimes in space AND decrease appropriation by private actors – makes the topic untenable. Their interpretation includes negative action, AND the PTD expansion Aff, DD’s OST Aff, Affs that expand the Moon Treaty or Liability Convention, and a number of other Affs that haven’t been read yet but probably will.

#### 2] Ground – wrecks Neg Generics – we can’t say appropriation good since the 1AC can create new views on Outer Space Property Rights that circumvent our Links since they can say “Public Trust” approach solves and they can run Outer Space appropriation good under circumstances

#### 3] Paradigm Issues --

#### a] Topicality is Drop the Debater – it’s a fundamental baseline for debate-ability.

#### b] Use Competing Interps – Topicality is a yes/no question, you can’t be reasonably topical and Reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation.

#### c] No RVI’s - Forces the 1NC to go all-in on Theory which kills substance education, and its Illogical – you shouldn’t win for not being abusive.

### 1NC – DA

#### Xi’s regime is stable now, but its success depends on strong growth and private sector development.

**Mitter and Johnson 21** [Rana Mitter and Elsbeth Johnson, [Rana Mitter](https://hbr.org/search?term=rana%20mitter&search_type=search-all) is a professor of the history and politics of modern China at Oxford. [Elsbeth Johnson](https://hbr.org/search?term=elsbeth%20johnson&search_type=search-all), formerly the strategy director for Prudential PLC’s Asian business, is a senior lecturer at MIT’s Sloan School of Management and the founder of SystemShift, a consulting firm. May-June 2021, "What the West Gets Wrong About China," Harvard Business Review, [https://hbr.org/2021/05/what-the-west-gets-wrong-about-china accessed 12/14/21](https://hbr.org/2021/05/what-the-west-gets-wrong-about-china%20accessed%2012/14/21)] Adam

In China, however, growth has come in the context of stable communist rule, suggesting that democracy and growth are not inevitably mutually dependent. In fact, many Chinese believe that the country’s recent economic achievements—large-scale poverty reduction, huge infrastructure investment, and development as a world-class tech innovator—have come about because of, not despite, China’s authoritarian form of government. Its aggressive handling of Covid-19—in sharp contrast to that of many Western countries with higher death rates and later, less-stringent lockdowns—has, if anything, reinforced that view.

China has also defied predictions that its authoritarianism would inhibit its capacity to [innovate](https://hbr.org/2011/06/what-the-west-doesnt-get-about-china). It is a global leader in AI, biotech, and space exploration. Some of its technological successes have been driven by market forces: People wanted to buy goods or communicate more easily, and the likes of Alibaba and Tencent have helped them do just that. But much of the technological progress has come from a highly innovative and well-funded military that has invested heavily in China’s burgeoning new industries. This, of course, mirrors the role of U.S. defense and intelligence spending in the development of Silicon Valley. But in China the consumer applications have come faster, making more obvious the link between government investment and products and services that benefit individuals. That’s why ordinary Chinese people see Chinese companies such as Alibaba, Huawei, and TikTok as sources of national pride—international vanguards of Chinese success—rather than simply sources of jobs or GDP, as they might be viewed in the West.

Thus July 2020 polling data from the Ash Center at Harvard’s Kennedy School of Government revealed 95% satisfaction with the Beijing government among Chinese citizens. Our own experiences on the ground in China confirm this. Most ordinary people we meet don’t feel that the authoritarian state is solely oppressive, although it can be that; for them it also provides opportunity. A cleaner in Chongqing now owns several apartments because the CCP reformed property laws. A Shanghai journalist is paid by her state-controlled magazine to fly around the world for stories on global lifestyle trends. A young student in Nanjing can study propulsion physics at Beijing’s Tsinghua University thanks to social mobility and the party’s significant investment in scientific research.

#### Xi has committed to the commercial space industry as the linchpin of China’s rise – the plan is seen as a complete 180

**Patel 21** [Neel V. Patel, Neel is a space reporter for MIT Technology Review. 1-21-2021, "China’s surging private space industry is out to challenge the US," MIT Technology Review, <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/> accessed 12/14/21] Adam

Until recently, China’s space activity has been overwhelmingly dominated by two state-owned enterprises: the China Aerospace Science & Industry Corporation Limited (CASIC) and the China Aerospace Science and Technology Corporation (CASC). A few private space firms have been allowed to operate in the country for a while: for example, there’s the China Great Wall Industry Corporation Limited (in reality a subsidiary of CASC), which has provided commercial launches since it was established in 1980. But for the most part, China’s commercial space industry has been nonexistent. Satellites were expensive to build and launch, and they were too heavy and large for anything but the biggest rockets to actually deliver to orbit. The costs involved were too much for anything but national budgets to handle.

That all changed this past decade as the costs of making satellites and launching rockets plunged. In 2014, a year after Xi Jinping took over as the new leader of China, the Chinese government decided to treat civil space development as a key area of innovation, as it had already begun doing with AI and solar power. It issued a policy directive called [Document 60](https://archive.md/o/bc9l4/www.cpppc.org/en/zy/994006.jhtml) that year to enable large private investment in companies interested in participating in the space industry.

“Xi’s goal was that if China has to become a critical player in technology, including in civil space and aerospace, it was critical to develop a space ecosystem that includes the private sector,” says Namrata Goswami, a geopolitics expert based in Montgomery, Alabama, who’s been studying China’s space program for many years. “He was taking a cue from the American private sector to encourage innovation from a talent pool that extended beyond state-funded organizations.”

As a result, there are now 78 commercial space companies operating in China, according to a[2019 report by the Institute for Defense Analyses](https://archive.md/o/bc9l4/https:/www.ida.org/-/media/feature/publications/e/ev/evaluation-of-chinas-commercial-space-sector/d-10873.ashx). More than half have been founded since 2014, and the vast majority focus on satellite manufacturing and launch services.

For example, Galactic Energy, founded in February 2018, is building its Ceres rocket to offer rapid launch service for single payloads, while its Pallas rocket is being built to deploy entire constellations. Rival company i-Space, formed in 2016, became the first commercial Chinese company to make it to space with its Hyperbola-1 in July 2019. It wants to pursue reusable first-stage boosters that can land vertically, like those from SpaceX. So does LinkSpace (founded in 2014), although it also hopes to use rockets to deliver packages from one terrestrial location to another.

Spacety, founded in 2016, wants to turn around customer orders to build and launch its small satellites in just six months. In December it launched a miniaturized version of a satellite that uses 2D radar images to build 3D reconstructions of terrestrial landscapes. Weeks later, it [released the first images taken by the satellite](https://archive.md/o/bc9l4/https:/spacenews.com/spacety-releases-first-sar-images/), Hisea-1, featuring three-meter resolution. Spacety wants to launch a constellation of these satellites to offer high-quality imaging at low cost.

To a large extent, China is following the same blueprint drawn up by the US: using government contracts and subsidies to give these companies a foot up. US firms like SpaceX benefited greatly from NASA contracts that paid out millions to build and test rockets and space vehicles for delivering cargo to the International Space Station. With that experience under its belt, SpaceX was able to attract more customers with greater confidence.

Venture capital is another tried-and-true route. The IDA report estimates that VC funding for Chinese space companies was up to $516 million in 2018—far shy of the $2.2 billion American companies raised, but nothing to scoff at for an industry that really only began seven years ago. At least 42 companies had no known government funding.

And much of the government support these companies do receive doesn’t have a federal origin, but a provincial one. “[These companies] are drawing high-tech development to these local communities,” says Hines. “And in return, they’re given more autonomy by the local government.” While most have headquarters in Beijing, many keep facilities in Shenzhen, Chongqing, and other areas that might draw talent from local universities.

There’s also one advantage specific to China: manufacturing. “What is the best country to trust for manufacturing needs?” asks James Zheng, the CEO of Spacety’s Luxembourg headquarters. “It’s China. It’s the manufacturing center of the world.” Zheng believes the country is in a better position than any other to take advantage of the space industry’s new need for mass production of satellites and rockets alike.

Making friends

The most critical strategic reason to encourage a private space sector is to create opportunities for international collaboration—particularly to attract customers wary of being seen to mix with the Chinese government. (US agencies and government contractors, for example, are barred from working with any groups the regime funds.) Document 60 and others issued by China’s National Development and Reform Commission were aimed not just at promoting technological innovation, but also at drawing in foreign investment and maximizing a customer base beyond Chinese borders.

“China realizes there are certain things they cannot get on their own,” says Frans von der Dunk, a space policy expert at the University of Nebraska–Lincoln. Chinese companies like LandSpace and MinoSpace have worked to accrue funding through foreign investment, escaping dependence on state subsidies. And by avoiding state funding, a company can also avoid an array of restrictions on what it can and can’t do (such as constraints on talking with the media). Foreign investment also makes it easier to compete on a global scale: you’re taking on clients around the world, launching from other countries, and bringing talent from outside China.

Although China is taking inspiration from the US in building out its private industry, the nature of the Chinese state also means these new companies face obstacles that their rivals in the West don’t have to worry about. While Chinese companies may look private on paper, they must still submit to government guidance and control, and accept some level of interference. It may be difficult for them to make a case to potential overseas customers that they are independent. The distinction between companies that are truly private and those that are more or less state actors is still quite fuzzy, especially if the government is a frequent customer. “That could still lead to a lack of trust from other partners,” says Goswami. It doesn’t help that the government itself is often [very cagey about what its national program is even up to](https://archive.md/o/bc9l4/https:/www.bbc.com/news/science-environment-54076895).

And Hines adds that it’s not always clear exactly how separate these companies are from, say, the People’s Liberation Army, given the historical ties between the space and defense sectors. “Some of these things will pose significant hurdles for the commercial space sector as it tries to expand,” he says.

