# 1

#### The aerospace industry is on edge now – but the US is leaning towards increased investment which solves

**Miller 22** – Miller, Amanda, 4 March 2022 – “Air and Space Force Chiefs: Defense Industrial Base May Be Too Fragile to Surge Production,” Air Force Magazine, <https://www.airforcemag.com/air-and-space-force-chiefs-defense-industrial-base-may-be-too-fragile-to-surge-production/>, [Harker KB]

The aerospace industrial base could pose a risk to U.S. national security because of lack of parts for aging systems, inattention to the future workforce, and the uncertainty that’s historically surrounded the success of space companies. Air Force Chief of Staff Gen. Charles Q. Brown Jr. and Space Force Chief of Space Operations Gen. John W. “Jay” Raymond addressed issues at the [AFA Warfare Symposium](https://www.airforcemag.com/category/aws22/) in Orlando, Fla., on March 3. Raymond cited a report by the Air Force Research Laboratory and Defense Innovation Unit that called the industrial base “tactically strong but strategically fragile.” He said in the past, proposed activity in the space sector has fizzled out. “We need this to materialize,” Raymond said. The report [“State of the Space Industrial Base 2021: Infrastructure and Services for Economic Growth and National Security,”](https://www.diu.mil/latest/state-of-the-space-industrial-base-2021) published in November 2021, posits that increasing Pentagon spending on commercial space technology would prompt private investors [to invest even more](https://www.airforcemag.com/space-experts-want-dod-to-help-spur-more-private-investment/). Its authors deemed that sustaining investors’ confidence was a “major concern” requiring “urgent action.

#### private sector solves aerospace but the aff’s red tape decks competitiveness

**Beames 22** – Beames, Charles, “Space Industrial Base? The Answer is Right in Front of You, Mr. Secretary,” Forbes, <https://www.forbes.com/sites/charlesbeames/2022/03/24/space-industrial-base-the-answer-is-right-in-front-of-you-mr-secretary/?sh=157c87515b1a> Charles Beames is the Executive Chairman of York Space Systems, a leader in commercial satellite design and manufacturing, as well as Chairman of the SmallSat Alliance, an organization advocating for the future of this remarkably evolving industry. He was President of Vulcan Aerospace, responsible for asset allocation within a privately held aerospace investment portfolio exceeding $1B. From 2009 to 2013, He was a senior executive at the Pentagon responsible for all space & intelligence acquisitions, exceeding $80B annually. He’s also a retired Air Force Colonel, having served 23 years in space & intelligence leadership positions around the world. [Harker KB]

Today’s commercial space companies are up to the task. Bold entrepreneurs and their private investor partners have built a highly skilled, competitive space industry that is now delivering breathtaking commercial capabilities. I had a chance to discuss with three of these industry captains from the [SmallSat Alliance](https://smallsatalliance.org/) (an industry group that I chair) to understand their perspective for a robust U.S. space industrial base. Marc Bell is the founder and CEO of [TerranOrbital](https://www.terranorbital.com/), headquartered in Boca Raton. Marc has been an investor and space leader for the last 10 years, quietly building three separate space companies then merging them in preparation for a NYSE listing later this month. Coming off a [big win as a supplier to Lockheed Martin](https://news.satnews.com/2022/03/16/terran-orbital-to-support-the-space-development-agencys-tranche-1-transport-layer/) building the Pentagon’s new communication system, he was explicit with me about what policymakers in Washington need to do – “Force the DoD and the IC to use U.S.-owned and operated companies, not divisions of foreign companies that have offices in the U.S.” [Bell isn’t the only leader](https://spacenews.com/satellite-supply-chains-coming-under-increasing-scrutiny/) who feels that government policy and direction should be explicit about, “creating jobs here in America and bringing manufacturing back home.” We did not heed that simple lesson many years ago in launch. Were it not for Elon Musk’s iconoclastic ambitions, our only option for mission capable launch would require Russian engines and engineers – decidedly not a position we want to be in today. Dylan Taylor is the Chairman and CEO of [Voyager Space](https://voyagerspace.com/), a multi-national space exploration firm that acquires and integrates leading space exploration enterprises globally, of which Nanoracks and Space Micro are notable subsidiaries. Before he entered the space world, first as an enthusiast and then as an angel investor, Dylan was known in the business community as the CEO of the real estate division of Colliers International, a NASDAQ-listed Canadian company. Among many things, Dylan emphasized to me how valuable it is to share the truth of what is going on in the world and how commercial space companies can contribute in a unique way. For the first time in human history, citizens from around the entire world are able [to see with their own eyes active war zones](https://www.nytimes.com/interactive/2022/world/europe/ukraine-maps.html), like Ukraine, almost in real time as Putin’s atrocities are being committed. Dylan emphasized that, “the DoD has been leveraging commercial entities more and more, but further expansion of these practices and acquisition strategies is important.” Dirk Wallinger, founder and CEO of [York Space Systems](https://www.yorkspacesystems.com/) began his 20-year career as a satellite design engineer. As a young engineering manager, he designed key systems of some of the classified billion-dollar satellites, or the proverbial school bus sized “big juicy targets” that the Pentagon now worries are too vulnerable for the new era. Today, Dirk and his team build and operate satellites that are the size of a single bench seat inside that big school bus, but nearly as capable and about 1% of the price. Demand continues to be high, with the recent announcement of yet another expansion of York’s manufacturing space in Denver to address their increasing demand. In contrast to similar companies, York is forecasting “a third straight year of 300% annual revenue growth for 2022.” Wallinger also sees rewarding a strong domestic supply chain as crucial to ensuring the U.S. remains a leader in space. “We see a need to move towards the government demanding even faster delivery times and only paying the contractor after a satellite is delivered and working on orbit,” he says. “We are ready to deliver highly capable satellites in months now, unlike we did in the 90s, which took years. Today’s cost reimbursed contracts double the cost to the government, and the taxpayer, when compared to our commercial customers.” I asked each of these commercial space leaders if they saw a limit to what their companies could achieve in support of national security needs. Although they all shied away from the question, a soft but unanimous “no” seemed to infer a humble belief that nearly every government space mission could be accomplished by acquiring products or services that are slightly modified versions of existing off-the-shelf, commercial items. While the pace of investment and innovation is exploding in the space industry, progress is not sustainable without strategic direction and widespread adoption of commercial capabilities to meet government needs. In the [State of the Space Industrial Base 2021](https://assets.ctfassets.net/3nanhbfkr0pc/43TeQTAmdYrym5DTDrhjd3/1218bd749befdde511ac2c900db3a43b/Space_Industrial_Base_Workshop_2021_Summary_Report_-_Final_15_Nov_2021.pdf), the Defense Innovation Unit describes the U.S. industrial base as “tactically strong but strategically fragile.” There is growing concern that we will miss out on the opportunity because U.S. space acquisition culture is the same as it was in the 1960s – slow to change and drowning in red tape. Air Force Chief of Staff General Charles Brown made the same observation about smaller space companies, “They’re all patriotic, and they want to work with us, but we can’t make it so hard.” Our talented new arsenal of entrepreneurs and their private investor partners have built a competitive space industry that will buoy U.S. economic and national security interests at once. Each of these industry leaders (and a whole host of other companies in the wings) will rise to the challenge – they just need our government to streamline and flatten the armchair analysts, increase support of the next generation space companies, and win by delivering on orbit now, not in another 10 years. A market-based, Space Force endorsed, worldwide commercial space economy that provides products and services will encourage American new space ventures to become the mighty oaks of a new era.

