## 1NC – DA

#### JCPOA passes now – political will is key

Reuters 2/18 [(Reuters) “Iran nuclear deal could be agreed very soon, EU official says” Reuters, 2/18/2022. https://www.reuters.com/world/middle-east/iran-nuclear-deal-could-be-agreed-very-soon-eu-official-says-2022-02-18/] BC

BRUSSELS:

A senior European Union official said on Friday that a US-Iranian deal to revive Iran's 2015 nuclear agreement was close but success depended on the political will of those involved.

"I expect an agreement in the coming week, the coming two weeks or so," the EU official said. "I think we have now on the table text that are very, very close to what is going to be the final agreement," the official said.

Reuters reported on Feb 17 details of a possible deal negotiated by envoys from Iran, Russia, China, Britain, France, Germany, the European Union and United States.

"Most of the issues are already agreed. But as a principle in this kind of negotiations, nothing is agreed until everything is agreed. So we still have...some questions, some of them rather political and difficult to agree," the official said.

The official said a deal was necessary as Iran's sensitive uranium enrichment programme was moving ahead quickly. Iran has always denied it is seeking nuclear weapons.

"On the ground they are advancing very much at a speed that is not compatible with the long-term survival of the JCPOA," the official said, referring to the Joint Comprehensive Plan of Action, as the 2015 nuclear deal between Iran and world powers is formally titled.

#### Space diplomacy directly trades off with nonproliferation agreements – finite manpower, money, and political will within the AVC

Johnson-Freeze 16 [(Joan, Professor and former Chair of National Security Affairs at the US Naval War College, Newport, Rhode Island) “Space Warfare in the 21st Century: Arming the Heavens,” Cass Military Studies, 11/8/2016] JL

 \*The plan is legislated in the AVC (same bureau of the State Department that’s concerned with the JCPOA)

Proactive policymaking takes commitment, manpower, and money. A quick look at the money and manpower devoted to diplomacy in the US State and Defense departments compared to the resources available for the hardwareproducing military–industrial complex efforts described in Chapter 5 is enlightening. The Assistant Secretary of State for Arms Control, Verification, and Compliance (AVC) leads space-related diplomacy in the State Department. The AVC Bureau is responsible for “all matters related to the implementation of certain international arms control, nonproliferation, and disarmament agreements and commitments; this includes staffing and managing treaty implementation commissions.”34 The AVC arms control portfolio includes nuclear, biological, and chemical weapons and all related issues. The AVC section charged with space issues is the Office of Emerging Security Challenges; this office also handles missile defense issues and the promotion of transparency, cooperation, and building confidence regarding cybersecurity. As of financial year 2013, AVC had a budget of $31.2 million and 141 employees35 to be active participants and leaders in all of these issues.

By way of comparison, the Space Security and Defense Program, a joint program of the DoD and the Office of the Director of National Intelligence (ODNI) was programmed for a similar budget amount in financial year 2015: $32.3 million. That program is described as a “center of excellence for options and strategies (materiel, non-materiel, cross-Title, cross-domain) leading to a more resilient and enduring National Security Space (NSS) Enterprise.”36 A majority of SSDP funding is allocated to the development of offensive space control strategies. So basically, the same budget is allocated for all US global space diplomacy efforts as for an in-house Pentagon think tank to devise counterspace strategies.

Within the Pentagon, the Deputy Assistant Secretary of Defense for Space Policy is charged with all issues related to space policy, including diplomacy. The responsibilities of the Space Policy office are to:

• Develop policy and strategy for a domain that is increasingly congested, competitive, and contested

• Implement across DoD — plans, programs, doctrine, operations — and with the IC and other agencies

• Engage with allies and other space-faring countries in establishing norms and augmenting our capabilities.37

The breadth of those responsibilities, which includes reviewing space acquisitions, means that there may be only a handful of individuals actually engaged in multilateral diplomatic efforts, acting, for example, as advisors to diplomatic discussions such as those through the United Nations. Additionally, the expanse of the Pentagon results in a chain of command that makes organizational competition for attention to subject matter challenging at best. The Deputy Assistant Secretary of Defense for Space Policy reports to the Assistant Secretary of Defense for Homeland Defense, who then reports to the Principle Deputy Secretary of Defense for Homeland Defense and Global Security, who then reports to the Under Secretary of Defense for Defense Policy. There are also a multitude of space players in other governmental organizations to coordinate and contend with, particularly within the Air Force and intelligence communities. Personnel are spread thin.

US government-wide space diplomacy needs a mandate, manpower, and a supporting budget. Diplomacy, especially multilateral diplomacy, can be timeconsuming, manpower-intensive, and frustrating; and patience is not a strong American virtue. The recent experience in the UN LTS Working Group is emblematic of everything that causes the United States to shun multilateralism. Under the auspices of this group, countries had worked in good faith over the past five years to develop technical guidelines as reciprocal constraints, as insisted upon by the developing countries when they rejected the ICOC. Yet group success appeared thwarted at the February 2016 meeting of the LTS Working Group by one country, Russia.

#### Iranian proliferation goes nuclear – causes regional war and spurs proliferation cascades across the Middle East

Chilton and Hoshovsky 20 – [(Kevin, led U.S. Strategic Command and has participated in the Jewish Institute for National Security of America’s Generals and Admirals Program; Harry, policy analyst at JINSA’s Gemunder Center for Defense and Strategy) "Avoiding a nuclear arms race in the Middle East," Defense News, 2-13-2020, https://www.defensenews.com/opinion/commentary/2020/02/13/avoiding-a-nuclear-arms-race-in-the-middle-east/] TDI

This raises two immediate concerns. First, **should Iran race for the bomb, it is** almost inevitable that the United States and/or Israel will take preventative military action **to stop it from crossing that fateful threshold**. This could easily spiral into a regional war as Iran activates its various proxy forces against the United States and its allies.