#### Shifts in regime perception threatens CCP’s legitimacy from nationalist hardliners

Weiss 19 Jessica Weiss 1-29-2019 “Authoritarian Audiences, Rhetoric, and Propaganda in International Crises: Evidence from China” <http://www.jessicachenweiss.com/uploads/3/0/6/3/30636001/19-01-24-elite-statements-isq-ca.pdf> (Associate Professor of Government at Cornell University)//Elmer

Public support—or the appearance of it—matters to many autocracies. As Ithiel de Sola Pool writes, modern dictatorships are “highly conscious of public opinion and make major efforts to affect it.”6 Mao Zedong told his comrades: “When you make revolution, you must first manage public opinion.”7 Because autocracies often rely on **nationalist mythmaking**,8 success or failure in defending the national honor in international crises could burnish the leadership’s patriotic credentials or spark opposition. **Shared outrage at the regime’s foreign policy failures could galvanize street protests or elite fissures, creating intraparty upheaval** or inviting military officers to step in to restore order. Fearing a domestic backlash, authoritarian leaders may feel compelled to take a tough international stance. Although authoritarian leaders are rarely held accountable to public opinion through free and fair elections, fears of popular unrest and irregular ouster often weigh heavily on autocrats seeking to maximize their tenure in office. Considering the harsh consequences that authoritarian elites face if pushed out of office, even a small increase in the probability of ouster could alter authoritarian incentives in international crises.9 A history of nationalist uprisings make Chinese citizens and leaders especially aware of the linkage between international disputes and domestic unrest. The weakness of the PRC’s predecessor in defending Chinese sovereignty at the Paris Peace Conference in 1919 galvanized protests and a general strike, forcing the government to sack three officials and reject the Treaty of Versailles, which awarded territories in China to Japan. These precedents have made Chinese officials particularly sensitive to the appearance of hewing to public opinion. As the People’s Daily chief editor wrote: “History and reality have shown us that public opinion and regime safety are inseparable.”10 One Chinese scholar even claimed: “the Chinese government probably knows the public’s opinion better and reacts to it more directly than even the U.S. government.”11

#### Xi will launch diversionary war to domestic backlash – escalates in multiple hotspots

Norris 17, William J. Geostrategic Implications of China’s Twin Economic Challenges. CFR Discussion Paper, 2017. (Associate professor of Chinese foreign and security policy at Texas A&M University’s Bush School of Government and Public Service)//Elmer

Populist pressures might tempt the **party leadership** to encourage **diversionary nationalism**. The logic of this concern is straightforward: the Communist Party might seek to **distract a restless domestic population** with **adventurism abroad**.19 The **Xi** administration wants to **appear tough** in its **defense of foreign encroachments** against China’s interests. This need stems from a long-running narrative about how a weak Qing dynasty was unable to defend China in the face of European imperial expansion, epitomized by the Opium Wars and the subsequent treaties imposed on China in the nineteenth century. The party is **particularly sensitive** to **perceptions of weakness** because much of its **claim to legitimacy**—manifested in **Xi’s Chinese Dream** campaign today—stems from the party’s claims of leading the **restoration of Chinese greatness**. For example, the May Fourth Movement, a popular protest in 1919 that helped catalyze the CPC, called into question the legitimacy of the Republic of China government running the country at that time because the regime was seen as not having effectively defended China’s territorial and sovereignty interests at the Versailles Peace Conference. **Diversionary nationalist frictions** would likely occur if the Chinese leadership portrayed a foreign adversary as having made the first move, thus forcing Xi to stand up for China’s interests. An example is the 2012 attempt by the nationalist governor of Tokyo, Shintaro Ishihara, to buy the Senkaku/Diaoyu Islands from a private owner.20 Although the Japanese central government sought to avert a crisis by stepping in to purchase the islands—having them bought and administered by Ishihara’s Tokyo metropolitan government would have dragged Japan into a confrontation with China—China saw this move as part of a deliberate orchestration by Japan to nationalize the islands. Xi seemingly had no choice but to defend China’s claims against an attempt by Japan to consolidate its position on the dispute.21 This issue touched off a period of heated tensions between China and Japan, lasting more than two years.22 Such dynamics are not limited to Japan. Other possible areas of conflict include, but are not necessarily limited to, **Taiwan**, **India**, and the **South China Sea** (especially with the **Philippines** and **Vietnam**). The Chinese government will use such tactics if it believes that the costs are relatively low. Ideally, China would like to appear tough while avoiding material repercussions or a serious diplomatic breakdown. Standing up against foreign encroachment—without facing much blowback—could provide Xi’s administration with a tempting source of noneconomic legitimacy. However, over the next few years, Xi will probably not be actively looking to get embroiled abroad. Cushioning the fallout from slower growth while managing a structural economic transition will be difficult enough. Courting potential international crises that distract the central leadership would make this task even more daunting. Even if the top leadership did not wish to provoke conflict, a smaller budgetary allotment for security could cause **military interests** in China to **deliberately instigate trouble** to **justify** their **claims over increasingly scarce resources**. For example, an air force interested in ensuring its funding for a midair tanker program might find the existence of far-flung territorial disputes to be useful in making its case. Such a case would be made even stronger by a pattern of recent frictions that highlights the necessity of greater air power projection. Budgetary pressures may be partly behind a recent People’s Liberation Army reorganization and headcount reduction. A slowing economy might cause a further deceleration in China’s military spending, thus increasing such pressures as budgetary belts tighten. Challenges to Xi’s Leadership Xi Jinping’s efforts to address economic challenges could fail, unleashing consequences that extend well beyond China’s economic health. For example, an **economic collapse** could give rise to a Vladimir **Putin–like redemption figure** in China. Xi’s approach of centralizing authority over a diverse, complex, and massive social, political, and economic system is a **recipe for brittleness**. Rather than designing a resilient, decentralized governance structure that can gracefully cope with localized failures at particular nodes in a network, a highly centralized architecture **risks catastrophic**, **system-level failure**. Although centralized authority offers the tantalizing chimera of stronger control from the center, it also puts all the responsibility squarely on Xi’s shoulders. With China’s ascension to great power status, the consequences of internecine domestic political battles are increasingly playing out on the world stage. The international significance of China’s domestic politics is a new paradigm for the Chinese leadership, and one can expect an adjustment period during which the outcome of what had previously been relatively insulated domestic political frictions will likely generate **unintended international repercussions**. Such dynamics will influence Chinese foreign policy and security behavior. Domestic arguments over ideology, bureaucratic power struggles, and strategic direction could all have **ripple effects abroad**. Many of China’s party heavyweights still employ a narrow and exclusively domestic political calculus. Such behavior increases the possibility of international implications that are not fully anticipated, **raising the risks** of **strategic miscalculation** on the world stage. For example, the factional power struggles that animated the Cultural Revolution were largely driven by domestic concerns, yet manifested themselves in Chinese foreign policy for more than a decade. During this period, China was not the world’s second largest economy and, for much of this time, did not even have formal representation at the United Nations. If today’s globally interconnected China became engulfed in similar domestic chaos, the effects would be felt worldwide.23 Weakened Fetters of Economic Interdependence If China successfully transitioned away from its export-driven growth model toward a consumption-driven economic engine over the next four or five years, it could no longer feel as constrained by economic interdependence. To the extent that such constraints are loosened, the U.S.-China relationship will be more prone to conflict and friction.24 While China has never been the archetypal liberal economic power bent on benign integration with the global economy, its export-driven growth model produced a strong strategic preference for stability. Although past behavior is not necessarily indicative of future strategic calculus, China’s “economic circuit breaker” logic seems to have held its most aggressive nationalism below the threshold of war since 1979. A China that is both comparatively strong and less dependent on the global economy would be a novel development in modern geopolitics. As China changes the composition of its international economic linkages, global integration could place fewer constraints on it. Whereas China has been highly reliant on the import of raw materials and semifinished goods for reexport, a consumption-driven China could have a different international trade profile. China could still rely on imported goods, but their centrality to the country’s overall economic growth would be altered. Imports of luxury goods, consumer products, international brands, and services may not exert a significant constraining influence, since loss of access to such items may not be seen as strategically vital. If these flows were interrupted or jeopardized, the result would be more akin to an inconvenience than a strategic setback for China’s rise. That said, China is likely to continue to highly depend on imported oil even if the economic end to which that energy resource is directed shifts away from industrial and export production toward domestic consumption.

#### **US–China war goes nuclear – crisis mis-management ensures conventional escalation - extinction**

Kulacki 20 [Dr. Gregory Kulacki focuses on cross-cultural communication between the United States and China on nuclear and space arms control and is the China Project Manager for the Global Security Program at the Union of Concerned Scientists, 2020. Would China Use Nuclear Weapons First In A War With The United States?, Thediplomat.com, https://thediplomat.com/2020/04/would-china-use-nuclear-weapons-first-in-a-war-with-the-united-states/] srey