#### Robust aerospace is key to nuclear deterrence and checking rogue nuclear regimes

Pfaltzgraff 10 – Robert L, Shelby Cullom Davis Professor of International Security Studies at. The Fletcher School of Law and Diplomacy and President of the Institute for Foreign Policy Analysis, et al., Final Report of the IFPA-Fletcher Conference on National Security Strategy and Policy, “Air, Space, & Cyberspace Power in the 21st-Century”, p. xiii-9

Deterrence Strategy In stark contrast to the bipolar Cold War nuclear setting, today’s security environment includes multiple, independent nuclear actors. Some of these independent nuclear weapons states are potential adversaries, some are rivals, and some are friends, but the initial decision for action by any one of them may lie beyond U.S. control. The United States may need to influence, signal, and restrain enemies, and it may need to continue to provide security guarantees to non-nuclear friends and allies. America may also face catalytic warfare, where, for example, a U.S. ally such as Israel or a third party such as China could initiate action that might escalate to a nuclear exchange. Although the United States would not be a party to the nuclear escalation decision process, it could be drawn into the conflict. Compared to a bipolar world, very little is known about strategic nuclear interaction and escalation in a multipolar world. The U.S. nuclear deterrent must restrain a wider variety of actors today than during the Cold War. This requires a range of capabilities and the capacity to address specific challenges. The deterrent must provide security guarantees and assurance sufficient to prevent the initiation of catalytic warfare by an ally, while deterring an adversary from resorting to nuclear escalation. America may also need simultaneously to deter more than one other nuclear state. Deterrence requirements include four critical elements: early warning, C2, delivery systems, and weapons. The Air Force plays an indispensable role in furnishing the U.S. early warning system in its entirety through satellites and radar networks. In command and control, infrastructure is provided by the Air Force, including Milstar satellites and, in the future, advanced extremely high frequency (AEHF) satellites. In the area of delivery systems and weapons, two-thirds of the strategic triad – intercontinental ballistic missiles (ICBMs) and bombers – is furnished by the Air Force and its Global Strike Command. U.S. Overseas Basing and the Anti-Access/Area-Denial Threat The increased availability of anti-access/area-denial assets coupled with growing threats to the sea, air, space, and cyberspace commons are challenging the power projection capabilities of the United States. These threats, in the form of aircraft and long-range missiles carrying conventional or nuclear munitions, present problems for our overseas bases. States such as North Korea, China, and Iran jeopardize the notion that forward-deployed U.S. forces and bases will be safe from enemy attack. Consequently, the United States must create a more flexible basing structure encompassing a passive and active defense posture that includes these features: dispersal, hardening, increased warning time of attack, and air defenses. Simultaneously, the United States must continue to develop long-range, offensive systems such as low-observable manned and remotely piloted strike aircraft, precision missiles, and intelligence, surveillance, and reconnaissance (ISR) platforms to penetrate heavily defended A2/AD environments. This approach will increase the survivability of U.S. forward-deployed assets and power projection capabilities and thus bolster deterrence and U.S. guarantees to America’s allies and friends. Asymmetric Challenges The increasing number of actors gaining access to advanced and dual-use technologies augments the potential for asymmetric attacks against the United States and its allies by those who are unable to match U.S. military capabilities. Those actors pose increasing challenges to the ability of the United States to project power through the global commons. Such attacks could target specific U.S. vulnerabilities, ranging from space assets to the financial, transportation, communications, and/or energy infrastructures, and to the food and water supply, to mention only the most obvious. Asymmetric attacks denying access to critical networks and capabilities may be the most cost-effective approach to circumventing traditional U.S. force advantages. The USAF and DoD must develop systems and technologies that can offset and defend against asymmetric capabilities. This will require a robust R&D program and enhanced USAF cooperation with its sister services and international partners and allies. Space Dominance Space is increasingly a contested domain where U.S. dominance is no longer assured given the growing number of actors in space and the potential for kinetic and non-kinetic attacks, including ASAT weapons, EMP, and jamming. As a result, the United States must protect vital space-based platforms and networks by reducing their vulnerability to attack or disruption and increasing the country’s resilience if an attack does occur. Required steps include hardening and incorporating stealth into next generation space systems and developing rapid replenishment capacity (including micro-satellite technologies and systems and new launch capabilities). At the same time, America must reduce its dependence on space capabilities with air-based substitutes such as high altitude, long endurance, and penetrating ISR platforms. Increased cooperation among the services and with U.S. allies to develop such capabilities will also be paramount. Cyber Security Cyber operations are vital to conducting USAF and joint land, sea, air, and space missions. Given the significance of the cyber threat (private, public, and DoD cyber and information networks are routinely under attack), the United States is attempting to construct a layered and robust capability to detect and mitigate cyber intrusions and attacks. The USAF’s cyber operations must be capable of operating in a contested cyber domain to support vital land, sea, air, and space missions. USAF cyberspace priorities include developing capabilities to protect essential military cyber systems and to speed their recovery if an attack does occur; enhancing the Air Force’s capacity to provide USAF personnel with the resolution of technical questions; and training/recruitment of personnel with cyber skills. In addition, the USAF and DoD need to develop technologies that quickly and precisely attribute attacks in cyberspace. Cyber attacks can spread quickly among networks, making it extremely difficult to attribute their perpetrator, and therefore to develop a deterrence strategy based on retaliation. In addition, some cyber issues are in the legal arena, including questions about civil liberties. It is likely that the trend of increased military support to civil authorities (for example, in disaster relief operations) will develop in the cyber arena as well. These efforts will entail greater service, interagency, international, and private-sector collaboration. Organizational Change and Joint Force Operations To address growing national security challenges and increasing fiscal constraints, and to become more effective, the joint force needs to adapt its organizations and processes to the exigencies of the information age and the security setting of the second decade of the twenty-first century. This entails developing a strategy that places increased emphasis on joint operations in which each service acts in greater concert with the others, leverages capacities across the services (two land services, three naval services, and five air services) without duplicating efforts, and encourages interoperability. This would provide combatant commanders (CCDRs) with a greater range of capabilities, allowing heightened flexibility to use force. A good example of this approach is the Air-Sea Battle concept being developed jointly by the Air Force and Navy, which envisions heightened cooperation between the two services and potentially with allies and coalition partners. Intelligence, Surveillance, and Reconnaissance Capabilities There is an increasing demand for ISR capabilities able to access and persist in contested airspace in order to track a range of high-value mobile and hard-to-find targets, such as missile launchers and underground bunkers. This increases the need for stealthy, survivable systems and the development of next-generation unmanned platforms. The USAF must continue to emphasize precision targeting, both for strike and close-air-support missions. High-fidelity target identification and discrimination enabled by advanced radars and directed-energy systems, including the ability to find, track, and target individuals within a crowd, will provide battlefield commanders with improved options and new opportunities for leveraging joint assets. Engagement and International Security Cooperation Allies and coalition partners bring important capabilities from which the USAF and other services have long benefited. For example, allies and coalition partners can provide enhanced situational awareness and early warning of impending crises as well as assist in understanding the interests, motivations, traditions, and cultures of potential adversaries and prospective coalition partners. Moreover, foreign partner engagement and outreach are an avenue to influence partner and adversary perspectives, thus shaping the environment in ways favorable to U.S. national security interests. Engagement also may be a key to realizing another Air Force and joint priority: to sustain or gain access to forward operating bases and logistical infrastructure. This is particularly important given the growing availability of A2/AD assets and their ability to impede U.S. power projection capabilities. Procurement Choices and Affordability The USAF needs to field capabilities to support current operations and pressing missions while at the same time pursuing promising technologies to build the force of the future. Affordability, effectiveness, time urgency, and industrial base issues inevitably shape procurement choices and reform. The Air Force must