# NEG

## Framing

#### I negate: The appropriation of outer space by private entities is unjust

#### I value justice because  the word “unjust”  in the resolution implies an obligation of justice.

#### The standard is maximizing expected well being. Prefer this for 3 reasons

#### Utilitarianism and Justice are linked greater than any other framework

Mill 63 (John Stewart Mill 1863 On the Connection Between Justice and Utility<https://www.utilitarianism.com/mill5.htm>)

Nearly allied to the idea of impartiality is that of equality; which often enters as a component part both into the conception of justice and into the practice of it, and, in the eyes of many persons, constitutes its essence. But in this, still more than in any other case, **the notion of justice varies in different persons, and always conforms in its variations to their notion of utility.** Each person maintains that **equality is the dictate of justice, except where he thinks that expediency requires inequality.** The justice of giving equal protection to the rights of all, is maintained by those who support the most outrageous inequality in the rights themselves. Even in slave countries it is theoretically admitted that the rights of the slave, such as they are, ought to be as sacred as those of the master; and that a tribunal which fails to enforce them with equal strictness is wanting in justice; while, at the same time, institutions which leave to the slave scarcely any rights to enforce, are not deemed unjust, because they are not deemed inexpedient. Those who think that utility requires distinctions of rank, do not consider it unjust that riches and social privileges should be unequally dispensed; but those who think this inequality inexpedient, think it unjust also.

#### Utilitarianism is the only moral system available to policymakers.

**Goodin 95’** Robert E. Goodin 95 professor of government at the University of Essex, and professor of philosophy and social and political theory at Australian National University, “Utilitarianism as a Public Philosophy”, Cambridge Studies in Philosophy and Public Policy, May 1995 HSLA//SC

Consider, first, the argument from necessity. Public officials are obliged to make their choices under uncertainty, and uncertainty of a very special sort at that. All choices – public and private alike – are made under some degree of uncertainty, of course. But in the nature of things, private individuals will usually have more complete information on the peculiarities of their own circumstances and on the ramifications that alternative possible choices might have for them. Public officials, in contrast, are relatively poorly informed as to the effects that their choices will have on individuals, one by one. What they typically do know are generalities: averages and aggregates. They know what will happen most often to most people as a result of their various possible choices. But that is all. That is enough to allow public policy-makers to use the utilitarian calculus – assuming they want to use it at all – to choose general rules of conduct. Knowing aggregates and averages, they can proceed to calculate the utility payoffs from adopting each alternative possible general rule. But they cannot be sure that the payoff will do to any given individual or on any particular occasion. Their knowledge of generalities, aggregates and averages is just not sufficiently fine-grained for that.

#### Because public policy makers act on behalf of a collective body they must look at util first.

**Woller 97’** Gary, Brigham Young University, “A Forum On The Role of Environmental Ethics in Restructuring Environmental Policy and Law for the Next Century”, Policy Currents, 1997 HSLA//SC