Admiral Charles A. Richard, the head of the U.S. Strategic Command, recently told the Senate Armed Service Committee he “could drive a truck” through the holes in China’s no first use policy. But when Senator John Hawley (R-MO) asked him why he said that, Commander Richard backtracked, described China’s policy as “very opaque” and said his assessment was based on “very little” information. That’s surprising. **China** has been exceptionally **clear** **about** its **intentions** **on** the possible **first** **use** **of** **nuclear** **weapons**. On the day of its first nuclear test on October 16, 1964, China declared it “will never at any time or under any circumstances be the first to use nuclear weapons.” That **unambiguous** **statement** **has** **been** a **cornerstone** **of** **Chinese** **nuclear** **weapons** policy for 56 years and has been repeated frequently in authoritative Chinese publications for domestic and international audiences, including a highly classified training manual for the operators of China’s nuclear forces. Richard should know about those publications, particularly the training manual. A U.S. Department of Defense translation has been circulating within the U.S. nuclear weapons policy community for more than a decade. The commander’s comments to the committee indicate a familiarity with the most controversial section of the manual, which, in the eyes of some U.S. analysts, indicates there may be some circumstances where **China** **would** **use** **nuclear** **weapons** **first** **in** a **war** **with** **the** **U**nited **S**tates. This U.S. misperception is understandable, especially given the difficulties the Defense Department encountered translating the text into English. The language, carefully considered in the context of the entire book, articulates a strong reaffirmation of China’s no first use policy. But it also reveals **Chinese** military planners are **struggling** **with** **crisis** **management** **and** **considering** **steps** **that** could **create** **ambiguity** **with** **disastrous** **consequences**. Towards the end of the 405-page text on the operations of China’s strategic rocket forces, in a chapter entitled, “Second Artillery Deterrence Operations,” the authors explain what China’s nuclear forces train to do if **“**a strong military power possessing nuclear‐armed missiles and an absolute advantage in high‐tech conventional weapons is carrying out intense and continuous attacks against our major strategic targets and we have no good military strategy to resist the enemy.**”** The military power they’re talking about is the United States. The authors indicate China’s nuclear missile forces train to take specific steps, including increasing readiness and conducting launch exercises, to “dissuade the continuation of the strong enemy’s conventional attacks.” The manual refers to these steps as an “adjustment” to China’s nuclear policy and a “lowering” of China’s threshold for brandishing its nuclear forces. Chinese leaders would only take these steps in extreme circumstances. The text highlights several triggers such as U.S. conventional bombing of China’s nuclear and hydroelectric power plants, heavy conventional bombing of large cities like Beijing and Shanghai, or other acts of **conventional** **warfare** **that** “**seriously** **threatened**” the “safety and **survival**” of the nation. U.S. Misunderstanding Richard seems to believe this planned adjustment in China’s nuclear posture means China is **preparing** **to** **use** **nuclear** **weapons** first under these circumstances. He told Hawley that there are a “number of situations where they may conclude that first use has occurred that do not meet our definition of first use.” The head of the U.S. Strategic Command appears to assume, as do other U.S. analysts, that the **Chinese** would **interpret** **these** types of U.S. conventional **attacks** **as** **equivalent** **to** a **U.S. first use** **of** **nuclear** **weapons** against China. But that’s not what the text says. “Lowering the threshold” refers to China putting its nuclear weapons on alert — it does not indicate Chinese leaders might lower their threshold for deciding to use nuclear weapons in a crisis. Nor does the text indicate Chinese nuclear forces are training to launch nuclear weapons first in a war with the United States. China, unlike the United States, keeps its nuclear forces off-alert. Its warheads are not mated to its missiles. China’s nuclear-armed submarines are not continuously at sea on armed patrols. The manual describes how China’s nuclear warheads and the missiles that deliver them are controlled by two separate chains of command. Chinese missileers train to bring them together and launch them after China has been attacked with nuclear weapons. All of these behaviors are consistent with a no first use policy. The “adjustment” Chinese nuclear forces are preparing to make if the United States is bombing China with impunity is to place China’s nuclear forces in a state of readiness similar to the state the nuclear forces of the United States are in all the time. This step is intended not only to end the bombing, but also to convince U.S. decision-makers they cannot expect to destroy China’s nuclear retaliatory capability if the crisis escalates. Chinese Miscalculation Unfortunately, alerting Chinese nuclear forces at such a moment could have terrifying consequences. Given the relatively small size of China’s nuclear force, a U.S. president might be tempted to try to limit the possible damage from a Chinese nuclear attack by destroying as many of China’s nuclear weapons as possible before they’re launched, especially if the head of the U.S. Strategic Command told the president China was preparing to strike first. One study concluded that if the United States used nuclear weapons to attempt to knock out a small fraction of the Chinese ICBMs that could reach the United States it may kill tens of millions of Chinese civilians. The authors of the text assume alerting China’s nuclear forces would “create a great shock in the enemy’s psyche.” That’s a fair assumption. But they also assume this shock could “dissuade the continuation of the strong enemy’s conventional attacks against our major strategic targets.” That’s highly questionable. There is a **substantial** **risk** **the** **U**nited **S**tates **would** **respond** **to** this implicit **Chinese** **threat** **to** **use** **nuclear** **weapons** **by** **escalating**, rather than halting, its **conventional** **attacks**. If China’s nuclear forces were targeted, it would put even greater strain on the operators of China’s nuclear forces. A **slippery** **slope** **to** **nuclear** **war** Chinese military planners are aware that attempting to coerce the United States into halting conventional bombardment by alerting their nuclear forces could fail. They also know it might trigger a nuclear war. But if it does, they are equally clear China won’t be the one to start it. Nuclear attack is often preceded by nuclear coercion. Because of this, in the midst of the process of a high, strong degree of nuclear coercion we should prepare well for a nuclear retaliatory attack. The more complete the preparation, the higher the credibility of nuclear coercion, the easier it is to accomplish the objective of nuclear coercion, and the lower the possibility that the nuclear missile forces will be used in actual fighting. They assume if China demonstrates it is well prepared to retaliate the United States would not risk a damage limitation strike using nuclear weapons. And even if the United States were to attack China’s nuclear forces with conventional weapons, China still would not strike first. In the opening section of the next chapter on “nuclear retaliatory attack operations” the manual instructs, as it does on numerous occasions throughout the entire text: According to our country’s principle, its stand of no first use of nuclear weapons, the Second Artillery will carry out a nuclear missile attack against the enemy’s important strategic targets, according to the combat orders of the Supreme Command, only after the enemy has carried out a nuclear attack against our country. Richard is wrong. There are no holes in China’s no first use policy. But the worse-case planning articulated in this highly classified military text is a significant and deeply troubling departure from China’s traditional thinking about the role of nuclear weapons. Mao Zedong famously called nuclear weapons “a paper tiger.” Many assumed he was being cavalier about the consequences of nuclear war. But what he meant is that they would not be used to fight and win wars. U.S. nuclear threats during the Korean War and the Taiwan Strait Crisis in the 1950s – threats not followed by an actual nuclear attack – validated Mao’s intuition that nuclear weapons were primarily psychological weapons. Chinese leaders decided to acquire nuclear weapons to free their minds from what Mao’s generation called “**nuclear** **blackmail**.” A former director of China’s nuclear weapons laboratories told me China developed them so its leaders could “sit up with a straight spine.” Countering nuclear blackmail – along with compelling other nuclear weapons states to negotiate their elimination – were the only two purposes Chinese nuclear weapons were meant to serve. Contemporary Chinese military planners appear to have added a new purpose: compelling the United States to halt a conventional attack. Even though it only applies in extreme circumstances, it **increases** the **risk** **that** a **war** between the United States and China **will** **end** **in** a nuclear exchange with unpredictable and **catastrophic** **consequences**. Adding this new purpose could also be the first step on a slippery slope to an incremental broadening the role of nuclear weapons in Chinese national security policy. Americans would be a lot safer if we could avoid that. The United States government should applaud China’s no first use policy instead of repeatedly calling it into question. And it would be wise to adopt the same policy for the United States. If both countries declared they would never use nuclear weapons first it may not guarantee they can avoid a nuclear exchange during a military crisis, but it would make one far less likely.

### 1NC – CP

#### CP: States should mandate a proportional Orbital Use Fee on all private space appropriation and use the funds for private orbital debris clearing projects

### 1NC – DA

#### Appropriations pass now but floor time and bipartisanship are key

Bolton 1/13 [Alexander, staff reporter for The Hill, “Negotiators report progress toward 2022 spending deal” https://thehill.com/policy/finance/589599-negotiators-report-progress-on-reaching-2022-spending-deal]

Senate and House negotiators say they are getting closer to a deal on setting the top-line spending number for an appropriations package to fund government past Feb. 18 and avoid a shutdown.

The top Democrats and Republicans on the Senate and House Appropriations Committees met Thursday morning to chart a path for reaching agreement on a fiscal year 2022 omnibus government funding bill and said they would meet again soon.

Negotiators in the so-called “Four Corners” say they’re optimistic about reaching an agreement.

“I think of we have a good chance coming together on this,” Rep. Kay Granger (Texas), the top-ranking Republican on the House Appropriations Committee, told reporters as she headed into the meeting.

One Democratic senator said he had been told that Senate Appropriations Committee Chairman Pat Leahy (D-Vt.) and Sen. Richard Shelby (Ala.), the top-ranking Republican on the Senate panel, already have a tentative deal on the parameters of the legislation and now need to bring their House counterparts on board.

Leahy told The Hill before the meeting that “we’re trying to” get an agreement between Senate and House negotiators wrapped up soon.

“We realize time is running out,” he said.

Leahy, however, declined to comment on any understandings he has with Shelby or on the negotiating dynamics between the Senate and House.

Shelby told reporters after the meeting that Congress’s top-four appropriators had laid out the path for the talks, something they hadn’t done before.

“The four of us had constructive talks of where we go and how we get there and how we start,” he said. “We hadn’t worked that out yet.”

“We’ll continue to talk and meet,” he said, adding that Leahy and House Appropriations Committee Chairwoman Rosa DeLauro (D-Conn.) will reconvene the group soon to resume negotiations.

Shelby warned that another stopgap funding measures is “looming” if they fail to hammer out a deal by early next month.

Leahy described the meeting as a “worthwhile discussion” and said he hoped to get a deal done in the next few weeks.

Leahy and Shelby met with Senate Majority Leader Charles Schumer (D-N.Y.) and Minority Leader Mitch McConnell (R-Ky.) Wednesday to discuss the parameters of the spending package, which is weeks behind schedule.

The 2021 fiscal year ended at the end of September and lawmakers uncharacteristically left Washington for Christmas without passing the annual appropriations bills because Democrats were focused on finishing work on President Biden’s sweeping climate and social spending bill, Build Back Better, which remains stalled in the Senate.

The Senate is scheduled to be in recess next week in observance of Martin Luther King Jr. Day but DeLauro said the group would meet again soon in order to have a better chance of reaching a deal by Feb. 18.

“That’s my goal,” she said. “We’re going to continue speaking.”

Asked if she feels more hopeful after the meeting, she said “I’m hopeful always.”

#### Large President-led national space policies incite immense partisan backlash that spills over to kill the entire political agenda

Dreier 16 [Casey Dreier, Chief Advocate & Senior Space Policy Adviser for The Planetary Society, April 13, 2016. “Does Presidential Intervention Undermine Consensus for NASA?” https://www.planetary.org/blogs/casey-dreier/2016/0413-does-a-strong-president-help-or-hurt-consensus-on-NASA.html]

To see how this happens, I recommend reading the book “[Beyond Ideology](http://smile.amazon.com/Beyond-Ideology-Politics-Principles-Partisanship/dp/0226470768/ref=smi_www_rco2_go_smi_g2243582042?_encoding=UTF8&*Version*=1&*entries*=0&ie=UTF8)” by Frances Lee. The author’s larger premise is that issues having no intrinsic relation to stated party ideology have become increasingly polarized in recent years. This is a function of the two party nature of our political system. If your party coalition wins, the other one loses. It’s [It is] zero-sum. Your party can win in one of two ways: you can make a better pitch to voters by demonstrating the superiority of your agenda; or you can undermine and stymie the agenda of the opposition party, making them unpopular with voters, and pick up the seats that they lose. Since you’re the only other political party, you gain in either scenario. I’m not sure if you’ve noticed, but the “undermine and stymie” approach has been popular for quite some time now in the U.S. Congress. Given this situation, the President and their policies naturally become the symbolic target of the opposition party. Anything promoted by the President effectively induces opposition by association. Lee demonstrates the magnitude of this induced polarization on various types of issues. For highly polarized issues like the role of government in the economy, or social issues, the impact is minimal—the opposition has already been clearly defined and generally falls into clearly defined ideologies of the Republican and Democratic parties. But for issues that do not fit readily into a predefined political ideology—like space—the induced polarization by the President can be significant. In fact, Lee showed that space, science, and technology issues incur the greatest increase in partisanship based on their inclusion in the Presidential agenda. One need only look to at the responses by political operatives of the opposing party to the strong human spaceflight proposals by [Barack Obama in 2010](http://www.shelby.senate.gov/public/index.cfm/mobile/newsreleases?ID=25F3AD2E-802A-23AD-4960-F512B9E205D2), [George W. Bush in 2004](http://www.nbcnews.com/id/3950099/ns/technology_and_science-space/t/bush-sets-new-course-moon-beyond/#.Vw3UMRMrKHo), and [George H.W. Bush in 1989](http://www.nytimes.com/1989/07/21/us/president-calls-for-mars-mission-and-a-moon-base.html) to see this reflected in recent history. This isn’t to say that Presidents can’t have a significant impact on the space program. Clearly they can. But the broad consensus needed for stability after their departure from office may be undermined by the very priority they gave it during their tenure. It what amounts to a mixed blessing for NASA, the U.S. space program does have an unusually strong bipartisan group of politicians who support the program due to NASA centers in a variety of states throughout the union. Berger notes this throughout his article, and it does, in a way, act as force that is resistant to change for good and bad. This mitigates somewhat the pure polarization seen on other science and technology issues. But for a Journey to Mars—a major effort that would, at best, require stability and significant funding over many Presidential administrations—that may not be enough. Perhaps the solution is for the next President to maintain a light touch on space. Maybe they should speak softly through the budget process, and avoid the Kennedyesque speeches and declarations to Congress that induce the types of partisanship we so dearly need to avoid.

