# 2NR

#### China hates the plan – this is based on capabilities --

Zhang 18, 3-7-2018 - Hui, research associate in the Project on Managing the Atom at Harvard University’s John F. Kennedy School of Government; "Action/Reaction: U.S. Space Weaponization and China," Arms Control, https://www.armscontrol.org/act/2005-12/features/actionreaction-us-space-weaponization-china

Historically, China’s stated purpose for developing nuclear weapons was to guard itself against nuclear blackmail. Beijing’s official statements do not discuss potential responses to U.S. space weaponization, but many Chinese officials and scholars argue that China must ensure that U.S. efforts do not negate the effectiveness of its nuclear deterrent. As one Chinese official stated: China is not in a position to conduct an arms race with the United States and it does not intend to do so, particularly in the field of missile defense. However, China will not sit idly by and watch its strategic interests being jeopardized without taking necessary measures. It is quite possible and natural for China to review its military doctrine and a series of policies on the relationship with big powers, Taiwan issues, arms control and nonproliferation, etc. Certainly, the best option for China is to reach an arms control agreement to prevent space weaponization, as it is advocating now. However, if this effort fails and if what China perceives as its legitimate security concerns are ignored, China would very likely develop other responses to neutralize the perceived threat. Because it is not clear what type of missile defense system the United States will finally deploy or whether the U.S. space control plans will be implemented, it is difficult to identify conclusively China’s specific countermeasures. Yet, there are certain options that it would be likely to consider. It should be noted that these discussions are based on China’s capabilities and do not characterize China’s intentions.

# 1NC vs Cogito CL

### 1NC – Off

#### 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 – Off

#### Xi is consolidating unprecedented political power – that’s only possible with strong PLA support

Chang 21 [(Gordon, columnist, author and lawyer, has given briefings at the National Intelligence Council, the CIA, and the State Department, JD from Cornell Law School) “China Is Becoming a Military State,” Newsweek, 1/14/2021] JL

At this moment, the Communist Party is taking back power from all others in society, including the State Council, and the military is gaining influence inside Party circles.

Why is the People's Liberation Army making a comeback? The answer lies in succession politics.

Xi Jinping was selected the top leader because he was not identified with any of the main factional groupings—like the Communist Youth League of Hu Jintao or the Shanghai Gang of Jiang—that dominated Party politics. Xi, in short, was the least unacceptable choice to the Party's squabbling factional elders.

Xi, once chosen, apparently decided that in order to rule, he needed a base, so he made certain officers the core of his support. As longtime China watcher Willy Lam told Reuters in 2013, Xi Jinping's faction is the military.

And with the help of the military, Xi has accumulated almost unprecedented political power, ending the Party's two-decade-old consensus-driven system and replacing it with one-man rule.

As Wang, a professor at the Georgia Institute of Technology, notes, Xi, with the amendments to the National Defense Law, is demonstrating his power of "leading everything and everyone." He is wrapping that effort in a "rule by law" move that is formalizing his perch at the top of the Chinese political system.

How is Xi using his newfound power? There is a hint in the National Defense Law amendments. These changes, Fisher tells us, "increase the powers of the CMC to mobilize the civilian sector for wartime and to better authorize the CMC to engage in foreign military exercises to defend China's 'development interests.'" As such, the changes "point to China's ambition to achieve 'whole nation' levels of military mobilization to fight wars, and give the CMC formal power to control the future Chinese capabilities for global military intervention."

"The revised National Defense Law also embodies the concept that everyone should be involved in national defense," reports the Communist Party's *Global Times*, summarizing the words of an unnamed CMC official. "All national organizations, armed forces, political parties, civil groups, enterprises, social organizations and other organizations should support and take part in the development of national defense, fulfill national defense duties and carry out national defense missions according to the law."

That sounds like Xi is getting ready to pick even more fights with neighbors—and perhaps the United States. On January 5, he ordered People's Liberation Army generals and admirals to be prepared to "act at any second."

Why would Xi want to start a war? "This is really indicative of there being instability in China, and Mr. Xi seeking to consolidate power around himself. ...The new National Defense Law essentially removes the alternative power base of the premier of the State Council, in this case Li Keqiang, from interfering with Mr. Xi's own power ambitions," said Charles Burton of the Ottawa-based Macdonald-Laurier Institute to John Batchelor, the radio host, earlier this month. As Burton noted, the amendments to the National Defense Law undermine Premier Li Keqiang, the head of the State Council and long-standing rival to Xi.

"I think this really gives the green light for him to dispatch the military on any pretext that he feels is necessary to defend his power," Burton says. "China is becoming a military state."

#### The plan alienates the PLA – they perceive space dominance as key to military strength – independently, space cooperation forces fights

Dean Cheng 19, Senior Research Fellow graduated from Princeton with a BA in politics and MIT, Asian Studies Center, 4/9/19, “Prospects for U.S.-China Space Cooperation”, https://www.heritage.org/testimony/prospects-us-china-space-cooperation

Moreover, in keeping with the Chinese memory of the “Century of Humiliation,” Beijing will want any cooperative venture to be, at a minimum, on a co-equal basis. For the PRC to be treated as anything other than a full member in any program or effort would smack of the “unequal treaties” that marked China’s interactions with the rest of the world between 1839 and 1949. For the same reason, China has generally been reluctant to join any organization or regime in which it was not party to negotiating. For the CCP, whose political legitimacy rests, in part, on the idea that it has restored Chinese pride and greatness, this is likely to be a significant part of any calculation.

At the same time, space is now a sector that enjoys significant political support within the Chinese political system. Based on their writings, the PLA is clearly intent upon developing the ability to establish “space dominance,” in order to fight and win “local wars under informationized conditions.”[8] The two SOEs are seen as key parts of the larger military-industrial complex, providing the opportunities to expose a large workforce to such areas as systems engineering and systems integration. It is no accident that China’s commercial airliner development effort tapped the top leadership of China’s aerospace corporations for managerial and design talent.[9] From a bureaucratic perspective, this is a powerful lobby, intent on preserving its interests.¶ China’s space efforts should therefore be seen as political, as much as military or economic, statements, directed at both domestic and foreign audiences. Insofar as the PRC has scored major achievements in space, these reflect positively on both China’s growing power and respect (internationally) and the CCP’s legitimacy (internally). Efforts at inducing Chinese cooperation in space, then, are likely to be viewed in terms of whether they promote one or both objectives. As China has progressed to the point of being the world’s second-largest economy (in gross domestic product terms), it becomes less clear as to why China would necessarily want to cooperate with other countries on anything other than its own terms.¶ Prospects for Cooperation

Within this context, then, the prospects for meaningful cooperation with the PRC in the area of space would seem to be extremely limited. China’s past experience of major high-technology cooperative ventures (Sino–Soviet cooperation in the 1950s, U.S.–China cooperation in the 1980s until Tiananmen, and Sino–European space cooperation on the Galileo satellite program) is an unhappy one, at best. The failure of the joint Russian–Chinese Phobos–Grunt mission is likely seen in Beijing as further evidence that a “go-it-alone” approach is preferable.

Nor is it clear that, bureaucratically, there is significant interest from key players such as the PLA or the military industrial complex in expanding cooperation.[10] Moreover, as long as China’s economy continues to expand, and the top political leadership values space efforts, there is little prospect of a reduction in space expenditures—making international cooperation far less urgent for the PRC than most other spacefaring states.

If there is likely to be limited enthusiasm for cooperation in Chinese circles, there should also be skepticism in American ones. China’s space program is arguably one of the most opaque in the world. Even such basic data as China’s annual space expenditures is lacking—with little prospect of Beijing being forthcoming. As important, China’s decision-making processes are little understood, especially in the context of space. Seven years after the Chinese anti-satellite (ASAT) test, exactly which organizations were party to that decision, and why it was undertaken, remains unclear. Consequently, any effort at cooperation would raise questions about the identity of the partners and ultimate beneficiaries—with a real likelihood that the PLA would be one of them.

#### The private sector is key

Patel 21 [(Neel, space reporter for MIT Technology Review, and I also write The Airlock newsletter, your number one source for everything happening off this planet. Before joining, he worked as a freelance science and technology journalist, contributing stories to Popular Science, The Daily Beast, Slate, Wired, the Verge, and elsewhere. Prior to that, he was an associate editor for Inverse, where I grew and led the website’s space coverage.) “China’s surging private space industry is out to challenge the US” MIT Technology Review, 1/21/2021. https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/] BC

At first glance, the Ceres-1 launch might seem unremarkable. Ceres-1, however, wasn’t built and launched by China’s national program. It was a commercial rocket—only the second from a Chinese company ever to go into space. And the launch happened less than three years after the company was founded. The achievement is a milestone for China’s fledgling—but rapidly growing—private space industry, an increasingly critical part of the country’s quest to dethrone the US as the world’s preeminent space power.