Moreover, virtually all public policies entail some redistribution of economic or political resources, such that one group's gains must come at another group's ex- pense. Consequently, public policies in a democracy must be justified to the public, and especially to those who pay the costs of those policies. Such justification cannot simply be assumed a priori by invoking some higher-order moral principle. Appeals to a priori moral principles, such as environmental preservation, also often fail to acknowledge that public policies inevitably entail trade-offs among competing values. Thus since policymakers cannot justify inherent value conflicts to the public in any philosophical sense, and since public policies inherently imply winners and losers, the policymakers' duty to the public interest requires them to demonstrate that the redistributive effects and value trade-offs implied by their polices are somehow to the overall advantage of society. At the same time, deontologically based ethical systems have severe practical limitations as a basis for public policy. At best, apriorimoral principles provide only general guidance to ethical dilemmas in public affairs and do not themselves suggest appropriate public policies, and at worst, they create a regimen of regulatory unreasonableness while failing to adequately address the problem or actually making it worse. For example, a moral obligation to preserve the environment by no means implies the best way, or any way for that matter, to do so, just as there is no a priori reason to believe that any policy that claims to preserve the environment will actually do so. Any number of policies might work, and others, although seemingly consistent with the moral principle, will fail utterly. That deontological principles are an inadequate basis for environmental policy is evident in the rather significant irony that most forms of deontologically based environmental laws and regulations tend to be implemented in a very utilitarian manner by street-level enforcement officials. Moreover, ignoring the relevant costs and benefits of environmental policy and their attendant incentive structures can, as alluded to above, actually work at cross purposes to environmental preservation. (There exists an extensive literature on this aspect of regulatory enforcement and the often perverse outcomes of regulatory policy. See, for example, Ackerman, 1981; Bartrip and Fenn, 1983; Hawkins, 1983, 1984; Hawkins and Thomas, 1984.) Even the most die-hard preservationist/deontologist would, I believe, be troubled by this outcome. The above points are perhaps best expressed by Richard Flathman, The number of values typically involved in public policy decisions, the broad categories which must be employed and above all, the scope and complexity of the consequences to be anticipated militate against reasoning so conclusively that they generate an imperative to institute a specific policy. It is seldom the case that only one policy will meet the criteria of the public interest (1958, p. 12). It therefore follows that in a democracy, policymakers have an ethical duty to establish a plausible link between policy alternatives and the problems they address, and the public must be reasonably assured that a policy will actually do something about an existing problem; this requires the means-end language and methodology of utilitarian ethics.

## Contention 1: Innovation

#### Innovation high now but the affirmative ruins it

Raghavan 21[Seetha Raghavan, Seetha Raghavan is a professor in UCF’s Department of Mechanical and Aerospace Engineering. 8-4-2021, "The Impact of Innovation in the New Era of Space Exploration," University of Central Florida News | UCF Today, https://www.ucf.edu/news/the-impact-of-innovation-in-the-new-era-of-space-exploration/]/ISEE

Every once in a while, a confluence of discoveries, events and initiatives results in a breakthrough so significant that it propels the entire world to a higher level, redefining what is possible in so many different fields. This breakthrough is taking centerstage now, as the new era of space exploration — catalyzed by increasing launch access — dawns upon us. The surge of innovation that comes with this will create new opportunities and inspire the next generation of doers. When this happens, boundaries between scientific and social impact are blurred. Innovation leading to scientific discovery can benefit society in the same way that social innovation can diversify and support scientific innovators, who can contribute to global progress. To ride this wave of progress, we must all participate and innovate in the new era of space exploration. The intersection of space exploration, innovation and impact isn’t a new phenomenon. In the past, technology developments and spin-offs from space research have consistently found their way into communities worldwide sometimes with lifesaving benefits. The International Space Station supports experiments that have led to discoveries and inventions in communication, water purification, and remote guidance for health procedures and robotic surgeries. Satellite-enabled Earth observation capabilities that monitor natural disasters, climate and crops often support early warnings for threats and mitigation strategies. Space exploration has always been relevant to everyone no matter the discipline or interest. Commercialization of space has been key in many ways to the current boost in “firsts” over the last few years. It has spurred innovation in launch vehicles and related technologies that led to firsts in vertical-takeoff-vertical landing rocket technology, reusability of rocket boosters and privately developed crewed missions to orbit. Concurrently, NASA has continued to captivate our imagination with the first flight of a helicopter in another world, a mission to return an asteroid sample to Earth and sending a probe to make the closest ever approach to the sun. While we celebrate the scientific progress, there is a vastly important question that we all need to focus on: How can we drive the surge in innovation offered by increased access to space, to benefit humankind? Access to low-Earth orbit, and eventually human exploration of space, is a portal to achieve many impactful outcomes. The numbers and completion rate of microgravity experiments conducted by scientists will be greatly increased as a range of offerings in suborbital flights provide more opportunities to advance critical research in health, agriculture, energy, and more. Lunar, planetary, and even asteroid exploration may lead to discoveries of new materials — busting the limitations now imposed on capabilities for energy, transportation, and infrastructure or creating new sensors and devices that enhance safety on Earth. Space tourism —one can hope — has the power to potentially create an awareness of our oneness that may lead to social change.

