# 1NC

## 1---T

#### Interpretation: “Appropriation” is permanent occupation – not temporary use.

Gorove 69, [Stephen Gorove, Interpreting Article II of the Outer Space Treaty, 37 Fordham L. Rev. 349 (1969). https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1966&context=flr]

III. THE CONCEPT OF APPROPRIATION With respect to the concept of appropriation the basic question is what constitutes "appropriation," as used in the Treaty, especially in contradistinction to casual or temporary use. The term "appropriation" is used most frequently to denote the taking of property for one's own or exclusive use with a sense of permanence. Under such interpretation the establishment of a permanent settlement or the carrying out of commercial activities by nationals of a country on a celestial body may constitute national appropriation if the activities take place under the supreme authority (sovereignty) of the state. Short of this, if the state wields no exclusive authority or jurisdiction in relation to the area in question, the answer would seem to be in the negative, unless, the nationals also use their individual appropriations as cover-ups for their state's activities.5 In this connection, it should be emphasized that the word "appropriation" indicates a taking which involves something more than just a casual use. Thus a temporary occupation of a landing site or other area, just like the temporary or nonexclusive use of property, would not constitute appropriation. By the same token, any use involving consumption or taking with intention of keeping for one's own exclusive use would amont to appropriation.

#### Violation: Space Tourism is travel over a short duration---even if they win singular examples of tourism that could be appropriation, they explicitly include temporary travel---makes the aff extra T at worst.

**Henderson and Tsui 19** Henderson, I. L., and W. H. K. Tsui. "The role of niche aviation operations as tourist attractions." Air transport: A tourism perspective (2019): 233-244. (Massey University School of Aviation, Palmerston North, New Zealand)//Elmer

17.5 Space Tourism Space tourism is another niche segment of the aviation industry that seeks to give tourists the ability to become astronauts and experience space travel for recreational, leisure, or business purposes. Since space tourism is extremely expensive, it is a case of a very small segment of consumers that are able and willing to purchase a space experience. There are several options for space tourists. For example, Crouch et al. (2009) investigate the choice behaviour between four types of space tourism: high altitude jet fighter flights, atmospheric zero-gravity flights, short-duration suborbital flights, and longer duration orbital trips into space. Reddy et al. (2012) find the following motivational factors behind space tourism (in order of importance): vision of earth from space, weightlessness, high speed experience, unusual experience, and scientific contribution. Currently, only high-altitude jet fighter flights and atmospheric zero-gravity flights are commercially available to tourists in the space tourism sector. Accordingly, this section provides an example of each, whilst the potential for suborbital and longer duration orbital trips into space are discussed later in this chapter. Case Study 17.3 Examples of Space Tourism MiG-29 Edge of Space Flight One current option for space tourists is to be taken up into the stratosphere in a supersonic fighter jet (see MiGFlug, 2017a). MiGFlug acts as a sales agent for this unique space tourism activity, which usually involves reaching an altitude of 20–22 km. At such an altitude, the curvature of the earth can be seen, the sky is dark, and it is possible to see into space. As part of this space travel experience, tourists are also given an opportunity to control the aircraft and there are a number of aerobatic manoeuvres that are performed by an experienced pilot. This operation is based out of Russia. The Mikoyan MiG-29 Fulcrum is a Russian military fighter jet that allows for rates of climb of 330 m/s and a top speed of Mach 2.25 (2390 km/h). MiGFlug sells three different services in this aircraft. For €12,500 a passenger can enjoy a 25-min flight featuring a number of aerobatic manoeuvres but without supersonic flight. For €14,500 a passenger can enjoy a 45-min flight that includes higher aerobatics and supersonic flight. The ‘Edge of Space’ flight includes aerobatics, supersonic flight, and the experience of being taken up into the stratosphere and is sold for €17,500.

#### Vote Neg

#### 1] Limits – their interpretation means that affs about any outer space activity would be topical: photography, sending rovers, collecting ice cores, launching satellites, can’t sell rocks on EBAY, etc. This explodes neg prep burdens since outer space activity is so vague – no generics exist to answer both the photography and the tourism aff, so affs would just win with a tiny impact every round. At worst, they’re extra-T which proves all of our offense OR they don’t solve case.

#### 2] Precision – Justifies the aff arbitrarily doing away with words in the resolution which gives way to affs about anything about outer space, for any length of time.