The rivalry between the US and China, whose space program has surged over the last two decades, is what most people mean when they refer to the 21st-century's space race. China is set to build a new space station later this year and will likely attempt to send its taikonauts to the moon before the decade ends. But these big-picture projects represent just one aspect of the country’s space ambitions. Increasingly, the focus is now on the commercial space industry as well. The nation's growing private space business is less focused on bringing prestige and glory to the nation and more concerned with reducing the cost of spaceflight, increasing its international influence—and making money.

“The state is really great at large, ambitious projects like going to the moon or developing a large reconnaissance satellite,” says Lincoln Hines, a Cornell University researcher who focuses on Chinese foreign policy. “But it’s not responsive to meeting market needs”—one big way to encourage rapid technological growth and innovation. “I think the government thinks its commercial space sector can be complementary to the state,” he says.

What are the market needs that Hines is referring to? Satellites, and rockets that can launch them into orbit. The space industry is undergoing a renaissance thanks to two big trends spurred by the commercial industry: we can make satellites for less money by making them smaller and using off-the-shelf hardware; and we can also make rockets for less money, by using less costly materials or reusing boosters after they’ve already flown (which SpaceX pioneered with its Falcon 9). These trends mean it is now cheaper to send stuff into space, and the services and data that satellites can offer have come down in price accordingly.

China has seen an opportunity. A 2017 report by Bank of America Merrill Lynch estimates that the space industry could be worth up to $2.7 trillion by 2030. Setting foot on the moon and establishing a lunar colony might be a statement of national power, but securing a share of such a highly lucrative business is perhaps even more important to the country’s future.

“In the future, there will be tens of thousands of satellites waiting to launch, which is a major opportunity for Galactic Energy” says Wu Yue, a company spokesperson.

The problem is, China has to make up decades’ worth of ground lost to the West.

#### That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient

Simpson 16 [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling divided loyalties between Chinese Party, military and government bodies, one must also recognize that within each, factions exist, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of diffuse reporting chains, competing allegiances, and often effective socialization by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, the PLA is not unconditionally subservient to a particular leader and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which the military actually holds a preponderance of the power capabilities and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, support for Xi could erode very quickly.29

#### CCP instability collapses the international order – extinction

Perkinson 12 [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the implications for international and US national security are vast. Not only does China and the stability of the CCP play a significant role in the maintenance of peace in the East Asian region, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ largest holder of US treasury securities, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the largest trading partner of a number of countries, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

#### Independently, Xi will lash out to preserve cred in the SCS – US draw-in ensures extinction

Mastro 20 [(Oriana Skylar, Assistant Professor of Security Studies at Georgetown University's Edmund A. Walsh School of Foreign Service, Resident Scholar at the American Enterprise Institute) “Military Confrontation in the South China Sea,” Council on Foreign Relations, 5/21/2020] JL

The risk of a military confrontation in the South China Sea involving the United States and China could rise significantly in the next eighteen months, particularly if their relationship continues to deteriorate as a result of ongoing trade frictions and recriminations over the novel coronavirus pandemic. Since 2009, China has advanced its territorial claims in this region through a variety of tactics—such as reclaiming land, militarizing islands it controls, and using legal arguments and diplomatic influence—without triggering a serious confrontation with the United States or causing a regional backlash. Most recently, China announced the creation of two new municipal districts that govern the Paracel and Spratly Islands, an attempt to strengthen its claims in the South China Sea by projecting an image of administrative control. It would be wrong to assume that China is satisfied with the gains it has made or that it would refrain from using more aggressive tactics in the future. Plausible changes to China’s domestic situation or to the international environment could create incentives for China’s leadership to adopt a more provocative strategy in the South China Sea that would increase the risk of a military confrontation.

The United States has a strong interest in preventing China from asserting control over the South China Sea. Maintaining free and open access to this waterway is not only important for economic reasons, but also to uphold the global norm of freedom of navigation. The United States is also at risk of being drawn into a military conflict with China in this region as a result of U.S. defense treaty obligations to at least one of the claimants to the contested territory, the Philippines. China’s ability to control this waterway would be a significant step toward displacing the United States from the Indo-Pacific region, expanding its economic influence, and generally reordering the region in its favor. Preventing China from doing so is the central objective of the U.S. National Security Strategy and the reason the Indo-Pacific is the U.S. military’s main theater of operations. For these reasons, the United States should seek ways to prevent Chinese expansion, ideally while avoiding a dangerous confrontation and being prepared to deftly manage any crises should they arise.

China considers the majority of the South China Sea to be an inalienable part of its territory. Exercising full sovereignty over this area is a core component of President Xi Jinping’s “China Dream.” China does not accept or respect the sovereignty claims of Brunei, Indonesia, Malaysia, the Philippines, Taiwan, or Vietnam in this region. Although China has been cautious in pressing its claims thus far, three developments could convince Xi that China should be more assertive.

Xi could feel compelled to accelerate his timeline in the South China Sea to maintain his consolidated position within the Chinese Communist Party (CCP), particularly if the political situation in Hong Kong worsens, peaceful reunification with Taiwan becomes less likely, or domestic criticism of his management of the novel coronavirus outbreak increases. With China’s economic growth for 2020 projected to hit only 1.2 percent—the lowest since the mid-1970s—Xi could find it necessary to demonstrate strength while Beijing deals with internal fallout from the pandemic. China has already declared two new administrative districts in the South China Sea in April 2020 and has escalated its criticism of U.S. freedom of navigation operations (FONOPs) in the area. Moreover, with expectations that the first stage of China’s military modernization efforts will be completed in 2020, Xi could become more confident that China would succeed in pressing its claims militarily, especially if the United States is distracted internally with managing the coronavirus pandemic or its aftermath.

### 1NC – Off

#### Climate change makes water shortages inevitable – that causes hydro-political conflict escalation which goes nuclear

Jamail 19 [(Dahr, writes for *Truthout* about climate change issues, recipient of the 2008 Martha Gellhorn Prize for Journalism, frequent guest on *Democracy Now!*) “The World Is on the Brink of Widespread Water Wars,” Truth Out, 2/11/2019] JL

Mark’s words should be a call to attention, and a call to action. The plight of farmers in Australia illustrates a larger reality: As planetary temperatures continue to increase and rainfall patterns shift due to human-caused climate disruption, our ability to grow crops and have enough drinking water will become increasingly challenged, and the outlook is only going to worsen.

The most recent United Nations Intergovernmental Panel on Climate Change report warned of increasingly intense droughts and mass water shortages around large swaths of the globe.

But even more conservative organizations have been sounding the alarm. “Water insecurity could multiply the risk of conflict,” warns one of the World Bank’s reports on the issue. “Food price spikes caused by droughts can inflame latent conflicts and drive migration. Where economic growth is impacted by rainfall, episodes of droughts and floods have generated waves of migration and spikes in violence within countries.”

Meanwhile, a study published in the journal Global Environmental Change, looked at how “hydro-political issues” — including tensions and potential conflicts — could play out in countries expected to experience water shortages coupled with high populations and pre-existing geopolitical tensions.

The study warned that these factors could combine to increase the likelihood of water-related tensions — potentially escalating into armed conflict in cross-boundary river basins in places around the world by 74.9 to 95 percent. This means that in some places conflict is practically guaranteed.

These areas include regions situated around primary rivers in Asia and North Africa. Noted rivers include the Tigris and Euphrates, the Indus, the Nile, and the Ganges-Brahmaputra.

Consider the fact that 11 countries share the Nile River basin: Egypt, Burundi, Kenya, Eritrea, Ethiopia, Uganda, Rwanda, Sudan, South Sudan, Tanzania and the Democratic Republic of Congo. All told, more than 300 million people already live in these countries, — a number that is projected to double in the coming decades, while the amount of available water will continue to shrink due to climate change.

For those in the US thinking these potential conflicts will only occur in distant lands — think again. The study also warned of a very high chance of these “hydro-political interactions” in portions of the southwestern US and northern Mexico, around the Colorado River.

Potential tensions are particularly worrisome in India and Pakistan, which are already rivals when it comes to water resources. For now, these two countries have an agreement, albeit a strained one, over the Indus River and the sharing of its water, by way of the 1960 Indus Water Treaty.