maintain today’s critical assets while also allocating resources to meet future needs. Given the long lifespan anticipated for many weapon systems, planners need to make the most reliable cost estimates and identify problems at the outset of a weapons system’s development phase so that they can be corrected as early and cost-effectively as possible. Support to Civil Authorities As evidenced in the aftermath of the 2010 earthquakes in Haiti and Chile (the Chile earthquake hit after this conference), the USAF has a vital role to play in the U.S. response to international relief operations and support to civil authorities. In Haiti, the USAF reopened the airport and deployed contingency response elements, while also providing ISR support for the joint forces in the theater. In Chile, USAF satellite communication capabilities were critical to the recovery and relief efforts. USAF civil support roles are likely to grow to include greater use of the Reserve Components. Consequently, USAF planners should reassess the active and reserve component mix of forces and capabilities to identify potential mobilization and requirement shortfalls. CLOSING CONFERENCE THOUGHTS A recurring conference theme was the need for the USAF to continue to examine specific issues of opportunity and vulnerability more closely. For example, a future initiative could include focused working groups that would examine such questions and issues as: • How can air, space, and cyberspace capabilities best support deterrence, preserve U.S. freedom of action, and support national objectives? • How should the USAF leadership reconceptualize its vision, institutional identity, and force posture to align as closely as possible with the future national security setting? • What is the appropriate balance between high-end and low-end air and space capabilities that will maximize military options for national decision makers, given emerging threats and fiscal constraints? • What are the opportunities, options, and tradeoffs for investment and divestment in science and technology, infrastructure, and programmed capabilities? • What are additional interdependent concepts, similar to Air-Sea Battle, that leverage cross-service investments to identify and foster the development of new joint capabilities? • What are alternative approaches to officer accessions and development to support shifting and emerging Air Force missions, operations, and force structure, including cyber warfare? • How can the USAF best interact with Congress to help preserve or refocus the defense-industrial base as well as to minimize mandates and restrictions that weigh on future Air Force investments? Finally, the USAF must continue to be an organization that views debate, as the Chief of Staff of the Air Force put it in his opening conference address, “…as the whetstone upon which we sharpen our strategic thinking.” This debate must also be used in pursuit of political support and to ensure that the USAF maintains and develops critical capabilities to support U.S. national security priorities. The 38th IFPA-Fletcher Conference on National Security Strategy and Policy was conceived as a contribution to that debate. Almost a century has passed since the advent of airpower and Billy Mitchell’s demonstration of its operational potential with the sinking of the Ostfriesland on July 21, 1921. For most of that time, the United States has benefitted from the rapid development of air and space power projection capabilities, and, as a result, it has prevailed in successive conflicts, contributed to war deterrence and crisis management, and provided essential humanitarian relief to allies and friends around the world. As we move into the second decade of the twenty-first century, the U.S. Air Force (USAF), like its service counterparts, is re-assessing strategies, operational concepts, and force structure. Across the conflict spectrum, security challenges are evolving, and potential adversaries–state and non-state actors–are developing anti-access and other asymmetric capabilities, and irregular warfare challenges are becoming more prevalent. The potential exists for “hybrid” warfare in which state adversaries and/or non-state actors use a mix of conventional and unconventional capabilities against the United States, a possibility made more feasible by the diffusion of such capabilities to a larger number of actors. Furthermore, twenty-first-century security challenges and threats may emanate from highly adaptive adversaries who ignore the Geneva Conventions of war and use military and/or civilian technologies to offset our military superiority. As it develops strategy and force structure in this global setting, the Air Force confronts constraints that will have important implications for budget and procurement programs, basic research and development (R&D), and the maintenance of critical skills, as well as recruitment, education, training, and retention. Given the dynamic nature of the security setting and looming defense budget constraints, questions of where to assume risk will demand bold, innovative, and decisive leadership. The imperative for joint operations and U.S. military-civilian partnerships is clear, underscoring the need for a whole-of-government and whole-of-society approach that encompasses international and non-governmental organizations (NGOs). THE UNITED STATES AS AN AEROSPACE NATION: CHALLENGES AND OPPORTUNITIES In his address opening the conference, General Norton A. Schwartz, Chief of Staff of the Air Force (CSAF), pointed out how, with its inherent characteristics of speed, range, and flexibility, airpower has forever changed warfare. Its advent rendered land and maritime forces vulnerable from the air, thus adding an important new dimension to warfare. Control of the air has become indispensable to national security because it allows the United States and friendly forces to maneuver and operate free from enemy air attack. With control of the air the United States can leverage the advantages of air and space as well as cyberspace. In these interdependent domains the Air Force possesses unique capabilities for ensuring global mobility, long-range strike, and intelligence, surveillance, and reconnaissance (ISR). The benefits of airpower extend beyond the air domain, and operations among the air, land, maritime, space, and cyber domains are increasingly interdependent. General Schwartz stated that the Air Force’s challenge is to succeed in a protracted struggle against elements of violent extremism and irreconcilable actors while confronting peer and near-peer rivals. The Air Force must be able to operate with great precision and lethality across a broad spectrum of conflict that has high and low ends but that defies an orderly taxonomy. Warfare in the twenty-first century takes on a hybrid complexity, with regular and irregular elements using myriad tools and tactics. Technology can be an enabler but can also create weaknesses: adversaries with increased access to space and cyberspace can use emerging technologies against the United States and/or its allies. In addition, the United States faces the prospect of the proliferation of precision weapons, including ballistic and cruise missiles as well as increasingly accurate mortars, rockets, and artillery, which will put U.S. and allied/coalition forces at risk. In response to mounting irregular warfare challenges American leaders have to adopt innovative and creative strategies. For its part, the USAF must develop airmen who have the creativity to anticipate and plan for this challenging environment. Leadership, intellectual creativity, capacity, and ingenuity, together with innovative technology, will be crucial to addressing these challenges in a constrained fiscal environment. System Versatility In meeting the broad range of contingencies – high, low, regular, irregular, and hybrid – the Air Force must maintain and develop systems that are versatile, both functionally (including strike or ISR) and in terms of various employment modes, such as manned versus remotely piloted, and penetrating versus stand-off systems. General Schwartz emphasized the need to be able to operate in conflict settings where there will be demands for persistent ISR systems able to gain access to, and then loiter in, contested or denied airspace. The targets to be identified and tracked may be mobile or deeply buried, of high value, and difficult to locate without penetrating systems. General Schwartz also called attention to the need for what he described as a “family of systems” that could be deployed in multiple ways with maximum versatility depending on requirements. Few systems will remain inherently single purpose. Indeed, he emphasized that the Air Force must purposefully design versatility into its new systems, with the majority of future systems being able to operate in various threat environments. As part of this effort further joint integration and inter-service cooperation to achieve greater air-land and air-sea interoperability will continue to be a strategic necessity. Space Access and Control Space access, control, and situational awareness remain essential to U.S. national security. As potential rivals develop their own space programs, the United States faces challenges to its unrestricted access to space. Ensuring continuing access to the four global commons – maritime, air, space, and cyberspace – will be a major challenge in which the USAF has a key role. The Air Force has long recognized the importance of space and is endeavoring to make certain that U.S. requirements in and for space are met and anticipated. Space situational awareness is vital to America’s ability to help evaluate and attribute attacks. Attribution, of course, is essential to deterrence. The USAF is exploring options to reduce U.S. dependence on the Global Positioning System (GPS), which could become vulnerable to jamming. Promising new technologies, such as “cold atoms,” pseudolites, and imaging inertial navigation systems that use laser radar are being investigated as means to reduce our vulnerability. Cyber Capabilities The USAF continues to develop cyber capabilities to address opportunities and challenges. Cyber threats present challenges to homeland security and other national security