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## Partnership CP

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#### The US fed gov ought to fund a public-private partnership for deep space exploration.

Galeon 17 [(Dom, writer for Futurism), “SpaceX Asks the U.S. To Fund a Public-Private Partnership for Deep Space Exploration,” July 14, 2017, <https://futurism.com/spacex-asks-the-u-s-to-fund-a-public-private-partnership-for-deep-space-exploration>] TDI

SpaceX Asks the U.S. To Fund a Public-Private Partnership for Deep Space Exploration The best chance of success could come from pooling our resources. / Off World/ Deep Space Exploration/ NASA/ Public Private Partnerships SpaceX/Flickr Image by SpaceX/Flickr WORKING TOGETHER Some 10 years back now, the National Aeronautics and Space Administration (NASA) decided to work with private space companies to ferry people and cargo to the International Space Station (ISS). At the time, the space agency perhaps didn’t expect that it was heralding in a new era in space exploration. Both NASA and private agencies like SpaceX and Blue Origin have benefited from the collaboration. The former is able to save on costs, while the latter get to pursue their own individual programs, such as perfecting their reusable rocket technologies for commercial use. Without this partnership, these companies would not have been able to grow and develop at the same rate. Thus far, the joint missions have been limited to just orbital and near-orbit launches, like the Commercial Orbital Transportation Services (COTS) program, but SpaceX wants that to change. At a hearing of the U.S. Senate’s Subcommittee on Space, Science, and Competitiveness on Thursday, SpaceX’s senior vice president for global business and government affairs Tim Hughes asked the U.S. government to open up deep space exploration for similar public-private partnerships. “The principles applied in past programs for low Earth orbit capability can and should be applied to deep space exploration,” he said, referencing the COTS program. ADVERTISEMENT A DEEP SPACE FUTURE In order for the U.S. and for humankind to establish a more permanent presence in space, Hughes asserts that the government should fund a COTS-like program for deep space. It won’t really be a matter of funding the competition, he argued, because the program could run parallel to NASA’s existing deep space exploration plans, such as the Space Launch System (SLS) and the Orion spacecraft. Living Off The Land: A Guide To Settling Mars [Infographic] Click to View Full Infographic “I think [these] can be readily supplemented with public-private partnerships to allow us to sustain a permanent presence in space,” said Hughes. NASA could impose “high level requirements” for this deep space partnership, just like it does with COTS, Hughes added. The partnership could prove particularly beneficial for NASA right now given the recent reports saying it doesn’t have the funding needed for its Mars mission. Of course, as with any change, push back is to be expected. For one, more established aerospace firms that already work with NASA — Lockheed Martin and Boeing, among others — might not be in favor of this idea. The important thing, however, is to realize that deep space exploration is an entirely different ballgame than missions in near-Earth orbit, and the best chance of success may come from pooling our resources.

#### The CP turns the aff and prevents stifling of innovation.

Van Burken 20 [(Rebecca, technology policy analyst at Reason Foundation) “Biden Can Utilize Space Companies and Public-Private Partnerships,” December 14, 2020 https://reason.org/commentary/biden-can-utilize-space-companies-and-public-private-partnerships/] TDI