However, water claims have been central to their ongoing, burning dispute over the Kashmir region, a flashpoint area there for more than 60 years and counting.

The aforementioned treaty is now more strained than ever, as Pakistan accuses India of limiting its water supply and violating the treaty by placing dams over various rivers that flow from Kashmir into Pakistan.

In fact, a 2018 report from the International Monetary Fund ranked Pakistan third among countries facing severe water shortages. This is largely due to the rapid melting of glaciers in the Himalaya that are the source of much of the water for the Indus.

To provide an idea of how quickly water resources are diminishing in both countries, statistics from Pakistan’s Islamabad Chamber of Commerce and Industry from 2018 show that water availability (per capita in cubic meters per year) shrank from 5,260 in 1951, to 940 in 2015, and are projected to shrink to 860 by just 2025.

In India, the crisis is hardly better. According to that country’s Ministry of Statistics (2016) and the Indian Ministry of Water Resources (2010), the per capita available water in cubic meters per year was 5,177 in 1951, and 1,474 in 2015, and is projected to shrink to 1,341 in 2025.

Both of these countries are nuclear powers. Given the dire projections of water availability as climate change progresses, nightmare scenarios of water wars that could spark nuclear exchanges are now becoming possible.

#### Asteroid mining solves water access – only NEOs are sufficiently proximate and hydrated – independently, storing launch fuel on asteroids reduces space debris – turns case

Tillman 19 [(Nola Taylor, has been published in Astronomy, Sky & Telescope, Scientific American, New Scientist, Science News (AAS), Space.com, and Astrobiology magazine, BA in Astrophysics) “Tons of Water in Asteroids Could Fuel Satellites, Space Exploration,” Space, 9/29/2019] JL

When it comes to mining space for water, the best target may not be the moon: Entrepreneurs' richest options are likely to be asteroids that are larger and closer to Earth.

A recent study suggested that roughly 1,000 water-rich, or hydrated, asteroids near our planet are easier to reach than the lunar surface is. While most of these space rocks are only a few feet in size, more than 25 of them should be large enough to each provide significant water. Altogether, the water locked in these asteroids should be enough to fill somewhere around 320,000 Olympics-size swimming pools — significantly more than the amount of water locked up at the lunar poles, the new research suggested.

Because asteroids are small, they have less gravity than Earth or the moon do, which makes them easier destinations to land on and lift off from. If engineers can figure out how to mine water from these space rocks, they could produce a source of ready fuel in space that would allow spacecraft designers to build refuelable models for the next generation of satellites. Asteroid mining could also fuel human exploration, saving the expense of launching fuel from Earth. In both cases, would-be space-rock miners will need to figure out how to free the water trapped in hydrated minerals on these asteroids.

"Most of the hydrated material in the near-Earth population is contained in the largest few hydrated objects," Andrew Rivkin, an asteroid researcher at Johns Hopkins University Applied Physics Research Laboratory in Maryland, told Space.com. Rivkin is the lead author on the paper, which estimated that near Earth asteroids could contain more easily accessible water than the lunar poles.

According to the United Nations Office for Outer Space Affairs, more than 5,200 of the objects launched into space are still in orbit today. While some continue to function, the bulk of them buzz uselessly over our heads every day. They carry fuel on board, and when they run out, they are either lowered into destructive orbits or left to become space junk, useless debris with the potential to cause enormous problems for working satellites. Refueling satellites in space could change that model, replacing it with long-lived, productive orbiters.

"It's easier to bring fuel from asteroids to geosynchronous orbit than from the surface of the Earth," Rivkin said. "If such a supply line could be established, it could make asteroid mining very profitable."

Hunting for space water from the surface of the Earth is challenging because the planet's atmosphere blocks the wavelength of light where water can be observed. The asteroid warming as it draws closer to the sun can also complicate measurements.

Instead, Rivkin and his colleagues turned to a class of space rocks called Ch asteroids. Although these asteroids don't directly exhibit a watery fingerprint, they carry the telltale signal of oxidized iron seen only on asteroids with signatures of water-rich minerals, which means the authors felt confident assuming that all Ch asteroids carry this rocky water.

Based on meteorite falls, a previous study estimated that Ch asteroids could make up nearly 10% of the near-Earth objects (NEOs). With this information, the researchers determined that there are between 26 and 80 such objects that are hydrated and larger than 0.62 miles (1 km) across.

Right now, only three NEOs have been classified as Ch asteroids, although others have been spotted in the asteroid belt. Most NEOs are discovered and observed at wavelengths too short to reveal the iron band that marks the class. Carbon-rich asteroids, which include Ch asteroids and other flavors, are also darker than the more common stony asteroids, making them more challenging to observe.

Although Ch asteroids definitely contain water-rich minerals, that doesn’t necessarily mean that they will always be the best bet for space mining. It comes down to risk. Would an asteroid-mining company rather visit a smaller asteroid that definitely has a moderate amount of water, or a larger one that could yield a larger payday but could also come up dry?

"Whether getting sure things with no false positives, like the Ch asteroids, is more important or if a greater range of possibilities is acceptable with the understanding that some asteroids will be duds is something the miners will have to decide," Rivkin said.

In addition to estimating the number of large, water-rich asteroids might be available, the study also found that as many as 1,050 smaller objects, roughly 300 feet (100 meters) across, may also linger near Earth. Their small bulk will make them easier to mine because their low gravity will require less fuel to escape from, but they will produce less water overall, and Rivkin expects that the handful of larger space rocks will be the first targets.

"It seems likely that the plan for these companies will be to find the largest accessible asteroid with mineable material with the expectation that it will be more cost-effective than chasing down a large number of smaller objects," Rivkin said. "How 'accessible' and 'mineable material' and 'cost-effective' are defined by each company is to be seen."

### 1NC - Off

#### Private space tourism boosts medical innovation.

Caplan et al. 17 [(Nick, Associate Professor of Musculoskeletal Health, Northumbria University, Newcastle) (Andrew Winnard, Lecturer, Northumbria University, Newcastle) (Kirsty Lindsay, PhD Candidate, Northumbria University, Newcastle) “Space tourism could help boost science and health research – here’s how,” The Conversation, 6/22/17. <https://theconversation.com/space-tourism-could-help-boost-science-and-health-research-heres-how-79812>] RR

Such adventures will be made possible through futuristic spaceplanes, as are already in development by companies such as Virgin Galactic, that will enable us mere mortals to experience weightlessness. If this sounds only of interest to those who can afford the six-figure ticket price, it also has major implications for scientific discovery. Space travel-related research has probably already had a more substantial positive impact on your life than you realise, and this announcement could increase this still further.

Space agencies such as ESA and NASA currently provide access to simulated microgravity for scientific research using parabolic flights. These allow human physiology research to be carried out more easily than on the International Space Station, but the time spent in microgravity is very short. Spaceplanes may provide longer sessions, which could enable more comprehensive research to inform the design of experiments into the longer-term physiological changes from spaceflight.

Perhaps one day we will see research teams launching groups of participants to spend a few weeks or months aboard a space hotel in order to study medical interventions that would slow the ageing process on Earth, and to help the human species colonise the Moon or even Mars.

Research dating back to the early years of the space race has led to technologies that benefit us all. Many scientific discoveries have come since the arrival of inhabitable space stations that act as orbital laboratories. NASA’s first space station Skylab helped understand the effects on the human body of spending months in space and paved the way for the International Space Station.

A huge number of research studies have been completed on the ISS since the year 2000 in the areas of human physiology, biology, biotechnology, physical science and earth and space science. These studies have led to discoveries such as enhanced protein crystal growth for drug development, efficient combustion of fuel droplets, and an understanding of the effects of long duration exposure to microgravity on the human body, revealing that spaceflight has effects similar to ageing on Earth.

Despite much human physiological research being carried out in space, it has one major limitation – there are simply not enough humans currently going to space to act as research participants, leading to difficulties in research design. In fact, only 550 or so humans have ever been into space since Russian cosmonaut Yuri Gagarin first orbited the Earth in 1961.

Human physiological experiments in space tend to have very small participant numbers (for example, the NASA twins study) or they have to take place over many years. Could the boom in commercial human spaceflight accelerate the speed of human physiological discoveries in space? We certainly think so.

Commercial spaceflight companies such as SpaceX and Orbital are already launching rockets taking supplies and research equipment to the International Space Station. SpaceX is developing its habitable Dragon capsule to take space tourists around the moon, with ambitions to use its sibling, Red Dragon, to land astronauts on Mars.