interests. Key civilian and military networks are vulnerable to cyber attacks. Preparing for cyber warfare and refining critical infrastructure protection and consequence management will require new capabilities, focused training, and greater interagency, international, and private sector collaboration. Challenges for the Air Force General Schwartz set forth a series of challenges for the Air Force, which he urged conference participants to address. They included: • How can the Air Force better address the growing demand for real-time ISR from remotely piloted systems, which are providing unprecedented and unmatched situational awareness? • How can the USAF better guarantee the credibility and viability of the nation’s nuclear forces for the complex and uncertain security environment of this century? • What is the way ahead for the next generation of long-range strike and ISR platforms? What trade-offs, especially between manned and unmanned platforms, should the USAF consider? How can the USAF improve acquisition of such systems? How can the USAF better exploit the advantage of low-observables? • How can the Air Force better prepare itself to operate in an opposed network environment in which communications and data links will be challenged, including how to assure command and control (C2) in bandwidth-constrained environments? • In counter-land operations, how can the USAF achieve improved target discrimination in high collateral damage situations? • How should the USAF posture its overseas forces to ensure access? What basing structure, logistical considerations, andprotection measures are required to mitigate emerging anti-access threats? • How can the Air Force reduce its reliance on GPS to ensure operations in a GPS-denied environment? • How can the USAF lessen its vulnerability to petroleum shortages, rising energy prices, and resulting logistical and operational challenges? • How can the Air Force enhance partnerships with its sister services and the interagency community? How can it better collaborate with allies and coalition partners to improve support of national security interests? These issues were addressed in subsequent conference sessions. The opening session focused on the multidimensional and dynamic security setting in which the Air Force will operate in the years ahead. The session included a discussion of the need to prioritize necessary capabilities and to gauge “acceptable risks.” Previous Quadrennial Defense Reviews (QDRs) rested on the basic assumption that the United States would be able to support operations simultaneously or nearly simultaneously in two major regional contingencies, with the additional capacity to respond to smaller disaster-relief and/or stability operations missions. However, while the 2010 QDR1 maintains the need for U.S. forces to operate in two nearly simultaneous major wars, it places far greater emphasis on the need to address irregular warfare challenges. Its focus is maintaining and rebalancing U.S. force structure to fight the wars in which the United States is engaged today while looking ahead to the emerging security setting. The QDR further seeks to develop flexible and tailored capabilities to confront an array of smaller-scale contingencies, including natural disasters, perhaps simultaneously, as was the case with the war in Afghanistan, stability operations in Iraq, and the Haiti relief effort. The 2010 QDR highlights important trends in the global security environment, especially unconventional threats and asymmetric challenges. It suggests that a conflict with a near-peer competitor such as China, or a conflict with Iran, would involve a mix, or hybrid, of capabilities that would test U.S. forces in very different ways. Although predicting the future security setting is a very difficult if not an impossible exercise, the 2010 QDR outlines major challenges for the United States and its allies, including technology proliferation and diffusion; anti-access threats and the shrinking global basing infrastructure; the possibility of weapons of mass destruction (WMD) use against the U.S. homeland and/or against U.S. forces abroad; critical infrastructure protection and the massed effects of a cyber or space attack; unconventional warfare and irregular challenges; and the emergence of new issue areas such as Arctic security, U.S. energy dependence, demographic shifts and urbanization, the potential for resource wars (particularly over access to water), and the erosion or collapse of governance in weak or failing states. TECHNOLOGY DIFFUSION Technology proliferation is accelerating. Compounding the problem is the reality that existing multilateral and/or international export regimes and controls have not kept pace with technology, and efforts to constrain access are complicated by dual-use technologies and chemical/biological agents. The battlefields of the future are likely to be more lethal as combatants take advantage of commercially based navigation aids for precision guidance and advanced weapons systems and as global and theater boundaries disappear with longer-range missile systems becoming more common in enemy arsenals. Non-state entities such as Hezbollah have already used more advanced missile systems to target state adversaries. The proliferation of precision technologies and longer-range delivery platforms puts the United States and its partners increasingly at risk. This proliferation also is likely to affect U.S. operations from forward operating locations, placing additional constraints on American force deployments within the territories of allies. Moreover, as longer-range ballistic and cruise missiles become more widespread, U.S. forces will find it increasingly difficult to operate in conflicts ranging from irregular warfare to high-intensity combat. As highlighted throughout the conference, this will require that the United States develop and field new-generation low-observable penetration assets and related capabilities to operate in non-permissive environments. PROLIFERATION TRENDS The twenty-first-century security setting features several proliferation trends that were discussed in the opening session. These trends, six of which were outlined by Dr. Robert L. Pfaltzgraff, Jr., President of the Institute for Foreign Policy Analysis, and Shelby Cullom Davis Professor of International Security Studies, The Fletcher School, Tufts University, framed subsequent discussions. First, the number of actors–states and armed non-state groups–is growing, together with strategies and capabilities based on more widely available technologies, including WMD and conventional weapons. This is leading to a blurring of categories of warfare that may include state and non-state actors and encompass intra-state, trans-state, and inter-state armed conflict as well as hybrid threats. Second, some of these actors subscribe to ideologies and goals that welcome martyrdom. This raises many questions about dissuasion and deterrence and the need to think of twenty-first-century deterrence based on offensive and defensive strategies and capabilities. Third, given the sheer numbers of actors capable of challenging the United States and their unprecedented capabilities, the opportunity for asymmetric operations against the United States and its allies will grow. The United States will need to work to reduce key areas of vulnerability, including its financial systems, transportation, communications, and energy infrastructures, its food and water supply, and its space assets. Fourth, the twenty-first-century world contains flashpoints for state-to-state conflict. This includes North Korea, which possesses nuclear weapons, and Iran, which is developing them. In addition, China is developing an impressive array of weaponry which, as the Commander of U.S. Pacific Command stated in congressional testimony, appears “designed to challenge U.S. freedom of action in the region and, if necessary, enforce China’s influence over its neighbors – including our regional allies and partners’ weaponry.”2 These threats include ballistic missiles, aircraft, naval forces, cyber capabilities, anti-satellite (ASAT) weapons, and other power-projection capabilities. The global paradigm of the twenty-first century is further complicated by state actors who may supply advanced arms to non-state actors and terrorist organizations. Fifth, the potential for irregular warfare is rising dramatically with the growth of armed non-state actors. The proliferation of more lethal capabilities, including WMD, to armed non-state actors is a logical projection of present trends. Substantial numbers of fractured, unstable, and ungoverned states serve as breeding grounds of armed non-state actors who will resort to various forms of violence and coercion based on irregular tactics and formations and who will increasingly have the capabilities to do so. Sixth, the twenty-first-century security setting contains yet another obvious dimension: the permeability of the frontiers of the nation state, rendering domestic populations highly vulnerable to destruction not only by states that can launch missiles but also by terrorists and other transnational groups. As we have seen in recent years, these entities can attack U.S. information systems, creating the possibility of a digital Pearl Harbor. Taken together, these trends show an unprecedented proliferation of actors and advanced capabilities confronting the United States; the resulting need to prepare for high-end and low-end conflict; and the requirement to think of a seamless web of threats and other security challenges extending from overseas to domestic locales. Another way to think about the twenty-first-century security setting, Dr. Pfaltzgraff pointed out, is to develop scenarios such as the following, which are more illustrative than comprehensive: • A nuclear Iran that engages in or supports terrorist operations in a more assertive foreign policy • An unstable Pakistan that loses control of its nuclear weapons, which fall into the hands of extremists • A Taiwan Straits crisis that escalates to war • A nuclear North Korea that escalates tensions on the Korean peninsula What all of these have in common is the indispensable role that airpower would play in U.S. strategy and crisis management.