#### Commercial space innovation is the only way for long term tech issues.

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We find ourselves still at the dawn of a new space century, mindful of the victories and setbacks of our past, eager to pass the torch to the next generation of space visionaries, scientists, engineers, and enthusiasts. We look to the future not just to see how much bigger, faster, or higher we can reach, but also how the United States, and specifically the U.S. space community, can again inspire the nations of the world to align with us, as it did in the 20th century. The SmallSat Alliance is an alliance of companies developing, producing, and operating in all segments of the ‘next generation’ space economy; championing renewed U.S. leadership in the burgeoning commercial space economy, and advocating for the transformation of government-led space capabilities. We are experienced space professionals who have chosen to join with others leveraging our decades of hard-won experience, to develop smarter ways to explore space in the 21st century. A wonderful outgrowth of the legacy space program is the commercial, entrepreneurial, and job-creating commercial space business that it bequeathed. These next-generation enterprises range from multi-million-dollar startups providing rideshare opportunities or components for small satellites to multi-billion-dollar space data-analytic platforms reinventing urban car service and agricultural production. The early returns of this economic revolution are already on our doorstep: space data capabilities are exponentially growing elements of the 21st century world economy. Beginning with the dreams and funding by successful tech entrepreneurs, enormous venture investments are already delivering wondrous benefits to the world. Commercial Space – Profit and Non-Profit There are really two major categories in the commercial sector, the profit driven and the non-profit. The classic for-profit companies include not only those designing, building, launching, and operating satellites but also the tech sector that is turning that raw space data into gold through machine-learning analytics. Since for-profit companies are no longer dependent upon the revenues generated by the Cold War space race culture of a bygone era, this new generation of space companies is able to more efficiently capitalize on Moore’s Law, the nonstop exponential growth in chip density, and the associated networking technology co-evolving with it. This new generation is building profitable businesses helping to clean up our oceans of garbage and debris with satellite surveillance, reconnoitering to assist in enforcing laws that protect our oceans from illegal, unregulated, unlicensed fishing, something that is rapidly depleting the world’s most valuable and essential lifeforms. It’s leading in the innovative use of low-cost satellite constellations to produce ubiquitous remote-sensing data, enabling small business owners to be more profitable and less wasteful. For example, precise timing signals from space are already optimizing transportation of people, goods, and services, with even further gains anticipated with the introduction of artificial intelligence to assist drivers, perhaps even someday replacing them entirely. The non-profit sector is the other side of commercial space, concerned more for the general welfare of society, but every bit as integral to this new space enterprise. Much like every century before it in human history, ours is not without its unique challenges, some of which have been a consequence of the last, and all of which the space data domain can be leveraged to help solve. Examples are endless, but one challenge that this new space community is uniquely well-adapted for is to further inform worldwide resource allocation for the 21st century and beyond. These two primary resources are sustainable water and the materials needed for adequate housing for an ever-increasing human population. As cities and urbanization continue to expand, governmental planning challenges such as transportation design optimization for goods and services are only the beginning. Additionally, through using inexpensive remote sensing technologies, some members are designing space data analytics to mitigate human suffering from plagues, contain outbreaks, and combating illegal poaching. Some are connecting with other non-profits to curtail human trafficking for the sex trade or forced labor for migrant debt repayment. Still others are helping non-governmental organizations in their work to expose the use of children as soldiers. Addressing these challenges has little to do with resuscitating dreams conceived by long deceased science-fiction writers and much more to do with turning “swords back into plowshares” to solve real threats to humanity. Other non-profit initiatives include pursuing an even more foundational understanding of who we are and how to be the best custodians of our environment. Much as exploring and monitoring the world’s oceans has advanced civilization through a better understanding of human life and the planet, so too does exploring and monitoring from space. Low Earth orbit (LEO) provides a unique vantage point to look back on the planet and understand what is happening, anticipate what might happen and prepare for the future. In addition to better understanding Earth, responsible and rapid exploitation of the low Earth orbit domain will enhance the understanding of the solar system and the rest of the universe. Small satellites already offer low-cost platforms to study and explore what lies beyond the Earth. Other members are pioneering the use of zero-carbon, hydrogen-based reusable propulsion systems to ensure we don’t worsen our atmosphere using kerosene-fueled rockets for the coming tsunami of satellite launches. Finally, a mission ensuring the general welfare and planet survival for the next thousand years is finally confronting the existential threat that asteroids and comets pose to humanity. These extra-terrestrial, deep-space threats are passing dangerously close to our planet, and today we have no solar map of them and no defense.

