# 1

#### Bizcon high now but certainty is key and unpredictable shifts ruin it

Sarah Chaney Cambon 21, Reporter on The Wall Street Journal's Economics Team, BA in Business Journalism from the University of North Carolina-Chapel Hill, “Capital-Spending Surge Further Lifts Economic Recovery”, Wall Street Journal, 6/27/2021, https://www.wsj.com/articles/capital-spending-surge-further-lifts-economic-recovery-11624798800

Business investment is emerging as a powerful source of U.S. economic growth that will likely help sustain the recovery. Companies are ramping up orders for computers, machinery and software as they grow more confident in the outlook. Nonresidential fixed investment, a proxy for business spending, rose at a seasonally adjusted annual rate of 11.7% in the first quarter, led by growth in software and tech-equipment spending, according to the Commerce Department. Business investment also logged double-digit gains in the third and fourth quarters last year after falling during pandemic-related shutdowns. It is now higher than its pre-pandemic peak. Orders for nondefense capital goods excluding aircraft, another measure for business investment, are near the highest levels for records tracing back to the 1990s, separate Commerce Department figures show. “Business investment has really been an important engine powering the U.S. economic recovery,” said Robert Rosener, senior U.S. economist at Morgan Stanley. “In our outlook for the economy, it’s certainly one of the bright spots.” Consumer spending, which accounts for about two-thirds of economic output, is driving the early stages of the recovery. Americans, flush with savings and government stimulus checks, are spending more on goods and services, which they shunned for much of the pandemic. Robust capital investment will be key to ensuring that the recovery maintains strength after the spending boost from fiscal stimulus and business reopenings eventually fades, according to some economists. Rising business investment helps fuel economic output. It also lifts worker productivity, or output per hour. That metric grew at a sluggish pace throughout the last economic expansion but is now showing signs of resurgence. The recovery in business investment is shaping up to be much stronger than in the years following the 2007-09 recession. “The events especially in late ’08, early ’09 put a lot of businesses really close to the edge,” said Phil Suttle, founder of Suttle Economics. “I think a lot of them said, ‘We’ve just got to be really cautious for a long while.’” Businesses appear to be less risk-averse now, he said. After the financial crisis, businesses grew by adding workers, rather than investing in capital. Hiring was more attractive than capital spending because labor was abundant and relatively cheap. Now the supply of workers is tight. Companies are raising pay to lure employees. As a result, many firms have more incentive to grow by investing in capital. Economists at Morgan Stanley predict that U.S. capital spending will rise to 116% of prerecession levels after three years. By comparison, investment took 10 years to reach those levels once the 2007-09 recession hit. Company executives are increasingly confident in the economy’s trajectory. The Business Roundtable’s economic-outlook index—a composite of large companies’ plans for hiring and spending, as well as sales projections—increased by nine points in the second quarter to 116, just below 2018’s record high, according to a survey conducted between May 25 and June 9. In the second quarter, the share of companies planning to boost capital investment increased to 59% from 57% in the first. “We’re seeing really strong reopening demand, and a lot of times capital investment follows that,” said Joe Song, senior U.S. economist at BofA Securities. Mr. Song added that less uncertainty regarding trade tensions between the U.S. and China should further underpin business confidence and investment. “At the very least, businesses will understand the strategy that the Biden administration is trying to follow and will be able to plan around that,” he said.

#### The plan crushes an entire industry – wrecks business confidence and causes collapse

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There’s no shortage of hype surrounding the commercial space industry. But while tech leaders promise us moon bases and settlements on Mars, the space economy has thus far remained distinctly local — at least in a cosmic sense. Last year, however, we crossed an important threshold: For the first time in human history, humans accessed space via a vehicle built and owned not by any government, but by a private corporation with its sights set on affordable space settlement. It was the first significant step towards building an economy both in space and for space. The implications — for business, policy, and society at large — are hard to overstate. In 2019, 95% of the estimated $366 billion in revenue earned in the space sector was from the space-for-earth economy: that is, goods or services produced in space for use on earth. The space-for-earth economy includes telecommunications and internet infrastructure, earth observation capabilities, national security satellites, and more. This economy is booming, and though research shows that it faces the challenges of overcrowding and monopolization that tend to arise whenever companies compete for a scarce natural resource, projections for its future are optimistic. Decreasing costs for launch and space hardware in general have enticed new entrants into this market, and companies in a variety of industries have already begun leveraging satellite technology and access to space to drive innovation and efficiency in their earthbound products and services. In contrast, the space-for-space economy — that is, goods and services produced in space for use in space, such as mining the Moon or asteroids for material with which to construct in-space habitats or supply refueling depots — has struggled to get off the ground. As far back as the 1970s, research commissioned by NASA predicted the rise of a space-based economy that would supply the demands of hundreds, thousands, even millions of humans living in space, dwarfing the space-for-earth economy (and, eventually, the entire terrestrial economy as well). The realization of such a vision would change how all of us do business, live our lives, and govern our societies — but to date, we’ve never even had more than 13 people in space at one time, leaving that dream as little more than science fiction. Today, however, there is reason to think that we may finally be reaching the first stages of a true space-for-space economy. SpaceX’s recent achievements (in cooperation with NASA), as well as upcoming efforts by Boeing, Blue Origin, and Virgin Galactic to put people in space sustainably and at scale, mark the opening of a new chapter of spaceflight led by private firms. These firms have both the intention and capability to bring private citizens to space as passengers, tourists, and — eventually — settlers, opening the door for businesses to start meeting the demand those people create over the next several decades with an array of space-for-space goods and services.