Biden Can Utilize Space Companies and Public-Private Partnerships The commercial space industry is making NASA's operations more cost-effective and encouraging innovation. By Rebecca van Burken December 14, 2020 President-elect Joe Biden will predictably distance himself from many of the Trump administration’s policies and positions, but its openness to commercial space partnerships should not be among them. The expansion of public-private space partnerships that began during the Obama administration has continued during the Trump administration. These public-private partnerships have helped lead to many major space successes, including crewed-launches returning to American soil through SpaceX and the first-ever civilian passenger on a private suborbital spaceflight as part of Virgin Galactic’s 2019 VSS Unity SpaceShipTwo launch. These successes, and others, reflect positively on the U.S. space sector. However, they would not have happened without the entrepreneurial nature of commercial space. Unlike government engineers and scientists, commercial space operations are not constrained by government bureaucracy nor reliant on taxpayer funding. This allows commercial space companies to explore some seemingly far-fetched ideas, like 3D printing of small rockets, a concept being pioneered by the small start-up Relativity. Commercial space companies must also develop and maintain a competitive edge to survive in the market. Significant competition ultimately creates less-costly services that give NASA more bang for its buck when developing new technology. Competitive market pressures have created inspiring innovation exemplified by SpaceX’s reusable rocket technology and proposals for recycling and turning discarded orbiting tanks into space stations. Without the federal government’s continued openness to commercial space, innovation, and invention in the U.S. space industry could be stifled. Commercial space continues to show up when the government needs new services. Over the last few years, we have seen amazing new technologies developed to track environmental and climate concerns. This is, in part, because NASA has entered into deals with private companies like Planet that are able to analyze data collected by satellite imagery. Planet has stakes in defense satellite imagery but has expanded its portfolio to collect data for climate scientists and researchers to use. Its constellation of 120 satellites is at work photographing every portion of the world at least once a day, which provides constant and up-to-date environmental information. By maintaining deals like that with commercial satellite companies, NASA can avoid the costs of creating its own satellite constellation and other remote sensing technology. Additionally, NASA does not need to focus its energies on updating technologies to keep up with new software and technological capabilities. Companies that worry about competition in the market naturally reassess their services and the burden of doing this should be put on private industry, not on the government. Biden’s team should seek out the most effective private partners, hiring new talent in civil programs to use these systems. This would also free up funding for crewed space exploration. In addition to looking to develop new partnerships for space-related efforts, a Biden administration should reassess the government’s old partnerships. Prior to the election, Reuters reported that some Biden associates believe he may try to continue funding the International Space Station (ISS) beyond its planned termination in 2025. Reuters reported: …Biden, on the other hand, would likely call for a delayed moonshot and propose a funding extension for the International Space Station if he wins the White House, according to people familiar with the fledging Biden space agenda.Pushing back the moon mission could cast more doubt on the long-term fate of Boeing Co’s Space Launch System (SLS) rocket, just as Elon Musk’s SpaceX and Jeff Bezos’ Blue Origin scramble to bring rival rockets to market as soon as next year. Extending support for the space station for a decade would also be a major boost for Boeing, whose $225 million annual ISS operations contract is set to expire in 2024 and is at the depths of a financial crisis caused by the COVID-19 pandemic and the 737 MAX grounding after fatal crashes. This directly contradicts the Trump administration’s