Others are developing sub-orbital spaceplanes, such as Virgin Galactic’s SpaceShipTwo, which will enable passengers to experience microgravity for a number of minutes or travel 30 times faster between cities than passenger airlines. To safely send throngs of space tourists beyond the atmosphere, we need to understand the health implications of just getting these “non-professional” astronauts into space through new medical research, and developing spaceports will provide access to exciting new platforms to expand these frontiers of science.

#### Biopharmaceutical innovation is key to prevent future pandemics and bioterror.

Marjanovic and Feijao 20 [(Sonja Marjanovic, Ph.D., Judge Business School, University of Cambridge. Carolina Feijao, Ph.D. in biochemistry, University of Cambridge; M.Sc. in quantitative biology, Imperial College London; B.Sc. in biology, University of Lisbon.) "How to Best Enable Pharma Innovation Beyond the COVID-19 Crisis," RAND Corporation, 05-2020, https://www.rand.org/pubs/perspectives/PEA407-1.html] TDI

As key actors in the healthcare innovation landscape, pharmaceutical and life sciences companies have been called on to develop medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also infectious diseases that represent public health threats. Infectious agents such as anthrax, smallpox and tularemia could present threats in a bioterrorism context.1 The general threat to public health that is posed by antimicrobial resistance is also well-recognised as an area in need of pharmaceutical innovation. Innovating in response to these challenges does not always align well with pharmaceutical industry commercial models, shareholder expectations and competition within the industry. However, the expertise, networks and infrastructure that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an indispensable partner in the search for solutions that save lives. This perspective argues for the need to establish more sustainable and scalable ways of incentivising pharmaceutical innovation in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is essential for socially responsible companies in the sector. 2 It is therefore unsurprising that we are seeing industry-wide efforts unfold at unprecedented scale and pace. Whereas there is always scope for more activity, industry is currently contributing in a variety of ways. Examples include pharmaceutical companies donating existing compounds to assess their utility in the fight against COVID19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating trials for potentially effective medicine or vaccine candidates; and in some cases rapidly accelerating in-house research and development to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accelerate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The primary purpose of such innovation is to benefit patients and wider population health. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be relatively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pressure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing combination product that is being tested for therapeutic potential against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider how pharmaceutical innovation for responding to emerging infectious diseases can best be enabled beyond the current crisis. Many public health threats (including those associated with other infectious diseases, bioterrorism agents and antimicrobial resistance) are urgently in need of pharmaceutical innovation, even if their impacts are not as visible to society as COVID-19 is in the immediate term. The pharmaceutical industry has responded to previous public health emergencies associated with infectious disease in recent times – for example those associated with Ebola and Zika outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contributions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still low.12 There are important policy questions as to whether – and how – industry could engage with such public health threats to an even greater extent under improved innovation conditions.

#### Extinction – defense is wrong

Piers Millett 17, Consultant for the World Health Organization, PhD in International Relations and Affairs, University of Bradford, Andrew Snyder-Beattie, “Existential Risk and Cost-Effective Biosecurity”, Health Security, Vol 15(4), http://online.liebertpub.com/doi/pdfplus/10.1089/hs.2017.0028

Historically, disease events have been responsible for the greatest death tolls on humanity. The 1918 flu was responsible for more than 50 million deaths,1 while smallpox killed perhaps 10 times that many in the 20th century alone.2 The Black Death was responsible for killing over 25% of the European population,3 while other pandemics, such as the plague of Justinian, are thought to have killed 25 million in the 6th century—constituting over 10% of the world’s population at the time.4 It is an open question whether a future pandemic could result in outright human extinction or the irreversible collapse of civilization.

A skeptic would have many good reasons to think that existential risk from disease is unlikely. Such a disease would need to spread worldwide to remote populations, overcome rare genetic resistances, and evade detection, cures, and countermeasures. Even evolution itself may work in humanity’s favor: Virulence and transmission is often a trade-off, and so evolutionary pressures could push against maximally lethal wild-type pathogens.5,6

While these arguments point to a very small risk of human extinction, they do not rule the possibility out entirely. Although rare, there are recorded instances of species going extinct due to disease—primarily in amphibians, but also in 1 mammalian species of rat on Christmas Island.7,8 There are also historical examples of large human populations being almost entirely wiped out by disease, especially when multiple diseases were simultaneously introduced into a population without immunity. The most striking examples of total population collapse include native American tribes exposed to European diseases, such as the Massachusett (86% loss of population), Quiripi-Unquachog (95% loss of population), and theWestern Abenaki (which suffered a staggering 98% loss of population).

In the modern context, no single disease currently exists that combines the worst-case levels of transmissibility, lethality, resistance to countermeasures, and global reach. But many diseases are proof of principle that each worst-case attribute can be realized independently. For example, some diseases exhibit nearly a 100% case fatality ratio in the absence of treatment, such as rabies or septicemic plague. Other diseases have a track record of spreading to virtually every human community worldwide, such as the 1918 flu,10 and seroprevalence studies indicate that other pathogens, such as chickenpox and HSV-1, can successfully reach over 95% of a population.11,12 Under optimal virulence theory, natural evolution would be an unlikely source for pathogens with the highest possible levels of transmissibility, virulence, and global reach. But advances in biotechnology might allow the creation of diseases that combine such traits. Recent controversy has already emerged over a number of scientific experiments that resulted in viruses with enhanced transmissibility, lethality, and/or the ability to overcome therapeutics.13-17 Other experiments demonstrated that mousepox could be modified to have a 100% case fatality rate and render a vaccine ineffective.18 In addition to transmissibility and lethality, studies have shown that other disease traits, such as incubation time, environmental survival, and available vectors, could be modified as well.19-2

### 1NC – Off

#### Starlink is key to rural broadband expansion

Weinschenk 2/25 [(Carl, IT and telecom journalist for Telecompetitor, Teleco Transformation, and IT Business Edge) “Report: Starlink Looks Very Promising for Rural Broadband,” Telecompetitor, 2/25/2021] JL

SpaceX’s Starlink satellite broadband service has the potential to be a game changer for rural broadband, according to an analysis by PCMag of Starlink speeds. The analysis is based on beta tester data exclusively provided to it by Ookla Speedtest.

The site looked at data from rural, suburban and urban areas. Among its more than 10,000 users in its semi-public beta were “a perplexing” number in urban and suburban areas where a variety of high-speed options already are available. The story cites Chicago, Seattle and Minneapolis as places where there were testers, despite readily available alternatives.

The site compared download speeds against other fixed service providers in 30 counties with at least 30 samples in any month from December 30 to February 24. The counties in which the fixed providers had the biggest speed advantage over Spacelink were urban or suburban: Los Angeles and Santa Clara counties, CA; Cook County, IL; King County, WA and Washington County, MN.

It is in rural areas that Starlink shines, according to the research. The five counties in which Starlink had the biggest download speed advantage over the fixed group were rural: Vilas County, WI; Ravali County, MT; Waldo County, ME; Okanogan County, WA and Lamoile County, VT.

The number of counties in which Starlink beat the fixed providers and those in which the fixed providers beat Starlink appeared to be about equal, as was the speed differential.

“Our own analysis shows that Starlink will make the biggest difference in rural, low-density, low-population counties with few options other than lower-quality satellite services,” wrote Sascha Segan, author of the PCMag article about Startlink rural speeds.

#### Broadband is key to precision agriculture transition

ABI 19 [(American Broadband Initiative, a leading force in driving changes across Federal Agencies to identify and remove barriers to broadband access and leverage public assets and resources to expand our Nation’s broadband infrastructure capacity.) “A Case for Rural Broadband,” The United States Department of Agriculture, 4/2019] BC

HOW E-CONNECTIVITY WILL TRANSFORM THE BUSINESS OF AGRICULTURE

Across the agricultural production cycle, farmers and ranchers can implement digital technologies as other modern businesses are doing, enhancing agriculture by driving decision-making based on integrated data, automating processes to increase operational efficiency, improving productivity with tasks driven by real-time insights, augmenting the role of management in the business of farming, and creating new markets with extended geographic reach.