#### That’s key to getting off the rock

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Why Mining? **Technological innovation**—primarily brought about by **commercial players** such as Elon Musk[2] and Jeff Bezos[3]—is **changing the landscape** of space exploration. **Leading the way** in this new-era race are the **startups** including Planetary Resources, Deep Space Industries, Ispace, and Kleos Space.[vii] Research into the feasibility of human and robotic missions to asteroids is being conducted by both governmental organisations, like NASA and JAXA (Japan Aerospace Exploration Agency), as well as private companies such as Planetary Resources.[viii] However, for realising affordable space travel and space industrialisation, it is **essential** to find **extraterrestrial materials** such as metals, minerals and water that do not have to be transported from Earth. Thus, the first objective in carrying out asteroid mining activity is to obtain elements that are critical for basic sustenance on Earth. It has been identified that the asteroid belt in our solar system contains eight-percent metal-rich (M type) asteroids and 75-percent volatile-rich carbonaceous (C type) asteroids.[ix] The second incentive for celestial mining companies is to haul precious minerals and cargo raw materials to Earth to fuel its fast depleting resources. This would significantly increase the mining company’s valuation and greatly impact the global economy. According to a 2012 Reuters interview with Planetary Resources, a 30-meter-long (98-foot) asteroid can hold platinum worth somewhere from US$25 billion to US $50 billion.[x] These metals are highly useful and valuable, both on Earth and in space.[xi] Third, asteroids give humans the potential to create tools in space, since iron, nickel and cobalt are in abundance.[xii] Chris Lewicki, Planetary Resources CEO, has said, “Using 3D printing technology one can grab material off asteroids and 3D print something that never has to be on a rocket. Tools, machines and even habitats can then be built off Earth, reducing the cost of exploration even further.[xiii] Fourth, resource extraction is also becoming a focus for many Middle Eastern nations.[xiv] The Middle Eastern oil states, such as Saudi Arabia and the United Arab Emirates are investing heavily in this industry as they are looking at space as a way to diversify out of the earthly benefits of fossil fuel.[xv] Fifth, countries such as India and China are looking to mine the Moon for extracting Helium-3, which is considered a clean and efficient form of energy. It is thought that this isotope could provide safer nuclear energy in a fusion reactor, since it is not radioactive and would not produce dangerous waste products.[xvi] Finally, the water available in outer space could be used to make rocket propellants. According to scientists, since water is abundant in outer space, in some or the other form, it could be extracted and electrolysed to derive hydrogen and oxygen, the key ingredients of rocket fuel.[xvii] Thus, instead of carrying one’s own fuel all the way, asteroids could serve as extraterrestrial/orbital “gas stations” for fuelling future deep space missions. This would simultaneously make space travel more cost-effective and productive. Such ventures are also seen to be intrinsic to further science and discovery, in addition to revolutionising commercial development in outer space. The mining of asteroids could also provide a near-infinite supply of the precious resources for Earth to use. [xviii]