Second, **an Iranian nuclear breakout attempt could** spur a proliferation cascade throughout the Middle East, **beginning with Saudi Arabia.**

Mohammed bin Salman, **the Saudi crown prince, openly stated in 2018 that if Iran developed nuclear weapons**, Riyadh would quickly “follow suit.” **One suggested approach would see Saudi Arabia purchase a nuclear power reactor from a major supplier like South Korea and then build a reprocessing plant that would yield enough weapons-grade plutonium in five years**.

A half-decade delay isn’t optimal, however, when the goal is achieving nuclear deterrence quickly. Thus, there is the so-called Islamabad option.

This refers to Riyadh’s role in financing Pakistan’s nuclear weapons program and an alleged commitment from Islamabad that it would repay the favor. While Pakistani and Saudi officials have denied any such understanding, **there is the possibility that the two could work out an arrangement where Islamabad could deploy some of its nuclear arsenal on Saudi soil following a successful Iranian breakout.**

Although this maneuver would draw sharp, international criticism, in theory, it would allow Riyadh to remain in good standing vis-a-vis the nuclear nonproliferation treaty. Nevertheless, Pakistan might not be willing to play spoiler against a nuclearized Iran. If it is, Middle Eastern geopolitics would become extremely unstable.

**If Saudi Arabia acquires nuclear weapons**, many believe Turkey would follow suit. Last September, Turkish President Recep Tayyip **Erdogan declared that he “cannot accept” the argument from Western nations that Turkey should not be allowed to attain nuclear weapons.** In 1958, Charles de Gaulle proclaimed that a nation without nuclear weapons “does not command its own destiny”; two years later, France tested its first bomb. Erdogan’s comments echo those earlier remarks and raise the possibility that Ankara could become the second NATO member to leave the alliance’s nuclear umbrella in favor of its own independent arsenal.

#### Prolif cascades undermine deterrence and cause nuclear war – this is predictive of what a multi-nuclear Middle East would look like

Krepinevich 13 – [(Dr. Andrew F, the President of the Center for Strategic and Budgetary Assessments) “Critical Mass: Nuclear Proliferation in the Middle East,” 2013, https://csbaonline.org/uploads/documents/Nuclear-Proliferation-in-the-Middle-East.pdf] TDI

As more countries over time develop nuclear capabilities and build up their nuclear arsenals, the competition will evolve from an Israeli-Iranian affair to a multi-state rivalry. For illustrative purposes **we will assume that** in the 2025-2030 timeframe, **Iran**, **Saudi Arabia, Turkey, and perhaps Egypt** and/or Iraq **have nuclear arsenals** in the low double-digit range (i.e., ten to forty weapons). What form might a nuclear competition among these powers and Israel assume? The remainder of this chapter attempts to shed some light on this issue, and its potential implications, with emphasis on those affecting regional stability.

The challenge of preserving stability when confronted with military competition among five nuclear-armed states within the Middle East and with other powers external to the region engaged in a Great Game for influence is formidable. At first blush, one thing seems apparent: **many** Cold War-era metrics **for assessing the competition and gauging where it might be headed** appear to be of little utility; in fact, **they may actually prove misleading and dangerous**. The same can be said of those looking to apply Cold War-era arms control metrics as a way of keeping the peace in general and avoiding nuclear use in particular.

**During the Cold War, many nuclear strategists came to view nuclear parity** (the possession of roughly equivalent arsenals capable of inflicting roughly equivalent levels of destruction) **between the United States and the Soviet Union as stabilizing**. The perception of these strategists is that the rough equivalence contributed to the tradition of non-use of nuclear weapons, and was thus desirable. Parity enabled both sides to avoid the perception of being inferior to their rival, and perceptions are critical to deterrence and to preserving the confidence of one’s allies and security partners. If accepted by both sides, parity could enable them to avoid the cost and instability associated with “racing” toward ever-larger arsenals. Accordingly, maintaining parity was a major objective of U.S.-Soviet (and later U.S.-Russian) arms control negotiations. Yet irrespective of its merits, parity is not an option for states engaged in an n-player competition. Each competitor cannot have a nuclear force equivalent to all the others. Even if the competition should solidify into two coalitions so as to mimic the two-player Cold War competition, questions would almost certainly arise regarding the willingness of a coalition partner that has not been attacked to risk its own destruction by using its nuclear weapons in response to an attack on its ally. Indeed, these concerns were raised during the Cold War, and formed a major justification for France pursuing its own force de frappe. 93

**In a Middle Eastern “n-player” competition, all nuclear powers would be** challenged to establish an “assured destruction” capability **against all the other regional nuclear powers**, another Cold War desideratum, **given their relatively modest economies. An “assured destruction” capability in an n-state competition would require that each state have weapons sufficient to survive an initial attack by all potential rivals and still be able to devastate the countries of all attackers**. It would also require that the source of the attack be reliably identified. As noted earlier, this may prove difficult given likely limitations on these states’ ability to field advanced early warning systems. For example, would Israel be able to determine with confidence the owner of a ballistic missile launched from a location along the Iranian-Turkish border? The origin of any cruise missile launched from a sea-based platform? Even assuming a state could identify the source (or sources) of an attack, could its command and control systems survive the attack sufficiently intact to execute a retaliatory strike? **A decapitation strike could preclude an “assured destruction” retaliatory strike even if sufficient weapons survive to execute one.**

**This, in turn,** raises the possibility of a “catalytic” war**—one that is initiated between two states by a third party. Given a proliferated Middle East as described above, the chances that a regime would incorrectly attribute the source of an attack cannot be easily dismissed. To the extent** cyber weapons can introduce false information **into a state’s decision-making process, the risks of catalytic war only increase.**