#### Yearlong CR ruins UAVs for decades—that undermines strategic competition

Wynne 1/14 [Brian Wynne, Federal Aviation Administration’s Drone Advisory Committee and Management Advisory Council, "A yearlong continuing resolution will hinder unmanned systems integration", 1/14/22, https://www.defensenews.com/opinion/commentary/2022/01/14/a-yearlong-continuing-resolution-will-hinder-unmanned-systems-integration/]

With fiscal 2022 well underway and the current continuing resolution set to expire without congressional consensus on a way forward on appropriations, the U.S. Department of Defense is preparing for the possibility of operations under a full-year CR stopgap measure. Let’s be clear: That will hinder the continued integration of unmanned systems into the U.S. military and ultimately harm our preparedness for strategic competition.

During a hearing this week of the House Appropriations Committee’s Defense Subcommittee, appropriators rightly acknowledged that a full-year CR would make our military less agile and curtail our ability to prepare for current security challenges. Members of Congress must also realize that failure to pass funding bills will create a domino effect that will harm U.S. national security for years to come by damaging the growing unmanned systems industry.

As the Pentagon moves resources and dollars to address this new era of strategic competition, unmanned systems — in the air, in space, in the sea and on land — will be the tip of the sword for our sailors, Marines, soldiers and airmen against rising geopolitical threats.

Launched last year, the Navy’s Unmanned Campaign Plan and related task force are two examples that demonstrate the extent to which DoD leaders understand the unparalleled value uncrewed systems will provide in achieving the vision presented in the National Defense Strategy.

However, the new normal of cycles of CRs results in real-dollar budget reductions and program delays that threaten the progress of this vision — and these losses harm both U.S. strategic competitiveness and the defense-industrial base. As Adm. Mike Gilday stated during the House Appropriations Committee hearing: “Every day matters in this critical decade.”

Appropriators must understand that the importance of full funding for the research, development, test and evaluation as well as the procurement of uncrewed systems at this moment cannot be overstated.

A full-year CR will prevent critical, new uncrewed systems programs from being initiated. This includes authorization of $57 million for the Marine Corps’ Group 5 UAS development project; projects totaling $52.5 million for the development of counter-small UAS capabilities; and $57.6 million dedicated to the maturation of technologies under the AFWERX prime project. By operating at FY21 funding levels, the program for small unmanned undersea vehicles will see only a third of its FY22 authorized budget.

These cuts represent significant losses of time and capital that the unmanned systems industry has spent in preparing systems for field action. The defense-industrial base has made investments in the technology, supply base, workforce, supply chain and infrastructure based on the DoD’s vision for the future.

Companies working to advance the front lines of innovation already face a “procurement trough” caused by delays and gaps in new programs. A full-year CR would set off an irreversible ripple effect that would deepen this trough for years to come.

Simply put, saddling companies nationwide with long-standing Capital Beltway problems prevents the development and adoption of critical tools. Smaller and midsized companies feel the impacts of these delays most, and continued delays will force them to move their investments away from unmanned systems to other, more predictable markets.

Until Congress puts American warfighters before political concerns, the U.S. will fall behind in the development, fielding and adoption of modern tools that support a full range of missions.

The time is now to make the DoD’s strategic visions reality by accelerating investments in air, surface and subsurface platforms. Congressional leaders must immediately work to build consensus in support of stable funding that enables the development and integration of uncrewed systems. The country is looking for assertive congressional leadership — now is the time to step up.

#### That causes nuclear war with Russia and china

Kroenig & Gopalaswamy 18, \*Associate Professor of Government and Foreign Service at Georgetown University and Deputy Director for Strategy in the Scowcroft Center for Strategy and Security at the Atlantic Council. \*\*Director of the South Asia Center at the Atlantic Council. He holds a PhD in mechanical engineering with a specialization in numerical acoustics from Trinity College, Dublin. (Matthew & Bharath, 11-12-2018, "Will disruptive technology cause nuclear war?", *Bulletin of the Atomic Scientists*, https://thebulletin.org/2018/11/will-disruptive-technology-cause-nuclear-war/)

Rather, we should think more broadly about how new technology might affect global politics, and, for this, it is helpful to turn to scholarly international relations theory. The dominant theory of the causes of war in the academy is the “bargaining model of war.” This theory identifies rapid shifts in the balance of power as a primary cause of conflict.

International politics often presents states with conflicts that they can settle through peaceful bargaining, but when bargaining breaks down, war results. Shifts in the balance of power are problematic because they undermine effective bargaining. After all, why agree to a deal today if your bargaining position will be stronger tomorrow? And, a clear understanding of the military balance of power can contribute to peace. (Why start a war you are likely to lose?) But shifts in the balance of power muddy understandings of which states have the advantage.

You may see where this is going. New technologies threaten to create potentially destabilizing shifts in the balance of power.

For decades, stability in Europe and Asia has been supported by US military power. In recent years, however, the balance of power in Asia has begun to shift, as China has increased its military capabilities. Already, Beijing has become more assertive in the region, claiming contested territory in the South China Sea. And the results of Russia’s military modernization have been on full display in its ongoing intervention in Ukraine.

Moreover, China may have the lead over the United States in emerging technologies that could be decisive for the future of military acquisitions and warfare, including 3D printing, hypersonic missiles, quantum computing, 5G wireless connectivity, and artificial intelligence (AI). And Russian President Vladimir Putin is building new unmanned vehicles while ominously declaring, “Whoever leads in AI will rule the world.”

If China or Russia are able to incorporate new technologies into their militaries before the United States, then this could lead to the kind of rapid shift in the balance of power that often causes war.

If Beijing believes emerging technologies provide it with a newfound, local military advantage over the United States, for example, it may be more willing than previously to initiate conflict over Taiwan. And if Putin thinks new tech has strengthened his hand, he may be more tempted to launch a Ukraine-style invasion of a NATO member.

Either scenario could bring these nuclear powers into direct conflict with the United States, and once nuclear armed states are at war, there is an inherent risk of nuclear conflict through limited nuclear war strategies, nuclear brinkmanship, or simple accident or inadvertent escalation.

This framing of the problem leads to a different set of policy implications. The concern is not simply technologies that threaten to undermine nuclear second-strike capabilities directly, but, rather, any technologies that can result in a meaningful shift in the broader balance of power. And the solution is not to preserve second-strike capabilities, but to preserve prevailing power balances more broadly.

### 1NC – CP

#### Plan: States ought to

#### ban the use of systems that redirect near-earth objects

#### deploy a debris removal system removing small and large objects and the debris of other nations upon their request

#### establish a 25 year maximum lifetime limit after which space objects should be re-entered in the atmosphere

#### Redefine the Outerspace Treaty to include regulation for private entities

#### Solves debris and avoids miscalc

* prevents encroachment – all states remove their own things

Matteo Frigoli 19, master’s degree in Law at the University of Parma, degree thesis concerned international law and the military uses of outer space and celestial bodies, “Between Active Debris Removal and Space-Based Weapons: A Comprehensive Legal Approach”, Chapter 4, Space Security and Legal Aspects of Active Debris Removal, Studies in Space Policy Series, (No. 16)https://www.ebooks.com/en-ag/209547370/space-security-and-legal-aspects-of-active-debris-removal/annette-froehlich/

4.1.5 Selective Cleaning Operations: A Possible Temporary Solution?

A workable legal solution that would address ADR operations cannot avoid or minimize the issue of space weaponization. This must be considered as a crucial aspect of ADR technologies.

The dual-use nature of ADR technologies bears different practical and legal consequences with respect to those posed by the current dual-use capacity of space assets.

For example, the utilization of civilian space assets, such as communication or observation satellites for military purposes, remains in the area of the passive military uses of outer space, which are generally accepted by the international community as permitted by Article 2(4) of the United Nations Charter, which basically prohibits “the threat or use of force”.67

On the other hand, the deployment for military purposes of a satellite dedicated to removal operations would be an active military use of outer space, in the form of a space-based weapon, thus constituting that “threat or use of force” in outer space that the international community has been striving to avoid.

In September 2013, China carried out experiments in outer space regarding onorbit servicing and satellite capture, involving a satellite fitted with a mechanical arm. These maneuvers raised international concerns that “the tests go beyond the stated objectives and are actually cover for testing on-orbit ASAT technology.”68 There is a thin line that separates ADR technologies from space-based weapons, and it could be argued that ignoring this feature in a possible future regulatory framework could lead to some sort of “masked weaponization” of outer space.

Bearing this in mind, what can be done with the existing legal regime? How can the set of four principles enshrined in Article I and Article IX of the Outer Space Treaty regulate ADR operations and ensure outer space as a “peaceful environment in the sense of a broad non-harmful medium”?

To answer these questions, a key-role should be played by the mandatory international consultation in case of a potentially harmful interference with activities in the peaceful exploration and use of outer space, which could deny access to outer space.

In effect, the increased accessibility of space technology has led to a deep diversification of space actors and space assets. As a result, outer space is increasingly becoming fundamental part of states infrastructures. Furthermore, the fundamental role of space-based assets in the essential fields of security, global communication and navigation, weather forecasting, and data transfer, weave the globe’s highly complex $78 trillion economy together.69 In the near future, access to and use of outer space could become increasingly exploitable by individuals. This prediction is substantiated by the development of commercial space flights and sub-orbital or orbital space tourism activities.70

It could be argued that the principles laid down by Article I and Article IX have progressively assumed greater value as access to outer space has become essential to states, and even to individuals.

The mandatory international consultation clause in the event of ‘harmful contamination of outer space’ or ‘harmful interference of outer space activities’ could be the instrument to deal with space debris in the present time. This is even more important considering that collisional cascading, known as the Kessler Syndrome, could render some orbits unusable for centuries,71 denying access, use, and exploration of outer space.

A discussion at international level would also minimize the threat of space weaponization, which would emerge eventual unilateral removal operations carried out by different states.

However, this matter will show all its complexity on the occurrence of broad international consultations concerning active debris removal. Which criteria for removal could be relevant?

In this respect, large-scale and small-scale removal operations bear different consequences and conclusions.

Large-scale removal operations will meet hard legal hurdles, requiring multiple authorizations by the states owners of the space objects, or at least multiple transfers of jurisdiction and control over the same objects to the entity or state that will conduct the removal. In addition, this approach may not be effective. In fact, not all debris are trackable, for each tracked debris there are 30–50 untracked objects in the centimeter range presenting a real danger to space assets.72

In pursuing this approach, attention would be concentrated on the removal of tracked and catalogued objects instead of addressing the uncatalogued “lethal population” of debris. Thus, in the discussion of large-scale removal, security issues need to be addressed, making harder the conclusion of an agreement.

On the other hand, small-scale removal and improved compliance with the IADC Space Debris Mitigation Guidelines, especially with the rule establishing a maximum of 25 years lifetime limit after which the space object should be re-entered in the atmosphere, could be effective and may constitute a first step toward a more general approach.