These patterns of digital transformation create fundamental shifts in agricultural production, developing new ways of working that make the industry more productive, attractive, and financially sustainable for farmers and ranchers. Tech companies which stand to benefit from industry transformation continue to capitalize on these shifts by developing new technologies, which according to one recent study, may help position themselves to capture a portion of an estimated $254 billion to $340 billion in global addressable digital agriculture market.13

BUSINESS MANAGEMENT shifts decisionmaking from instinct to integrated data

Precision Agriculture is transforming the way producers collect, organize, and rely on information to make key decisions. Traditionally, producers’ long-term experiences have created a competitive advantage: years of experiments have produced insights and instincts about the land they have farmed and the animals they have raised. But the volume of data that is possible

to collect today can accelerate that learning curve, helping producers learn faster and more rapidly adapt to market shifts—particularly on new fields and with new animals—and creating more nuanced insights, enabling them to act on leading indicators. This creates a disparity between producers who can utilize high-speed Internet service and those who cannot. Examples include the ability to do the following:

create decision tools to help farmers and ranchers estimate the potential profit and economic risks associated with growing one particular crop over another • decide which fertilizer is best for current soil conditions • apply pesticides in targeted areas of the field, to control pests rather than applying pesticides over the entire field • use limited water resources more effectively • respond to findings of sensors that monitor animal health and nutrition

Better choices about what, where, and when to plant, fertilize, and harvest—or breed, feed, and slaughter—can drive above-average returns by removing unrecognized inefficiencies and scaling insights.

DIGITIZATION shifts supply chain management and resource allocation from generic to precise

Precision Agriculture helps make the business of farming more efficient by minimizing inputs— such as raw materials and labor—and maximizing outputs.

For example, previous research has found that 40 percent of fields are over-fertilized, which not only inflates the cost of inputs but also results in 15 percent–20 percent yield loss suffered from improper fertilizer application.14 Precise application of inputs, such as fertilizer, herbicides, and pesticides, allows farmers to adjust inputs to location-based characteristics and use exact amounts needed, which saves money and increases sustainability due to more efficient resource stewardship. Improved fertilizer, soil, and water use can significantly improve water quality with less runoff and reduce climate gas emissions, which is important since agriculture accounts for 10-15 percent of worldwide emissions.15 Despite reductions in necessary inputs, Next Generation Precision Agriculture helps maintain or increase yields, leading to significant gains in efficiency14.

Real-time insights also improve logistics. When growing melons, for instance, real-time data can help farmers overcome challenges in storing and shipping their products. Melons should be stored in an optimal refrigeration environment to minimize spoilage, and real-time precision sensors can reduce spoilage by alerting staff to suboptimal variations in temperature and humidity, allowing the execution of remedies before major losses occur. When refrigerated storage is full or the market price is at a peak, the “Internet of Things” can provide real-time information about where trucks are located and locating customers to market products to help make the sale.

LABOR EFFICIENCY boosts productivity by automating routine processes and enabling real-time response

Connected devices equip farmers with a clear picture of their operations at any moment, making it possible to prioritize tasks more effectively and triage the most pressing issues. While routine inspection and scouting has typically been a regular part of farm management and has increased farm profitability14, connected technologies can track, sense, and flag where a producer should focus their time and attention that day. Similarly, e-connectivity has allowed rural farms to access new training resources and high-skilled labor that has not been previously available.

#### Unproductive agriculture is the largest threat to global biodiversity

Aldred 16 [(Jessica, the deputy and production editor of theguardian.com/environment and writes on wildlife and conservation.) “Agriculture and overuse greater threats to wildlife than climate change – study”, The Guardian 8/10/2016] BC

Agriculture and the overexploitation of plants and animal species are significantly greater threats to biodiversity than climate change, new analysis shows.

Joint research published in the journal Nature on Wednesday found nearly three-quarters of the world’s threatened species faced these threats, compared to just 19% affected by climate change.

It comes a month before the International Union for Conservation of Nature (IUCN) hosts its annual summit in Hawaii to set future priorities for conservation.

The team from the University of Queensland, the Wildlife Conservation Society (WCS) and the IUCN assessed 8,688 near-threatened or threatened species on the IUCN’s “red list” against 11 threats: overexploitation, agricultural activity, urban development, invasion and disease, pollution, ecosystem modification, climate change, human disturbance, transport and energy production.

It found that 6,241 (72%) of the studied species were affected by overexploitation – logging, hunting, fishing or gathering species from the wild at rates that cannot be compensated for by reproduction or regrowth.

These included the Sumatran rhinoceros, western gorilla and Chinese pangolin – all illegally hunted for their body parts and meat – and the Bornean wren babbler, one of 4,049 species threatened by unsustainable logging.

Some 5,407 species (62%) were threatened by agriculture alone. The cheetah, African wild dog and hairy-nosed otter are among the animals most affected by crop and livestock farming, timber plantations and aquaculture.

Chart, timeline

Description automatically generated

At the same time, the analysis showed, anthropogenic climate change – including increases in storms, flooding, extreme temperatures or extreme drought and sea-level rise – is currently affecting just 19% of species listed as threatened or near-threatened, and was ranked seventh among the 11 threats.

Hooded seals are among the 1,688 species affected. These have declined by 90% in the north-eastern Atlantic Arctic over the past few decades as a result of extensive declines in regional sea ice, and the availability of sites for resting and raising pups. The common hippopotamus and leatherback turtle are also being affected by climate-related droughts and high temperatures.

The analysis comes a month before representatives from government, industry and NGOs meet in Hawaii for the annual IUCN World Conservation Congress. High on the agenda will be defining a sustainable path for translating climate and development agreements – including the 2015 Paris agreement – into conservation actions.

But the authors say it is crucial that efforts to address climate change do not overshadow more immediate priorities for the survival of the world’s flora and fauna. Delegates must focus on proposing and funding actions that deal with the biggest threats to biodiversity, they urge.

“Addressing these old foes of over-harvesting and agricultural activities are key to turning around the biodiversity extinction crisis,” said lead author, Sean Maxwell of the University of Queensland, Australia. “This must be at the forefront of the conservation agenda.”

But the authors say there are solutions to alleviate the harm caused by overexploitation and agricultural activities, such as sustainable harvest regimes, hunting regulations and no-take marine protected areas, international forums such as Cites and public education to reduce demand.

Dr James Watson, co-author of the study from the WCS and the University of Queensland, said: “History has taught us that minimising impacts from over-harvesting and agriculture requires a variety of conservation actions but these can be achieved.

“Actions such as well-managed protected areas, enforcement of hunting regulations, and managing agricultural systems in ways that allow threatened species to persist within them, all have a major role to play in reducing the biodiversity crisis. These activities need to be well funded and prioritised in areas that will reduce threat.”

#### Technological advancements in agriculture solves – they increase biodiversity and prevent environmental damage

Capgemini 18 [(Capgemini is a French multinational corporation that provides consulting, technology, professional, and outsourcing services.) “Saving the planet with digital farming – our discussion with Tobias Menne (Global Head Digital Farming, BASF)” Capgemini, 5/25/2018] BC

Digital farming matters. Why? Because farmers are tasked with feeding a growing world population, expected to reach 10 billion by 2057 according to the UN, while dealing with the consequences of climate change. To achieve that, they need to embrace the digitization of agriculture.

I recently sat down with Tobias Menne, head of Global head Digital Farming at BASF to discuss this important topic within modern agronomics. In the final blog of this two-part series, we discuss the immense potential of digital farming. What can change and will it change?

The end of information asymmetry

In the previous blog, we defined digital farming as the gathering, combining, and sharing of relevant and scalable data to optimize and transform agronomics. The immense amounts of data offer insight, understanding, and quick learnings. This way it can help to battle global food and climate challenges.

Tobias elaborates: “What digital farming offers is insight into what is happening on the field. To understand whether or not a certain weed or disease is a threat to the crop. And all this information is available through smartphones, at a very low price point.”

Digital farming is particularly revolutionary for farmers in Africa and South East Asia where over 80% of farmers are small holders. Tobias: “These farmers not only gain a lot because they generally are further away from agronomic optimum compared to larger farms in the West. They mostly benefit because digital technology removes the information asymmetry that currently plagues them.”

Take the Himalayas, for instance. Because of limited biology training and a lack of qualified people in rural areas, farmers are often unaware of the types of weeds that grow on their fields. Thanks to digital farming, this is changing rapidly.

Farming with confidence

Digitalization transforms decision-making practices in agronomics. “In the past, farmers invested heavily in labor or crop protection to improve their agronomic situation,” Tobias explains. “They still need to do that. The difference, however, is that now they can be really sure that what they are doing is the right thing. So rather than increasing investments, they simply make smarter decisions. This is why digitization is so powerful.”

“Farmers will be able to embrace new technology much more confidently than in the past. And they can better deal with new weather phenomena and new situations. Because they profit from the learnings of other farmers around them.”

“Climate change makes farm life more daring and more challenging. That requires much better information on how to farm, what actions to take. Due to climate change we see weeds entering new territories. We already observe the migration of insects, for instance. Digitalization enables us to learn quicker, to combat those new developments.”