Further complicating matters, **the early warning requirement following a proliferation cascade could be multidirectional, and at some point perhaps 360 degrees**, especially if nuclear rivals begin deploying a portion of their nuclear forces at sea. **Early warning requirements would be stressed even further** (and the costs of such a system increase correspondingly) **if a neighboring state** (e.g., Iran in the case of Turkey or Iraq; Turkey in the case of Israel; etc.) **were to acquire nuclear weapons**. In this case warning times would be even more compressed than in an Israeli-Iranian competition. Owing to its proximity to Iran, **Saudi Arabia**, for example, **could have less than five minutes to react to an Iranian ballistic missile attack no matter how advanced its early warning and command and control systems are.**

As noted earlier in this assessment, regardless of what assumptions are made regarding a regional nuclear power’s early warning system, given the short ballistic missile flight times it seems likely that preserving command and control of the state’s nuclear forces while under attack will prove challenging. **States might be tempted to adopt a launch-on-warning posture**, but this requires both early warning and a highly responsive command and control system. Should a state determine that it will not be able to launch-on-warning and instead attempt to “ride-out” a nuclear first strike and retaliate, it would still need its command and control system to function effectively in the wake of the nuclear attack. **Absent a highly resilient command and control system,** a state’s ability to launch a retaliatory **nuclear strike** may require nuclear release authority to be diffused to lower-level commanders. But again, absent an effective early warning system it may not be possible to determine the attack source with confidence in a region with multiple nuclear powers.

## 1NC – CP

#### CP: All states should ban the appropriation of outer space except for via Starlink satellites.

#### China’s capitalizing on US vulnerabilities and ramping up ASAT development now – that emboldens Xi to invade Taiwan

Chow and Kelley 8/21 [(Brian G., policy analyst for the Institute of World Politics, Ph.D in physics from Case Western Reserve University, MBA and Ph.D in finance from the University of Michigan,and Brandon, graduate of Georgetown’s School of Foreign Service ) “China’s Anti-Satellite Weapons Could Conquer Taiwan—Or Start a War,” National Interest, 8/21/2021] JL

If current trends hold, then China’s Strategic Support Force will be capable by the late 2020s of holding key U.S. space assets at risk. Chinese military doctrine, statements by senior officials, and past behavior all suggest that China may well believe threatening such assets to be an effective means of deterring U.S. intervention. If so, then the United States would face a type of “Sophie’s Choice”: decline to intervene, potentially leading allies to follow suit and Taiwan to succumb without a fight, thereby enabling Xi to achieve his goal of “peacefully” snuffing out Taiwanese independence; or start a war that would at best be long and bloody and might well even cross the nuclear threshold.

This emerging crisis has been three decades in the making. In 1991, China watched from afar as the United States used space-enabled capabilities to obliterate the Iraqi military from a distance in the first Gulf War. The People’s Liberation Army quickly set to work developing capabilities targeted at a perceived Achilles’ heel of this new American way of war: reliance on vulnerable space systems.

This project came to fruition with a direct ascent ASAT weapons test in 2007, but the test was limited in two key respects. First, it only reached low Earth orbit. Second, it generated thousands of pieces of long-lasting space junk, provoking immense international ire. This backlash appears to have taken China by surprise, driving it to seek new, more usable ASAT types with minimal debris production. Now, one such ASAT is nearing operational status: spacecraft capable of rendezvous and proximity operations (RPOs).

Such spacecraft are inevitable and cannot realistically be limited. The United States, European Union, China, and others are developing them to provide a range of satellite services essential to the new space economy, such as in situ repairs and refueling of satellites and active removal of space debris. But RPO capabilities are dual-use: if a satellite can grapple space objects for servicing, then it might well be capable of grappling an adversary’s satellite to move it out of its servicing orbit. Perhaps it could degrade or disable it by bending or disconnecting its solar panels and antennas all while producing minimal debris.

This is a serious threat, primarily because no international rules presently exist to limit close approaches in space. Left unaddressed, this lacuna in international law and space policy could enable a prospective attacker to pre-position, during peacetime, as many spacecraft as they wish as close as they wish to as many high-value targets as they wish. The result would be an ever-present possibility of sudden, bolt-from-the-blue attacks on vital space assets—and worse, on many of them at once.

China has conducted at least half a dozen tests of RPO capabilities in space since 2008, two of which went on for years. Influential space experts have noted that these tests have plausible peaceful purposes and are in many cases similar to those conducted by the United States. This, however, does not make it any less important to establish effective legal, policy, and technical counters to their offensive use. Even if it were certain that these capabilities are intended purely for peaceful applications—and it is not at all clear that that is the case—China (or any other country) could at any time decide to repurpose these capabilities for ASAT use.

There is still time to get out ahead of this threat, but likely not for much longer. China’s RPO capabilities have, thus far, lagged about five years behind those of the United States. There are reasons to believe this gap may close, but even assuming that it holds, we should expect to see China demonstrate an operational dual-use rendezvous spacecraft by around 2025. (The first instance of a U.S. commercial satellite docking with another satellite to change its orbit occurred in February 2020.)

At the same time, China is expanding its capacity for rapid spacecraft manufacturing. The Global Times reported in January that China’s first intelligent mass production line is set to produce 240 small satellites per year. In April, Andrew Jones at SpaceNews reported that China is developing plans to quickly produce and loft a thirteen thousand-satellite national internet megaconstellation. It is not unreasonable to assume that China could manufacture two hundred small rendezvous ASAT spacecraft by 2029, possibly more.