efforts to cease funding for the archaic space station by 2025. If Biden were to continue funding this aging facility via NASA it would drain funds that could be used for more important space activities, including manned missions. Commercial companies are primed and ready to take over the space station’s functions, and NASA should allow them to do so. If Biden has taxpayers and NASA continue to fund the ISS, it would most likely continue to contract with a company that famous for draining government money—Boeing. The partnerships with Boeing are the types of space policies the incoming Biden administration should be reviewing. It should ask Congress for a Government Accountability Office audit of Boeing’s work on the Space Launch System (SLS). The contract is for the development of a rocket with heavy-lift capacities that is designed to bring humans and cargo to the moon and back. Unfortunately, it has had numerous delays and cost overruns and is still not ready for a test flight, as Bloomberg reported in August: Boeing Co.’s Space Launch System, the largest rocket in NASA’s history, will carry a price tag of at least $9.1 billion — or 30% more than the previous estimate for a key element in the agency’s plan to return to the moon. Additionally, the costs for new ground infrastructure at Florida’s Kennedy Space Center to support the deep-space exploration program has jumped to $2.4 billion, Kathy Lueders, NASA’s associate administrator for human spaceflight, said in a blog post Wednesday. That’s also a 30% increase, the National Aeronautics and Space Administration said in an email Thursday. While we wait for Boeing to reuse obsolete space shuttle hardware on SLS, companies like Blue Origin and SpaceX are continually reusing entire launch boosters. Biden’s administration needs a real review of whether it would be more cost and time effective to work with companies like SpaceX or Blue Origin. SLS is estimated to cost NASA $1 billion or more for each launch, after having already consumed $18.3 billion since 2010. By contrast, SpaceX has had its self-funded heavy-lift rocket Starship in development since 2012 and has been doing successful prototype tests since 2019. Another space entity that will be a key issue for the Biden administration is the military agency, U.S. Space Force, created by President Trump. Reason magazine had detailed the numerous reasons a Space Force should not have been created. Now that it does exist, the Space Force should be viewed as an agency that does not need to spend taxpayers’ money to create its own technology for its missions. Instead, it should use the readily available market of commercial partners ready to contract services. Space News recently reported that Space Force is just now learning of the private sector’s capabilities: [Gen. John “Jay”] Raymond said in years past the only commercially viable services have been space launch and communications provided by geosynchronous satellites. But the Space Force is now becoming aware of other capabilities that are being offered commercially such as space tracking data, weather data and on-orbit satellite servicing. Raymond, chief of operations for Space Force, has previously committed to working closely with commercial satellite companies for space-related missions. Col. Michael “Hopper” Hopkins, commander of NASA’s SpaceX Crew-1 mission, was commissioned into the Space Force and began a new line of Space Force officers expected to launch to the ISS. To facilitate continued partnerships between Space Force and private enterprise, the Biden administration could back an initiative currently proposed to Congress that Space Force acquisitions be “speedy and agile.” Flexibility for Space Force would include pushing acquisition power to the lowest level of management and removing bureaucracy to make its programs more efficient. We are at a pivotal moment in the space industry’s history. The federal government has the opportunity to partner with space industry innovators like Elon Musk, Jeff Bezos, and Richard Branson, and ensure there’s the opportunity for new space startups to emerge and add value to the market. The other path, a government and NASA-centric approach to space, would likely stifle technological developments and breakthroughs by private companies, cost taxpayers a lot more money, and cause the United States to fall behind other nations in a number of key areas.