As has been demonstrated, complete compliance with the debris mitigation rules plus removal of five objects per year would prevent the number of catalogued fragments from increasing.73 Broad international consultation in the event of ‘harmful contamination of outer space’ or ‘harmful interference of outer space activities’ posed by space debris could be the context in which states agree on this selective approach by removing a few objects per year.

In the terms of Article IX, international consultations should be requested when a state “has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space” or when a state “has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies”.

Article IX is guided by principles of “cooperation and mutual assistance” with “due regard to the corresponding interests of all other States Parties to the Treaty”. Even if Article IX has a lack of specificity and does not describe what constitutes “harmful interference” and does not designate an agency to which States should turn for this evaluation, the international consultation clause should be interpreted, ad minimum, as requiring contact with other States Parties to the Treaty whose peaceful explorations and use of outer space would experience potentially harmful interference.

This could be a ‘step by step’ method to reach agreement on the removal of a few objects per year and to construct a consensus for future agreement on comprehensive cleaning operations, targeting catalogued and uncatalogued objects, since the technology to achieve this objective could be soon available.74

### 1NC – DA

#### China’s space strategies strengthen deterrence now. PLA deterrence is key to joint operations, which ensure Chinese modernization beyond space.

* AT: Old – Doesn’t matter its about space deterrence strategies leading to joint operations, they need ev that those strategies don’t exist or are unsuccessful
* Deterrence kickstarts joint operations which encourage synergies among services and highlights strengths and weaknesses

Cheng 11 Dean Cheng is a Research Fellow in Chinese Political and Security Affairs in the Asian Studies Center at The Heritage Foundation. August 16, 2011. “China’s Space Program: A Growing Factor in U.S. Security Planning” [China’s Space Program: A Growing Factor in U.S. Security Planning (indianstrategicknowledgeonline.com)](https://indianstrategicknowledgeonline.com/web/bg2594.pdf) Accessed 12-17 // gord0

China’s space efforts are not simply the actions of the People’s Liberation Army (PLA) or efforts at political signaling to obtain a space arms control treaty, as some have posited. Rather, these actions occur within a particular strategic and military context. The first contextual element is the broadening view of the PLA’s responsibilities. One of the PLA’s foremost tasks is to preserve the rule of the Chinese Communist Party (CCP). As the PRC’s economic and national interests have expanded beyond its borders, what is deemed essential for preserving the party’s power has also expanded. To this end, Hu Jintao and his predecessor, Jiang Zemin, set forth the new “historic missions” of the PLA. Not only do these new historic missions sustain the longstanding duty of providing support to the CCP, but now the PLA is responsible for helping to safeguard China’s national development, its expanding national interests, and furthering the objective of maintaining global stability and peace. Hence, the PLA is expanding China’s space capabilities in this strategic, national light, especially given the PLA’s roles in safeguarding national development and interests. To fulfill these historic missions, the PLA must be able to exploit space at times and places of its own choosing and, equally important, be able to deny an opponent the same freedom of action. PLA writings increasingly mention the need for a deterrence capacity in space and elsewhere. To these historic missions must be added the additional task of constraining conflicts, both by preventing their outbreak and by limiting their extent if they occur nonetheless. Both of these tasks fall under the rubric of deterrence. As the PRC’s economic and national interests have expanded beyond its borders, what is deemed essential for preserving the party’s power has also expanded. What is striking, however, is that, while Western writings on deterrence generally focus on dissuading an opponent from performing actions that the deterring power would prefer it not undertake, Chinese writings also talk about compellence. That is, to deter an opponent successfully, the PLA must not only dissuade, but also be able to coerce an opponent into undertaking actions that the deterred power would prefer not to do. In this regard, Chinese discussions about deterrence not only note roles for conventional and nuclear forces, but also highlight the importance of space deterrence. Finally, by way of context, the PLA continues to improve its ability to undertake joint operations. This interest in joint operations was already evident a decade ago, when the PLA promulgated a variety of gangyao that would help to guide future military planning, training, and operations.3 The capstone of these gangyao was devoted to joint military operations. The ability to conduct joint operations is portrayed as a hallmark of Local Wars Under High-Tech tions, because such operations allow synergies among services, pit one’s strengths against its opponent’s strengths, and shield one’s weaknesses. As the 2010 edition of China’s National Defense, China’s biennial defense white paper, notes, “The PLA takes the building of joint operation systems as the focal point of its modernization and preparations for military struggle.”4 According to various PLA analyses, the key to successful joint operations is the ability to gather, transmit, and exploit information. Indeed, the very description of future wars has shifted from Local Wars Under High-Tech Conditions to Local Wars Under Informationalized Conditions—the most important high technologies are those related to information technology. Similarly, the 2010 Chinese defense white paper notes that the PLA “strives to enhance its fighting capabilities based on information systems.”5 Only the high ground of space can provide the opportunity to gather information; transmit it rapidly, securely, and reliably; and exploit it promptly. To create synergistic effects, widely dispersed units must be able to establish a common situational awareness framework and to coordinate their activities, timing their operations to maximize mutual support. If future wars will be marked by the “three nons” of non-contact, nonlinear, and nonsymmetrical operations, then information will be the keystone of success in future wars. In order to effect joint operations, according to PLA analyses, a military must be able to exploit space. Only the high ground of space can provide the opportunity to gather information; transmit it rapidly, securely, and reliably; and exploit it promptly. PLA writings describe space as essential for reconnaissance and surveillance, communications, navigation, weather forecasting, and battle damage assessment. A military that is capable of effective joint operations can also deter an opponent. Thus, space capabilities strengthen conventional deterrence as well as deterring in their own right. The PLA has an interest in achieving space dominance to fulfill its historic tasks, to deter future conflicts if possible, and to fight and win Local Wars Under Informationalized Conditions if necessary. This context suggests that China is following a particular method in developing an expanding array of space capabilities, including a growing range of satellites, a new heavy-lift space launcher, and a fourth launch site on Hainan Island, which is much nearer the equator. This underlying interest is reflected in certain space missions, which PLA writings suggest are particularly important. Most obviously, the PLA expects improved space information support. With each passing year, China’s satellite constellations will provide better information to military users. Today, Chinese systems provide not only basic earth observation capabilities, but also: • An autonomous navigation system, which is already operational, unlike the European Galileo system; • Data relay capacity; • Weather forecasting; and • Earth observation, including growing maritime surveillance capability. In addition, China’s improving space capabilities, coupled with its steadily advancing conventional capabilities, will provide the increased ability to seek space superiority or space dominance (zhitian quan) through a combination of space offensive and defensive operations.

#### Chinese military modernization functions as a deterrent for nuclear war with the US

* AT: Not About Space – the internal link argument is in Cheng. “space capabilities strengthen conventional deterrence”. It also says space is the only way to “establish a common situational awareness framework”
* First, JL-2 Subs enable SSBN’s to attack the US, and A2/AD strategy further deters US interventions.
* Second, joint operation modernization allows for China to join Russia-US nuclear arms control talks. That changes distribution power and deterrence but only with hard military power strengthened by modernization.

Cimbala 15 Stephen J Cimbala, Professor of Political Science at PSU Brandywine. Summer 2015. “Chinese Military Modernization” [Chinese Military modernization: Implications for Strategic Nuclear Arms Control (af.edu)](https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-09_Issue-2/cimbala.pdf#:~:text=China%E2%80%99s%20political%20and%20military%20objectives%20in%20Asia%20and,two%20follow-on%20challenges%3A%20escala-tion%20control%20and%20nuclear%20signaling.) Accessed 12-18 // gord0

China’s political and military objectives in Asia and worldwide differ from those of the United States and Russia, reflecting a perception of that nation’s own interests and of its anticipated role in the emerging world order.1 Its growing portfolio of smart capabilities and modernized platforms includes stealth aircraft, antisatellite warfare systems, quiet submarines, “brilliant” torpedo mines, improved cruise missiles, and the potential for disrupting financial markets. Among other indicators, China’s already deployed and future Type 094 Jin-class nuclear ballistic missile submarines (SSBN), once they are equipped as planned with JL-2 submarine launched ballistic missiles, will for the first time enable Chinese SSBNs to target parts of the United States from locations near the Chinese coast. Along with this, China’s fleet of nuclear-powered attack submarines supports an ambitious anti-access/area denial (A2/AD) strategy to deter US military intervention to support allied interests in Asia against Chinese wishes.2 China’s diplomacy creates additional space for maneuver between Russian and American perceptions. While China may lack the commitment to arms control transparency, the nation’s current and future military modernization entitles Beijing to participate in future Russian-American strategic nuclear arms control talks. Entering China into the US-Russian nuclear-deterrence equation creates considerable analytical challenges, for a number of reasons. To understand these challenges one must consider the impact of China’s military modernization, which creates two follow-on challenges: escalation control and nuclear signaling. Military Modernization China’s military modernization is going to change the distribution of power in Asia, including the distribution of nuclear and missile forces. This modernization draws not only on indigenous military culture but also on careful analysis of Western and other experiences. As David Lai has noted, “The Chinese way of war places a strong emphasis on the use of strategy, stratagems, and deception. However, the Chinese understand that their approach will not be effective without the backing of hard military power. China’s grand strategy is to take the next 30 years to complete China’s modernization mission, which is expected to turn China into a true great power by that time.”3 Chinese military modernization and defense guidance for the use of nuclear and other missile forces hold some important implications for US policy. First, Chinese thinking is apparently quite nuanced about the deterrent and defense uses for nuclear weapons. Despite the accomplishments of modernization thus far, Chinese leaders are aware that their forces are far from nuclear-strategic parity with the United States or Russia. Conversely, China may not aspire to this model of nuclear strategic parity, such as between major nuclear powers, as the key to war avoidance by deterrence or other means. China may prefer to see nuclear weapons as one option among a spectrum of choices available in deterring or fighting wars under exigent conditions and as a means of supporting assertive diplomacy and conventional operations when necessary. Nuclear-strategic parity, as measured by quantitative indicators of relative strength, may be less important to China than the qualitative use of nuclear and other means as part of broader diplomatic-military strategies.4 Second, China is expanding its portfolio of military preparedness not only in platforms and weapons but also in the realms of command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and information technology. Having observed the US success in Operation Desert Storm against Iraq in 1991, Chinese military strategists concluded that the informatization of warfare under all conditions would be a predicate to future deterrence and defense operations.5 As Paul Bracken has noted, the composite effect of China’s developments is to make its military more agile—meaning, more rapidly adaptive and flexible.6 The emphasis on agility instead of brute force reinforces traditional Chinese military thinking. Since Sun Tzu, the acme of skill has been winning without fighting, but if war is unavoidable, delivering the first and decisive blows is essential. This thinking also stipulates that one should attack the enemy’s strategy and his alliances, making maximum use of deception and basing such attacks on superior intelligence and estimation. The combination of improved platforms and command-control and information warfare should provide options for the selective use of precision fire strikes and cyberattacks against priority targets while avoiding mass killing and fruitless attacks on enemy strongholds.7

### 1NC – CP

#### [States] should enter into a prior and binding consultation with the North Atlantic Treaty Organization over a proposal to declare the appropriation of outer space by private actors unjust. [States] will support the proposal and adopt the results of consultation.