#### Colonization solves inevitable extinction.

Kovic '19 [Marko; March 2019; co-founder president of the Zurich Institute of Public Affairs Research; "The future of energy," https://osf.io/preprints/socarxiv/aswz9/download]

Existential risks are risks that might lead to the extinction of humankind [1]. Natural existential risks (such as asteroids that might crash into Earth) are basically constant. The risks of a giant asteroid crashing into Earth today is the same as it was 500 years ago. Anthropogenic, man-made existential risks, on the other hand, are growing in number and severity. They are a side-effect of technological progress: The more we develop technologically, the greater man-made existential risks become. Nuclear weapons, to name only one example, are a direct consequence of scientific and technological progress.

There are different approaches to existential risk mitigation. One approach is to develop targeted strategies for specific existential risks. If we want to reduce the existential risk posed by nuclear weapons, then we can and should develop specific strategies for that risk.

Another approach is to develop and pursue what can be called meta-strategies that target all existential risks at once. One of most effective meta-strategies for tackling existential risks in general is space colonization: If we manage to establish permanent and self-sustainable human habitats beyond Earth, then our proverbial existential eggs are not all in one basket anymore. For example, if disaster strikes on Earth, but there are billions of humans living on Venus and Mars, humankind would continue to exist even with Earth-humans gone.

Because of existential risks, a long-term future in which humankind still exists almost certainly has to be a future in which humankind has succeeded in colonizing space. Today, even though we regularly venture into space, we do not yet have space colonization capabilities. There are a number of technological challenges that we need to overcome in order to become capable of space colonization. One of those challenges is energy. There are several reasons why.

## Contention 2: BizCon

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

Dr. Mark Zandi 11/15, 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>, cc

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**

Christensen ND [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, The Space Journal, https://room.eu.com/article/building-confidence-and-reducing-risk-in-space-resources-policy]/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.

#### Business confidence is tied to economic growth

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 cascades---nuclear war

Dr. Mathew Maavak 21, PhD in Risk Foresight from the Universiti Teknologi Malaysia, External Researcher (PLATBIDAFO) at the Kazimieras Simonavicius University, Expert and Regular Commentator on Risk-Related Geostrategic Issues at the Russian International Affairs Council, “Horizon 2030: Will Emerging Risks Unravel Our Global Systems?”, Salus Journal – The Australian Journal for Law Enforcement, Security and Intelligence Professionals, Volume 9, Number 1, p. 2-8

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.

## Contention 3: PTD CP

#### States ought to establish or expand an international public trust obligation towards celestial protection.

#### Counterplan solves global space sustainability.

**Babcock ’19** — Hope M. Babcock, Professor of Law, Georgetown University Law Center, B.A., Smith College, L.L.B., Yale University; (2019; “ARTICLE: THE PUBLIC TRUST DOCTRINE, OUTER SPACE, AND THE GLOBAL COMMONS: TIME TO CALL HOME ET”; University of Michigan Libraries, Nexis Uni; *Syracuse University Law Review*, Vol. 69; //LFS—JCM)

[\*259] The doctrine also appears to be infinitely malleable. Original uses of the doctrine were restricted to only that "aspect of the public domain below the low-water mark on the margin of the sea and the great lakes, the waters over those lands, and the waters within rivers and streams of any consequence," 520and covered only traditional uses of those lands, like fishing and navigation. 521 Over time, the scope and application of the doctrine broadened to protect more public resources and different uses. 522 Thus, the doctrine expanded to protect new trust resources, such as dry sand beaches, inland lakes, groundwater, dry riverbeds, and wildlife, 523and passive uses of those resources, like scientific study. 524The original link to navigable water and tidelands disappeared. 525 Supporters of the [\*260] doctrine successfully advocated that it be applied to "wildlife, parks, cemeteries, and even works of fine art," 526 while arguing more recently its application to the atmosphere. 527