#### Drop the debater to deter future abuse and because the 2N doesn’t get new disads so it’s permanently skewed.

#### No RVIs—it’s your burden to be fair and T—same reason you don’t win for defense.

#### Use competing interps - Topicality is a binary question, you can’t be “reasonably” topical

## 2---T

#### Interpretation: The affirmative may only descriptively declare the appropriation of outer space as unjust – to clarify the affirmative may not specify a policy that [bans] appropriation of outer space

#### Violation: they defend implementation of a ban on appropriation.

#### Vote neg –

#### 1] Limits – Extra T lets the aff add any words they want to the resolution which wrecks predictable neg ground – there’s no unified DA to affs that spec implementation, states, the creation of new legal regimes, etc.

#### 2] Ground – Extra lets the aff fiat away uq or links to DAs – adding words means we can’t predictable create counterplans that compete – means the aff is always ahead – strategic affs will just add the word not to the rez which makes neg prep impossible

## 3---DA

#### Current business sentiment promises a slow but steady recovery.

Zandi 11/15, [Dr. Mark Zandi, PhD from UPenn, economist, and director of economic research at Moody’s Analytics, 11/15/21, “Moody's Analytics Survey of Business Confidence,” <https://www.economy.com/economicview/indicator/usa_dsbc/5C438EAA-8AA1-484E-8931-62208FCACE22>] DurSac

Abstracting from the weekly ups and downs of responses to the global business survey, business sentiment remains stuck consistent with a slowly recovering global economy. Most encouraging, more than one-third of respondents to the survey say present business conditions are improving and more than half say their sales are strengthening. Hiring and investment intentions aren’t as strong, but they are much improved since the dark days of the pandemic. Demand for office space remains depressed, inventory accumulation is weak, and though financial conditions are good, they aren’t as good as they were prior to the pandemic.

#### Consistent space regulations are key to business confidence – the aff is seen as a 180.

Christensen 16 [Ian Christensen is a Project Manager at Secure World Foundation, and has eight years of experience as a consultant and analyst focused on international and domestic commercial space, satellite, and aviation markets. "Building Confidence and Reducing Risk in Space Resources Policy," Room, 2016, The Space Journalhttps://room.eu.com/article/building-confidence-and-reducing-risk-in-space-resources-policy/] Recut DurhamSA from ISEE

Like most areas of economic activity, space resource utilisation business plans are based upon the ability to access a resource, produce a product, service, or goods based from the resource, and produce revenue from that product based on established market activities. An economic system requires a level of regulation and oversight to ensure it functions. Regulation and governmental oversight is part of an overall market framework that provides stability and confidence in validity for commercial entities and those that invest in them. Just as the commercial companies are in the initial stages of developing and validating hardware, governments have begun to establish regulatory and policy frameworks.

#### Unpredictable shifts ruin Confidence – prevents growth and recovery.

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.

#### Decline fuels nationalism and undermines deterrence---great power war

Lawrence H. **Summers** **17**. Secretary of the Treasury (1999-2001) and Director of the US National Economic Council (2009-2010), former president of Harvard University, where he is currently University Professor. “Will the Center Hold?” *Project Syndicate*. 12/21/2017. <https://www.project-syndicate.org/onpoint/recession-or-financial-crisis-political-fallout-by-lawrence-h--summers-2017-12?a_la=english&a_d=5a37edac78b6c709b8d260dd&a_m=&a_a=click&a_s=&a_p=%2Fsection%2Feconomics&a_li=recession-or-financial-crisis-political-fallout-by-lawrence-h--summers-2017-12&a_pa=section-commentaries&a_ps>=