If this happens, and Beijing was to decide in 2029 to launch these two hundred small RPO spacecraft and position them in close proximity to strategically vital assets, then China would be able to simultaneously threaten disablement of the entire constellations of U.S. satellites for missile early warning (about a dozen satellites with spares included); communications in a nuclear-disrupted environment (about a dozen); and positioning, navigation, and timing (about three dozen); along with several dozen key communications, imagery, and meteorology satellites. Losing these assets would severely degrade U.S. deterrence and warfighting capabilities, yet once close pre-positioning has occurred such losses become almost impossible to prevent. For this reason, such pre-positioning could conceivably deter the United States from coming to Taiwan’s aid due to the prospect that intervention would spur China to disable these critical space systems. Without their support, the war would be much bloodier and costlier—a daunting proposition for any president.

Should the United States fail to intervene, the consequences would be disastrous for both Washington and its allies in East Asia, and potentially the credibility of U.S. defense commitments around the globe. Worse yet, however, might be what could happen if China believes that such a threat will succeed but proves to be wrong. History is rife with examples of major wars arising from miscalculations such as this, and there are many pathways by which such a situation could easily escalate out of control to a full-scale conventional conflict or even to nuclear use.

#### Starlink development solves – mega-constellations are unjammable and accurate

Harris 20 [(Mark, Knight Science Journalism Fellow at MIT in 2013, writes about technology, science, business, the environment, and travel, internally cites Todd Humphreys, Professor of Aerospace Engineering at UT Austin, and Peter Iannucci,, Postdoctoral Research Fellow in Aerospace Engineering and Engineering Mechanics at UT Austin) “SpaceX’s Starlink satellites could make US Army navigation hard to jam,” MIT Technology Review, 9/28/2020] JL

Now, research funded by the US Army has concluded that the growing mega-constellation could have a secondary purpose: doubling as a low-cost, highly accurate, and almost unjammable alternative to GPS. The new method would use existing Starlink satellites in low Earth orbit (LEO) to provide near-global navigation services.

In a non-peer-reviewed paper, Todd Humphreys and Peter Iannucci of the Radionavigation Laboratory at the University of Texas at Austin claim to have devised a system that uses the same satellites, piggybacking on traditional GPS signals, to deliver location precision up to 10 times as good as GPS, in a system much less prone to interference.

The Global Positioning System consists of a constellation of around 30 satellites orbiting 20,000 kilometers above Earth. Each satellite continuously broadcasts a radio signal containing its position and the exact time from a very precise atomic clock on board. Receivers on the ground can then compare how long signals from multiple satellites take to arrive and calculate their position, typically to within a few meters.

The problem with GPS is that those signals are extremely weak by the time they reach Earth, and are easily overwhelmed by either accidental interference or electronic warfare. In China, mysterious GPS attacks have successfully “spoofed” ships in fake locations, while GPS signals are regularly jammed in the eastern Mediterranean.

The US military relies heavily on GPS. Last year, the US Army Futures Command, a new unit dedicated to modernizing its forces, visited Humphreys’s lab to talk about a startup called Coherent Navigation he had cofounded in 2008. Coherent, which aimed to use signals from Iridium satellites as a rough alternative to GPS, was acquired by Apple in 2015.

“They told me the Army has a relationship with SpaceX [it signed an agreement to test Starlink to move data across military networks in May] and would I be interested in talking to SpaceX about using their Starlink satellites the same way that I used these old Iridium satellites?” Humphreys says. “That got us an audience with people at SpaceX, who liked it, and the Army gave us a year to look into the problem.” Futures Command also provided several million dollars in funding.

The concept of using LEO satellites for navigation isn't new. In fact, some of the first US spacecraft launched in the 1960s were Transit satellites orbiting at 1,100 kilometers, providing location information for Navy ships and submarines. The advantage of an LEO constellation is that the signals can be a thousand times stronger than GPS. The disadvantage is that each satellite can serve only a small area beneath it, so that reliable global coverage requires hundreds or even thousands of satellites.

Building a whole new network of LEO satellites with ultra-accurate clocks would be an expensive undertaking. Bay Area startup Xona Space Systems plans to do just that, aiming to launch a constellation of at least 300 Pulsar satellites over the next six years.

Humphreys and Iannucci’s idea is different: they would use a simple software upgrade to modify Starlink’s satellites so their communications abilities and existing GPS signals could provide position and navigation services .

They claim their new system can even, counterintuitively, deliver better accuracy for most users than the GPS technology it relies upon. That is because the GPS receiver on each Starlink satellite uses algorithms that are rarely found in consumer products, to pinpoint its location within just a few centimeters. These technologies exploit physical properties of the GPS radio signal, and its encoding, to improve the accuracy of location calculations. Essentially, the Starlink satellites can do the heavy computational lifting for their users below.

The Starlink satellites are also essentially internet routers in space, capable of achieving 100 megabits per second. GPS satellites, on the other hand, communicate at fewer than 100 bits per second.

“There are so few bits per second available for GPS transmissions that they can’t afford to include fresh, highly accurate data about where the satellites actually are,” says Iannucci. “If you have a million times more opportunity to send information down from your satellite, the data can be much closer to the truth.”

The new system, which Humphreys calls fused LEO navigation, will use instant orbit and clock calculations to locate users to within 70 centimeters, he estimates. Most GPS systems in smartphones, watches, and cars, for comparison, are only accurate to a few meters.

But the key advantage for the Pentagon is that fused LEO navigation should be significantly more difficult to jam or spoof. Not only are its signals much stronger at ground level, but the antennas for its microwave frequencies are about 10 times more directional than GPS antennas. That means it should be easier to pick up the true satellite signals rather than those from a jammer.  “At least that’s the hope,” says Humphreys.

According to Humphreys and Iannucci’s calculations, their fused LEO navigation system could provide continuous navigation service to 99.8% of the world’s population, using less than 1% of Starlink’s downlink capacity and less than 0.5% of its energy capacity.