A doctrine that imposes a perpetual duty on the sovereign to preserve trust resources, prevents their alienation for private benefit, assures public access to them, and can be invoked by anyone seems particularly useful as a management tool in outer space. 528The fact that public access to trust resources is so central to the doctrine makes it reflective, not contradictory, of international space law's bar against appropriation of outer space and of the principle of space being the "province of all mankind." 529 It avoids the problems of alienation and exclusion associated with any of the management approaches associated with some form of private property and requires neither the creation of a new administrative authority nor the presence of a close-knit group of like-minded people. 530 Members of the public, both rich and poor, can invoke and enforce the doctrine as easily as the sovereign. 531 It is cost effective to the extent that no separate apparatus is required to implement it, and the doctrine has shown itself to be highly adaptable and innovative as different needs arise. 532 It could also fill the gap in international law with respect to managing celestial property. Therefore, of all the management approaches studied here, the PTD seems the most suited to keep order in space until a regulatory regime is imposed.

However, the doctrine provides no incentives for development of trust resources; rather, it might be used to limit or curtail that development, making it an imperfect, perhaps even counter-productive solution by itself to the extent that such development might be [\*261] beneficial. 533Modifying the doctrine to allow limited use of private property management approaches, like tradable development claims, might buffer that effect - a form of overlapping hybridity between one type of property, a commons, and a management regime from another, private property, enabled by application of the PTD.

Conclusion

"Only a legal system that accommodates both the human need for resources and the necessary preservation of mankind's common heritage can fulfill these criteria."534 The future is now with regard to the development of outer space and its resources - it is no longer a question of whether humans will engage in these activities, but how soon they will. Technically advanced countries and private commercial enterprises are probing outer space and preparing for landing on an asteroid or the moon to extract their resources. 535Speculators are selling deeds to the moon's surface and preparing to exploit the tourism potential that space offers. 536 But, the legal framework for managing these initiatives is almost nonexistent. 537International treaties came into being before all this activity began in earnest and national laws that might apply are stunted by jurisdictional quandaries like the absence of national boundaries in outer space. 538Thus, there is an urgency to figure out how to control what happens in outer space before its resources are irreparably damaged or permanently monopolized by powerful countries and individuals.

In the absence of regulation, much of the current debate centers on what property regime should be applied in outer space. 539The assumption is that by only allowing private property rights in space, countries and commercial enterprises will undertake the risks and costs of space development. 540However, unless international space law changes, it may prevent this from happening. If it changes, strong management controls will be necessary to prevent destruction or over-consumption of celestial resources, as well as monopolization and competitive behavior by participants, which could lead to hostilities and inequities.

[\*262] This Article examines various private property regimes, including those of less than full fee ownership, to see if any would avoid the conflict with the international prohibition on appropriation of outer space and its resources. It concludes that none will because each retains the right to exclude and each is insensitive to the treaties' equity concerns. In contrast, considering outer space to be common is consistent with international space law in both respects.

Hypothesizing that private property in outer space may yet prevail, this Article investigates different private property management approaches, such as the right of first possession, lotteries, and tradable development rights, to see if any would be cost effective, easy to implement and equitable, and would also prevent over-consumption, monopolization or the slide into rivalrous behavior. The Article concludes that each comes up short in some respect. Social norms as a management tool for property held in common, although compliant with international law, are also not up to the task. Instead, although ancient, the PTD, with its malleability, easy and cost-effective implementation and enforcement, non-consumption principle, and consistency with the goals that animate international space treaties, seems best suited to the task of protecting the public's interests in the global commons that is outer space as it has done for centuries in Earth-bound commons.

#### But, as its principal terrestrial use has been to protect trust resources from development, the doctrine needs some modification to encourage development of celestial resources. Hence, this Article suggests that modifying the PTD to allow the application of private property management tools, like tradable development rights, will not only allow development, but also will assure that when it happens, it will not be just profitable for a few, but will also be sustainable and equitable