# Case

### Framing

#### the standard is maximizing expected wellbeing

#### 1 - util – it’s impartial, specific to public actors, and resolves infinite regress which explains all value.

Greene 15 — (Joshua Greene, Professor of Psychology @ Harvard, being interviewed by Russ Roberts, “Joshua Greene on Moral Tribes, Moral Dilemmas, and Utilitarianism”, The Library of Economics and Liberty, 1-5-15, Available Online at <https://www.econtalk.org/joshua-greene-on-moral-tribes-moral-dilemmas-and-utilitarianism/#audio-highlights>, accessed 5-17-20, HKR-AM) \*\*NB: Guest = Greene, and only his lines are highlighted/underlined

Guest: Okay. So, I think utilitarianism is very much misunderstood. And this is part of the reason why we shouldn't even call it utilitarianism at all. We should call it what I call 'deep pragmatism', which I think better captures what I think utilitarianism is really like, if you really apply it in real life, in light of an understanding of human nature. But, we can come back to that. The idea, going back to the tragedy of common-sense morality is you've got all these different tribes with all of these different values based on their different ways of life. What can they do to get along? And I think that the best answer that we have is--well, let's back up. In order to resolve any kind of tradeoff, you have to have some kind of common metric. You have to have some kind of common currency. And I think that what utilitarianism, whether it's the moral truth or not, is provide a kind of common currency. So, what is utilitarianism? It's basically the idea that--it's really two ideas put together. One is the idea of impartiality. That is, at least as social decision makers, we should regard everybody's interests as of equal worth. Everybody counts the same. And then you might say, 'Well, but okay, what does it mean to count everybody the same? What is it that really matters for you and for me and for everybody else?' And there the utilitarian's answer is what is sometimes called, somewhat accurately and somewhat misleadingly, happiness. But it's not really happiness in the sense of cherries on sundaes, things that make you smile. It's really the quality of conscious experience. So, the idea is that if you start with anything that you value, and say, 'Why do you care about that?' and keep asking, 'Why do you care about that?' or 'Why do you care about that?' you ultimately come down to the quality of someone's conscious experience. So if I were to say, 'Why did you go to work today?' you'd say, 'Well, I need to make money; and I also enjoy my work.' 'Well, what do you need your money for?' 'Well, I need to have a place to live; it costs money.' 'Well, why can't you just live outside?' 'Well, I need a place to sleep; it's cold at night.' 'Well, what's wrong with being cold?' 'Well, it's uncomfortable.' 'What's wrong with being uncomfortable?' 'It's just bad.' Right? At some point if you keep asking why, why, why, it's going to come down to the conscious experience--in Bentham's terms, again somewhat misleading, the pleasure and pain of either you or somebody else that you care about. So the utilitarian idea is to say, Okay, we all have our pleasures and pains, and as a moral philosophy we should all count equally. And so a good standard for resolving public disagreements is to say we should go with whatever option is going to produce the best overall experience for the people who are affected. Which you can think of as shorthand as maximizing happiness--although I think that that's somewhat misleading. And the solution has a lot of merit to it. But it also has endured a couple of centuries of legitimate criticism. And one of the biggest criticisms--and now we're getting back to the Trolley cases, is that utilitarianism doesn't adequately account for people's rights. So, take the footbridge case. It seems that it's wrong to push that guy off the footbridge. Even if you stipulate that you can save more people's lives. And so anyone who is going to defend utilitarianism as a meta-morality--that is, a solution to the tragedy of common sense morality, as a moral system to adjudicate among competing tribal moral systems--if you are going to defend it in that way, as I do, you have to face up to these philosophical challenges: is it okay to kill on person to save five people in this kind of situation? So I spend a lot of the book trying to understand the psychology of cases like the footbridge case. And you mention these being kind of unrealistic and weird cases. That's actually part of my defense.

#### 2 - Reducing existential risks is the top priority in any coherent moral theory

Pummer 15

(Theron, Philosophy @St. Andrews http://blog.practicalethics.ox.ac.uk/2015/05/moral-agreement-on-saving-the-world/)

There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now, whatever general moral view we adopt: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous catastrophe, such as a nuclear war. How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try to save the world. According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here. If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. There are so many possible future people that reducing existential risk is arguably the most important thing in the world, even if the well-being of these possible people were given only 0.001% as much weight as that of existing people. Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), it is irrelevant to non-consequentialists. But that is a huge mistake. Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; it is not the view that the latter don’t matter. Even John Rawls wrote, “All ethical doctrines worth our attention take consequences into account in judging rightness. One which did not would simply be irrational, crazy.” Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good, from an impartial point of view. They’d thus imply very strong reasons to reduce existential risk, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk. It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being. To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk. Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that most of what makes our lives go well would be undermined if there were no future generations of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. We should also take into account moral uncertainty. What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts? I’ve just argued that there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree. But even those (hedonistic egoists) who disagree should have a significant level of confidence that they are mistaken, and that one of the above views is correct. Even if they were 90% sure that their view is the correct one (and 10% sure that one of these other ones is correct), they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk. Perhaps most disturbingly still, even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, reducing existential risk is the most important thing in the world. Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. It is enough for my claim that there is moral agreement in the relevant sense if, at least given certain empirical claims about what future lives would most likely be like, all minimally plausible moral views would converge on the conclusion that we should try to save the world. While there are some non-crazy views that place significantly greater moral weight on avoiding suffering than on promoting happiness, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless seem to be fairly implausible views. And even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve. Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast. We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period. Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.” (From chapter 36 of On What Matters)

#### 3 - Epistemic modesty; framework is a sliding scale, and it serves to prioritize not preclude impacts so only ep modesty is logical

#### Materiality controls their impacts – cant explain why cap bad vtl good unless pain bad pleasure good

Ethics possible – their ev is about why true false statements are impossible, not ethics. And if they are right presumption flows neg because we keep the squo unless a reason not to

Extinction has not already happened – their card just lists ways it could happen but theres no scenario and no proof its inevitable. Any risk its not inevitable is try or die for the neg

Debate shouldn’t disrupt

### No solvency

Literally none

They said rob is disrupt semiocap so how does the aff do that ????

Good ideas are only good insofar as they do what you want them to do

### Semiocap

#### Symbiocapitalism is nonsense

**STURGEON, MFA, 13**

(JONATHON KYLE, On Theory and Finance: Review of Berardi’s "The Uprising" http://theamericanreader.com/on-theory-and-finance-review-of-berardis-the-uprising/)

This is a tidy metaphor, but more on that later. The first problem with Berardi’s analogy between poetry and finance is that it bears **no relation to the reality of either**. Financial deregulation was not meant to divorce money from matter or value; its purpose was to get government out of the way of finance. The result, we know from no less than two financial crises, was not the loss of connection between money and matter, it was the wild proliferation of connections, of speculative positions taken on anything and everything. Or, as a financial regulator once told me, “It isn’t the speculation on ‘nothing’ that keeps me up at night, it’s the gambling on all of the things that matter.” So there was nothing symbolist about the development of modern finance. In Berardi’s version of symbolism, nothing means anything. In global finance, every signifier is forced to mean something. Every speculative position is tethered to some good or commodity or service, or some permutation thereof. This is why financial regulators are trying, and failing, to put limits on the number of positions speculators can take on commodities. What’s worse, Berardi never identifies the beneficent regulator of symbolist poetry, the good guy we need to reinstate in order reverse symbolism and bring meaning back to language. Who was such a regulator in the time of the symbolist poet? Perhaps it was bourgeois morality or the real and violent government censor? Or maybe what we need is general intellect in high-minded agreement, synchronized en masse by Berardi’s poetics?