“I do think this could lead to a more robust and accurate solution than GPS alone,” says Todd Walter of Stanford University’s GPS Lab, who was not involved with the research. “And if you don’t have to modify Starlink’s satellites, it certainly is a fast, simple way to go.”

#### Taiwan goes nuclear – the US gets drawn in

The Week 1/4 [(The Week Staff, weekly news magazine with editions in the United Kingdom and United States) “What would happen if China tried to invade Taiwan?” The Week Staff, 1/4/2022] JL

If a conflict were to break out between the two neighbours it would be “a catastrophe”, reported The Economist. This is first because of “the bloodshed in Taiwan” but also because of the risk of “escalation between two nuclear powers”, namely the US and China.

Beijing massively outguns Taiwan, with estimates from the Stockholm International Peace Research Institute showing that China spends about 25 times more on its military. However, Taiwan has a defence pact with the US dating back to the 1954 Sino-American Mutual Defence Treaty, meaning the US could, in theory, be drawn into the conflict.

“Beijing’s optimistic version of events” after the decision to invade would see “cyber and electronic warfare units target Taiwan’s financial system and key infrastructure, as well as US satellites to reduce notice of impending ballistic missiles”, Bloomberg said.

“Chinese vessels could also harass ships around Taiwan, restricting vital supplies of fuel and food,” the news site continued, while “airstrikes would quickly aim to kill Taiwan’s top political and military leaders, while also immobilising local defences”.

This would be followed by “warships and submarines traversing some 130 kilometres [80 miles] across the Taiwan Strait”, before “thousands of paratroopers would appear above Taiwan’s coastlines, looking to penetrate defences [and] capture strategic buildings”.

According to satellite imagery seen by military news site The Drive, China has also begun “beefing up its combat aviation infrastructure across from Taiwan as invasion fears grow”.

Beijing “is upgrading three air bases located opposite” the island, “boosting its air power capability in an already tense region that is flush with air combat capabilities.”

“Construction of the new infrastructure began in early 2020 and continued uninterrupted through the pandemic, underlining its priority,” the site added.

Taiwan would be reliant on “natural defences” – its rugged coastline and rough sea – with plans to “throw a thousand tanks at the beachhead” in the event of a Chinese invasion that could result in “brutal tank battles” that “decide the outcome”, according to Forbes.

The island’s top military leadership has also “warned China that the closer its aircraft and ships get to the island the harder Taipei will respond”, Bloomberg reported, with “a multi-pronged approach that utilises aircraft, ships and its air defence systems to counter Chinese military incursions” in the works.

“Chinese state media has dismissed the idea of Taiwan retaliating,” the news agency added. But a report by the island’s defence ministry sent to legislators shows the island is preparing to “take tougher measures” should they be necessary.

This would all be complicated by the US pledge to defend its ally in what The Economist called a “test of America’s military might and its diplomatic and political resolve”.

Asked last week during a CNN town hall meeting whether the US would mount a military response if Beijing attempted to take the island by force, Biden responded: “Yes, we have a commitment to do that.”

The Guardian said that Biden “made a similar pledge in August”, when he told ABC News that the US has a “sacred commitment” to defend its Nato allies in Canada and Europe and it was the “same with Japan, same with South Korea, same with Taiwan”.

If the US had decided against intervention, “China would overnight become the dominant power in Asia” and “America’s allies around the world would know that they could not count on it”, the paper added. In other words, “Pax Americana would collapse”.

That would be unacceptable in Washington, especially as “Joe Biden pivots US foreign policy towards a focus on the Indo-Pacific as the main arena for 21st-century superpower competition”, The Guardian said.

Biden’s comments during the CNN event were “at odds with the long-held US policy” of “strategic ambiguity”, The Telegraph said. Historically, Washington has helped “build Taiwan’s defences” but has “not explicitly promised to come to the island’s aid”.

US manoeuvres have so far consisted of building up “large amounts of lethal military hardware”, The Guardian added, with “the steady buildup of troops and equipment and the proliferation of war games” meaning there is “more of a chance of conflict triggered by miscalculation or accident”.

The primary danger that comes with US involvement lies in the fact that both Washington and Beijing possess nuclear weapons.

Leaked documents published by The New York Times earlier this year revealed the extent of Washington’s discussions about using nuclear weapons to deter a Chinese invasion of Taiwan in the 1950s.

Provided to the paper by Daniel Ellsberg, the whistleblower behind the 1971 Pentagon Papers, the documents appeared to show an “acceptance by some US military leaders of possible retaliatory nuclear strikes on US bases”, CNN noted, raising the spectre of how the nuclear powers would square off in a 21st-century conflict.