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#### The US commercial space industry is booming – private space companies are driving innovation

**Lindzon 21** [(Jared Lindzon, A FREELANCE JOURNALIST AND PUBLIC SPEAKER BORN, RAISED AND BASED IN TORONTO, CANADA. LINDZON'S WRITING FOCUSES ON THE FUTURE OF WORK AND TALENT AS IT RELATES TO TECHNOLOGICAL INNOVATION) "How Jeff Bezos and Elon Musk are ushering in a new era of space startups," Fast Company, 2/23/21, https://www.fastcompany.com/90606811/jeff-bezos-blue-origin-elon-musk-spaces-space] TDI

In early February, Jeff Bezos, the founder of Amazon and one of the planet’s wealthiest entrepreneurs, dropped the bombshell announcement that he would be stepping down as CEO to free up more time for his other passions. Though Bezos listed a few targets for his creativity and energy—The Washington Post and philanthropy through the Bezos Earth Fund and Bezos Day One Fund—one of the highest-potential areas is his renewed commitment and focus on his suborbital spaceflight project, Blue Origin.

Before space became a frontier for innovation and development for privately held companies, opportunities were limited to nation states and the private defense contractors who supported them. In recent years, however, billionaires such as Bezos, Elon Musk, and Richard Branson have lowered the barrier to entry. Since the launch of its first rocket, Falcon 1, in September of 2008, Musk’s commercial space transportation company SpaceX has gradually but significantly reduced the cost and complexity of innovation beyond the Earth’s atmosphere. With Bezos’s announcement, many in the space sector are excited by the prospect of those barriers being lowered even further, creating a new wave of innovation in its wake.

“What I want to achieve with Blue Origin is to build the heavy-lifting infrastructure that allows for the kind of dynamic, entrepreneurial explosion of thousands of companies in space that I have witnessed over the last 21 years on the internet,” Bezos said during the Vanity Fair New Establishment Summit in 2016.