#### Decline cascades---nuclear war

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Various scholars and institutions regard global social instability as the greatest threat facing this decade. The catalyst has been postulated to be a Second Great Depression which, in turn, will have profound implications for global security and national integrity. This paper, written from a broad systems perspective, illustrates how emerging risks are getting more complex and intertwined; blurring boundaries between the economic, environmental, geopolitical, societal and technological taxonomy used by the World Economic Forum for its annual global risk forecasts. Tight couplings in our global systems have also enabled risks accrued in one area to snowball into a full-blown crisis elsewhere. The COVID-19 pandemic and its socioeconomic fallouts exemplify this systemic chain-reaction. Onceinexorable forces of globalization are rupturing as the current global system can no longer be sustained due to poor governance and runaway wealth fractionation. The coronavirus pandemic is also enabling Big Tech to expropriate the levers of governments and mass communications worldwide. This paper concludes by highlighting how this development poses a dilemma for security professionals. Key Words: Global Systems, Emergence, VUCA, COVID-9, Social Instability, Big Tech, Great Reset INTRODUCTION The new decade is witnessing rising volatility across global systems. Pick any random “system” today and chart out its trajectory: Are our education systems becoming more robust and affordable? What about food security? Are our healthcare systems improving? Are our pension systems sound? Wherever one looks, there are dark clouds gathering on a global horizon marked by volatility, uncertainty, complexity and ambiguity (VUCA). But what exactly is a global system? Our planet itself is an autonomous and selfsustaining mega-system, marked by periodic cycles and elemental vagaries. Human activities within however are not system isolates as our banking, utility, farming, healthcare and retail sectors etc. are increasingly entwined. Risks accrued in one system may cascade into an unforeseen crisis within and/or without (Choo, Smith & McCusker, 2007). Scholars call this phenomenon “emergence”; one where the behaviour of intersecting systems is determined by complex and largely invisible interactions at the substratum (Goldstein, 1999; Holland, 1998). The ongoing COVID-19 pandemic is a case in point. While experts remain divided over the source and morphology of the virus, the contagion has ramified into a global health crisis and supply chain nightmare. It is also tilting the geopolitical balance. China is the largest exporter of intermediate products, and had generated nearly 20% of global imports in 2015 alone (Cousin, 2020). The pharmaceutical sector is particularly vulnerable. Nearly “85% of medicines in the U.S. strategic national stockpile” sources components from China (Owens, 2020). An initial run on respiratory masks has now been eclipsed by rowdy queues at supermarkets and the bankruptcy of small businesses. The entire global population – save for major pockets such as Sweden, Belarus, Taiwan and Japan – have been subjected to cyclical lockdowns and quarantines. Never before in history have humans faced such a systemic, borderless calamity. COVID-19 represents a classic emergent crisis that necessitates real-time response and adaptivity in a real-time world, particularly since the global Just-in-Time (JIT) production and delivery system serves as both an enabler and vector for transboundary risks. From a systems thinking perspective, emerging risk management should therefore address a whole spectrum of activity across the economic, environmental, geopolitical, societal and technological (EEGST) taxonomy. Every emerging threat can be slotted into this taxonomy – a reason why it is used by the World Economic Forum (WEF) for its annual global risk exercises (Maavak, 2019a). As traditional forces of globalization unravel, security professionals should take cognizance of emerging threats through a systems thinking approach. METHODOLOGY An EEGST sectional breakdown was adopted to illustrate a sampling of extreme risks facing the world for the 2020-2030 decade. The transcendental quality of emerging risks, as outlined on Figure 1, below, was primarily informed by the following pillars of systems thinking (Rickards, 2020): • Diminishing diversity (or increasing homogeneity) of actors in the global system (Boli & Thomas, 1997; Meyer, 2000; Young et al, 2006); • Interconnections in the global system (Homer-Dixon et al, 2015; Lee & Preston, 2012); • Interactions of actors, events and components in the global system (Buldyrev et al, 2010; Bashan et al, 2013; Homer-Dixon et al, 2015); and • Adaptive qualities in particular systems (Bodin & Norberg, 2005; Scheffer et al, 2012) Since scholastic material on this topic remains somewhat inchoate, this paper buttresses many of its contentions through secondary (i.e. news/institutional) sources. ECONOMY According to Professor Stanislaw Drozdz (2018) of the Polish Academy of Sciences, “a global financial crash of a previously unprecedented scale is highly probable” by the mid- 2020s. This will lead to a trickle-down meltdown, impacting all areas of human activity. The economist John Mauldin (2018) similarly warns that the “2020s might be the worst decade in US history” and may lead to a Second Great Depression. Other forecasts are equally alarming. According to the International Institute of Finance, global debt may have surpassed $255 trillion by 2020 (IIF, 2019). Yet another study revealed that global debts and liabilities amounted to a staggering $2.5 quadrillion (Ausman, 2018). The reader should note that these figures were tabulated before the COVID-19 outbreak. The IMF singles out widening income inequality as the trigger for the next Great Depression (Georgieva, 2020). The wealthiest 1% now own more than twice as much wealth as 6.9 billion people (Coffey et al, 2020) and this chasm is widening with each passing month. COVID-19 had, in fact, boosted global billionaire wealth to an unprecedented $10.2 trillion by July 2020 (UBS-PWC, 2020). Global GDP, worth $88 trillion in 2019, may have contracted by 5.2% in 2020 (World Bank, 2020). As the Greek historian Plutarch warned in the 1st century AD: “An imbalance between rich and poor is the oldest and most fatal ailment of all republics” (Mauldin, 2014). The stability of a society, as Aristotle argued even earlier, depends on a robust middle element or middle class. At the rate the global middle class is facing catastrophic debt and unemployment levels, widespread social disaffection may morph into outright anarchy (Maavak, 2012; DCDC, 2007). Economic stressors, in transcendent VUCA fashion, may also induce radical geopolitical realignments. Bullions now carry more weight than NATO’s security guarantees in Eastern Europe. After Poland repatriated 100 tons of gold from the Bank of England in 2019, Slovakia, Serbia and Hungary quickly followed suit. According to former Slovak Premier Robert Fico, this erosion in regional trust was based on historical precedents – in particular the 1938 Munich Agreement which ceded Czechoslovakia’s Sudetenland to Nazi Germany. As Fico reiterated (Dudik & Tomek, 2019): “You can hardly trust even the closest allies after the Munich Agreement… I guarantee that if something happens, we won’t see a single gram of this (offshore-held) gold. Let’s do it (repatriation) as quickly as possible.” (Parenthesis added by author). President Aleksandar Vucic of Serbia (a non-NATO nation) justified his central bank’s gold-repatriation program by hinting at economic headwinds ahead: “We see in which direction the crisis in the world is moving” (Dudik & Tomek, 2019). Indeed, with two global Titanics – the United States and China – set on a collision course with a quadrillions-denominated iceberg in the middle, and a viral outbreak on its tip, the seismic ripples will be felt far, wide and for a considerable period. A reality check is nonetheless needed here: Can additional bullions realistically circumvallate the economies of 80 million plus peoples in these Eastern European nations, worth a collective $1.8 trillion by purchasing power parity? Gold however is a potent psychological symbol as it represents national sovereignty and economic reassurance in a potentially hyperinflationary world. The portents are clear: The current global economic system will be weakened by rising nationalism and autarkic demands. Much uncertainty remains ahead. Mauldin (2018) proposes the introduction of Old Testament-style debt jubilees to facilitate gradual national recoveries. The World Economic Forum, on the other hand, has long proposed a “Great Reset” by 2030; a socialist utopia where “you’ll own nothing and you’ll be happy” (WEF, 2016). In the final analysis, COVID-19 is not the root cause of the current global economic turmoil; it is merely an accelerant to a burning house of cards that was left smouldering since the 2008 Great Recession (Maavak, 2020a). We also see how the four main pillars of systems thinking (diversity, interconnectivity, interactivity and “adaptivity”) form the mise en scene in a VUCA decade. ENVIRONMENTAL What happens to the environment when our economies implode? Think of a debt-laden workforce at sensitive nuclear and chemical plants, along with a concomitant surge in industrial accidents? Economic stressors, workforce demoralization and rampant profiteering – rather than manmade climate change – arguably pose the biggest threats to the environment. In a WEF report, Buehler et al (2017) made the following pre-COVID-19 observation: The ILO estimates that the annual cost to the global economy from accidents and work-related diseases alone is a staggering $3 trillion. Moreover, a recent report suggests the world’s 3.2 billion workers are increasingly unwell, with the vast majority facing significant economic insecurity: 77% work in part-time, temporary, “vulnerable” or unpaid jobs. Shouldn’t this phenomenon be better categorized as a societal or economic risk rather than an environmental one? In line with the systems thinking approach, however, global risks can no longer be boxed into a taxonomical silo. Frazzled workforces may precipitate another Bhopal (1984), Chernobyl (1986), Deepwater Horizon (2010) or Flint water crisis (2014). These disasters were notably not the result of manmade climate change. Neither was the Fukushima nuclear disaster (2011) nor the Indian Ocean tsunami (2004). Indeed, the combustion of a long-overlooked cargo of 2,750 tonnes of ammonium nitrate had nearly levelled the city of Beirut, Lebanon, on Aug 4 2020. The explosion left 204 dead; 7,500 injured; US$15 billion in property damages; and an estimated 300,000 people homeless (Urbina, 2020). The environmental costs have yet to be adequately tabulated. Environmental disasters are more attributable to Black Swan events, systems breakdowns and corporate greed rather than to mundane human activity. Our JIT world aggravates the cascading potential of risks (Korowicz, 2012). Production and delivery delays, caused by the COVID-19 outbreak, will eventually require industrial overcompensation. This will further stress senior executives, workers, machines and a variety of computerized systems. The trickle-down effects will likely include substandard products, contaminated food and a general lowering in health and safety standards (Maavak, 2019a). Unpaid or demoralized sanitation workers may also resort to indiscriminate waste dumping. Many cities across the United States (and elsewhere in the world) are no longer recycling wastes due to prohibitive costs in the global corona-economy (Liacko, 2021). Even in good times, strict protocols on waste disposals were routinely ignored. While Sweden championed the global climate change narrative, its clothing flagship H&M was busy covering up toxic effluences disgorged by vendors along the Citarum River in Java, Indonesia. As a result, countless children among 14 million Indonesians straddling the “world’s most polluted river” began to suffer from dermatitis, intestinal problems, developmental disorders, renal failure, chronic bronchitis and cancer (DW, 2020). It is also in cauldrons like the Citarum River where pathogens may mutate with emergent ramifications. On an equally alarming note, depressed economic conditions have traditionally provided a waste disposal boon for organized crime elements. Throughout 1980s, the Calabriabased ‘Ndrangheta mafia – in collusion with governments in Europe and North America – began to dump radioactive wastes along the coast of Somalia. Reeling from pollution and revenue loss, Somali fisherman eventually resorted to mass piracy (Knaup, 2008). The coast of Somalia is now a maritime hotspot, and exemplifies an entwined form of economic-environmental-geopolitical-societal emergence. In a VUCA world, indiscriminate waste dumping can unexpectedly morph into a Black Hawk Down incident. The laws of unintended consequences are governed by actors, interconnections, interactions and adaptations in a system under study – as outlined in the methodology section. Environmentally-devastating industrial sabotages – whether by disgruntled workers, industrial competitors, ideological maniacs or terrorist groups – cannot be discounted in a VUCA world. Immiserated societies, in stark defiance of climate change diktats, may resort to dirty coal plants and wood stoves for survival. Interlinked ecosystems, particularly water resources, may be hijacked by nationalist sentiments. The environmental fallouts of critical infrastructure (CI) breakdowns loom like a Sword of Damocles over this decade. GEOPOLITICAL The primary catalyst behind WWII was the Great Depression. Since history often repeats itself, expect familiar bogeymen to reappear in societies roiling with impoverishment and ideological clefts. Anti-Semitism – a societal risk on its own – may reach alarming proportions in the West (Reuters, 2019), possibly forcing Israel to undertake reprisal operations inside allied nations. If that happens, how will affected nations react? Will security resources be reallocated to protect certain minorities (or the Top 1%) while larger segments of society are exposed to restive forces? Balloon effects like these present a classic VUCA problematic. Contemporary geopolitical risks include a possible Iran-Israel war; US-China military confrontation over Taiwan or the South China Sea; North Korean proliferation of nuclear and missile technologies; an India-Pakistan nuclear war; an Iranian closure of the Straits of Hormuz; fundamentalist-driven implosion in the Islamic world; or a nuclear confrontation between NATO and Russia. Fears that the Jan 3 2020 assassination of Iranian Maj. Gen. Qasem Soleimani might lead to WWIII were grossly overblown. From a systems perspective, the killing of Soleimani did not fundamentally change the actor-interconnection-interaction adaptivity equation in the Middle East. Soleimani was simply a cog who got replaced.