There is also the question of financial institutions’ health. While major firms appear far better capitalized and far more liquid than they were prior to the crisis, market indicators of risk suggest we may not be quite as far out of the woods as many suppose. Despite apparently large increases in capital and consequent declines in leverage, it does not appear that bank stocks have become far less volatile, as financial theory would predict if capital had become abundant. Financial markets are widely cited, including by US President Donald Trump, as providing comfort in the current moment. But a relapse into **financial crisis** would likely have **catastrophic** political **consequences**, sweeping into power even more **toxic populist nationalists**. In such a scenario, the center **will not hold**. Beyond the kind of near-term risks that markets price, there is the question of an economic downturn. The good news is that sentiment is positive in most of the world. Inflation seems unlikely to accelerate out of control and force a lurch toward contractionary fiscal and monetary policies. Most forecasters regard the near-term risk of recession as low. But recessions are never predicted successfully, even six months in advance. The current expansion in the US has gone on for a long time, and the risk of policy mistakes there is very real, owing to highly problematic economic leadership in the Trump administration. I would put the annual probability of recession in the coming years at 20-25%. So the odds are better than even that the US economy will fall into recession in the next three years. The risk from a purely economic point of view is that the traditional strategy for battling recession – a reduction of 500 basis points in the federal funds rate – will be unavailable this year, given the zero lower bound on interest rates. Nor is it clear that the will or the room for fiscal expansion will exist. This means that the next recession, like the last, may well be **protracted and deep**, with **severe** global consequences. And the political capacity for a global response, like that on display at the London G-20 Summit in 2009, appears to be **absent** as well. Just compare the global visions of US President Barack Obama and UK Prime Minister Gordon Brown back then with those of Trump and Prime Minister Theresa May today. I shudder to think what a serious recession will mean for politics and policy. It is hard to imagine avoiding a resurgence of **protectionism, populism, and scapegoating**. In such a scenario, as with another financial crisis, the center will not hold. But the greatest risk in the next few years, I believe, is neither a market meltdown nor a recession. It is instead a **political doom loop** in which voters’ conclusion that government does not work effectively for them becomes a self-fulfilling prophecy. Candidates elected on platforms of resentment delegitimize the governments they lead, fueling further resentment and even more problematic new leaders. Cynicism pervades. How else can one explain how the candidacy of Roy Moore for a US Senate seat? Moore, who was twice dismissed for cause from his post on the Alabama Supreme Court, and who is credibly charged with sexually assaulting teenage girls when he was in his 30s, could enter the US Senate as many of his colleagues look the other way. If a country’s citizens lose confidence in their government’s ability to improve their lives, the government has an incentive to **rally popular support** by focusing attention on threats that only it can address. That is why in societies pervaded by anger and uncertainty about the future, the temptation to stigmatize minority groups increases. And it is why there is a tendency for officials to **magnify foreign threats**. We are seeing this phenomenon all over the world. Russian President Vladimir Putin, Turkish President Recep Tayyip Erdoğan, and Chinese President Xi Jinping have all made nationalism a central part of their governing strategy. So, too, has Trump, who has explicitly rejected the international community in favor of the idea that there is only a ceaseless struggle among nation-states for competitive advantage. When the world’s preeminent power, having upheld the idea of international community for nearly 75 years, rejects it in favor of ad hoc deal making, others have no choice but to follow suit. Countries that can no longer rely on the US feel pressure to provide for their own security. America’s adversaries inevitably will seek to **fill the voids** left behind as the US **retrenches**.

## 4---PIC

#### Text: States should ban the appropriation of outer space by private entities by banning private rocket launches except for starlink.

#### It competes – It requires launches to get starlink into space.

#### Internet is open to massive vulnerabilities now

Griffiths 19 James Griffiths 7-26-2019 "The global internet is powered by vast undersea cables. But they’re vulnerable." <https://www.cnn.com/2019/07/25/asia/internet-undersea-cables-intl-hnk/index.html> (CNN Analyst)//ELmer