During the event, Bezos explained how the creation of Amazon was only possible thanks to the billions of dollars spent on critical infrastructure—such as the postal service, electronic payment systems, and the internet itself—in the decades prior.

“On the internet today, two kids in their dorm room can reinvent an industry, because the heavy-lifting infrastructure is in place for that,” he continued. “Two kids in their dorm room can’t do anything interesting in space. . . . I’m using my Amazon winnings to do a new piece of heavy-lifting infrastructure, which is low-cost access to space.”

In the less than 20 years since the launch of SpaceX’s first rocket, space has gone from a domain reserved for nation states and the world’s wealthiest individuals to everyday innovators and entrepreneurs. Today, building a space startup isn’t rocket science.

THE NEXT FRONTIER FOR ENTREPRENEURSHIP

According to the latest Space Investment Quarterly report published by Space Capital, the fourth quarter of 2020 saw a record $5.7 billion invested into 80 space-related companies, bringing the year’s total capital investments in space innovation to more than $25 billion. Overall, more than $177 billion of equity investments have been made in 1,343 (thirteen hundred) individual companies in the space economy over the past 10 years.

“It’s kind of crazy how quickly things have picked up; 10 years ago when SpaceX launched their first customer they removed the barriers to entry, and we’ve seen all this innovation and capital flood in,” says Chad Anderson, the managing partner of Space Capital. “We’re on an exponential curve here. Every week that goes by we’re picking up the pace.”

#### The plan creates a restriction that encourages companies to move their operations to states with lower standards

Albert 14 [(Caley Albert, J.D. Loyola Marymount University) “Liability in International Law and the Ramifications on Commercial Space Launches and Space Tourism,” Loyola of Los Angeles International and Comparative Law Review, 11/1/14, <https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1708&context=ilr>] TDI

A parallel can be drawn here between the commercial space industry and the maritime law concept of the Flag of Convenience. The term has evolved over time, but in this day and age, it is commonly used to mean the owner of a vessel does not want to create an obligation with a country with stricter standards for registry; hence, the owner will register strictly for economic reasons with a country that has a more convenient registry.133 By flying a Flag of Convenience, ship owners are able to avoid taxation on earnings of ships registered under these flags, and in some cases, they can also receive relief from stricter crew standards and corresponding operating costs.134 A Flag of Convenience is flown by a vessel that is registered in one state, which the vessel has little if any connection to, when in reality the vessel is owned and operated from another state.135 This way the vessel avoids any unfavorable economic requirements from its true home state.136 In this sense, “flag shopping” is similar to “launch forum shopping,” similar in that Flags of Convenience are utilized for economic reasons, such as to avoid high taxes and compliance with certain restrictive international conventions, commercial space companies will forum shop when choosing which country to launch from. As of today, there has yet to be a catastrophic commercial launch incident, so for now commercial space companies do not have an incentive to forum shop, but if there is, the indemnification policies described above may lead companies to seek out countries that provide more coverage so they pay less in the event something goes wrong. This comparison to Flags of Convenience brings up two separate yet equally important issues. First, launch companies may try to follow the Flags of Convenience model and soon catch on to the wisdom of their maritime predecessors by “registering” in countries with more favorable conditions. Of course, in this case the concern is not with registration so much as launching. If launch companies follow the Flags of Convenience model, they will seek out the most convenient state for launch, most likely the state that provides the most liability coverage and has the least safety precautions. Launching from states with low safety standards increases the potential for catastrophic launch events. This, in turn, will place states that are potentially incapable of paying for damages from launch disasters in a position they would not normally assume if these commercial companies had not been drawn to their shores with the promise of more favorable regulations. Second, launch customers may also seek out companies located in states with lower cost liability regimes (lower insurance policy limits) since those companies will presumably charge less to launch their payloads. In this scenario, instead of the launch companies seeking out states with lower liability caps and softer regulations, the launch customers themselves will seek companies located in states with lowcost liability regimes. Here, the effect will be the same as above. Under the Liability Convention, the launching state will be liable for any damage caused by a vehicle launched from within its borders; hence, if customers start engaging in “launch forum shopping,” states will be incentivized to put in place low-cost liability regimes, which in turn will increase the states’ potential payout in the event of a catastrophic launch incident. Looking at the indemnification program the United States has in place in comparison to other countries, it is possible to see how either launch companies or launch customers could engage in “launch forum shopping” when a catastrophic launch incident ever occur. It is also important to keep in mind that various factors go into where a company or customer decides to launch from. A state’s indemnification program is just one factor in this decision. With this in mind, it is clear that if a launch incident did occur in the United States, the commercial launch company would be liable for much more than it would in another country. For instance, why would a commercial space company launch in the United States, where it would be liable up to $500 million and the additional costs that the government would not cover? The argument can be made that a catastrophic space incident has yet to occur, and even if it did, it is unlikely to cost above the $2.7 billion covered by the United States government. Other states like Russia or France, which has the two-tier liability system, would simply cover all claims above the initial insurance, which is much lower than the $500 million mark required by the United States. In that case, the commercial company would never have to pay more than the initial liability insurance. If there ever is a catastrophic commercial space incident in the future, it is easy to see why commercial companies or launch customers might be drawn to “launch forum shop” outside the United States.