# Case

## Top Level

#### Physical deterioration in zero G makes even missions to Mars impossible

Piersma 10 [Theunis, Dutch professor of Global Flyway Ecology at the University of Groningen, winner of the 2014 Spinoza Prize “Why space is the impossible frontier”, 10 November 2010, https://www.newscientist.com/article/mg20827860-100-why-space-is-the-impossible-frontier/]

To function properly, we need gravity. Without it, the environment is less demanding on the human body in several ways, and this shows upon the return to Earth. Remember the sight of weakened astronauts emerging after the Apollo missions? That is as nothing compared with what would happen to astronauts returning from Mars. One of the first things to be affected is the heart, which shrinks by as much as a quarter after just one week in orbit ([The New England Journal of Medicine, vol 358, p 1370](http://www.nejm.org/doi/full/10.1056/NEJMra072139)). Heart atrophy leads to decreases in blood pressure and the amount of blood pushed out by the heart. In this way heart atrophy leads to reduced exercise capacity. Astronauts returning to Earth after several months in the International Space Station experience dizziness and blackouts because blood does not reach their brains in sufficient quantities. Six weeks in bed leads to about as much atrophy of the heart as one week in space, suggesting that the atrophy is caused by both weightlessness and the concomitant reduction in exercise. Other muscle tissue suffers too. The effects of weightlessness on the muscles of the limbs are easy to verify experimentally. Because they bear the body’s weight, the “anti-gravity” muscles of the thighs and calves degenerate significantly when they are made redundant during space flight. Despite the best attempts to give replacement exercise to crew members on the International Space Station, after six months they had still lost 13 per cent of their calf muscle volume and 32 per cent of the maximum power that their leg muscles could deliver ([Journal of Applied Physiology, vol 106, p 1159](http://dx.doi.org/10.1152/japplphysiol.91578.2008)). Various metabolic changes also occur, including a decreased capacity for fat oxidation, which can lead to the build-up of fat in atrophied muscle. Space travellers also suffer deterioration of immune function both during and after their missions ([Aviation, Space, and Environmental Medicine, vol 79, p 835](http://dx.doi.org/10.3357/ASEM.2276.2008)). Arguably the most fearsome effect on bodies is bone loss ([The Lancet, vol 355, p 1569](http://dx.doi.org/10.1016/S0140-6736(80)02208-8)). Although the hardness and strength of bone, and the relative ease with which it fossilises, give it an appearance of permanence, bone is actually a living and remarkably flexible tissue. In the late 19th century, the German anatomist Julius Wolff discovered that bones adjust to the loads that they are placed under. A decrease in load leads to the loss of bone material, while an increase leads to thicker bone. It is no surprise, then, that in the microgravity of space bones demineralise, especially those which normally bear the greatest load. Cosmonauts who spent half a year in space lost up to a quarter of the material in their shin bones, despite intensive exercise ([The Lancet, vol 355, p 1607](http://dx.doi.org/10.1016/S0140-6736(00)02217-0)). Although experiments on chicken embryos on the International Space Station have established that bone formation does continue in microgravity, formation rates are overtaken by bone loss. What is of greatest concern here is that, unlike muscle loss which levels off with time, bone loss seems to continue at a steady rate of 1 to 2 per cent for every month of weightlessness. During a three-year mission to Mars, space travellers could lose around 50 per cent of their bone material, which would make it extremely difficult to return to Earth and its gravitational forces. Bone loss during space travel certainly brings home the maxim “use it or lose it”.