Hong Kong (CNN) - On July 29, 1858, two steam-powered battleships met in the middle of the Atlantic Ocean. There, they connected two ends of a 4,000 kilometer (2,500 mile) long, 1.5 centimeter (0.6 inch) wide cable, linking for the first time the European and North American continents by telegraph. Just over two weeks later, the UK’s Queen Victoria sent a congratulatory message to then US President James Buchanan, which was followed by a parade through the streets of New York, featuring a replica of a ship which helped lay the cable and fireworks over City Hall. In their inaugural cables, Queen Victoria hailed the “great international work” by the two countries, the culmination of almost two decades of effort, while Buchanan lauded a “triumph more glorious, because far more useful to mankind, than was ever won by conqueror on the field of battle. The message took over 17 hours to deliver, at 2 minutes and 5 seconds per letter by Morse code, and the cable operated for less than a month due to a variety of technical failures, but a global communications revolution had begun. By 1866, new cables were transmitting 6 to 8 words a minute, which would rise to more than 40 words before the end of the century. In 1956, Transatlantic No. 1 (TAT-1), the first underwater telephone cable, was laid, and by 1988, TAT-8 was transmitting 280 megabytes per second – about 15 times the speed of an average US household internet connection – over fiber optics, which use light to transmit data at breakneck speeds. In 2018, the Marea cable began operating between Bilbao, Spain, and the US state of Virginia, with transmission speeds of up to 160 terabits per second – 16 million times faster than the average home internet connection. Today, there are around 380 underwater cables in operation around the world, spanning a length of over 1.2 million kilometers (745,645 miles). Underwater cables are the invisible force driving the modern internet, with many in recent years being funded by internet giants such as Facebook, Google, Microsoft and Amazon. They carry almost all our communications and yet – in a world of wireless networking and smartphones – we are barely aware that they exist. Yet as the internet has become more mobile and wireless, the amount of data traveling across undersea cables has increased exponentially. “Most people are absolutely amazed” by the degree to which the internet is still cable-based, said Byron Clatterbuck, chief executive of Seacom, a multinational telecommunications firm responsible for laying many of the undersea cables connecting Africa to the rest of the world. “People are so mobile and always looking for Wi-Fi,” he said. “They don’t think about it, they don’t understand the workings of this massive mesh of cables working together. “They only notice when it’s cut.” Network down In 2012, Hurricane Sandy slammed into the US East Coast, causing an estimated $71 billion in damage and knocking out several key exchanges where undersea cables linked North America and Europe. “It was a major disruption,” Frank Rey, director of global network strategy for Microsoft’s Cloud Infrastructure and Operations division, said in a statement. “The entire network between North America and Europe was isolated for a number of hours. For us, the storm brought to light a potential challenge in the consolidation of transatlantic cables that all landed in New York and New Jersey.” For its newest cable, Marea, Microsoft chose to base its US operation further down the coast in Virginia, away from the cluster of cables to minimize disruption should another massive storm hit New York. But most often when a cable goes down nature is not to blame. There are about 200 such failures each year and the vast majority are caused by humans. “Two-thirds of cable failures are caused by accidental human activities, fishing nets and trawling and also ships’ anchors,” said Tim Stronge, vice-president of research at TeleGeography, a telecoms market research firm. “The next largest category is natural disaster, mother nature – sometimes earthquakes but also underwater landslides.” A magnitude-7.0 earthquake off the southwest coast off Taiwan in 2006, along with aftershocks, cut eight submarine cables which caused internet outages and disruption in Taiwan, Hong Kong, China, Japan, Korea and the Philippines. Stronge said the reason most people are not aware of these failures is because the whole industry is designed with it in mind. Companies that rely heavily on undersea cables spread their data across multiple routes, so that if one goes down, customers are not cut off. How a cable gets laid Laying a cable is a years-long process which costs millions of dollars, said Seacom’s Clatterbuck. The process begins by looking at naval charts to plot the best route.

#### SpaceX satellites are key to internet access

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

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

#### Internet check disease, disasters, tyranny and more---impact filter and solves extinction

Eagleman 10, [Dr. David; 11/9/2010; PhD in Neuroscience @ Baylor University, Adjunct Professor of Neoroscience @ Stanford University, Former Guggenheim Fellow, Director of the Center for Science and Law, BA @ Rice University; “Six Ways The Internet Will Save Civilization”; <https://www.wired.co.uk/article/apocalypse-no>]

Many great civilisations have fallen, leaving nothing but cracked ruins and scattered genetics. Usually this results from: natural disasters, resource depletion, economic meltdown, disease, poor information flow and corruption. But we’re luckier than our predecessors because we command a technology that no one else possessed: a rapid communication network that finds its highest expression in the internet. I propose that there are six ways in which the net has vastly reduced the threat of societal collapse.

Epidemics can be deflected by telepresence

One of our more dire prospects for collapse is an infectious-disease epidemic. Viral and bacterial epidemics precipitated the fall of the Golden Age of Athens, the Roman Empire and most of the empires of the Native Americans. The internet can be our key to survival because the ability to work telepresently can inhibit microbial transmission by reducing human-to-human contact. In the face of an otherwise devastating epidemic, businesses can keep supply chains running with the maximum number of employees working from home. This can reduce host density below the tipping point required for an epidemic. If we are well prepared when an epidemic arrives, we can fluidly shift into a self-quarantined society in which microbes fail due to host scarcity. Whatever the social ills of isolation, they are worse for the microbes than for us.

The internet will predict natural disasters

We are witnessing the downfall of slow central control in the media: news stories are increasingly becoming user-generated nets of up-to-the-minute information. During the recent California wildfires, locals went to the TV stations to learn whether their neighbourhoods were in danger. But the news stations appeared most concerned with the fate of celebrity mansions, so Californians changed their tack: they uploaded geotagged mobile-phone pictures, updated Facebook statuses and tweeted. The balance tipped: the internet carried news about the fire more quickly and accurately than any news station could. In this grass-roots, decentralised scheme, there were embedded reporters on every block, and the news shockwave kept ahead of the fire. This head start could provide the extra hours that save us. If the Pompeiians had had the internet in 79AD, they could have easily marched 10km to safety, well ahead of the pyroclastic flow from Mount Vesuvius. If the Indian Ocean had the Pacific’s networked tsunami-warning system, South-East Asia would look quite different today.