In other words: digital farming allows adaptable farming. Farmers can anticipate new situations better and faster. A true necessity in this time of climate change.

Save the planet

Because farmers can farm with more confidence, they are also able to grow a greater variety of crops. This will increase global biodiversity.

“Farming is often criticized for its perceived low level of biodiversity,” Tobias says. “You see a lot of corn and soy, and not a lot of variation within those crops. Industrial farming is so homogeneous because farmers wanted to reduce their complexity of decision making. If we start to trust systems for good agronomic decision making, adding crops and increasing functional biodiversity will no longer drive up the complexity of farms.”

This means that niche crops like cassava, quinoa, and buckwheat will become more widespread. And that, in turn, means we will find more diverse products in our local shops.

Digital farming can decrease the negative impact of farming tremendously. Next to improved biodiversity and water quality, the use of fewer crop protection products is beneficial for the environment. Tobias gives an example:

“I’m excited about smart sprayers. In the near future, these will go over the field and identify each weed with their camera. Their nozzles only open when they detect certain weeds. This will not only reduce the amount of product used per square meter, it also allows for species of rare weeds to be preserved.”

Trust me, I’m a farmer

As consumers we want to have food that is healthy for us, that has not impacted the environment in a negative way, that ideally was grown in our vicinity, and that is tasty. More importantly, we want to trust the information farmers, distributors, and retailers provide about our food. Through transparency, digitalization can increase or rebuild that trust.

“I would love to buy the fresh produce”, Tobias says, “knowing that I am contributing to a healthy community in the areas where it was grown. At the moment, I have little opportunity to do so. Sure, I can buy Fair Trade coffee or bananas, but for other products this is really challenging. I believe we can use digital farming to create more transparency on where food comes from and how it empowers the community that produce it.”

By reducing the impact farming has on the environment, digital farming can have a positive impact on consumers’ perception of food and food production, contribute to a healthy ecosystem, and offer insight into the food production chain.

#### Continued biodiversity loss causes extinction

Corbett 20 [(Jessica, a staff writer for Common Dreams) Internally cites IPBES (the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, an intergovernmental organization established to improve the interface between science and policy on issues of biodiversity and ecosystem services.) “World Leaders Urged to 'Act Now' to Save Biodiversity” EcoWatch, 2/19/2020] BC

Ahead of government negotiations scheduled for next week on a global plan to address the biodiversity crisis, 23 former foreign ministers from various countries released a statement on Tuesday urging world leaders to act "boldly" to protect nature.

"It is clear to us... that climate change, ecosystem degradation, and the excessive exploitation of natural resources are now threatening millions of species with extinction and jeopardizing the health of our planet," says the statement. "The loss and degradation of nature jeopardizes human health, livelihoods, safety, and prosperity. It disproportionately harms our poorest communities while undermining our ability to meet a broad range of targets set by the United Nations Sustainable Development Goals."

"The world has a moral imperative to collaborate on strong actions to mitigate and adapt to the current climate change and biodiversity crisis. Ambitious targets for conservation of land and ocean ecosystems are vital components of the solution," the statement continues. "Humanity sits on the precipice of irreversible loss of biodiversity and a climate crisis that imperils the future for our grandchildren and generations to come. The world must act boldly, and it must act now."

A U.N. report released in May 2019 by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) warned that, as Common Dreams reported at the time, "human exploitation of the natural world has pushed a million plant and animal species to the brink of extinction—with potentially devastating implications for the future of civilization."

That report and a growing body of scientific research on rapidly declining biodiversity has led scientists and policymakers alike to raise the alarm about the consequences of not acting ambitiously enough to address what experts have called the "sixth mass extinction." U.N. biodiversity chief Elizabeth Maruma Mrema told the Guardian last month that humanity risks being left to contend with an "empty world."

The new statement from diplomats came before the Feb. 24–29 meeting of the Working Group on the Post-2020 Global Biodiversity Framework, which was recently moved from Kunming, China to Rome, Italy due to the ongoing coronavirus disease (COVID-19) outbreak. The event will build on an August 2019 meeting in Nairobi, Kenya. A third meeting in Cali, Colombia is planned for July.

## Case

### Advantage

#### I-law can’t solve space— even if your aff uphold international laws about space, it doesn’t mean you preserve the rule of international law for other domains

#### Nonunique— no argument for the state of i-law now. Means the squo can solve

#### Only ILAW in space – doesn’t spillover to larger legit

#### Tronchetti assumes OST violations in 2007 – either there is no impact because we haven’t seen an impact in 15 years so the DA ow on tf or it will never happen

#### Not an impact filter— just bc a global body is working doesn’t mean it stops all conflict

#### Your card is in the context of the Ukraine following i-law, means no spill over.

#### And reject laundry list impacts/impact filters— encourages 1ar sandbagging and none of them have terminal impacts so the DA o/w

#### No link between collapse of space law and causing 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.

#### Ilaw fails --- states will either inevitably cooperate, or ilaw can’t convince them to

Eric A. Posner 9, Kirkland and Ellis Professor of Law at the University of Chicago Law School. The Perils of Global Legalism, 34-6

34 ¶ Most global legalists acknowledge that international law is created and enforced by states. They believe that states are willing to expand international law along legalistic lines because states’ long-term interests lie in solving global collective action problems. In the absence of a world govern- ment or other forms of integration, international law seems like the only way for states to solve these problems. The great difﬁculty for the global legalist is explaining why, if states create and maintain international law, they will also not break it when they prefer to free ride. In the absence of an enforcement mechanism, what ensures that states that create law and legal institutions that are supposed to solve global collective action prob- lems will not ignore them? ¶ For the rational choice theorist, the answer is plain: states cannot solve global collective action problems by creating institutions that themselves depend on global collective action. This is not to say that international law is not possible at all. Certainly, states can cooperate by threatening to retaliate against cheaters, and where international problems are matters of coordination rather than conﬂ ict, international law can go far, indeed.7 But if states (or the individuals who control states) cannot create a global government or q uasi-g overnment institutions, then it seems unlikely that they can solve, in spontaneous fashion, the types of problems that, at the national level, require the action of governments. ¶ Global legalists are not enthusiasts for rational choice theory and have ¶ 35¶ grappled with this problem in other ways.8 I will criticize their attempts in chapter 3. Here I want to focus on one approach, which is to insist that just as individuals can be loyal to government, so too can individuals (and their governments) be loyal to international law and be willing to defer to its requirements even when self-i nterest does not strictly demand that they do so. International law has force because (or to the extent that) it is legitimate.9 ¶ What makes governance or law legitimate? This is a complicated ques- tion best left to philosophers, but a simple and adequate point for present purposes is that no system of law will be perceived as legitimate unless those governed by that law believe that the law does good — serves their interests or respects and enforces their values. Perhaps more is required than this — such as political participation, for example — but we can treat the ﬁ rst condition as necessary if not sufﬁ cient. If individuals believe that a system of law does not advance their interests and respect their values, that instead it advances the interests of others or is dysfunctional and helps no one at all, they will not believe that the law is legitimate and will not voluntarily submit to its authority. ¶ Unfortunately, international law does not satisfy this condition, mainly because of its institutional weaknesses; but of course, its institutional weaknesses stem from the state system — states are not willing to tolerate powerful international agencies.