#### SpaceX appropriating Mars is already illegal under the OST –if Elon can circumvent the OST, he can circumvent the AFF.

van Eijk 20

Cristian van Eijk “Sorry, Elon: Mars is not a legal vacuum – and it’s not yours, either”, Völkerrechtsblog, 05.11.2020, doi: [10.17176/20210107-183703-0](https://doi.org/10.17176/20210107-183703-0). // HW AW - EmmieeM

The principle of non-appropriation SpaceX risks breaching OST article II, the “cardinal rule” of space law ([Tronchetti, 2007](https://iislweb.org/docs/Diederiks2007.pdf)). This principle is a jus cogens norm [(Hobe et al. 2009, pp. 255-6)](https://elibrary.bwv-verlag.de/book/99.105025/9783830522195) establishing Mars as res communis, rather than terra nullius. I must acknowledge, with tongue firmly in cheek, that SpaceX is partly correct – states have no sovereignty on Mars. But that does not leave Mars a “free planet” up for grabs – SpaceX has no sovereignty either. On plain reading, article II OST lacks clarity on two key points: i) whose claims are prohibited, and ii) what exactly constitutes a ‘claim of sovereignty’. The first has been answered; per the then-customary interpretative rules and travaux préparatoires, there is quite broad academic consensus ([Hobe, et al. 2017](https://elibrary.bwv-verlag.de/book/99.105025/9783830522195); [Tronchetti, 2007](https://iislweb.org/docs/Diederiks2007.pdf); [Pershing, 2019](https://digitalcommons.law.yale.edu/yjil/vol44/iss1/5/); [Cheney, 2009](https://perma.cc/W3QU-GMTY)) that **sovereign claims include those by private entities**. This is consistent with OST article VI; private entities act in space with state authorisation, and thus state authority. It also accords with the law of state responsibility, wherein conduct of entities exercising state authority is attributable to the state, even if ultra vires ([ARSIWA](https://legal.un.org/ilc/texts/instruments/english/draft_articles/9_6_2001.pdf) articles 5, 7). The second issue is more complex. Much has been written on whether claims to space [resources](https://www.universiteitleiden.nl/en/law/institute-of-public-law/institute-of-air-space-law/the-hague-space-resources-governance-working-group) or space property ([Nemitz v United States](https://opil.ouplaw.com/view/10.1093/law:ildc/1986us04.case.1/law-ildc-1986us04)) are sovereign. In this case, the territorial claim is less clear; is establishing a jurisdiction a sovereign claim “by other means”? SpaceX purports not to create law horizontally via contract, but to establish the only law on Mars – a vertical structure endemic to sovereign legal orders. International caselaw on territorial acquisition agrees; sovereign acts include “legislative, administrative and quasi-judicial acts” (Case concerning sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia v. Malaysia), [para 148](https://www.icj-cij.org/public/files/case-related/102/102-20021217-JUD-01-00-EN.pdf); Decision regarding delimitation of the border between Eritrea and Ethiopia, [para. 3.29](https://legal.un.org/riaa/cases/vol_XXV/83-195.pdf)) with the exercise of jurisdiction and local administration having “particular, probative value” ([Minquiers and Ecrehos (France v. UK), p. 22](https://www.icj-cij.org/public/files/case-related/17/017-19531117-JUD-01-00-EN.pdf)). Also relevant are attempts to exclude other states’ jurisdiction ([Island of Palmas (USA v. Netherlands), pp. 838-9](https://pcacases.com/web/sendAttach/714)). An attempt by SpaceX to prescribe its own jurisdiction on Mars would constitute a sovereign claim in breach of OST article II, and entail US responsibility for an internationally wrongful act. Of course, as Thom Cheney [points out](https://www.instagram.com/tv/CG71f4KjwSg/?utm_source=ig_web_button_share_sheet), this is all just words until it isn’t – but there is cause for concern. The Federal Communications Commission (FCC) has been consistently accommodating to commercial space actors, and to SpaceX [in particular](https://fcc.report/IBFS/SAT-MOD-20200417-00037/2274315.pdf), preferring to leave regulation up to markets rather than regulatory bodies. As Commissioner O’Rielly [said](https://docs.fcc.gov/public/attachments/FCC-18-164A1.doc) upon granting SpaceX market access: “our job at the Commission is to approve the qualified applications [by SpaceX et al.] and then let the market work its will.” It is not unforeseeable that the FCC would [prioritise](https://www.vice.com/en/article/z3bxx3/ajit-pai-still-thinks-killing-net-neutrality-was-a-brilliant-idea) corporate objectives over principle, and under an administration increasingly [dismissive](https://www.whitehouse.gov/briefings-statements/remarks-president-trump-74th-session-united-nations-general-assembly/) of the international rule of law, might fail to regulate SpaceX in case of breach. Both SpaceX’s actions or FCC inaction risk breaching OST article II, and could leave the US facing reparations claims from injured state(s). Mars nullius: A thought experiment But **this problem extends beyond the legal**. As previously mentioned, the OST, especially article II, designates Mars as res communis. This precludes territorial acquisition by occupation, which can only legitimately occur on terra nullius. But indulge me for a moment in a half-serious thought experiment. **No provision of outer space law explicitly designates Mars res communis**. The exploration and use of Mars is the “province of mankind” per OST article I (emphasis added), but that language was specifically diluted in negotiations from the originally-proposed “common heritage of mankind”. The Moon is the “common heritage of mankind” ([Moon Agreement](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html), article 5), but only for [18 states](https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXIV-2&chapter=24&clang=_en). The United States has recently and repeatedly attempted to erode the status of space as res communis, including by [treaty](https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf) and by [Executive Order](https://www.whitehouse.gov/presidential-actions/executive-order-encouraging-international-support-recovery-use-space-resources/), and it is not alone. If current trends continue, Mars nullius may come sooner than we think. **That line between res communis and terra nullius is the principal legal obstacle to acquiring extra-terrestrial land by the legal process of occupation.** In territorial acquisition cases, international law distinguishes between the act of attempting to exercise jurisdiction or sovereignty (called an ‘effectivité‘), and the legal right to do so (sovereign title). The former is a question of fact; the latter is a question of law. Absent other sovereign claims, an effectivité compliant with international law is “as good as title” (Island of Palmas (USA v. Netherlands), [p. 839](https://legal.un.org/riaa/cases/vol_II/829-871.pdf); Frontier Dispute (Burkina Faso v. Mali), [para 63](https://www.icj-cij.org/public/files/case-related/69/069-19861222-JUD-01-00-EN.pdf)). Such an effectivité would contravene international law now, but that law is in flux. What if the current rule proves less-than-robust? As shown above, the elements of successful effectivité, state attribution and a sovereign act with sovereign intention, are satisfied. Slipping this provision on the future Martian legal order into satellite broadband Terms of Service serves little purpose – except as basis for a claim prior to some future critical date. Crucially, SpaceX is not an international actor. It is an American company subject to US law and continuing US supervision. In both [Island of Palmas](https://legal.un.org/riaa/cases/vol_II/829-871.pdf) and the [Pedra Branca Dispute](https://www.icj-cij.org/public/files/case-related/130/130-20080523-JUD-01-00-EN.pdf), corporations acting under national authorisation and regulation established sovereign titles for their respective states. A future attempt by SpaceX to act on its Terms could be received by other states, either legally or politically, as an American colonisation of Mars. Concerns and conclusions Three primary concerns emerge from this picture. First, **non-appropriation is cardinal for a reason – if breached, international peace and security in space hangs in the balance**. Second, **even signalling the implementation of a provision so contrary to US obligations without censure risks the international rule of law.** Finally, and most pragmatically, American vulnerability to future claims by other states should concern American citizens; it is their money, their national reputation on the line. Commercial actors in space present great innovative and developmental potential for all mankind ([Aganaba-Jeanty, 2015](https://www.sciencedirect.com/science/article/abs/pii/S0094576515002842)), but their so-called ‘self-regulatory’ or administrative role should be taken with a healthy scepticism. We already know how that story ends. As Bleddyn Bowen [put](https://spacewatch.global/2020/10/spacewatchgl-column-the-hell-of-humans-in-heaven-debating-the-risks-of-space-technology-and-habitation/) it, “[t]he continuation of the term ‘colonies’ in describing the potential human future in space should raise political and moral alarm bells immediately given the last 500 years of international relations. Will billionaires run their ‘colonies’ the way they run their factory floors, and treat their citizens like they treat their lowest paid employees?” As humanity expands into space, we will need new legal rules and understandings of sovereignty to govern the process ([Leib, 2015](https://www.tandfonline.com/doi/full/10.1080/14777622.2015.1015112)). **The current legal order is a critical framework that, without supplement, will someday prove incomplete. The legal governance of Mars is an excellent example.** However, **those new laws must fit into that framework; they cannot hang suspended in a vacuum**. We have seen previously the dangers of rashly governing the global commons based on aspiration and resource hunger ([Ranganathan, 2016](https://academic.oup.com/ejil/article/27/3/693/2197248) and [2019](https://academic.oup.com/ejil/article/30/2/573/5536726)). Martian soil cannot become the [manganese nodules](https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198798200.001.0001/oso-9780198798200-chapter-23) of this century. If anything, it is imperative on us to recognise and correct the inequities the current rules have created ([Craven, 2019](https://academic.oup.com/ejil/article/30/2/547/5536739)) before proposing new ones. Space law is an established rulebook likely to undergo some high-octane developments in coming decades. While Elon is welcome to the table, he can’t keep sucking the air from the room. It leaves us space lawyers just shouting into the void.