#### NATO says yes – appropriation is bad, and NATO is uniquely defensive and cooperative with I-Law.

Peace In Space 21 Peace In Space. March 25, 2021. “NATO Secretary General Stoltenberg: no weapons In space” [NATO Secretary General Stoltenberg: no weapons In space – Peace In Space](https://peaceinspace.com/2019/12/nato-secretary-general-stoltenberg-no-weapons-in-space/) Accessed 12-9 // gord0

In a November 20 speech to [NATO ministers in Brussels](https://peaceinspace.com/2019/12/10/nato-foreign-ministers-officially-recognise-space-as-an-operational-domain/), NATO Secretary General Jens Stoltenberg stated that while the organization’s security presence in space is vital, “NATO has no intention to put weapons in space — we are a defensive alliance.”

NATO members will continue to use space for observation and surveillance purposes, but will remain fully in line with international law, he said. “This approach can allow NATO planners to make requests for allies to provide capabilities and services, such as hours of satellite communications.”

“We are proud of NATO’s historic decision to recognise space as an operational domain, alongside air, land, sea and cyber. Space is part of our daily lives. It is also essential to the Alliance’s deterrence and defence, from navigation to intelligence to missile detection.” — [NATO Secretary General Jens Stoltenberg](https://www.nato.int/cps/en/natohq/who_is_who_49999.htm)

Observation and surveillance purposes

Stoltenberg further explained that NATO’s coordinated approach involves three strategic issues: relations with Russia, the rise of China, and arms control. “Making space an operational domain will help us ensure that all aspects are taken into account to ensure the success of our missions.”

NATO members will continue to use space for observation and surveillance purposes, but will remain “fully in line with international law,” he added. This approach “can allow NATO planners to make requests for allies to provide capabilities and services, such as hours of satellite communications.”

Stoltenberg noted that NATO keeps at the leading edge of technology with a “one billion dollar investment in eyes in the sky, AWACS surveillance aircraft. This modernization will ensure the fleet’s service to 2035 and provide the best possible intelligence, surveillance and reconnaissance.”

#### Consultation over space strengthens NATO legitimacy and operations – communication, positioning, missile warning and counter space ops

Louisa Remuss 10 Nina-Louisa Remuss holds a M. Litt, in International Security Studies from the University of St. Andrews and a B.A. in European Studies from the University of Maastricht. October, 2010. “NATO and Space: Why is Space Relevant for NATO?” [NATO and Space: Why is Space Relevant for NATO? (ethz.ch)](https://www.files.ethz.ch/isn/124749/ESPI_Perspectives_40.pdf) Page 2-3 Accessed 12-9 // gord0

The increasing reliance on space applications and the emerging global challenges and threats, place new demands on space capabilities.5 Given today’s multi-polar world, security providers face a very different security and threat environment than during the Cold War. At the same time, during the Cold War, the U.S. and the Soviet Union had agreed not to attack each other’s space assets, which provided for a certain degree of transparency given that both were the sole actors in space. Characterizing conflicts as fundamentally unpredictable, NATO’s Allied Joint Doctrine stresses the added value of using technology. Accordingly, NATO’s operations are already dependent on space applications as NATO comes to rely on it for global situational awareness, decision superiority and precision engagement. In spite of NATO’s dependence on space operations, the Alliance is still missing a holistic approach to the subject. Space applications can be understood as force multipliers or enablers. The following section will rely on the EU’s experiences and will give four examples of areas where this is the case: in external security missions, in damage and impact assessment during post-crisis management, in the fight against piracy and in providing internal security, i.e. against nontraditional threats such as terrorism, natural disasters etc. In External Security Missions European Union external security missions, such as the EU Military Crisis Management Operations EUFOR Chad / RCA (from French: Central African Republic) rely on satellites for secure communications between the Operations Headquarters (OHQ) and units deployed on the field, as well as on satellite imagery for mapping in support of their mission, especially considering the local absence of terrestrial communications infrastructure and the large dimensions of the theatre of operations. NATO is relying on space applications to support its ISAF operations in Afghanistan. These range from communications, position, navigation and timing, environmental sensing, missile warning, personnel recover and infrared remote sensing, to counter space operations. Space capabilities are however not fully integrated and utilised as a result of, first the lack of NATO strategy to space applications, second the resulting limited exposure of space capabilities prior to the deployment and third the limited number of personnel among the ISAF staff with space expertise.

#### NATO is a force multiplier – solves a slew of existential threats

Burns 18 Nicholas Burns 7-11-2018 “What America Gets Out of NATO” <https://www.nytimes.com/2018/07/11/opinion/what-america-gets-out-of-nato.html> (former under-secretary of state and ambassador to NATO and teaches diplomacy and international relations at Harvard)//Elmer

None of this, of course, is likely to disturb Mr. Trump, who remains steadfast in his belief that whatever benefits the United States gained from the trans-Atlantic alliance in the past, the country no longer profits. But he’s wrong — there are compelling reasons that NATO in particular will be a distinct advantage for America’s security far into the future. First, NATO’s formidable conventional and nuclear forces are the most effective way to **protect North America and Europe** — the **heart of the democratic world** — from attack. Threats to our collective security have not vanished in the 21st century. Mr. Putin remains a determined adversary preying on Eastern Europe and American elections. **NATO is a force multiplier**: The United States has allies who will stand by us, while Russia has none. And while it’s true that most of America’s NATO allies need to increase their defense spending under the treaty, they’re not freeloaders: The United States has **relied on NATO allies to strike back against Al Qaeda in Afghanistan and the Islamic State in the Middle East**. European troops have replaced American soldiers in peacekeeping missions in Bosnia and contribute the large majority in Kosovo. Our NATO allies are also getting better about contributing their fair share. They have increased their defense spending by a total of more than $87 billion since Mr. Putin annexed Crimea in 2014. Fourteen more allies will reach NATO’s military spending target — 2 percent of gross domestic product — by 2024. Mr. Trump would be smart to claim credit for this at this week’s summit. A second reason for maintaining the trans-Atlantic alliance is America’s economic future. The European Union is our country’s largest trade partner, and its largest investor. The United States and the European Union are the world’s two largest economies, and can steer global trade to their advantage if they stick together. More than four million Americans work for European companies in the United States. Forty-five of the 50 states export more to Europe than to China. Mr. Trump is right that the two sides are also economic competitors, and trade disputes are inevitable. His predecessors kept this tension in balance lest there be damaging consequences for American businesses, workers and farmers — a good reminder for Mr. Trump, whose ill-conceived trade war with Canada and Europe risks harming the American economy. Third, future American leaders will find Europe is our most capable and willing partner in tackling the biggest threats to global security: **climate change; drug and cybercrime cartels; terrorism; pandemics and mass migration from Africa and the Middle East**. And America’s **NATO allies will continue to be indispensable in safeguarding democracy** and freedom, under assault by Russia and China.

### Debris

#### double-turn – their Runnells 22 and Lavar 20 solvency ev both prove an OUF incentivizes cleanup removal

#### That triggers ASAT and miscalc scenario – we read yellow

David 21 – Leonard, 4/14/21, Leonard David is author of Moon Rush: The New Space Race (National Geographic, 2019) and Mars: Our Future on the Red Planet (National Geographic, 2016). He has been reporting on the space industry for more than five decades, [“Space Junk Removal Is Not Going Smoothly,” Scientific American, <https://www.scientificamerican.com/article/space-junk-removal-is-not-going-smoothly/>] Justin

“From my perspective, the best solution to dealing with space debris is not to generate it in the first place,” says T. S. Kelso, a scientist at CelesTrak, an analytic group that keeps an eye on Earth-orbiting objects. “Like any environmental issue, it is easier and far less expensive to prevent pollution than to clean it up later. Stop leaving things in orbit after they have completed their mission.” There simply is no “one-size-fits-all solution” to the problem of space junk, Kelso says. Removing large rocket bodies is a significantly different task than removing the equivalent mass of a lot more smaller objects, which are in a wide range of orbits, he observes. Meanwhile innovations by companies such as SpaceX are dramatically lowering launch costs, opening the floodgates for far more satellites to reach low-Earth orbit, where some will inevitably fail and become drifting, debris-generating hazards (unless they are removed by ELSA-d-like space tugs). “Many of these operators are starting to understand the difficulty and complexity of continuing to dodge the growing number of debris.” Space junk ranges from nanoparticles to whole spacecraft such as the European Space Agency’s Envisat, which is the size of a double-decker bus and at the top of everyone's removal hit list, says Alice Gorman, a space archaeologist and space junk expert at Flinders University in Australia. There are also objects such as despin weights, which are solid lumps of metal, and thermal blankets, which are paper-thin. “They’ll cause different types of damage and may need different strategies to remove. There is no way that a one-size-fits-all approach is going to do it,” Gorman says. The most serious risks, she says, come from debris particles between one and 10 centimeters in size. “There’s far more of them than whole defunct spacecraft, and there is a far greater probability of collision,” Gorman says. “While debris this size might not cause a catastrophic breakup, collision with it can certainly damage working satellites and create new debris particles.” Turning her attention to satellite mega constellations, Gorman worries about their effects in a low-Earth orbital environment that is already congested. “We also know that orbital dynamics can be unpredictable,” she says. “I want to see some of these mega constellation operators releasing their long-term modeling for collisions as more and more satellites are launched.” There is no doubt that active orbital debris removal is technically challenging, Gorman says. “However, the big issue is that any successful technology that can remove an existing piece of debris can also be used as an antisatellite weapon,” she says. “This is a whole other can of worms that requires diplomacy and negotiation and, most importantly, trust at the international level.” Indeed, the ability to cozy up to spacecraft in orbit and perform servicing or sabotage has spurred considerable interest from military planners in recent years, says Mariel Borowitz, an associate professor at the Georgia Institute of Technology’s Sam Nunn School of International Affairs. “These rapidly advancing technologies have the potential to be used for peaceful space activities or for warfare in space,” she says. “Given the dual-use nature of their capabilities, it’s impossible to know for sure in advance how they’ll be used on any given day.” TAKING UP SPACE For now, according to Moriba Jah, an orbital debris expert at the University of Texas at Austin, the business case for space debris removal is not monetizable and is more a “PowerPoint talk” than a real marketplace. “I think people are hoping that government basically comes to some common sense to help create and establish a marketplace for industries to engage in these sorts of activities,” Jah says. In order for that to happen, he believes that spacefaring nations have to agree that near-Earth space is an ecosystem like land, air and the ocean. “It’s not infinite, so we need environmental protection,” he says.