#### The Neg’s form of theory is irresponsible

**STURGEON, MFA, 13**

(JONATHON KYLE, On Theory and Finance: Review of Berardi’s "The Uprising" http://theamericanreader.com/on-theory-and-finance-review-of-berardis-the-uprising/)

Berardi’s book is meant to galvanize “the general intellect” into believing that poetry is a non-exchangeable form of language. This because Berardi (admirably) wants us to believe in another world altogether, one we are transported to by poetry as “the excess of language, a hidden resource which enables us to shift from one paradigm to another.” In Berardi’s work, as in much of contemporary theory, literature becomes a vanishing mediator, a throwaway wormhole that takes us to another community. But communities must be built before they are found. Poetry can only build a community if it is exchanged, and exchangeability lies at the very etymological root of the word literature, of letters shared among friends. Perhaps it is Berardi’s own semiotization that has led to his alienated view of poetry; it is ironic that he considers Google to be an evil algorithmic plot driven by semio-capitalism even when his name registers more than two million search results. The mistakes of The Uprising speak to a much larger crisis within the evolution of theory in general. In fact, if contemporary finance is analogous to something in literature, it isn’t symbolist poetry but theory itself. Denationalized, decontextualized, divorced from its origins in philosophy and criticism, theory has assumed totally **deregulated positions** on everything from literature to politics and beyond. With its uncountable speculations and tightly commoditized, catchworded language, theory has become the **swaps market of thought.** There is another disturbing undertone to The Uprising, one that has spread like a secret since the burst of the dot-com bubble at the turn of the decade. Berardi makes it clear that semio-capitalism rests on a foundation of digital exchange, and anyone who reads contemporary theory knows that the digital has become the bogeyman that lurks behind capitalism. In the case of Berardi’s book, the digital is a screen-word for two ideas in particular. First, it represents the loss of “indexicality,” or the material connection between a sign and the world. To distinguish indexicality from referentiality, we might use the example of a photograph. Once upon a time a photograph was an object that, by way of a chemical process, inscribed some real, material event onto film or some other light-sensitive chunk of matter. Now in the era of the digital image, we have lost indexicality. We are free to manipulate images ad nauseum or to invent them from scratch. The result is a loss of truth-value; where we once had to rely on the material world, we now live in an automated world, alienated from matter and the body. This veiled accusation of automatism should be seen for what it is: **a generational accusation of autism**. The “precarious” youth of semio-capitalism, victimized by global finance, are incapable of delivering themselves from the unreal chains of digital culture. They are plainly divorced from the material truth of the word and **the world**. This generational disdain is the second idea the digital covers up in contemporary theory, though Berardi hardly hides his: In 1977 the American anthropologist Rose Khon Goldsen, in The Show and Tell Machine, wrote the following words: “We are breeding a new generation of human beings who will learn more words from a machine than from their mothers.” That generation is here. The connective generation entering the social scene today fully suffers the pathogenic and disempathetic effects of the automation of the word. Yet the very distinction between indexicality and referentiality suggests what we should already know, that Berardi has no faith in the material power of language. If he did, he would need only one concept. Why else distinguish between the word and the material sign? Maybe it is time to **regulate the theorist’s position**, the mantra that says we have lost the link between the word and the world. We haven’t lost anything in language. Rather we have experienced an amplification of the same conditions that first brought us “the aesthetic regime of art”: new, democratizing forms of circulation and a breakdown of social hierarchies. If this is true, we do not need literature to act as a vanishing mediator that takes us to another world before disappearing. We need words to perform another economic operation: redistribution. At its best, symbolist poetry helped redistribute what was seen and said away from dead metaphors and realist claims to representation. Now, more than ever, Mallarmé and Rimbaud can help us shake the belief in medium more immediate, more liquid, more glowing than words.

#### Semiocapitalism is nonsense – nothing but nostalgia and condescension – the clint eastwood of K args

**Yilmaz 9-19-10**

(Onur http://mastersofmedia.hum.uva.nl/2010/09/19/review-franco-berardi-precarious-rhapsody/)

Berardi presents several more arguments in his book: about intellectual labor and its appropriation by capitalist institutions, about the disconnect between the amount of information generated within networks (cyberspace) and the human inadequacy of processing this information fast enough (cybertime), about the collapse of democracy under the influence of the capitalist free-market system. Some of his arguments are reasonable and interesting; others can be tenuous and veer into the metaphysical at times, like his connection between the semiocapitalist system and pathological disorders. However, the true problem with Berardi’s work is in the way the book is structured. The first two chapters of Precarious Rhapsody contain the entirety of Berardi’s arguments. However, these chapters are written in a dense, labyrinthine manner that makes it nigh on **impossible to ascertain just what it is that is being argued.** Berardi introduces all his concepts at once without defining them, and forgets to explain just **how this premise leads to that conclusion**. Over the course of the book the same points are repeated over and over again, becoming more clearer as the tightly spun manifesto of the opening chapters unspools into more intelligible arguments and lines of reasoning. It is as if Berardi placed the summary of his thesis at the very beginning of the book and worked backwards from there. Besides the obfuscating prose and circuitous way of presenting his arguments, the repeating pattern of the book leads to a great deal of redundancy. Some parts are repeated word for word from one chapter to the next, and deja vu sets in quite often. Part of this seems to owe to the fact that many of the chapters have appeared in various forms before being collected in this book. Whatever the case may be, Precarious Rhapsody would have benefitted a great deal from a bit of editing. Another issue is the underlying **current of nostalgia** that is present throughout. It is no surprise that Berardi places the last moment of true, hopeful revolt against the capitalist domination of everyday life in his student years. The notion that everything used to be better in the past and kids these days just don’t understand nags around the corner of every page. When Berardi argues that the disconnect between cyberspace and cybertime leads to an empty lifestyle where people have lost the ability to love, to imagine, to enjoy life, it comes across as condescending. Moreover, **he fails to provide any evidence** for his claims. No case studies or statistics. The same is the case when he states that pathological disorders like depression spring from labor relations in semiocapitalism. These are interesting claims, but they are **built solely on rhetoric**. If you have the patience to stick through to the end and decipher Berardi’s arguments, Precarious Rhapsody is a rewarding book to read. Not per se because it presents a workable theory to apply on the field of media studies- it might be better described as media philosophy. But in the end Berardi manages to present a unique and interesting view of the modern world and the role media play in it. It makes you think in new ways and about issues you might not have considered otherwise. And it contains at least one sentiment that anyone can agree with. Berardi places the “source of intelligence, of technology, of progress” in the simple statement:”I don’t want to go to work because I prefer to sleep”.

### Lbl

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### Crypto Good

#### 1.Cryptocurrency reaching a wide rollout builds resilience to survive inevitable existential filters.

Alex McShane 21, Writer and Head of Video for Bitcoin Magazine, BA from the University of Iowa, Degree from the University College Dublin, Degree from Kirkwood Community College, “Bitcoin and Existential Risk”, Bitcoin Magazine, 9/5/2021, https://bitcoinmagazine.com/culture/bitcoin-and-existential-risk-alex-mcshane