#### They have a card that’s like discount space col optimism – bad model of debate to just reject our ev on face make them apply it specifically

## Colonization

#### No impact to sanitizing the activities of the ultra rich

#### The pizzagati ev - this says SpaceX is being given billions by the government – [1] They don’t stop government subsidies to SpaceX – Elon will just use it on one of the hundreds of things he is also doing in space if he can’t use it on Mars [2] If the problem is the government mishandling tax money, the AFF doesn’t make the government care about it’s people any more so the subsidies get wasted anyway

#### ALSO – THEY JUST NO SOLVENCIED THEIR OWN AFF – if musk is just doing what nasa would do anyway then mars col is inevitable because nasa would do it post aff – means they only get impacts that say private col uniquely bad

#### Scenario is dumb – their internal link ev which is the Morton ev is super speculative –

#### The warming impact is absurd – it assumes that we started a fully self sustaining mars col which they said wont happen – the ev that they name dropped in cx doesn’t make that claim, only Morton does, and you can just read that ev after the round

#### Their warming – extinction card doesn’t say warming causes extinction

#### Extinction from warming requires 12 degrees, far greater than their internal link, and intervening actors will solve before then

Sebastian Farquhar 17, master’s degree in Physics from the University of Oxford, leads the Global Priorities Project (GPP) at the Centre for Effective Altruism, et al., 2017, “Existential Risk: Diplomacy and Governance,” https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf

The most likely levels of global warming are very unlikely to cause human extinction.15 The existential risks of climate change instead stem from tail risk climate change – the low probability of extreme levels of warming – and interaction with other sources of risk. It is impossible to say with confidence at what point global warming would become severe enough to pose an existential threat. Research has suggested that warming of 11-12°C would render most of the planet uninhabitable,16 and would completely devastate agriculture.17 This would pose an extreme threat to human civilisation as we know it.18 Warming of around 7°C or more could potentially produce conflict and instability on such a scale that the indirect effects could be an existential risk, although it is extremely uncertain how likely such scenarios are.19 Moreover, the timescales over which such changes might happen could mean that humanity is able to adapt enough to avoid extinction in even very extreme scenarios. The probability of these levels of warming depends on eventual greenhouse gas concentrations. According to some experts, unless strong action is taken soon by major emitters, it is likely that we will pursue a medium-high emissions pathway.20 If we do, the chance of extreme warming is highly uncertain but appears non-negligible. Current concentrations of greenhouse gases are higher than they have been for hundreds of thousands of years,21 which means that there are significant unknown unknowns about how the climate system will respond. Particularly concerning is the risk of positive feedback loops, such as the release of vast amounts of methane from melting of the arctic permafrost, which would cause rapid and disastrous warming.22 The economists Gernot Wagner and Martin Weitzman have used IPCC figures (which do not include modelling of feedback loops such as those from melting permafrost) to estimate that if we continue to pursue a medium-high emissions pathway, the probability of eventual warming of 6°C is around 10%,23 and of 10°C is around 3%.24 These estimates are of course highly uncertain. It is likely that the world will take action against climate change once it begins to impose large costs on human society, long before there is warming of 10°C. Unfortunately, there is significant inertia in the climate system: there is a 25 to 50 year lag between CO2 emissions and eventual warming,25 and it is expected that 40% of the peak concentration of CO2 will remain in the atmosphere 1,000 years after the peak is reached.26 Consequently, it is impossible to reduce temperatures quickly by reducing CO2 emissions. If the world does start to face costly warming, the international community will therefore face strong incentives to find other ways to reduce global temperatures.

#### Co2 key to ag and habitat diversity—their impacts are hype.

Goklany 15. (Dr. Indur M. Goklany, PhD MSU, is a science and technology policy analyst for the United States Department of the Interior, where he holds the position of Assistant Director of Programs, Science and Technology Policy. CARBON DIOXIDE The good news. <http://www.thegwpf.org/content/uploads/2015/10/benefits.pdf>)

Summary 1. This paper addresses the question of whether, and how much, increased carbon dioxide concentrations have benefited the biosphere and humanity by stimulating plant growth, warming the planet and increasing rainfall. 2. Empirical data confirms that the biosphere’s productivity has increased by about 14% since 1982, in large part as a result of rising carbon dioxide levels. 3. Thousands of scientific experiments indicate that increasing carbon dioxide concentrations in the air have contributed to increases in crop yields. 4. These increases in yield are very likely to have reduced the appropriation of land for farming by 11–17% compared with what it would otherwise be, resulting in more land being left wild. 5. Satellite evidence confirms that increasing carbon dioxide concentrations have also resulted in greater productivity of wild terrestrial ecosystems in all vegetation types. 6. Increasing carbon dioxide concentrations have also increased the productivity of many marine ecosystems. 7. In recent decades, trends in climate-sensitive indicators of human and environmental wellbeing have improved and continue to do so despite claims that they would deteriorate because of global warming. 8. Compared with the benefits from carbon dioxide on crop and biosphere productivity, the adverse impacts of carbon dioxide – on the frequency and intensity of extreme weather, on sea level, vector-borne disease prevalence and human health – have been too small to measure or have been swamped by other factors. 9. Models used to influence policy on climate change have overestimated the rate of warming, underestimated direct benefits of carbon dioxide, overestimated the harms from climate change and underestimated human capacity to adapt so as to capture the benefits while reducing the harms. 10. It is very likely that the impact of rising carbon dioxide concentrations is currently net beneficial for both humanity and the biosphere generally. These benefits are real, whereas the costs of warming are uncertain. Halting the increase in carbon dioxide concentrations abruptly would deprive people and the planet of the benefits of carbon dioxide much sooner than they would reduce any costs of warming**.**

#### Food shortages are coming and cause extinction.

FDI 12, Future Directions International, a Research institute providing strategic analysis of Australia’s global interests; citing Lindsay Falvery, PhD in Agricultural Science and former Professor at the University of Melbourne’s Institute of Land and Environment, “Food and Water Insecurity: International Conflict Triggers & Potential Conflict Points,” <http://www.futuredirections.org.au/workshop-papers/537-international-conflict-triggers-and-potential-conflict-points-resulting-from-food-and-water-insecurity.html>