#### Doesn’t solve – maintains private appropriation – no incentive to follow a new OUF treaty

#### SpaceX satellites are key to internet access

James Pethokoukis 11/30 [James Pethokoukis, a columnist and an economic policy analyst, is the Dewitt Wallace Fellow at the American Enterprise Institute, where he writes and edits the AEIdeas blog and hosts a weekly podcast, “Political Economy with James Pethokoukis.” He is also a columnist for The Week and an official contributor to CNBC. “Why a SpaceX bankruptcy would hurt the global poor” Faster, Please! November 30, 2021 <https://fasterplease.substack.com/p/-why-a-spacex-bankruptcy-would-hurt>

I don’t have enough deep knowledge about SpaceX’s business or financials to reliably gauge the actual bankruptcy risk here, and the piece’s reporter is skeptical. I will note, however, that although the company is currently valued at around $100 billion, the bank Morgan Stanley assigns it a valuation “of somewhere between $5bn and $200bn, with uncertainty about its success accounting for the wide range,” according to The Economist. Starship and Starlink are key to that upper bound. (Also: A Morgan Stanley survey of “institutional investors and industry experts” expect SpaceX to become more valuable than Tesla, currently a trillion-dollar company. We’ll see.) So it’s not surprising that Musk emphasizes the importance of the Starlink internet satellite venture here, especially its next incarnation. Now go and Twitter search on the terms “Musk,” “ruining,” and “sky,” and you’ll find plenty of complaints about the Starlink constellation — with currently more than 1,700 satellites in low-Earth orbit. For many of these keyboard critics, Starlink is nothing more than an uberbillionaire's reckless effort to become an even wealthier uberbillionaire. Or maybe it’s just another Muskian vanity project, like building rockets to Mars. Either way, these diehard anti-Muskers see a cluttered sky for visual astronomers, both amateur and professional, as a horrific tradeoff just so the entrepreneur can sell global internet access. Now, the extreme version of this critique is unserious, little more than anti-billionaire emoting. The profit potential of Starlink is unclear, though it seems to be Musk’s goal that the telecom business will one day help fund his Mars ambitions. But the venture isn’t there yet. Last summer, Musk estimated that Starlink would likely need between $20 billion and $30 billion in investment. "If we succeed in not going bankrupt, then that'll be great, and we can move on from there," Musk said. For now, Starlink aims to add another 1,000 satellites a year, even more when Starship is operational. That is, assuming Starship become operational. But the astronomy issue is a real one, as SpaceX has acknowledged. And after astronomer complaints about the brightness of the first group of 60 satellites launched in 2019, SpaceX developed a work-around to minimize the glare from solar reflection on subsequent launches. Of course, some scientists don’t want to rely on the goodwill of SpaceX and other satellite companies. They see an international regulatory agreement, perhaps a new protocol under the Outer Space Treaty, as a necessity. But as such an add-on is unlikely to happen anytime soon, notes The Economist, “not least because other issues raised by the mega constellations, such as risks from debris, will doubtless seem more pressing.” Here’s one of the many pictures floating around the Internet showing the impact of Starlink satellites — “the 333-second exposure shows at least 19 satellites passing overhead” — on astronomical observations, via the IFLScience website: Of course, framing the trade-off as the above picture vs. “better global internet” doesn’t quite capture the benefits of the latter. And they are considerable. There remains a stark digital divide in global internet access. As the World Economic Forum notes: “Globally, only just over half of households (55 percent) have an internet connection, according to UNESCO. In the developed world, 87 percent are connected compared with 47 percent in developing nations, and just 19 percent in the least developed countries.” It seems pretty clear that broadband internet access brings considerable economic gains, particularly to poorer countries. (Musk has specifically said this is a goal of Starlink.) Here are a few examples from the August 2021 analysis “The Economic Impact of Internet Connectivity in Developing Countries” by Jonas Hjort (Columbia University) and Lin Tian (INSEAD): Quite a few studies convincingly estimate the effect on consumption of specific internet-enabled technologies (rather than internet connectivity itself) through model-based approaches, and a few do so more directly. Jack & Suri (2014) show that access to mobile money decreased consumption poverty by two percentage points in Kenya. In contrast, Couture et al. (2021) finds that expansion of e-commerce in China has little effect on income to rural producers and workers. Different areas of Sub-Saharan Africa got access to basic internet at different times starting in the early 2000s. Exploiting variation arising from the gradual arrival of submarine cable connections and using nighttime satellite image luminosity as a proxy for economic activity, Goldbeck & Lindlacher (2021) estimate that basic internet availability leads to about a two percentage point increase in economic growth. As we briefly discussed in Sub-section 3.1.1, Bahia et al. (2020) show evidence that the gradual roll-out of mobile broadband in Nigeria between 2010 and 2016 increased labor force participation and employment. The paper also shows that household consumption simultaneously increased and poverty decreased. Households that had at least one year of mobile broadband coverage experienced an increase in total consumption of about 6 percent. Masaki et al. (2020) document a similarly striking result. Combining household expenditure surveys with data on the location of fiber-optic transmission nodes and coverage maps of 3G mobile technology, they show that 3G coverage is associated with a 14 percent increase in total consumption and a 10 percent decline in extreme poverty in Senegal. Finally, Bahia et al. (2021) use a similar empirical approach to study the effect of mobile broadband roll-out in Tanzania and find a comparable increase in household consumption and decline poverty in this setting. The eventual endgame here is that there are going to be many tens of thousands more satellites in orbit, enabling total global internet coverage. And they will be joined by all manner of human-occupied installations for tourist, commercial, and scientific endeavors. (You may have missed the late October announcement that Blue Origin, the space company owned by Jeff Bezos, is teaming up with other firms to build a space station in Earth orbit.) Stargazing from Earth will never be the way it used to be. Then again, people still complain about shadows from skyscrapers even as humanity continues to build them. But recall one of the running themes of this newsletter: Technology solves one problem, creates another, then solves that one — rinse and repeat — even as the overall direction is forward. More astronomy in the future will be space based. And if all those space objects and structures make even low-Earth orbit astronomy difficult, more of it will need to be performed further out, as with the James Webb Space Telescope. Or maybe via telescopes on the Moon, such as the proposed Lunar Crater Radio Telescope, which would deploy robots to transform a half-mile wide crater into an observatory by attaching a wire mesh along the crater walls. And once there are lots of satellites around a fully colonized Moon, off to Mars — which might be accessible thanks to Starlink funding Musk’s deep-space ambitions. Meanwhile, there will be a lot less global poverty here on Earth than otherwise.

#### Yunhai and Kosmos collisions thumps

Jones 1/11 Andrew Jones: Andrew Jones covers China's space industry for SpaceNews. Andrew has previously lived in China and reported from major space conferences there. Based in Helsinki, Finland, he has written for National Geographic, New Scientist, Smithsonian Magazine, Sky & Telescope, IEEE Spectrum, and The Wire China., SpaceNews, "Breakup of China’s Yunhai-1 (02) satellite linked to space debris collision - SpaceNews", 1/11/22, https://spacenews.com/breakup-of-chinas-yunhai-1-02-satellite-linked-to-space-debris-collision/

HELSINKI — U.S. space tracking has linked the breakup of Chinese satellite Yunhai-1 (02) to a collision with a small piece of debris from a Russian satellite launch, according to NASA.

The Yunhai-1 (02) satellite was developed by the Shanghai Academy of Spaceflight Technology and launched in September 2019 into a Sun-synchronous orbit with an altitude of around 783 kilometers. It suffered a breakup event on March 18, 2021, creating a number of pieces of debris.

The 18th Space Control Squadron (18 SPCS) of the U.S. Space Force has identified the breakup of the Yunhai 1-02 meteorological spacecraft (2019-063A) last year to be an accidental collision with a small, mission-related debris object (1996-051Q) associated with the Zenit-2 launch vehicle for the deployment of the Russian Cosmos 2333 military signals intelligence satellite in 1996, according to the December 2021 edition of Orbital Debris Quarterly News, a publication of NASA’s Orbital Debris Program Office.

Darren McKnight, senior technical fellow at LeoLabs and member of the International Academy of Astronautics’ Space Debris Committee, told SpaceNews that there is “moderate confidence that it was a collision,” adding that “the event was likely caused by a piece of debris in the 1-10 centimeter size range.”

The breakup of Yunhai-1 (02) is the fifth confirmed accidental collision between two cataloged objects, according to the report. A total of 37 fragments from the collision have been cataloged by the 18 SPCS and as of 1 October 2021, with four of these having reentered the atmosphere.

“I think what’s notable is that we were actually able to figure out that the breakup was caused by a collision with another object,” says Brian Weeden, director of program planning for the Secure World Foundation. “That’s fairly easy to do when the results are catastrophic, as in the case with the [2009] Iridium-Cosmos collision, but there are a lot more smaller scale events that result in minor satellite anomalies and/or release of only a few pieces of debris that are much harder to figure out.”

The largest such event was the 2009 collision between the defunct Russian military spacecraft Kosmos-2251 and the operational Iridium 33 communications satellite. That event generated almost 2,000 pieces of trackable debris.

Suspected collisions can be caused by pieces of debris only a few centimeters in size that are very difficult to consistently or reliably track or maintain in the satellite catalog. Very small debris pieces are sometimes referred to as lethal non-trackable debris.

In the case of Yunhai-1 (02), it appears 18 SPCS was able to track the impactor to some degree but, given its small size and the challenges of tracking it consistently, did not maintain it in the satellite catalog.

Remarkably, despite what would have been a high-velocity, high-energy impact, there is evidence from amateur observations that Yunhai-1 (02) is still operational to some degree.

The Yunhai-1 series of satellites are mainly used for “detecting the atmospheric and marine environment and space environment, as well as disaster control and other scientific experiments”, according to CASC, SAST’s parent company and China’s main space contractor.

No further details have been provided and neither CASC nor SAST have commented on the event or the apparent continuing function of the satellite.

#### Non UQ – squo debris and sats thumps

* About miscalc and collisions not Kessler – ev about single misinterpret

Orwig 16 [(Jessica, MS in science and tech journalism from Texas A&M, BS in astronomy and physics from Ohio State) “Russia says a growing problem in space could be enough to spark a war,” Insider,’ January 26, 2016, <https://www.businessinsider.com/russia-says-space-junk-could-spark-war-2016-1>] TDI

NASA has already [warned that](https://www.businessinsider.com/space-junk-at-critical-density-2015-9) the large amount of space junk around our planet is growing beyond our control, but now a team of Russian scientists has cited another potentially unforeseen consequence of that debris: War.

Scientists estimate that anywhere from 500,000 to 600,000 pieces of human-made space debris between 0.4 and 4 inches in size are currently orbiting the Earth and traveling at speeds over [17,000 miles per hour](https://www.nasa.gov/mission_pages/station/news/orbital_debris.html).