#### Maintaining US space dominance requires a homegrown commercial space industry – private companies offshoring gives China the advantage they need

**Cahan and Sadat 21** [(Bruce Cahan, J.D) (Dr. Mir Sadat, ) "US Space Policies for the New Space Age: Competing on the Final Economic Frontier," based on Proceedings from State of the Space Industrial Base 2020 Sponsored by United States Space Force, Defense Innovation Unit, United States Air Force Research Laboratory, 1/6/21, https://www.politico.com/f/?id=00000177-9349-d713-a777-d7cfce4b0000] TDI

Today, China’s commercial space sector is in its infancy but is set to grow with continued national and provincial support, which have been rapidly increasing over the past three years.64 Since 2004, the United States and China accounted for 74% of the $135.2 billion venture capital (VC) invested in commercial space. 65 The early 2020s are pivotal, as it would be far cheaper for China and Chinese commercial space firms to acquire space technologies from the United States or allied nation companies seeking revenues or facing cashflow constraints, than to build the companies and their teams and technologies from scratch in China. The tight coupling of Chinese military goals and an economy organized to achieve those goals magnifies the economic threats and market disruptions that the United States must immediately address, in order for DoD and national security operations to rely on US commercial space capabilities.

3. ISSUES AND CHALLENGES

Peaceful Uses of Space and Space Exploration Space has been primarily a shared, not a warfighting, domain.67 With each passing second of Planck time,68 space enables a modern way of life, provides instantaneous global imagery, assures telecommunications, and captures humanity’s imagination for civil space exploration. As a result, space is a burgeoning marketplace and territory for commercial ventures and investors. Strengthening the US commercial space industrial base is vital to and beyond US national security. Civil space activities are a source of US “soft power” in global commerce, cooperation, and investment. 69 The civil space sector, led by NASA, is fundamental to America’s national security. 70 NASA is on an ambitious critical path to return to the Moon by 2024,71 along with developing the capabilities and infrastructure for a sustained lunar presence. NASA’s lunar plans provide a lunar staging area for missions to Mars and beyond. They offer a strategic and economic presence for the United States on the Moon. Congress, the White House, DoD, and NASA must recognize that economic and strategic dominance in service of national security requires catalyzing and accelerating growth of a vibrant, private US industrial and cultural expansion into the Solar System. Human visitation and eventual settlement beyond the Earth require sustaining visionary leaders, aided by, and aiding, US national security. A recurring theme in US policy is “maintaining and advancing United States dominance and strategic leadership in space” because US global competitors and adversaries are competent and capable of outpacing American space capabilities. 72 The stakes are high: At this historic moment, there is a real race for dominance over cislunar access and resources.   
Regulations Should Foster US Commercial Space as a National Asset   
Leveraging the reimagination and disruption of terrestrial industries, the US commercial space industry is pushing the frontiers of the United States and global space economics and capabilities. A pre-COVID19 assessment by the US Chamber of Commerce projected that the US space market will increase from approximately $385 billion in 2020, to at least $1.5 trillion by 2040. 73 This projection represents a seven percent (7%) annual compound average growth rate (CAGR), driven largely by expanded business opportunities in Low Earth Orbit (LEO). Total addressable market (TAM) for US commercial space companies could be far larger were they to have federal and financial support for initiating cislunar space operations and opportunities. Recent advancements in commercial space technologies and business models have driven down costs and unlocked new areas of economic growth and space capabilities that outpace and de-risk acquiring capabilities through traditional US government economic development, research and development (R&D), procurement and regulatory policies and processes. US regulations must ensure that US companies lead in commercial space. In specific, technological advances that lower access costs and expand space mission capabilities, content, continuity, and redundancies must be fully supported by or incorporated into US government programs, budgets, requirements, and acquisition processes. Until commercial space offerings are fully incorporated, and federal acquisition policies and personnel commit to innovation, US government fiscal buying power, intelligence and program support will lag and remain inadequate in comparison to US private sector companies and the nation’s global competitors and adversaries in space.

Addressing COVID-19’s Impact on US Commercial Space The COVID-19 pandemic damaged and still challenges the US space industrial base. US domestic investors’ funding of space R&D remains inconsistent across the lifecycle of New Space companies and the spectrum of technologies necessary to grow the space economy. To date, public R&D, government procurements and visionary space entrepreneurs have played a major role in establishing and funding the New Space industrial base. In the last five years, $11 billion of private capital has been invested.74 Traditional private investors may become reluctant to fund space technologies due to perceptions of higher risk over longer time horizons before receiving profitable returns on their capital. Institutional and long-horizon investors who manage patient capital have an appetite for illiquid, but higher yielding, terrestrial alternative asset investments such as commodities, private equity limited partnerships and real estate.75 The COVID-19 pandemic has created economic uncertainties making the New Space’s funding model unreliable. COVID-19 significantly impacted venture capital (VC)-backed companies: the pace of VC space investments fell 85% between April - June, as compared to January – March, in 2020. 76 Pre-COVID-19, the New Space industrial base confronted multiple challenges in raising later stages of venture capital such as (1) the lag between having an early-stage startup with an idea and commercializing a viable revenue-generating product, (2) the lack of market liquidity for founder and private equity space investments to attract and retain talented teams, and (3) the lack of a market to re-sell contracts for space goods and services when customers buy more capacity than needed. Even prior to the COVID-19 pandemic, federal financing of US R&D was at a historically minor level, as compared to businesses and universities.77 US government support for basic research has steadily declined as a percent of GDP. The federal government will experience near- to medium-term budget constraints.78 The vibrant venture community in the United States has taken up a portion of this slack by increasing R&D investment in later-stage and applied research. However, founding teams and VC financing rely on government to fund earlier R&D for basic science and engineering. Therefore, government must resume the sustainable and impactful past levels of support for basic research, an essential role in the space economy’s public-private partnership that ensures US leadership in space.