There is a growing appreciation that the conflicts in the next century will most likely be fought over a lack of resources.¶ Yet, in a sense, this is not new. Researchers point to the French and Russian revolutions as conflicts induced by a lack of food. More recently, Germany’s World War Two efforts are said to have been inspired, at least in part, by its perceived need to gain access to more food. Yet the general sense among those that attended FDI’s recent workshops, was that the scale of the problem in the future could be significantly greater as a result of population pressures, changing weather, urbanisation, migration, loss of arable land and other farm inputs, and increased affluence in the developing world.¶ In his book, Small Farmers Secure Food, Lindsay Falvey, a participant in FDI’s March 2012 workshop on the issue of food and conflict, clearly expresses the problem and why countries across the globe are starting to take note. .¶ He writes (p.36), “…if people are hungry, especially in cities, the state is not stable – riots, violence, breakdown of law and order and migration result.”¶ “Hunger feeds anarchy.”¶ This view is also shared by Julian Cribb, who in his book, The Coming Famine, writes that if “large regions of the world run short of food, land or water in the decades that lie ahead, then wholesale, bloody wars are liable to follow.” ¶ He continues: “An increasingly credible scenario for World War 3 is not so much a confrontation of super powers and their allies, as a festering, self-perpetuating chain of resource conflicts.” He also says: “The wars of the 21st Century are less likely to be global conflicts with sharply defined sides and huge armies, than a scrappy mass of failed states, rebellions, civil strife, insurgencies, terrorism and genocides, sparked by bloody competition over dwindling resources.”¶ As another workshop participant put it, people do not go to war to kill; they go to war over resources, either to protect or to gain the resources for themselves.¶ Another observed that hunger results in passivity not conflict. Conflict is over resources, not because people are going hungry.¶ A study by the International Peace Research Institute indicates that where food security is an issue, it is more likely to result in some form of conflict. Darfur, Rwanda, Eritrea and the Balkans experienced such wars. Governments, especially in developed countries, are increasingly aware of this phenomenon.¶ The UK Ministry of Defence, the CIA, the US Center for Strategic and International Studies and the Oslo Peace Research Institute, all identify famine as a potential trigger for conflicts and possibly even nuclear war

## Microbes

#### Havent demonstrated the impact of preserving martian life – a) we don’t know it exists and b) who cares

#### The martian diseases kill us all scenario is nonunique because nasa would do it anyway

#### Turn – mars disease is unlikely but the knowledge we’d get outweighs

David Warmflash 15.Astrobiologist postdoc at NASA, MD, science lead for the U.S. team of the Planetary Society's Phobos Living Interplanetary Flight Experiment.] “Might astronauts bring back a deadly disease from Mars?” Genetic Literacy Project, 9 April 2015. <https://geneticliteracyproject.org/2015/04/08/might-astronauts-bring-back-a-deadly-disease-from-mars/>

When we talk about isolation of Mars samples and returning astronauts, it’s really just a matter of precaution until we’re sure what we’re dealing with. But from an evolutionary perspective, it’s extremely unlikely that microorganisms native to Mars, or another world in our Solar System, will be harmful to human health. There are different ways that a microorganisms can be cause disease. The most feared kind of microbe disease is infectious disease. By infection, we mean that the microorganisms actually thrive inside the human body. This is the most unlikely scenario for an ET microbe. Microbes that infect humans are able to do so, because they co-evolved with us, or in some cases with other animals who serve as hosts. In the case of Ebola, the virus reached humans because it was already thriving inside bats and other “bush meat” in Africa. If an organism is going to infect your lungs and cause pneumonia, it must already be living in an environment similar to that of your lungs–warm and wet. That happens with the bacterium that causes tuberculosis, but it’s not going to happen with anything living on Mars, a cold, dry environment even more so than Antarctica. Another way that microorganisms can cause disease is by releasing a toxin into the environment and humans then get exposed to the toxin. Two examples on Earth, both from the same genus of bacteria, are botulism and tetanus. Compared with infectious disease, releasing a chemical that happens to be toxic to humans is quite a bit more realistic when considering possible organisms on another planet, such as Mars. When dealing with Martian materials, there will be a lot of containment procedures and other precautions, and the material will be tested for toxicity. It’s a real concern, but with the toxin kind of disease there is no issue of the organism spreading from person to person, causing an outbreak. You do not catch botulism or tetanus from another person. You get botulism by eating food that has been contaminated and tetanus from getting pricked with something that has been contaminated. But when we consider harm, we must think also about harm to our environment. While there should be no similarity between the warm, wet human body and the cold, dry Martian environment, there certainly can be environments on Earth where Mars life might thrive if carried here by a probe or human mission. Environmental ecology and biospheres on Earth are notoriously complex, so we don’t want to release a native Martian microbe on Earth, particularly in “Mars-like” regions of our planet. That’s something to keep in mind as we move forward, toward a Mars sample return mission, but as noted earlier containment is going to be extremely tight. As for disease, considering everything, the risk is fairly low, and alongside that risk we also must keep in site of the benefits. What will knowledge of the existence of a biosphere on another planet do to our perspective on biology? It could work wonders in that area, giving us unexpected insights and launching biology into a new era. At the same time, knowing that the planet just next door to us also is a home to life, we could be sure that we inhabit a cosmos in which life is extremely common. We could expect worlds with breathable atmosphere because of life forms using photosynthesis to make food, worlds orbiting nearly stars that we might eventually colonize without the need for pressure domes. And it would increase the likelihood that eventually we’ll come across an extraterrestrial civilization.

#### Its absurd for them read impact offense for earth diseases when their impact is mars diseases

#### But ill answer it anyway

#### No extinction from pandemics – THEIR AUTHOR – prefer cus hes way more explicit here

* Death rates as high as 50% didn’t collapse civilization
* Fossil record caps risk at .1% per century
* health, sanitation, medicine, science, public health bodies, solve
* viruses can’t survive in all locations
* refugee populations like tribes, remote researchers, submarine crews, solve

Ord 20 Ord, Toby. Toby David Godfrey Ord (born 18 July 1979) is an Australian philosopher. He founded Giving What We Can, an international society whose members pledge to donate at least 10% of their income to effective charities and is a key figure in the effective altruism movement, which promotes using reason and evidence to help the lives of others as much as possible.[3] He is a Senior Research Fellow at the University of Oxford's Future of Humanity Institute, where his work is focused on existential risk. BA in Phil and Comp Sci from Melbourne, BPhil in Phil from Oxford, PhD in Phil from Oxford. The precipice: existential risk and the future of humanity. Hachette Books, 2020.