## 1NC – NC

**The standard is maximizing expected wellbeing – act hedonistic util**

1. **Moral uncertainty means preventing extinction should be our highest priority.  
   Bostrom 12** [Nick Bostrom. Faculty of Philosophy & Oxford Martin School University of Oxford. “Existential Risk Prevention as Global Priority.” Global Policy (2012)]  
   These reflections on **moral uncertainty suggest** an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate.¶ **Our present understanding of axiology might** well **be confused. We may not** nowknow — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet **be able to imagine the best ends** of our journey. **If we are** indeedprofoundly **uncertain** about our ultimate aims,then we should recognize that **there is a great** option **value in preserving** — and ideally improving — **our ability to recognize value and** to **steer the future accordingly. Ensuring** that **there will be a future** version of **humanity** with great powers and a propensity to use them wisely **is** plausibly **the best way** available to us **to increase the probability that the future will contain** a lot of **value.** To do this, we must prevent any existential catastrophe.
2. **Reducing the risk of extinction is always priority number one.   
   Bostrom 12** [Faculty of Philosophy and Oxford Martin School, University of Oxford.], Existential Risk Prevention as Global Priority.  Forthcoming book (Global Policy). MP. http://www.existenti...org/concept.pdfEven if we use the most conservative of these estimates, which entirely ignores the   possibility of space colonization and software minds, **we find that the expected loss of an existential   catastrophe is greater than the value of 10^16 human lives**.  **This implies that the expected value of   reducing existential risk by a mere one millionth of one percentage point is at least a hundred times the   value of a million human lives.**  The more technologically comprehensive estimate of 10  54 humanbrain-emulation subjective life-years (or 10  52  lives of ordinary length) makes the same point even   more starkly.  Even if we give this allegedly lower bound on the cumulative output potential of a   technologically mature civilization a mere 1% chance of being correct, we find that the expected   value of reducing existential risk by a mere one billionth of one billionth of one percentage point is worth   a hundred billion times as much as a billion human lives. **One might consequently argue that even the tiniest reduction of existential risk has an   expected value greater than that of the definite provision of any ordinary good, such as the direct   benefit of saving 1 billion lives.**  And, further, that the absolute value of the indirect effect of saving 1  billion lives on the total cumulative amount of existential riskâ€”positive or negativeâ€”is almost   certainly larger than the positive value of the direct benefit of such an action.

## 1NC – Case

### 1NC – Space War

**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.

#### Negotiations solve resource conflicts – history proves

Hickman 07 [(John, associate professor in the Department of Government and International Studies at Berry College) “Still crazy after four decades: The case for withdrawing from the 1967 Outer Space Treaty,” Space Review, 9/24/2007] JL

The second argument is that competition for territory in space could cause military conflict as it did competition between the powers on Earth in previous centuries. The argument misunderstands history and thus makes a poor analogy. In fact, the gunpowder empires found more reasons and locations to wage war close to home much more often than in distant colonial possessions. Imperial competition for vast amounts of the Earth’s surface was often resolved peacefully. In the late 18th century and continuing into the 19th century Britain, the Netherlands, France, Germany, and the United States divided Australasia and the central island Pacific without war. Britain, the United States, and Imperial Russia successfully negotiated a resolution of their claims to northwestern North America in the mid 19th century without war. During the “Scramble for Africa” Britain, France, Belgium, Germany, Portugal, and Italy divided sub-Saharan Africa without fighting one another, the results of which were recognized at the Congress of Berlin. To be sure, wars were fought in these new colonial territories but they were wars between colonizers and the colonized. Thus, any future competition for sovereign territory on celestial bodies is highly unlikely to lead to war because spacefaring states are capable of negotiating their different claims and because there are no extraterrestrial natives anywhere else in the Solar System who might object to national appropriation. Our solar system would be a more interesting place if Martians did exist but they are conspicuous by their absence.

#### Use or lose is wrong for great powers – answers their Krepon evidence

Kroenig 18 Matthew Kroenig, Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress, pp. 137-142

The second, and more common, argument as to why nuclear superiority might be destabilizing is because the state in the position of nuclear inferiority (in this case, America’s adversaries) may feel “use ’em or lose ’em” (UELE) pressures, but this argument also withers under interrogation.26

According to strategic stability theorists, a US nuclear advantage increases the danger of nuclear war because the inferior opponent may fear that its nuclear arsenal is vulnerable to a first strike. Rather, than wait for the adversary (in this case the United States) to move first and wipe out, or seriously blunt, its strategic forces, the argument goes, the inferior state may decide to intentionally launch a nuclear war early in a crisis in order to avoid suffering a disarming first strike. This is the logic most often invoked by strategic stability theorists when they claim that US nuclear advantages are destabilizing. This is also the precise problem identified and inspired by Wohlstetter’s basing studies.

Use ’em or lose ’em enjoys a certain superficial plausibility, but, upon closer inspection, there are two fundamental reasons why the logic simply does not hold up. First, it ignores the fact that the superior state retains a healthy ability to retaliate. So, even if the inferior state is worried about having its nuclear weapons eliminated in a first strike, the decision to launch its nuclear weapons first as a coping mechanism would be a decision to intentionally launch a nuclear war against a state with at least a secure, second-strike capability. This means that even if the inferior state launches its nuclear weapons first, it will be virtually guaranteed to suffer devastating nuclear retaliation. Moreover, given that it is in a situation of extreme inferiority (so extreme that it might even be vulnerable to a preemptive nuclear strike), this would mean intentionally launching a devastating nuclear war that will likely turn out much worse for itself then for its opponent. It would simply be irrational for a state to intentionally launch a nuclear war against a state with an assured retaliatory capability.

#### Space debris ensures 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 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 is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

#### State-sponsored programs make militarization inevitable – that proves it’s try or die for Starlink deterrence

Nagashiwa 20 [(Jun, Adjunct Professor at the National Defense Academy’s Graduate School of Security Studies in Japan, former Lieutenant General, MA in European Security from Tsukuba University) “The Militarization of Space and its Transformation into a Warfighting Domain,” Sasakawa Peace Foundation, 7/17/2020] JL

In 2018, the United States issued its first National Space Strategy, which recognized that its adversaries had turned space into a warfighting domain[1].Military use of space began with the Sputnik crisis in October 1957[2], which initiated the space race between the U.S. and the Soviet Union. More recently, a growing number of countries are pursuing military uses of space. India conducted an anti-satellite weapons test in March 2019 and Iran launched its first military satellite launch in April. In its reorganization in 2015, the Chinese PLA established the Strategic Support Force, which handles the fields of space, cyber, and the electromagnetic spectrum. Russia also set up an independent Space Force in the same year. In response to these developments, France established the Space Command in September 2019, and the U.S. organized the Space Force last December.