In classic international law, states enjoy sovereign equality, which means that international law cannot be created unless all agree, and that international law binds all states equally. What this means is that if nearly everyone in the world agrees that some global legal instrument would be beneﬁ cial (a climate treaty, the UN charter), it can be blocked by a tiny country like Iceland (population 300,000) or a dictatorship like North Korea. What is the attraction of a system that puts a tiny country like Iceland on equal footing with China? When then at- torney general Robert Jackson tried to justify American aid for Britain at the onset of World War II on the grounds that the Nazi Germany was the aggressor, international lawyers complained that the United States could not claim neutrality while providing aid to a belligerent — there was no such thing as an aggressor in international law.10 Nazi Germany had not agreed to such a rule of international law; therefore, such a rule could not exist. Only through the destruction of Nazi Germany could international law be changed; East and West Germany could reenter international so-¶ 36¶ ciety only on other people’s terms. How could such a system be perceived to be legitimate? ¶ There is, of course, a reason why international law works in this fash- ion. Because no world government can compel states to comply with inter- national law, states will comply with international law only when doing so is in their interest. In this way, international law always depends on state consent. So international law must take states as they are, which means that little states, big states, good states, and bad states, all exist on a plane of equality. ¶

#### I-law can’t solve there’s no enforcement mechanism— Empirics prove

Hiken, 12 (Associate Director Institute for Public Accuracy, 7-17-’12 (Luke, “The Impotence of International Law” <http://www.fpif.org/blog/the_impotence_of_international_law>)

Whenever a lawyer or historian describes how a particular action “violates international law” many people stop listening or reading further. It is a bit alienating to hear the words “this action constitutes a violation of international law” time and time again – and especially at the end of a debate when a speaker has no other arguments available. The statement is inevitably followed by: “…and it is a war crime and it denies people their human rights.” A plethora of international law violations are perpetrated by every major power in the world each day, and thus, the empty invocation of international law does nothing but reinforce our own sense of impotence and helplessness in the face of international lawlessness. The United States, alone, and on a daily basis violates every principle of international law ever envisioned: unprovoked wars of aggression; unmanned drone attacks; tortures and renditions; assassinations of our alleged “enemies”; sales of nuclear weapons; destabilization of unfriendly governments; creating the largest prison population in the world – the list is virtually endless. Obviously one would wish that there existed a body of international law that could put an end to these abuses, but such laws exist in theory, not in practice. Each time a legal scholar points out the particular treaties being ignored by the superpowers (and everyone else) the only appropriate response is “so what!” or “they always say that.” If there is no enforcement mechanism to prevent the violations, and no military force with the power to intervene on behalf of those victimized by the violations, what possible good does it do to invoke principles of “truth and justice” that border on fantasy? The assumption is that by invoking human rights principles, legal scholars hope to reinforce the importance of and need for such a body of law. Yet, in reality, the invocation means nothing at the present time, and goes nowhere. In the real world, it would be nice to focus on suggestions that are enforceable, and have some potential to prevent the atrocities taking place around the globe. Scholars who invoke international law principles would do well to add to their analysis, some form of action or conduct at the present time that might prevent such violations from happening. Alternatively, praying for rain sounds as effective and rational as citing international legal principles to a lawless president, and his ruthless military.

#### No space militarization --- too costly and technologically infeasible --- states prefer ground attacks

Rich Wordsworth 16, UK journalist, and write for Gizmodo, Kotaku and Vice, “Why We'll Never Fight a Real-Life Star Wars Space Conflict”, 18/12/2016, <http://www.gizmodo.co.uk/2015/12/why-well-never-fight-a-real-life-star-wars-space-conflict>

So Why Won’t It Happen? Well, never say never. You might not make to the end of this paragraph before the sky lights up and the world goes dark. **But there are some good reasons to be optimistic that won’t happen. One reassuring factor is that the more other countries develop their militaries, the more dependent on networks they become as well**. China is developing its own drone programme, and so is Russia, which will both presumably be dependent on satellites to operate. **And the more their (and our) economies and business interests develop, the more everyone will rely on satellites to further their economic ambitions. In the event that countries were to start knocking out each other’s satellites on a large scale, the consequences across the board – for everyone – would be disastrous.** It would also be expensive in the short term. **Getting things into orbit – peaceful or otherwise – still isn’t cheap, which is why only a handful of countries regularly do so.** And if you want to blow up a network of many satellites today (as you would have to in a first strike, to ensure other satellites couldn’t pick up the slack), launching small satellites or missiles into orbit is the only practical way to do that – **arming satellites with their own weaponry just isn’t financially or technologically feasible**

**on a grand scale**. We are, happily, a long way from a Death Star. “I don’t think [a large first strike] would be financially too costly [if you’re] thinking about kinetic energy weapons and the air-based or ground-based lasers,” says Jasani. “It’s viable. But if you say, ‘I’m going to put an [ASAT] weapon [permanently] in orbit’, we are then getting into very expensive and very complicated technology. So my guess is that in the foreseeable future, what we are going to focus on are the kinetic energy weapons and possibly lasers that could blind satellites or affect, for example, the solar panels. That kind of technology will be delivered in the foreseeable future, rather than having lasers in orbit [like] the Star Wars kind of thing.” **But there’s another, possibly even more persuasive reason that a kinetic war in space may not happen: it’s just so much easier – and less damaging – to mess with satellites without getting close to them. “Jamming from the ground is not difficult,” says Quintana**. “If you look at the Middle East, pick a country where there’s a crisis and the chances are that the military in that country has tried to jam a commercial satellite to try and avoid satellite TV channels broadcasting anti-government messages.” “**My guess is that by the time we are ready for space warfare, I think you may not be banking on your hit-to-kill ASATs, but more on [non-destructive] high-energy laser-based systems,”** Jasani agrees. **“[Space debris] affects all sides, not just the attacked side.** The attacking side will have its own satellites in orbit, which might be affected by the debris [of its own attack].” And if you really need to remove an enemy’s satellite coverage, you can always try to flatten or hack the control stations on the ground, leaving the satellites talking with no-one to listen. **“I don’t think physically blowing things up from the ground is something that people are looking at again,**” says Quintana. “Countries and governments try to find means other than physical conflict to achieve their strategic ends. **So as space becomes more commercial and more civilian and as more scientific satellites go up, then you’ll find that** states will not seek to directly attack each other**, but will seek other means.** “It may just be that they will try to cyber-attack the satellites and take them over, which has been done in the past. It’s much easier to physically or cyber-attack the ground control station than it is to attack the satellite itself - so why would you not look to do that as a first port of call and achieve the same ends?” Ultimately, then, what might keep us safe from a war in space isn't the horror of explosives in orbit, but a question of cost and convenience.

#### 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.

#### MAD checks space escalation – nuclear response and debris

Bowen 18 [Bleddyn Bowen, Lecturer in International Relations at the University of Leicester. The Art of Space Deterrence. February 20, 2018. https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/]

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.

#### Space weapon deployment doesn’t cause an arms race or increase chance of war

Lopez 12 [LAURA DELGADO LO´ PEZ, Institute for Global Environmental Strategies, Arlington, Virginia. Astropolitics. "Predicting an Arms Race in Space: Problematic Assumptions for Space Arms Control." https://www.tandfonline.com/doi/full/10.1080/14777622.2012.647391]

The previous discussion demonstrates that although a globalized space arms race could follow U.S. deployment of space weapons, it is also plausible and more likely that it may not happen at all. As Mueller states: ‘‘In the end, most of the inevitability arguments are weak.’’62 The assumptions discussed here break the argument into a series of debatable maxims that other scholars have also considered. Hays, for instance, counters the inevitability argument by pointing out that previous ASAT tests did not have this purported destabilizing effect, to which we can add that even after the Chinese ASAT test, neither Russia nor the United States, who would be both capable and more politically likely to launch space weapons, moved forward in that direction.63 Although some may draw attention to the recent wake-up calls in order to underline a sense of urgency, one should also recall that when it seemed truly inevitable before, it did not happen either. In his detailed account of military space developments from 1945 to 1984, Paul Stares described how superpowers’ assessment of the value of space weapons shifted, with a ‘‘hiatus in testing’’ reflecting the attractiveness of satellites as military targets.64 In this changed landscape, Stares also assumed the inevitability argument, claiming that ‘‘the chances of space remaining a ‘sanctuary’ [absence of weapons] into the 21st century appear today to be remote.’’65 Perhaps the conditions are more conducive now, but the important point to be reiterated is that the outcome is not inevitable, and that any such prediction must be undertaken with caution. One of the most prominent theorists to propose an alternate picture and pair it with an aggressive pro-space weapons stance is Everett Dolman. In his Astropolitik theory, Dolman summarizes the steps that the United States must take to assume control of space, particularly through withdrawal from the current space regime.66 This move, he argues, would benefit not only the United States, but also the rest of the world, since having a democracy controlling space is a catalyst for peace.67 Elsewhere, he writes: ‘‘Only a liberal world hegemon would be able to practice the restraint necessary to maintain its preponderant balance of hegemonic power without resorting to an attempt at empire.’’68 Accordingly, he believes that this strategy would be ‘‘perceived correctly as an attempt at continuing U.S. hegemony,’’69 but that other countries, correctly assessing U.S. leadership in space, would not seek to deploy their own systems. Having the ability to prevent the stationing of foreign weapons systems in space, he writes, ‘‘makes the possibility of large-scale space war and a military space race less likely, not more.’’70 In fact, he says, ‘‘to suggest that the inevitable result is a space arms competition is the worst kind of mirror-imaging.’’71 Dolman argues that the weaponization of space by the United States would ‘‘decrease the likelihood of an arms race by shifting spending away from conventional weapons systems,’’ which would reduce U.S. capabilities in territorial occupation and would thus be perceived as less threatening to other countries.72