Discoveries are retained and shared

Historically, critical information has required constant rediscovery. Collections of learning -- from the library at Alexandria to the entire Minoan civilisation -- have fallen to the bonfires of invaders or the wrecking ball of natural disaster. Knowledge is hard won but easily lost. And information that survives often does not spread. Consider smallpox inoculation: this was under way in India, China and Africa centuries before it made its way to Europe. By the time the idea reached North America, native civilisations who needed it had already collapsed. The net solved the problem. New discoveries catch on immediately; information spreads widely. In this way, societies can optimally ratchet up, using the latest bricks of knowledge in their fortification against risk.

Tyranny is mitigated

Censorship of ideas was a familiar spectre in the last century, with state-approved news outlets ruling the press, airwaves and copying machines in the USSR, Romania, Cuba, China, Iraq and elsewhere. In many cases, such as Lysenko’s agricultural despotism in the USSR, it directly contributed to the collapse of the nation. Historically, a more successful strategy has been to confront free speech with free speech -- and the internet allows this in a natural way. It democratises the flow of information by offering access to the newspapers of the world, the photographers of every nation, the bloggers of every political stripe. Some posts are full of doctoring and dishonesty whereas others strive for independence and impartiality -- but all are available to us to sift through. Given the attempts by some governments to build firewalls, it’s clear that this benefit of the net requires constant vigilance.

Human capital is vastly increased

Crowdsourcing brings people together to solve problems. Yet far fewer than one per cent of the world’s population is involved. We need expand human capital. Most of the world not have access to the education afforded a small minority. For every Albert Einstein, Yo-Yo Ma or Barack Obama who has educational opportunities, uncountable others do not. This squandering of talent translates into reduced economic output and a smaller pool of problem solvers. The net opens the gates education to anyone with a computer. A motivated teen anywhere on the planet can walk through the world’s knowledge -- from the webs of Wikipedia to the curriculum of MIT’s OpenCourseWare. The new human capital will serve us well when we confront existential threats we’ve never imagined before.

Energy expenditure is reduced

Societal collapse can often be understood in terms of an energy budget: when energy spend outweighs energy return, collapse ensues. This has taken the form of deforestation or soil erosion; currently, the worry involves fossil-fuel depletion. The internet addresses the energy problem with a natural ease. Consider the massive energy savings inherent in the shift from paper to electrons -- as seen in the transition from the post to email. Ecommerce reduces the need to drive long distances to purchase products. Delivery trucks are more eco-friendly than individuals driving around, not least because of tight packaging and optimisation algorithms for driving routes. Of course, there are energy costs to the banks of computers that underpin the internet -- but these costs are less than the wood, coal and oil that would be expended for the same quantity of information flow.

The tangle of events that triggers societal collapse can be complex, and there are several threats the net does not address. But vast, networked communication can be an antidote to several of the most deadly diseases threatening civilisation. The next time your coworker laments internet addiction, the banality of tweeting or the decline of face-to-face conversation, you may want to suggest that the net may just be the technology that saves us.

## 5---Adv CP

#### CP Text: States should fund a program to cover 4.8% of the earth’s oceans in a monolayer of .1 micrometer latex particles of hollow or core-shell morphology, which can easily be expanded as needed in order to meet further carbon forcing.

#### Microbubbles are capable of solving warming, according to advanced models.

Eli Kintischmar. 26, 2010 , 11, 10-31-2014, "Could Tiny Bubbles Cool the Planet?," Science | AAAS, https://www.sciencemag.org/news/2010/03/could-tiny-bubbles-cool-planet