TL;DR - An existential risk is the possibility of an event or series of events that could drastically curtail humanity’s potential. A hypothetical global catastrophe could be anthropogenic or non-anthropogenic and internal or external in nature. The adoption of Bitcoin will better position us to address these risks as a society. EXTERNAL NON-ANTHROPOGENIC A catastrophic collision with an astronomical object, such as an asteroid impact would be an external non-anthropogenic risk. This has already occurred here several times. During the Permian Triassic period (ending 250 million years ago) an astronomical impact killed 90 percent of the species on Earth. It took tens of millions of years for life on Earth to repopulate and Earth’s intelligence potential to recover. One interesting external non-anthropogenic risk is Earth’s reflected light, which could be measured by an external intelligence who then come to extinguish us. (The topic of our own signal bringing about this death by misadventure is discussed further below.) What does this have to do with Bitcoin? Generally, hard money facilitates greater innovation and technological process. At this point one might argue that if we do not migrate to some degree from Earth as a species, and are subsequently wiped out by an astronomical object impact or a super-volcanic event, the risk becomes anthropogenic in nature. We are a centralized species on a grand scale, and at this point one could say we have through consensus chosen to remain vulnerable to a single vector of attack by staying here. Bitcoin is not only the hardest money known to man, it is the most responsible from this standpoint. Bitcoin as it currently operates is currency that can provide a monetary framework on which humans can achieve greater capital growth, collaboration, resource allocation, and therefore technological progress. Because the terminal supply of Bitcoin is capped, we can store value in it indefinitely as a society. 66 Million years ago the Cretaceous-Paleogene Extinction Event extinguished the life and intelligence potential of the non-avian dinosaurs. This series of events was external, and broadly non-anthropogenic in the sense that no form of life on Earth at the time contributed to its own demise, but more specifically, at the time of those astronomical impacts the first humans hadn’t split from chimpanzee lineages. This split is thought to have occurred between between 4 and 8 million years ago. An important distinction between astronomical impacts or super-volcanic events of the past and such events if they were to happen today is that one could argue that our intelligence potential is now mature enough to tackle certain of the external existential risks. Today, the risk posed by an asteroid impact or something similar would still be external in its origin, but at what point does the burden of responsibility to migrate off of the planet fall upon our population? We can surely solve for some external existential risks, and in any case, no one is going to do it for us. You could say that failing to collectively pursue a solution when technically we could have would recategorize a civilization-extinguishing asteroid impact as an external but anthropogenic risk. At what point do innovation dampening authoritarian states and their mandated broken money cause society to stall at a local optimum? Surely the government has already caused this. It’s only a matter of time before another object strikes the Earth with devastating consequence. I would argue it is irresponsible to continue life here with government money. Government money is an existential risk. Bitcoin is not only a solution, it is a societal responsibility. INTERNAL ANTHROPOGENIC Nuclear war is one example of an internal anthropogenic risk. That is, should nuclear war arise, it would be both self destructive, and relatively self contained on a cosmic scale. It follows that biological warfare is an internal anthropogenic risk, the reality of which we as a species can surely understand now. If I were to hazard a guess I would say virtual emergencies and cyber pandemics are next. These self constructed catastrophes are the government’s misguided attempts at proof of work. This is a topic for another time. Do not surrender your ability to think and speak freely. The second law of thermodynamics can summed thus, processes that involve the transfer or conversion of heat energy are irreversible. The law indicates we have not observed a spontaneous transfer of energy from cold to hot. Another way to think of this is that there is no such thing as cold, only lesser degrees of hot. Nothing cannot transfer. So broadly, within a closed system, the second law of thermodynamics would indicate that all differences tend to level out. So what has this got to do with Bitcoin? Well firstly, all hardware is subject to entropy. The distributed nature of the blockchain increases the probability that it will survive centralized entropy. At Bitcoin’s inception, imagine a failure because Satoshi’s computer randomly crashed. Distributed networks are inherently hedged against this particular centralized form of existential risk. The second law of thermodynamics also suggests that on a grander scale, relatively isolated (centralized) systems will degenerate more and more into disordered states. Proof of work, and network growth are two ways Bitcoin fights against falling into disrepair. Bitcoin uses proof of work to stave off entropy. The system cannot stay dormant. It must continue to use proof of work to advance the state of the chain, and to fight entropy to secure the monetary value all of the users have stored in the network. The U.S. dollar, as many have pointed out, relies on proof of war, or distributed political energies to maintain dominance. Its methodology can be described as haphazard at best. INTERNAL NON-ANTHROPOGENIC One internal non-anthropogenic risk is that of a super-volcanic eruption, provided it wasn’t humans who brought about the eruption. Just like with external non-anthropogenic risks, Bitcoin alone cannot prevent them, but it can help humans prepare for them such that we may survive these relatively small intelligence filters the universe throws our way. Bitcoin allows for fundamental capital accumulation and human innovation, and promotes collaboration to such a degree that we will find an increased collective problem solving power as humans the further Bitcoin adoption spreads. It is worth mentioning that Bitcoin also maintains and appreciates wealth to such a degree that often those of us to chose to live our lives on a Bitcoin standard will experience relatively greater freedoms, and vastly greater amounts of free time than our peers who chose to continue their lives on a fiat standard, and are perpetually working to outpace their chronic debt. Many Bitcoiners will likely forego that newfound free time to work and continue to provide value to others in whatever area interests them, because Bitcoin incentivizes the collaborative accumulation of capital but also the responsible reallocation of it. EXTERNAL ANTHROPOGENIC An external anthropogenic risk has the least probability of occurring. This is a problem of reach. Imagine human intelligence being sent into the cosmos and signaling or generally causing an external intelligence or astronomical object to come back to extinguish us. This is a most improbable extinction by misadventure. The probability that we send messages of consequence into the cosmos that in turn cause some other far-flung intelligence, with knowledge enough to reach us, to come and bring about our own destruction is next to zero, but it isn’t zero. I would posit that the probability increases every day that Bitcoin survives, with each person that chooses to hold Bitcoin over fiat, because on a fiat standard we are again, stuck at a local optimum at best, and each day the global monetary system devolves further into chaos. The fiat world may continue to be habitable chaos, but our technological progress and our greatest capacity for innovation cannot be achieved on a fiat standard. A Bitcoin standard is not only our current best bet, it is the only monetary vehicle that will take us from here, or enable us to build technology that can effectively communicate with places in the universe where other intelligence has emerged. The other reason this fatal miscommunication is unlikely to occur is that once through a Bitcoin standard we have manage to build a society that can effectively reach and communicate at greater depths of the cosmos we will at that time have already become a multi-planetary, if not transitory, if not multi-solar system species. The topic of Bitcoin in space and planetary interoperability will be discussed in a later essay. The most distant human made object from the earth is the Voyager 1, which is over 13 billion miles away. (For perspective, Apha Centuri, the nearest star system to Earth, is 25 trillion miles away.) Human radio signals have announced our presence and our intelligence to the cosmos since around 1900. The first human radio signals have all ready traveled 114 light years, that is 681,920,540,000,000 miles. Although the reach of our radio signals is very great, the probability of us being heard and subsequently extinguished is negligible. External anthropogenic risks are the least of our concerns at the moment. As Bitcoin adoption grows, it serves to promote advances in artificial intelligence and nanotechnology. External anthropogenic risks will become more relevant to human intelligence at a much later time. External non-anthropogenic risks are similarly out of our hands for the time being. That is, at the moment there is nothing we can do to prevent the Sun from becoming a red giant star and subsuming the Earth. But we do already have the monetary technology upon which to engineer solutions to some of these problems. We have the potential as humans to prevent internal global catastrophes, both those set on by us and not. Survival and longevity is arguably our greatest task as a species. Adopting Bitcoin, and protecting this network is proceeding with diligence and a long eye toward the future in all of our political and scientific affairs. The existential risks of living are great, though it is human nature for our ambitions to out pace our current abilities. The only evidence of life is change. To change is to exit fiat currency, it is to use Bitcoin instead.

### Cap Good

#### Winter, firestorms, EMP blasts, ozone damage, and meltdowns

Starr 14 {Steven, Senior Scientist for Physicians for Social Responsibility, Director of the Clinical Laboratory Science Program (Missouri), commentator in the Bulletin of the Atomic Scientists and the Strategic Arms Reduction, Associate member of the Nuclear Age Peace Foundation, “The Lethality of Nuclear Weapons: Nuclear War has No Winner,” Global Research: Centre for Research on Globalization, 6/5, http://www.globalresearch.ca/the-lethality-of-nuclear-weapons-nuclear-war-has-no-winner/5385611}