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10 The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11 When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox. During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13 Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined. Yet even events like these fall short of being a threat to humanity’s longterm potential.15 In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale. The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16 It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted. But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk. Our population now is a thousand times greater than over most of human history, so there are vastly more opportunities for new human diseases to originate.17 And our farming practices have created vast numbers of animals living in unhealthy conditions within close proximity to humans. This increases the risk, as many major diseases originate in animals before crossing over to humans. Examples include HIV (chimpanzees), Ebola (bats), SARS (probably bats) and influenza (usually pigs or birds).18 Evidence suggests that diseases are crossing over into human populations from animals at an increasing rate.19 Modern civilization may also make it much easier for a pandemic to spread. The higher density of people living together in cities increases the number of people each of us may infect. Rapid long-distance transport greatly increases the distance pathogens can spread, reducing the degrees of separation between any two people. Moreover, we are no longer divided into isolated populations as we were for most of the last 10,000 years.20 Together these effects suggest that we might expect more new pandemics, for them to spread more quickly, and to reach a higher percentage of the world’s people. But we have also changed the world in ways that offer protection. We have a healthier population; improved sanitation and hygiene; preventative and curative medicine; and a scientific understanding of disease. Perhaps most importantly, we have public health bodies to facilitate global communication and coordination in the face of new outbreaks. We have seen the benefits of this protection through the dramatic decline of endemic infectious disease over the last century (though we can’t be sure pandemics will obey the same trend). Finally, we have spread to a range of locations and environments unprecedented for any mammalian species. This offers special protection from extinction events, because it requires the pathogen to be able to flourish in a vast range of environments and to reach exceptionally isolated populations such as uncontacted tribes, Antarctic researchers and nuclear submarine crews. 21 It is hard to know whether these combined effects have increased or decreased the existential risk from pandemics. This uncertainty is ultimately bad news: we were previously sitting on a powerful argument that the risk was tiny; now we are not. But note that we are not merely interested in the direction of the change, but also in the size of the change. If we take the fossil record as evidence that the risk was less than one in 2,000 per century, then to reach 1 percent per century the pandemic risk would need to be at least 20 times larger. This seems unlikely. In my view, the fossil record still provides a strong case against there being a high extinction risk from “natural” pandemics. So most of the remaining existential risk would come from the threat of permanent collapse: a pandemic severe enough to collapse civilization globally, combined with civilization turning out to be hard to re-establish or bad luck in our attempts to do so.

## Space Weaponization

#### Space militarization is inevitable, but the US getting there first prevents war and locks in primacy which saves allies – dominance independently creates stability and solves their space war scenarios

Solano 17 [Major Joseph Solano, USAF, M.S., Troy University; Master’s Thesis 1. REPORT DATE 9-06-2017 2. REPORT TYPE: Master’s Thesis “Weaponizing the Final Frontier: The United States and the New Space Race” http://www.dtic.mil/dtic/tr/fulltext/u2/1039544.pdf]

The transition into the twenty-first-century has brought about new space threats and challenges that the Truman era could not have predicted. The result of developing ASAT technology in the 1950s set in motion an ASAT war that escalated with the 2007 Chinese ASAT test. Following the ASAT test from China, Congressman Terry Everett (R, AL), the ranking Republican member of the Strategic Forces Subcommittee of the 19 House Armed Service Committee, referred to the test as a “clear wake up call for the Administration, Congress, and the American people,” and “apparently this single test is part of a broader effort to mature their direct-ascent ASAT capability and to develop a spectrum of counterspace capabilities.”34 The question at this point is not whether space will be weaponized, but when. Congressman Everett’s testimony is a consistent representation of many influential civilian leaders that share similar opinions. The need for a clear, bold, and transparent space policy allowing for unified action is critical in posturing future space forces. This is the consistent gap identified from previous advocates for weaponization of space. While the first step is to identify a gap, the second and most critical portion is the implementation of a clear and coherent strategy. According to JP 3-14, Space Operations, space capabilities, and associated policies have continued to evolve since the beginning of the Space Race starting in 1955. The continued use and expansion of space had led to a congested, contested, and competitive environment.35 According to space doctrine, five major considerations exist when considering the use of space as an operational domain. The first consideration is vulnerability. The concept of vulnerability impacts all three main sectors of space: military, civil, and commercial. Joint doctrine recognizes the United States dependency on space assets and identifies the vulnerability associated with this reliance. Within the concept of vulnerability, joint doctrine also identifies the concept of purposeful 34 Terry Everett, “Arguing for a Comprehensive Space Protection Strategy,” Strategic Studies Quarterly (Fall 2007): 21-22. 35 Department of Defense, JP 3-14, Space Operations, I-1. 20 interference, which is the “deliberate actions taken to deny or disrupt a space system, service, or capability.”36 Purposeful interference is an important term to understand because it warns all enemies that an act on a space system is an act of war. It is critical that the commander’s understand the enemy’s capabilities in order to characterize, identify, and recognize interference. The second consideration is freedom of action.37 The U.S. government believes that, as a world superpower, it has the ability to use space capabilities at any given time and place without interference by enemy forces. At the core of this consideration is developing the ability to protect critical space assets. The third consideration is protection.38 This consideration intends to not only protect the space system, but also the supporting infrastructure to ensure capability is available when needed. Global reach and responsiveness is the fourth consideration and focuses on uniqueness of space and the limitations with respect to reconstitution of systems. The ability to replace satellite systems is not a rapid process and takes years. This limitation emphasizes the protection aspect of these national space capabilities. Last, space deterrence is the ability to utilize joint force operations to ensure protection against U.S. space capabilities.39 All five of these considerations focus on the protection of maintaining U.S. space superiority and represent a small shift towards a space weaponization strategy. JP 3-14 is the single joint publication for space operations. While 36 Department of Defense, JP 3-14, Space Operations, I-2. 37 Ibid. 38 Ibid. 39 Ibid. 21 the publication escalates the aggressive language and hints towards a weaponization mentality, the official guidance and direction to unify the space community is absent. The core of this document focuses on space as a force enabler, not as a weaponization capability equal to air, space, and cyber. There is a major gap in joint doctrine regarding the transition of space pacification and weaponization. Doctrine must reflect the current threat environment and lay the groundwork towards a strategy that will deliberately focus efforts towards a singular vision. Current doctrine fails to provide the necessary vision and guidance to combat future challenges or threats in the space domain. Along with the shift in aggression in joint doctrine, President Obama’s National Space Policy of the United States of America echoes a similar message as Joint Publication 3-14. The National Space Policy Principle states: The United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent with the inherent right of self defense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.40 This is the most aggressive space policy to date, and indicates a transition from militarization to the cusp of weaponization. Satellite systems are now equivalent to an airplane, ship, or tank, and the United States must prepare to defend these systems from attack.41 The next logical step is the development and execution of this philosophy to secure national interests. Just as with any mission set, guidance must be clear to enable 40 Barak Obama, National Space Policy of the United States of America (Washington, DC: White House, 2010), accessed 15 October 2016, 3, https://www.whitehouse.gov/sites/default/files/national\_space\_policy\_6-28-10.pdf. 41 George W. Bush, U.S. National Space Policy (Washington, DC: White House, August 2006), accessed 20 October 2016, https://fas.org/irp/offdocs/nspd/space.pdf. 22 unified action. The inconsistency and disconnect with current policy and the threat environment only causes delays in designing, creating, and launching weaponization capabilities from space. The United States will not always have the luxury of neutrality regarding the topic of space weaponization. Former President Obama and President Trump are at a critical juncture requiring key decisions on the future of national space capabilities. Currently, the inconsistent messaging negatively impacts strategy by limiting national capability while allowing foreign nations to rapidly expand their space portfolio. The United States has the opportunity to take advantage and leverage its superiority in space as a critical capability. While doctrine and policy are critical indications towards a policy of weaponization, inevitability is a mental construct and methodology that deserves consideration. Lieutenant Colonel (Lt Col) Thomas Bell describes the inevitability of space weaponization by stating “just as the role of US military operations in space has gradually shifted from scientific interest, through intelligence collection, to robust combat support, so it will continue to shift inevitably towards the weaponization of space.”42 Logically, this determination is a reasonable conclusion. Why would space be any different from all four other military domains? Lt Col Bell argues that “it is inevitable that mankind will weaponize space, and equally likely that this weaponization will occur with maturing of specific technologies over the next thirty years.”43 The ability for the United States to develop and integrate space into the military construct will provide the asymmetry required of future conflicts. Lt Col Bell believes that space weapons, which include the ability to conduct warfare in, from, or through space, will be required in the next major conflict of the United States due to the mandate to ensure freedom of access. 44 Future adversaries intend to create an asymmetrical advantage against the United State and the elimination of space superiority will create the desired effect. The three major requirements for space identified by Lt Col Bell are enhanced space surveillance; develop the capability to deny a potential enemy the use of space; and develop capability to protect United States space assets from the enemy.45 Bell’s analysis presents similar doctrinal gaps that exists in joint doctrine and national space policy, but adds a unique perspective that technology itself could be a major driver in the weaponization of space, not necessarily people. While Lt Col Bell illustrates the criticality of space operations to warfighting, his focus lacks the robustness on the methods to develop and shape a new space policy emphasizing weaponization and the impacts on the national instruments of power. In Benjamin Lambeth’s book, Mastering the Ultimate High Ground, he presents an argument that the development of space weapons will complete and legitimize space as a true military power equal to land, air, sea, and cyber.46 Senior civilian leaders must recognize the importance of their military space subject matter experts in order to 44 Bell, 3. 45 Ibid., 11. 46 Benjamin S. Lambeth, Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space (Santa Monica, CA: RAND, Project Air Force, 2003), 113. 24 develop a comprehensive strategy to protect the United States against all threats. Lambeth references Retired General Howell Estes, former United States Space Command Commander, to support one of his main points: If we examine the evolutionary development of the aircraft, we see uncanny parallels to the current evolution of spacecraft. . . . The potential of aircraft was not recognized immediately. Their initial use was confined to observation . . . until one day the full advantage of applying force from the air was realized and the rest is history. So too with the business of space . . . [military] space operations, like the land, sea and air operations that evolved before them will expand [into] the budding new mission already included into the charter of US Space Command . . . as they become more and more critical to our national security.47 While Lambeth intends to spark discussion and present information arguing both for and against supporting weapons in space, his research lacks the recommendations and framework to shape a new space policy. Lambeth states that the “United States possesses the essential wherewithal in principle to begin weaponizing space today. Reduced to basics, it is only a question of leadership choice, societal acceptance, and which particular force-employment alternatives to pursue first.”48 This statement targets the diplomatic instrument of power. This study will expand Lambeth’s focus towards reviewing all four instruments of power and operational variables to collect data and formulate a strategy intending to provide clarity and unity of effort towards space operations. The Rumsfeld Commission is the core document of the twenty-first-century that highlighted the need for the United States to readdress their posturing for space. The 47 Howell M. Estes, III, “Doctrinal Lineage of Space” (lecture, AFA National Symposia, Los Angeles, CA, 18 October 1996), accessed 27 October 2016, http://secure.afa.org/AEF/pub/la6.asp. 48 Lambeth, 118. 25 Commission’s intent was to assess the current and future state of the national space capabilities while analyzing vulnerabilities associated to the threat environment. The major conclusion from the assessment was that the “U.S. is more dependent on space than any other nation” and cautions that adversarial nations will view that as a vulnerability.49 Tactics and techniques identified by the Rumsfeld Commission include denial and deception, jamming, microsatellite, and nuclear detonation.50 While the commission identified high-level strategies to reduce vulnerabilities, and called for the President of the United States to have the option to deploy weapons in space, official policy has yet to transition. The commission stated, “The United States must develop, deploy, and maintain the means to deter attack on and to defend vulnerable space capabilities,” but is missing the recommended doctrine and policy updates to incorporate into the national space strategy.51 The commission illustrates the need for “explicit national security guidance and defense policy to direct development of doctrine, concepts of operations, and capabilities for space, including weapons systems that operate in space and that can defend assets in orbit and augment air, land, and sea forces.”52 In addition to space policy, leadership must recognize that that robust training will be required to 49 Report of the Commission to Assess United States National Security Space Management and Organization pursuant to Public Law 106-65, the National Defense Authorization Act for Fiscal Year 2000, Section 1622, 11 January 2001, 18, accessed 16 September 2016, http://www.dod.gov/pubs/space20010111.html. 50 Ibid., 19-21. 51 Ibid., vi. 52 Ibid. 26 bolster any capability developments. Space professionals will require training on space systems to develop tactics, techniques, and procedures allowing for space superiority. In addition, the Rumsfeld Commission noted that in July 2000, “The Xinhua news agency reported that China’s military is developing methods and strategies for defeating the United States military in a high tech and space-based future war.”53 The Rumsfeld Commission used historical analysis to review warning signs of previous identified space scenarios that exposed vulnerabilities that could have resulted in catastrophe. The commission emphasized that the United States is ignoring warning signs of Chinese space aggression, allowing for unacceptable risk assumption. The commission report states, “Surprise is most often not a lack of warning, but the result of a tendency to dismiss as what we consider improbable.”54 If the Chinese weaponize space first, the United States would lose its space superiority along with a general decline in overall military capability. The results would be disastrous. Although the development of space weapons is not a simple task due to technology development and extreme cost, the commission recommends starting now. The value of the Rumsfeld Commission to this study is the identification of a growing threat against the space domain and a recommendation for a space strategy transition from militarization towards weaponization. This study intends to take the recommendations to the next level by actually developing strategy recommendations regarding developing space professionals and space policy, but falls short of implementable recommendations. Without formal guidance on the weaponization of space, the establishment of unified actions is unachievable. The United States cannot afford to continue the policy of wait and see.