In January 2007, China carried out an anti-satellite destruction test using anti-satellite weapons (ASAT), triggering the development of space as a warfighting domain in the post-Cold War era. China needed to build asymmetric capabilities in space and cyberspace[3]as a response to an expected contingency in the Taiwan Strait. This test created a large amount of space debris and was met with intense international criticism[4]. Although space was used militarily for decades during the Cold War, both the U.S. and the Soviet Union refrained from these kinds of tests because careless physical attacks could have a significant impact on all operations in space[5]. However, China, which is pursuing a strategy of asymmetric warfare, has set foot into this “sanctuary,” and forced the United States to recognize the vulnerability of its space system[6].

Space has enormous potential for not only the development of science and technology, but also for economic growth. Globalized society is increasingly dependent on the space system, and Japan is participating in the U.S.-led Artemis Program, which aims to explore lunar space. China, which aspires to global economic leadership, is also moving to make use of cislunar space[7], and is expected to work with Russia[8]. Non-military competition in acquiring growth resources in space has already begun through the development and use of relevant technologies. Next-generation information and communications technology (ICT), quantum computing and other such technologies will reduce the vulnerability of space systems.

As space becomes a more important resource, increasing the resilience of space systems has become an urgent issue. There were about 20,000 pieces of space debris as of November 2019[9], and more players are set to enter the field with new business models that use a constellation of small, cheaper satellites. As a result, “congestion” in space is expected to become more serious. Furthermore, in addition to kinetic threats like ASAT and physical deterioration, non-kinetic threats like cyberattacks and laser obstruction are becoming more dangerous. The vulnerability of space systems will inevitably increase.

In the June 2020 U.S. Defense Space Strategy, China and Russia are labelled as the biggest operational threats to the U.S. in outer space, and are designated as parties who have weaponized space and turned it into an area of great power competition. Both China and Russia, which prioritize their own usage of space, are criticized for trying to prevent other countries from freely utilizing space[10].

Space is becoming a less stable environment, even as it holds the promise of becoming a new source of human prosperity.

There are growing signs that space is being utilized for security as the concept of the battlefield has changed with advances in technology[11].Technologies to address air and missile threats are a clear example of this. The accuracy and reliability of ballistic missile defense (BMD) systems has improved in recent years, but developments in offensive technologies have outpaced this progress. China and Russia are developing flying object threats that overwhelm defensive reaction capability in Western countries. Hypersonic glide vehicles (HGV), for example, travel at Mach 5 or higher, and missile threats with orbital change capabilities are difficult to intercept.

### Space Col

#### Space colonization infeasible

Coates 18 [(Andrew, Professor of Physics, Deputy Director (Solar System) at the Mullard Space Science Laboratory) “Sorry Elon Musk, but it’s now clear that colonising Mars is unlikely – and a bad idea”, May 6, 2017, The Conversation, <https://theconversation.com/sorry-elon-musk-but-its-now-clear-that-colonising-mars-is-unlikely-and-a-bad-idea-100964>] SS

Space X and Tesla founder Elon Musk has a vision for colonising Mars, based on a big rocket, nuclear explosions and an infrastructure to transport millions of people there. This was seen as [highly ambitious but technically challenging](https://theconversation.com/elon-musk-releases-details-of-plan-to-colonise-mars-heres-what-a-planetary-expert-thinks-79733) in several ways. Planetary protection rules and the difficulties of terraforming (making the planet hospitable by, for example, warming it up) and dealing with the harsh radiation were quoted as severe obstacles.

Undeterred, Musk took a first step towards his aim in February this year with [the launch of a Tesla roadster](https://theconversation.com/falcon-heavy-spacex-stages-an-amazing-launch-but-what-about-the-environmental-impact-91423) car into an orbit travelling beyond Mars on the first Falcon Heavy rocket. This dramatically illustrated the increasing launch capability for future missions made available by partnerships between commercial and government agencies.

But six months later, the plans have started to look more like fantasy. We have since learned that there could be life beneath Mars’ surface and that it may be impossible to terraform its surface.

The possibility that there currently could be life on the red planet was raised last week as scientists [reported the discovery](https://theconversation.com/discovered-a-huge-liquid-water-lake-beneath-the-southern-pole-of-mars-100523) of a salt water lake beneath Mars’ surface. The lake would be 1.5km below the south polar cap and at least 20km in diameter. This was found from analysis of subsurface radar data from the [Mars Express spacecraft](http://sci.esa.int/mars-express/). The water is thought to be briny, with the likely magnesium, calcium, and sodium perchlorate salts acting as an antifreeze down to temperatures of perhaps 200K (-73.15°C).

This is exciting as it is the first definitive detection of liquid water on Mars, and it is possible that there may be further deep lakes elsewhere on the planet. This means there is a real possibility of current life on Mars.

We already knew life could have existed on Mars in the past. There are several pieces of evidence indicating that Mars was habitable 3.8-4 billion years ago. Data from recent missions – including [Mars Global Surveyor](https://mars.nasa.gov/programmissions/missions/past/globalsurveyor/), [Odyssey](https://mars.nasa.gov/odyssey/), [Opportunity](https://mars.nasa.gov/mer/mission/status_opportunityAll.html), [Curiosity](https://www.space.com/17963-mars-curiosity.html) and Mars Express – have provided mounting evidence that water was present on the surface in streams and lakes with reasonable acidity and that the right chemistry for life to evolve existed there around the time that life was evolving on Earth.

But Mars lost its magnetic field, which would have protected life from harsh radiation from space, 3.8 billion years ago. This also meant its [atmosphere started leaking into space](https://theconversation.com/how-did-mars-lose-its-habitable-climate-the-answer-is-blowing-in-the-solar-wind-50258), making it increasingly inhospitable. So living organisms may not have survived.