#### No space war, and no impact if it does happen

Handberg 17 Roger Handberg 17, Professor in the School of Politics, Security, and International Affairs at the University of Central Florida, 2017, “Is space war imminent? Exploring the possibility,” Comparative Strategy, Vol. 36, No. 5, p. 413-425

The assumption made is that space war will be successfully waged in both the heavens and on the Earth itself. This assumption, however, is grounded on several hypotheticals occurring. First, that total devastating strategic surprise can be achieved—the side attacked becomes so damaged and devastated that further resistance is impossible to sustain regardless of national will, since nuclear weapons overhang the entire enterprise. The analogy usually invoked for American audiences is a “Pearl Harbor” type attack. This scenario is premised on equivalent American incompetence and lack of readiness as exhibited in December 1941. One must note that Pearl Harbor ended as a strategic failure for Japan—it led to defeat because the attack mobilized U.S. power without hesitation, given the intense political divisions over whether to enter the worldwide conflicts already raging. The attack was a military failure because Navy carriers were not destroyed along with battleship row along with critical fuel facilities. Similar analogies invoke September 11, 2001 as the prototype for such attacks more recently, but the same caveats apply. Total surprise assumes that all relevant opponent systems and civilian assets are disabled and left vulnerable to follow on attacks. In fact, collapse of U.S. defenses leaves U.S. cities as hostages to the rulers of the heavens, or vice versa if the U.S. moves first. Space war is extremely destabilizing, as will be discussed, since survivability of one's strategic assets becomes problematic. Second, surprise requires that sufficient offensive space assets be placed in orbit without triggering a response by other states—the scale of such technology deployment is in itself possibly self-defeating given high costs and a likely lack of launch capacity. In addition, much launch capacity is now international rather than national, so maintaining secrecy becomes even more difficult. Space as an operational environment suffers from excessive transparency, meaning any launches can be monitored and tracked by others with strong evidence as to what is being deployed. One must remember that the original satellite launches in the 1950s were accurately tracked by a British grade-school class as a science project. In addition, at least since the early 1960s, remote sensing has increased exponentially the global capability to detect buildup of military assets of differing types, whether in space or on the ground. Commercial remote-sensing capabilities further enhance the capacity to detect militarily relevant actions. For example, commercial imagery is accessed by private parties to monitor the North Korean missile and nuclear weapons programs, in effect expanding the capacity of the world to look in on various states' interior regions, scanning for relevant information, including weapons buildup and launch capabilities. Even construction of physical facilities for production of space assets or for other weaponry can be monitored, making surprise more difficult but not impossible, as demonstrated in earlier monitoring of North Korea and, in 1998, the nuclear tests by both Pakistan and India. That means if the ASAT weapons come from ground locations, there is a high probability that they can be detected but no guarantee exists that detection will in fact occur. The uncertainty will impact calculations of attack success. Third, the most obvious initial attack of space-based assets will most likely come from cyber attacks, given that such actions do not necessarily require the scale of resources necessary for other modalities such as kinetic weapons, or even lasers or other energy-type weapons. One will have to position the weapons plus the infrastructure to permit rapid recycling of the weapons for the next attack. Firing off interceptors will likely be a one-off, meaning extremely precise targeting will be required if the attack is to be successful. Note that none of these systems require that individuals be placed in Earth orbit, despite the imagery describing such operations in fictional universes. Deployment requires a large lift capacity for initial deployment plus replenishment of destroyed or inoperative space assets, since a space conflict assumes that assets will be lost either kinetically or be compromised by cyber or energy beams. In any case, the combatants must be able to recover their capabilities lost during the conflict; failure to do would mean defeat or at least stalemate, negating the reason for the attack. That raises a major question when one considers the problem or expectation that space war can be successfully conducted or defended. Operationally Responsive Space (ORS) remains a critical weak point for all potential space-war participants. Loss of space assets occurs routinely during operations, but actual combat losses can be exponential depending on the weaponry used, and replacing those losses becomes the race to the next level after the initial exchange or combat. Unfortunately, ORS remains a major weakness of the United States and likely other states; deploying replacement satellites remains a multiyear process, while launch capabilities are scheduled long in advance. The rise of multiple private-launch competitors may partially alleviate some of the delay but that remains problematic given that the military payloads may be competing with commercial vendors also trying to replace losses. The tradeoff is that. in principle, private-launch vendors may be able to do so more cheaply, but their capacity may be saturated by demand from the civil and commercial sectors, leaving few “uncommitted” launch options for military purposes. Normally this is not an issue, but the available launch options may be third party rather than national-flag carriers, which raises severe security concerns. Fourth, several other assumptions become essential to make the strategy work, including that such an attack does not render Earth orbit so debris-saturated that further military space operations become impossible to sustain. Also, damage to civilian space assets remains, such that their continuation is possible if undamaged replacements can be quickly reintroduced to restart economically critical operations. Globalization has been fostered through satellite technologies. Their disruption can be devastating for all parties, regardless of who is the winner or the loser. What may occur is the graveyard of the modern economic system. No potential space participants would be immune to the damage, regardless of whether or not they were participants in the actual conflict. Fifth, there must be no difficulty in separating potential targets from the enemy, allied states, and nonbelligerent states. This creates a situation in which the spread of space technologies globally complicates actions, expanding the range of participants beyond the combatants, much like earlier wars at sea, where there were the combatants' ships, along with those of nonbelligerents, including neutrals whom the combatants struggled to draw into the conflict on their side, or at least to render their services unavailable to the other side. The earliest discussion of space conflict was premised on Cold War analogies, meaning two major combatants, either U.S.–Russia, or U.S–-China, or even a three-way war. Presently, analyses focus on a bilateral conflict with the U.S. opposed to China and Russia. Whether that would occur is obviously unknown, despite political rhetoric about a Eurasia coalition of likeminded states. What it does is multiply the number of potential targets and complicates reactions to neutrals' actions to protect their interests or assets. The distinction between combatants and neutrals or third parties will be possibly blurred beyond separation. The byproduct of a kinetic space conflict is massive amounts of space debris, destroying or damaging most space assets regardless of their state sponsor or nationality. Initial attacks may be focused and precise, but the result is still the same. The debris generated by armed conflict will endure beyond the immediate clash. The obvious alternative is a strictly electronic attack on space assets' operating systems, leaving the satellites in orbit, although without the ability to move them or control possible erratic changes in orbit due to collisions with other space debris. Other forms space war will take Reality is more complicated—kinetic action produces debris, the ultimate deterrent to actual space war. Therefore, space war could likely track several distinct phases. The first is cyber attacks, which disable or destroy the working systems of the spacecraft or the ground-support network—in effect, a series of stealth attacks. Civilian satellites are extremely soft targets—defense requires a capacity to detect and analyze any attack on the spacecraft, not available presently for most commercial spacecraft due to cost considerations. Otherwise, one could use nuclear weapons to create electromagnetic pulses (EMP) which can fry unprotected electronics both in space and on the ground, depending on where the weapons are detonated. Interestingly, space war scenarios have some territorial war aspects in that any attacks on space assets will devastate both military and civilian targets without distinction between the war participants and civilians. Similar to unrestricted submarine warfare, all targets in the relevant area will become casualties or otherwise impacted in their operations. Second, attacks that are conducted against the ground down links and/or communications systems, leaving the spacecraft without guidance or instructions, and also no information is returned to the commanders even if the satellites survive the initial onslaught. These can involve kinetic attacks against specific locations or insertion of special operations forces to render the facility inoperative. For example, antennas can be disabled or destroyed, disrupting operations until new facilities are brought online. Other alternatives could include kinetic weapons launched from space, “rods from God.”20 Air strike packages could include electronic warfare elements capable of scrambling or disrupting operations of such facilities even prior to physical strikes against the targets. Spacecraft not destroyed or disabled in the initial two stages of the attack can be directly attacked by “dazzling” their receivers, with laser impulses destroying the receivers for which there are few replacements without replacing the spacecraft physically. Third, rapid replacement of inoperative satellites, regardless of the reasons, does not occur, which translates into a race for the third, possibly end, phase of the war, replenishment. Inability to replace losses may mean that none of the combatants are able to dominate in the end, meaning conventional conflict may be the outcome, although issues of global reach may confine conflicts to relatively small areas. In previous conventional conflicts, large-scale forces were moved, albeit slowly, across the globe to the conflict, i.e., Desert Shield morphing into Desert Storm after a nearly six-month buildup.