#### Heg decline causes unstable nuclear alliances that cause war

Hayes 18 [Peter Hayes, Nautilus Institute, Berkeley, California, USA; Center for International Security Studies, Sydney University. Trump and the Interregnum of American Nuclear Hegemony. November 8, 2018. <https://www.tandfonline.com/doi/full/10.1080/25751654.2018.1532525>]

During a post-hegemonic era, long-standing nuclear alliances are likely to be replaced by ad hoc nuclear coalitions, aligning and realigning around different congeries of threat and even actual nuclear wars, with much higher levels of uncertainty and unpredictability than was the case in the nuclear hegemonic system. There are a number of ways that this dynamic could play out during the interregnum, and these dynamics are likely to be inconsistent and contradictory. In some instances, the sheer momentum of past policy combined with bureaucratic inertia and the potency of political, military service and corporate interests, may ensure that residual aspects of the formerly hegemonic postures are adhered to even as formal nuclear alliances rupture. Even as they reach for the old anchors, these states may be forced to adjust and retrench strategically, or start to take their own nuclear risks by making increasingly explicit nuclear threats and deployments against nuclear-armed adversaries – as Japan has begun to do with reference to its “technological deterrent” since about 2012.9 This period could last for many years until and when nuclear war breaks out and leads to a post-nuclear war disorder; or a new, post-hegemonic strategic framework is established to manage and/or abolish nuclear threat. Under full-blown American nuclear hegemony, fewer states had nuclear weapons, the major nuclear weapons states entered into legally binding restraints on force levels and they learned from nuclear near-misses to promulgate rules of the road and tacit understandings. The lines drawn during full-blown collisions involving nuclear weapons were stark and concentrated the minds of leaders greatly. In a nuclear duel, it was clear that only one of two sides could fire first; the only question was which one. Now, with nine nuclear weapons states, and conflicts conceivably involving three, four or more of them, no matter how much leaders concentrate, it will not be evident who is aiming at who, who may fire first, and during a volley, who fired first and even who hit whom. In a highly proliferated world, nuclear-armed states may feel driven to obtain larger nuclear forces able to deter multiple adversaries at the same time, sufficient to conduct not only a few nuclear attacks but configured to fight more than one protracted nuclear war at a time, especially in nuclear states torn apart by civil war and post-nuclear attack reconstruction. The first time nuclear weapons are used since 1945 will be shocking, the second time, less so, the third time, the new normal.