But while the new discovery may fuel aspiring colonisers’ dreams that the water in the subsurface lake might be usable to sustain a human presence, the reality is very different.

The risk of contamination means we shouldn’t send humans there until we know for sure whether there is naturally evolved life – something that could take years to decades. We will need to drill under the surface and to analyse samples, either in-situ or from material returned to Earth, and find [suitable biomarkers](https://theconversation.com/exoplanets-how-we-used-chemistry-to-identify-the-worlds-most-likely-to-host-life-100897) to be sure.

Terraforming plans crushed?

Perhaps even more damning, the long-suggested idea of terraforming Mars is now firmly locked in the realm of science fiction. Musk has previously indicated that he wants to terraform the planet to make it more Earth-like, so you can “[eventually walk around outside without anything on](https://www.cbsnews.com/news/elon-musk-on-mars-its-a-fixer-upper-of-a-planet/).” This would most easily be done by producing an atmosphere made of heat-trapping greenhouse gases locked in the planet’s ice in order to raise its temperature and pressure. Musk has suggested that we could [drop thermonuclear bombs](http://www.iflscience.com/space/elon-musk-says-we-could-terraform-mars-dropping-thermonuclear-bombs-it/)  on the ice at its poles in order to heat it up to release the carbon dioxide.

But according to a new study, [published in Nature Astronomy](https://www.newscientist.com/article/2175414-terraforming-mars-might-be-impossible-due-to-a-lack-of-carbon-dioxide/), Mars has lost so much of its potential greenhouse gases to space over billions of years that there is now no possibility of transforming the remaining atmosphere into a breathable one with available technology.

The study is based on measurements of the recent escape rate of gases to space measured over the last 15 years by Mars Express and the last four years by [MAVEN](https://mars.nasa.gov/maven/). This can tell us how much effective greenhouse gases, carbon dioxide and water are available at Mars. The measurements, combined with knowledge of the inventories of carbon dioxide and water on Mars from recent space missions, show that greenhouses gases locked in the ice caps are not enough to provide the necessary heating.

More may be available deep within the planet but extracting that is well beyond today’s technology. Also, the atmosphere is still being lost due to the lack of a magnetic field, so that would need to be somehow slowed to maintain any changes achieved by terraforming. This means that potential explorers would need to use heavy, airtight walls, roofs or buildings to provide the right atmosphere and the required screening from cosmic radiation.

While Musk may be disappointed by these new results, most Mars scientists are breathing a sigh of relief. There may be present or past life on Mars, and we can now focus on finding it.

We will be searching for signs of life with the [ESA-Russian ExoMars 2020 rover](https://theconversation.com/decades-of-attempts-show-how-hard-it-is-to-land-on-mars-heres-how-we-plan-to-succeed-in-2021-69734), and the NASA [Mars 2020 mission](https://mars.nasa.gov/mars2020/) will gather samples for eventual return to Earthbound laboratories by around 2030. The results of all this may tell us if there was, is or could be life elsewhere. In our solar system, the best targets are Mars, [Saturn’s moon Enceladus](https://theconversation.com/nasa-saturn-moon-enceladus-is-able-to-host-life-its-time-for-a-new-mission-76102) and [Titan](https://theconversation.com/saturns-moon-titan-may-harbour-simple-life-forms-and-reveal-how-organisms-first-formed-on-earth-81527), and [Jupiter’s moons Europa](https://theconversation.com/signs-of-water-plumes-boost-chances-of-finding-life-on-jupiters-moon-europa-96507). And these just hint of the potential for life on the many planets beyond our own solar system.

Mars is bright in our skies this week, the brightest since 2003. The red planet is never far from our thoughts, whether as a potential cradle for life beyond Earth or as a target for humans in the future. We live in exciting times when it comes to space exploration. So let’s not spoil one of the largest and most fundamental experiments for humankind by letting dreams of colonisation go too far – at least until we know whether there is life.

#### Too expensive and risky

Lichtenstein 18[(Drew Lichtenstein is a writer for Sciencing. His articles have appeared in the collegiate newspaper "The Red and Black." He holds a Master of Arts in comparative literature from the University of Georgia.) “Bad Things About Space Exploration” Sciencing, April 23,2018] TDI

One of the biggest criticisms against space exploration is the cost. According to the University of Florida, it costs around $500 million to launch a space shuttle. These expenses will only go up when considering longer-term space travel, such as manned explorations to Mars or Jupiter's moons. While new technology may certainly limit the inefficient costs involved in space exploration, many argue that it is still money that could be better spent on more pressing issues. There is always the problem of unforeseen risk with space exploration. The space shuttle Challenger exploded during launch in 1986, killing seven astronauts, and the shuttle Colombia exploded during reentry in 2003, also killing seven. Radiation from the sun is a constant danger to astronauts, and there may be unforeseen risks when they are traveling far beyond the earth, exacerbated by the fact that there would be little hope of getting back home in time for help. Tied in with the question of cost and risk of human life is the question of justification. Space exploration appeals to the human desire to learn about the universe; however, it does not have any straightforward, pragmatic application. While there may be some practical use in the distant future, such as possibly colonizing other planets, it is difficult to justify continued space exploration to people who are worried about immediate concerns, such as crime or the economy. Unmanned space probes are often considered the best choice for space exploration, because they do not put human lives at risk and are relatively cheaper to launch since they do not need space for human comfort or necessities. However, there are also downsides to unmanned probes, including the fact that they cannot adapt to unforeseen circumstances. A good example of this is the Mars Climate Orbiter, which received incorrect coordinates for landing and burned upon entry before it could send any data about Mars. Over $120 million was wasted on this probe.