Nuclear war has no winner. Beginning in 2006, several of the world’s leading climatologists (at Rutgers, UCLA, John Hopkins University, and the University of Colorado-Boulder) published a series of studies that evaluated the long-term environmental consequences of a nuclear war, including baseline scenarios fought with merely 1% of the explosive power in the US and/or Russian launch-ready nuclear arsenals. They concluded that the consequences of even a “small” nuclear war would include catastrophic disruptions of global climate[i] and massive destruction of Earth’s protective ozone layer[ii]. These and more recent studies predict that global agriculture would be so negatively affected by such a war, a global famine would result, which would cause up to 2 billion people to starve to death. [iii]¶ These peer-reviewed studies – which were analyzed by the best scientists in the world and found to be without error – also predict that a war fought with less than half of US or Russian strategic nuclear weapons would destroy the human race.[iv] In other words, a US-Russian nuclear war would create such extreme long-term damage to the global environment that it would leave the Earth uninhabitable for humans and most animal forms of life.¶ A recent article in the Bulletin of the Atomic Scientists, “Self-assured destruction: The climate impacts of nuclear war”,[v] begins by stating:¶ “A nuclear war between Russia and the United States, even after the arsenal reductions planned under New START, could produce a nuclear winter. Hence, an attack by either side could be suicidal, resulting in self-assured destruction.”¶ In 2009, I wrote an article[vi] for the International Commission on Nuclear Non-proliferation and Disarmament that summarizes the findings of these studies. It explains that nuclear firestorms would produce millions of tons of smoke, which would rise above cloud level and form a global stratospheric smoke layer that would rapidly encircle the Earth. The smoke layer would remain for at least a decade, and it would act to destroy the protective ozone layer (vastly increasing the UV-B reaching Earth[vii]) as well as block warming sunlight, thus creating Ice Age weather conditions that would last 10 years or longer.¶ Following a US-Russian nuclear war, temperatures in the central US and Eurasia would fall below freezing every day for one to three years; the intense cold would completely eliminate growing seasons for a decade or longer. No crops could be grown, leading to a famine that would kill most humans and large animal populations.¶ Electromagnetic pulse from high-altitude nuclear detonations would destroy the integrated circuits in all modern electronic devices[viii], including those in commercial nuclear power plants. Every nuclear reactor would almost instantly meltdown; every nuclear spent fuel pool (which contain many times more radioactivity than found in the reactors) would boil-off, releasing vast amounts of long-lived radioactivity. The fallout would make most of the US and Europe uninhabitable. Of course, the survivors of the nuclear war would be starving to death anyway. Once nuclear weapons were introduced into a US-Russian conflict, there would be little chance that a nuclear holocaust could be avoided. Theories of “limited nuclear war” and “nuclear de-escalation” are unrealistic.[ix] In 2002 the Bush administration modified US strategic doctrine from a retaliatory role to permit preemptive nuclear attack; in 2010, the Obama administration made only incremental and miniscule changes to this doctrine, leaving it essentially unchanged. Furthermore, Counterforce doctrine – used by both the US and Russian military – emphasizes the need for preemptive strikes once nuclear war begins. Both sides would be under immense pressure to launch a preemptive nuclear first-strike once military hostilities had commenced, especially if nuclear weapons had already been used on the battlefield.

#### Solves Nuclear War

Bedell, ‘21 (Denise Bedell has an Honors BA in Psychology at the University of Windsor and wrote a thesis, Peace Through Profit: How Capitalism Helps Restore and Revive Former Warzones, This is Capitalism presented by Stephens Inc., <https://www.thisiscapitalism.com/peace-through-profit-how-capitalism-helps-restore-and-revive-former-warzones/>, 2021)

Meet and Greet Looking more closely at the experiences of recent war zones makes clear how capitalism can bring together former opponents. By improving citizens’ quality of life through economic development, and by creating interdependency through trade, this can reduce the incentive for nations to take up arms against their neighbors. Take the Balkans. The Balkan peninsula is made up of Croatia, Bosnia and Herzegovina, Slovenia, Serbia, Montenegro, Kosovo, Macedonia, Romania, Bulgaria, Albania, Greece and the European part of Turkey. This region was a hotbed of conflict when the former Yugoslavia broke up at the end of the cold war (and, in fact the region has a long history of armed conflict). The Kosovo War in 1998-1999, for example, was fought between the Serbian Yugoslav authority (by then, Yugoslavia was made up of Serbia and Macedonia) — which controlled Kosovo — and the rebel Kosovo Liberation Army (backed by NATO air support). The deadly conflict saw thousands massacred in what a U.N. court would later deem a “systematic campaign of terror.” Those dark days are far gone, however, and these neighbors now work together in a virtuous economic cycle. Early in 2018, Pristina, the capital of Kosovo, hosted a four-day trade fair — at which 70 of the 174 companies present were Serbian. “I hope we will send the signal that the cooperation is already there,” noted Marko Cadez of Serbia’s Chamber of Commerce and Industry. “The people are working, the people are employing, making products, making profits — and that is most important for our country.” Or consider relations between India and Pakistan — strategic and military rivals that have threatened nuclear war on numerous occasions. Despite these tensions, bilateral trade between the two countries was worth around $2.6 billion in 2016, according to Indian government figures. Unofficial estimates suggest that it is twice that amount — and that the potential for trade is many times greater yet. “Peace building and peacemaking will always be subject to the larger political issues between India and Pakistan,” according to a report in 2017 from the independent and non-partisan federally mandated United States Institute of Peace (USIP). But, according to USIP, economic and trade cooperation can offers a path toward greater stability and peace between the countries — and across South Asia as a whole. A research report titled “Pakistan-India Relations: Peace Through bilateral Trade” — by Muhammad Ali, Noreen Mujahid and Aziz ur Rehman of the University of Karachi — determined that by increasing bilateral trade, it can help resolve political issues between the two countries — and reduce poverty. The report, published in the European Scientific Journal, noted: “If Pakistan and India normalize their economic relations, it will enhance the formal trade — and as a result, both the countries will earn significant revenue, which is lost due to informal trade.” The authors stated that as formal trade volumes rise, “both governments will be compelled to normalize their political relations and resolve their border disputes in an amicable manner.” Hence — as trade increases, pressure mounts on the authorities to ensure nothing interferes with those economic ties. Internal Strength Capitalism not only facilitates peace between nations, but also within them. Rwanda experienced a horrific genocide in the 1990s. But since then, the country has undergone a dramatic transformation — in part, because of the hard work of companies that have partnered with the government and outside agencies to create sustainable businesses and industries that are building a stable and growing economy. One of the many companies that has helped engender peace and create stability since Rwanda’s darkest days is Westrock Coffee. CEO Scott Ford’s pioneering work has helped to build a sustainable, free-market system for independent coffee producers in the country. Ford espoused a direct trade model — paying local smallholder farmers a fair market value for their coffee beans. He also built an agricultural training institute for local farmers, many of whom are women. As Ford explained: “What we are trying to do in Rwanda is be the engine that helps them create their own [economic] ecosystem.” (read more of his story here). Another example in Rwanda is Africa Improved Foods, which specializes in fortified foods to combat malnutrition. At an event earlier this year to mark the genocide, AIF’s chief executive, Amar Ali, outlined how business can help prevent the divisions that lead to conflict. “At Africa Improved Foods, we want to be a flagship for Rwanda — not only in what we build and the products we produce, but also the way we treat each other,” he said. “Everybody is a human being first, and should be treated as such — irrespective of gender, race, religion, tribe, or any other categorization.” In September of 2018, AIF received an SDG award for sustainable consumption (based on the UN’s Sustainable Development Goals) from the Swiss Green Economy Symposium. The award recognized the company for its innovative joint venture in Rwanda, along with the government of Rwanda, a consortium of various banks, and the International Finance Corporation, for promoting local production by buying farmers’ maize and soy yields directly at competitive prices. AIF’s factory in Kigali, the Rwandan capital, provides work to some 300 people, and the local-sourcing program provides around 24,000 Rwandan farmers with stable, sustainable income. Capitalism not only creates an environment for peace but when capitalism stumbles, so do the prospects for international harmony. In 2016, more countries experienced violent conflict than at any time in nearly 30 years. Not coincidentally, trade growth has been in something of a rut for most of the period since the global financial crisis. In that calamitous year of 2016, trade growth fell below 3% for the fifth consecutive year.