If one of those pieces smashed into a military satellite it "may provoke political or even armed conflict between space-faring nations," Vitaly Adushkin, a researcher for the Institute of Geosphere Dynamics at the Russian Academy of Sciences, reported in a paper set to be published in the peer-reviewed journal [Acta Astronautica](https://www.sciencedirect.com/science/article/pii/S0094576515303416), which is sponsored by the International Academy of Astronautics.

#### Public sector mining thumps

NASA 19 [“NASA Invests in Tech Concepts Aimed at Exploring Lunar Craters, Mining Asteroids,” NASA, June 11, 2019, <https://www.nasa.gov/press-release/nasa-invests-in-tech-concepts-aimed-at-exploring-lunar-craters-mining-asteroids>] TDI

NASA Invests in Tech Concepts Aimed at Exploring Lunar Craters, Mining Asteroids

Robotically surveying lunar craters in record time and mining resources in space could help NASA establish a sustained human presence at the Moon – part of the agency’s broader [Moon to Mars exploration](https://www.nasa.gov/specials/moon2mars/) approach. Two mission concepts to explore these capabilities have been selected as the first-ever Phase III studies within the [NASA Innovative Advanced Concepts](https://www.nasa.gov/niac) (NIAC) program.

“We are pursuing new technologies across our development portfolio that could help make deep space exploration more Earth-independent by utilizing resources on the Moon and beyond,” said Jim Reuter, associate administrator of NASA’s Space Technology Mission Directorate. “These NIAC Phase III selections are a component of that forward-looking research and we hope new insights will help us achieve more firsts in space.”

The Phase III proposals outline an aerospace architecture, including a mission concept, that is innovative and could change what’s possible in space. Each selection will receive as much as $2 million. Over the course of two years, researchers will refine the concept design and explore aspects of implementing the new technology. The inaugural Phase III selections are:

Robotic Technologies Enabling the Exploration of Lunar Pits

William Whittaker, Carnegie Mellon University, Pittsburgh

This mission concept, called Skylight, proposes technologies to rapidly survey and model lunar craters. This mission would use high-resolution images to create 3D model of craters. The data would be used to determine whether a crater can be explored by human or robotic missions. The information could also be used to characterize ice on the Moon, a crucial capability for the sustained surface operations of NASA’s Artemis program. On Earth, the technology could be used to autonomously monitor mines and quarries.

[Mini Bee Prototype to Demonstrate the Apis Mission Architecture and Optical Mining Technology](https://www.nasa.gov/directorates/spacetech/niac/2019_Phase_I_Phase_II/Mini_Bee_Prototype)

Joel Sercel, TransAstra Corporation, Lake View Terrace, California

This flight demonstration mission concept proposes a method of asteroid resource harvesting called optical mining. Optical mining is an approach for excavating an asteroid and extracting water and other volatiles into an inflatable bag. Called Mini Bee, the mission concept aims to prove optical mining, in conjunction with other innovative spacecraft systems, can be used to obtain propellant in space. The proposed architecture includes resource prospecting, extraction and delivery.

#### Alliances check miscalc – too costly

MacDonald 13 [(Bruce, teaches at the United States Institute of Peace on strategic posture and space/cyber security issues, leads a study on China and Crisis Stability in Space, and is adjunct professor at the Johns Hopkins School of Advanced International Studies) “Deterrence and Crisis Stability in Space and Cyberspace,” in Anti-satellite Weapons, Deterrence and Sino-American Space Relations, September 2013, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a587431.pdf>] TDI

The US alliance structure can promote deterrence and crisis stability in space, as with nuclear deterrence. China has no such alliance system. If China were to engage in large-scale offensive counter-space operations, it would face not only the United States, but also NATO, Japan, South Korea and other highly aggrieved parties. Given Beijing’s major export dependence on these markets, and its dependence upon them for key raw material and high technology imports, China would be as devastated economically if it initiated strategic attacks in space. In contrast to America’s nuclear umbrella and extended deterrence, US allies make a tangible and concrete contribution to extended space deterrence through their multilateral participation in and dependence upon space assets. Attacks on these space assets would directly damage allied interests as well as those of the United States, further strengthening deterrent effects.

#### Space debris creates existential deterrence and a taboo

Bowen 18 [(Bleddyn, lecturer in International Relations at the University of Leicester) “The Art of Space Deterrence,” European Leadership Network, February 20, 2018, <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/>] TDI

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the [political-legal hurdles to conducting debris clean-up](https://doi.org/10.1080/14777622.2014.890489) operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. [China’s catastrophic anti-satellite weapons test in 2007](https://defenceindepth.co/2017/01/11/chinas-space-weapons-test-ten-years-on-behemoth-pulls-the-peasants-plough/) is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

**Probability – 0.1% chance of a collision.**

**Salter 16** [(Alexander William, Economics Professor at Texas Tech) “SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS” 19 STAN. TECH. L. REV. 221 \*numbers replaced with English words] TDI

The probability of a collision is currently low. Bradley and Wein estimate that the maximum probability in LEO of a collision over the lifetime of a spacecraft remains below one in one thousand, conditional on continued compliance with NASA’s deorbiting guidelines.3 However, the possibility of a future “snowballing” effect, whereby debris collides with other objects, further congesting orbit space, remains a significant concern.4 Levin and Carroll estimate the average immediate destruction of wealth created by a collision to be approximately $30 million, with an additional $200 million in damages to all currently existing space assets from the debris created by the initial collision.5 The expected value of destroyed wealth because of collisions, currently small because of the low probability of a collision, can quickly become significant if future collisions result in runaway debris growth.

**Time frame – Kessler effect 200 years away**

**Stubbe 17** [(Peter, PhD in law @ Johann Wolfgang Goethe University Frankfurt) “State Accountability for Space Debris: A Legal Study of Responsibility for Polluting the Space Environment and Liability for Damage Caused by Space Debris,” Koninklijke Brill Publishing, ISBN 978-90-04-31407-8, p. 27-31] TDI

The prediction of possible scenarios of the future evolution of the debris p o p ulation involves many uncertainties. Long-term forecasting means the prediction of the evolution of the future debris environment in time periods of decades or even centuries. Predictions are based on models84 that work with certain assumptions, and altering these parameters significantly influences the outcomes of the predictions. Assumptions on the future space traffic and on the initial object environment are particularly critical to the results of modeling efforts.85 A well-known pattern for the evolution of the debris population is the so-called Kessler effect’, which assumes that there is a certain collision probability among space objects because many satellites operate in similar orbital regions. These collisions create fragments, and thus additional objects in the respective orbits, which in turn enhances the risk of further collisions. Consequently, the num ber of objects and collisions increases exponentially and eventually results in the formation of a self-sustaining debris belt aroundthe Earth. While it has long been assumed that such a process of collisional cascading is likely to occur only in a very long-term perspective (meaning a time 1 n of several hundred years),87 a consensus has evolved in recent years that an uncontrolled growth of the debris population in certain altitudes could become reality much sooner.88 In fact, a recent cooperative study undertaken by various space agencies in the scope of i a d c shows that the current l e o debris population is unstable, even if current mitigation measures are applied. The study concludes:

Even with a 90% implementation of the commonly-adopted mitigation measures [...] the l e o debris population is expected to increase by an average of 30% in the next 200 years. The population growth is primarily driven by catastrophic collisions between 700 and 1000 km altitudes and such collisions are likely to occur every 5 to 9 years.89

**No ‘space war’ – Insurmountable barriers and everyone has an interest in keeping space peaceful**

**Dobos 19** [(Bohumil Doboš, scholar at the Institute of Political Studies, Faculty of Social Sciences, Charles University in Prague, Czech Republic, and a coordinator of the Geopolitical Studies Research Centre) “Geopolitics of the Outer Space, Chapter 3: Outer Space as a Military-Diplomatic Field,” Pgs. 48-49] TDI

Despite the theorized potential for the achievement of the terrestrial dominance throughout the utilization of the ultimate high ground and the ease of destruction of space-based assets by the potential space weaponry, the utilization of space weapons is with current technology and no effective means to protect them far from fulfilling this potential (Steinberg 2012, p. 255). In current global international political and technological setting, the utility of space weapons is very limited, even if we accept that the ultimate high ground presents the potential to get a decisive tangible military advantage (which is unclear). This stands among the reasons for the lack of their utilization so far. Last but not the least, it must be pointed out that the states also develop passive defense systems designed to protect the satellites on orbit or critical capabilities they provide. These further decrease the utility of space weapons. These systems include larger maneuvering capacities, launching of decoys, preparation of spare satellites that are ready for launch in case of ASAT attack on its twin on orbit, or attempts to decrease the visibility of satellites using paint or materials less visible from radars (Moltz 2014, p. 31). Finally, we must look at the main obstacles of connection of the outer space and warfare. The first set of barriers is comprised of physical obstructions. As has been presented in the previous chapter, the outer space is very challenging domain to operate in. Environmental factors still present the largest threat to any space military capabilities if compared to any man-made threats (Rendleman 2013, p. 79). A following issue that hinders military operations in the outer space is the predictability of orbital movement. If the reconnaissance satellite's orbit is known, the terrestrial actor might attempt to hide some critical capabilities-an option that is countered by new surveillance techniques (spectrometers, etc.) (Norris 2010, p. 196)-but the hide-and-seek game is on. This same principle is, however, in place for any other space asset-any nation with basic tracking capabilities may quickly detect whether the military asset or weapon is located above its territory or on the other side of the planet and thus mitigate the possible strategic impact of space weapons not aiming at mass destruction. Another possibility is to attempt to destroy the weapon in orbit. Given the level of development for the ASAT technology, it seems that they will prevail over any possible weapon system for the time to come. Next issue, directly connected to the first one, is the utilization of weak physical protection of space objects that need to be as light as possible to reach the orbit and to be able to withstand harsh conditions of the domain. This means that their protection against ASAT weapons is very limited, and, whereas some avoidance techniques are being discussed, they are of limited use in case of ASAT attack. We can thus add to the issue of predictability also the issue of easy destructibility of space weapons and other military hardware (Dolman 2005, p. 40; Anantatmula 2013, p. 137; Steinberg 2012, p. 255). Even if the high ground was effectively achieved and other nations could not attack the space assets directly, there is still a need for communication with those assets from Earth. There are also ground facilities that support and control such weapons located on the surface. Electromagnetic communication with satellites might be jammed or hacked and the ground facilities infiltrated or destroyed thus rendering the possible space weapons useless (Klein 2006, p. 105; Rendleman 2013, p. 81). This issue might be overcome by the establishment of a base controlling these assets outside the Earth-on Moon or lunar orbit, at lunar L-points, etc.-but this perspective remains, for now, unrealistic. Furthermore, no contemporary actor will risk full space weaponization in the face of possible competition and the possibility of rendering the outer space useless. No actor is dominant enough to prevent others to challenge any possible attempts to dominate the domain by military means. To quote 2016 Stratfor analysis, "(a) war in space would be devastating to all, and preventing it, rather than finding ways to fight it, will likely remain the goal" (Larnrani 20 16). This stands true unless some space actor finds a utility in disrupting the arena for others.