Natural bubbles already brighten turbulent seas and provide a luster known as “undershine” below the ocean’s surface. But these bubbles only lightly brighten the planet, contributing less than one-tenth of 1% of Earth’s reflectivity, or albedo. What Seitz imagines is **pumping** even smaller **bubbles**, **about one-five-hundredth of a millimeter in diameter**, **into the sea**. Such "microbubbles" are essentially "mirrors made of air," says Seitz, and they might be created off boats by using devices that mix water supercharged with compressed air into swirling jets of water. “I’m emulating a natural ocean phenomenon and amplifying it just by changing the physics—the ingredients remain the same." Computer **simulations show that** **tiny** **bubbles** could **have** **a** profound cooling effect. **Using a model that simulates how light, water, and air interact**, Seitz **found that microbubbles** could **double the reflectivity of water at a concentration of only one part per million** by volume. When Seitz **plug**ged **that data into a climate model**, he found that **the microbubble strategy** could **cool the planet by up to 3°C**. He has submitted a paper on the concept he calls “Bright Water" to the journal Climatic Change **In addition to** helping **curb global warming**, the microbubble strategy could **also** help **conserve** **water** **by reducing evaporation** in rivers and lakes, says Seitz. **That’s** a problem **that leads to the loss of billions of tons of freshwater each year in California** alone. Seitz says adding bubbles to a 1-square-kilometer patch of ocean is feasible, but scaling it up may be technically difficult. Energy is not the limiting factor, he says, estimating that the energy output of 1000 windmills might be sufficient to add bubbles to an entire ocean. The larger challenge to large-scale deployment, he says, would be ensuring that the bubbles last as long as possible. In nature, a bubble’s lifetime depends on the level of dissolved organic matter and nanoparticles, without which small bubbles rapidly shrink and disappear. If the water is too clean, the bubbles might not last long enough to be effectively spread over large areas, Seitz says.

#### Reject 1AR theory- A] 7-6 time skew means it’s endlessly aff biased B] I don’t have a 3nr which allows for endless extrapolation C] 1AR theory is skewed to the aff because they have a 2ar judge psychology warrant.

#### Infinite abuse claims are wrong- A] Spikes solve-you can just preempt paradigms in the 1AC B] Functional limits- 1nc is only 7 minutes long

# Case

# 6---tourism good

#### Space tourism is coming now and creates space hotels that act as labs for physiological research

Caplan and Lindsay 17, Nick Caplan and Kirsty Lindsay 7-29-2017 "Space Tourism Could Help Boost Science and Health Research — Here's How"<https://www.space.com/37503-space-tourism-could-help-boost-science-health-research.html> (Nick graduated from the University of Birmingham with a PhD in Biomechanics)//Elmer

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. A range of unknown health risks await space tourists, who are expected to be a far more health-diverse group than current astronauts. We will need to determine the effects of high g-forces on people with medical conditions, as well as in adolescents who might want to go on the ultimate school holiday adventure past the Karman line – traditionally taken as the boundary of space. It will be vital that risks to passenger health are reduced through remote physiological monitoring, and new monitoring technologies will need to withstand the high g-forces involved in launching into space. The British government's commitment to become one of the most attractive places in the world for commercial spaceflight will allow space research to boldly go where only limited research has gone before.

#### The next pandemic will be worse---action now is key---extinction.

Andy Plump 21. President for research and development at Takeda Pharmaceuticals and a cofounder of the Covid R&D Alliance. “Luck is not a strategy: The world needs to start preparing now for the next pandemic” 05-18-21. https://www.statnews.com/2021/05/18/luck-is-not-a-strategy-the-world-needs-to-start-preparing-now-for-the-next-pandemic/

As countries grapple with the worst global pandemic in a century, it’s hard to think about preparing for the next one. But if we don’t, it could be worse than Covid-19. Over the last 30 years, infectious disease outbreaks have emerged with alarming regularity. The World Health Organization lists an influenza pandemic and other high-threat viral diseases such as Ebola and dengue among the top 10 biggest threats to public health. The rate of animal-to-human transmission of viruses has been increasing, with the U.S. Centers for Disease Control and Prevention estimating that 75% of new infectious diseases in humans come from animals. These zoonotic infections can have profound effects on human life. The overall infection fatality rate is around 10% for severe acute respiratory syndrome (SARS), between 40% and 75% for Nipah virus, and as high as 88% for Ebola. While the infection fatality rate for Covid-19 is lower — likely less than 1% — the overall burden of death has been significantly higher since it has affected so many people, more than 160 million people as I write this. Luck is not a pandemic strategy Although the Covid-19 pandemic has been a human and health care disaster, by scientific measures the world was lucky this time. Covid-19 was far less lethal than its predecessors, less contagious than previous pandemic viruses, and we were able to quickly develop a cadre of effective vaccines. But luck is not a strategy. The same way the U.S. invests in and prepares for national defense, it must also prepare for another pandemic. Though the next viral outbreak cannot be prevented, the next pandemic can — but only with better preparation.