Space as Existential Terrain for National Security  
  
In this Digital Era, space integrates and drives all elements of US national security. The Cold War may be over, but since the early 2010s, a renewed era of great power competition has emerged across terrestrial land, air, sea, and cyber domains. This competition extends into space, where a great game ensues.79 Space is no longer an uncontested or sanctuary domain. Competent and capable global competitors and peer adversaries are challenging US military, commercial, and civil space interests. The United States, along with its allies and partners, has had to accept and anticipate that space may be a warfighting domain, as suggested primarily by Russian and Chinese counter-space capabilities, military operations, and declarative statements. On December 20, 2019, the bipartisan National Defense Authorization Act (NDAA) for Fiscal Year 202080 authorized the creation of the US Space Force, under the Department of the Air Force, to secure US national interests in an increasingly contested domain.81 Back in October 1775, the Continental Congress established the US Navy to ensure that commercial and government fleets could freely navigate the Atlantic coastline - today, that includes the South China Sea. Likewise, the USSF’s mission is to ensure unfettered access to and the freedom to operate in space. The 2017 National Security Strategy considers space to be a “priority domain.”82 Freedom of navigation is a sovereign right that nations have fought to achieve and defend. 83 The USSF’s main role is to organize, train and equip, as well as to protecting US space interests and supporting terrestrial and joint warfighters (e.g., US Space Command). Thus, USSF must secure US national interests in space, whether military, commercial, scientific, civil, or enhancing US competitiveness for cislunar leadership.

#### US space dominance prevents global war

**Zubrin 15** [(Robert Zubrin, president of Pioneer Energy, a senior fellow with the Center for Security Policy) “US Space Supremacy is Now Critical,” Space News, 1/22/15, <https://spacenews.com/op-ed-u-s-space-supremacy-now-critical/>] TDI

The United States needs a new national security policy. For the first time in more than 60 years, we face the real possibility of a large-scale conventional war, and we are woefully unprepared. Eastern and Central Europe is now so weakly defended as to virtually invite invasion. The United States is not about to go to nuclear war to defend any foreign country. So deterrence is dead, and, with the German army cut from 12 divisions to three, the British gone from the continent, and American forces down to a 30,000-troop tankless remnant, the only serious and committed ground force that stands between Russia and the Rhine is the Polish army. It’s not enough. Meanwhile, in Asia, the powerful growth of the Chinese economy promises that nation eventual overwhelming numerical force superiority in the region. How can we restore the balance, creating a sufficiently powerful conventional force to deter aggression? It won’t be by matching potential adversaries tank for tank, division for division, replacement for replacement. Rather, the United States must seek to totally outgun them by obtaining a radical technological advantage. This can be done by achieving space supremacy.To grasp the importance of space power, some historical perspective is required. Wars are fought for control of territory. Yet for thousands of years, victory on land has frequently been determined by dominance at sea. In the 20th century, victory on both land and sea almost invariably went to the power that controlled the air. In the 21st century, victory on land, sea or in the air will go to the power that controls space. The critical military importance of space has been obscured by the fact that in the period since the United States has had space assets, all of our wars have been fought against minor powers that we could have defeated without them. Desert Storm has been called the first space war, because the allied forces made extensive use of GPS navigation satellites. However, if they had no such technology at their disposal, the end result would have been just the same. This has given some the impression that space forces are just a frill to real military power — a useful and convenient frill perhaps, but a frill nevertheless. But consider how history might have changed had the Axis of World War II possessed reconnaissance satellites — merely one of many of today’s space-based assets — without the Allies having a matching capability. In that case, the Battle of the Atlantic would have gone to the U-boats, as they would have had infallible intelligence on the location of every convoy. Cut off from oil and other supplies, Britain would have fallen. On the Eastern front, every Soviet tank concentration would have been spotted in advance and wiped out by German air power, as would any surviving British ships or tanks in the Mediterranean and North Africa. In the Pacific, the battle of Midway would have gone very much the other way, as the Japanese would not have wasted their first deadly airstrike on the unsinkable island, but sunk the American carriers instead. With these gone, the remaining cruisers and destroyers in Adm. Frank Jack Fletcher’s fleet would have lacked air cover, and every one of them would have been hunted down and sunk by unopposed and omniscient Japanese air power. With the same certain fate awaiting any American ships that dared venture forth from the West Coast, Hawaii, Australia and New Zealand would then have fallen, and eventually China and India as well. With a monopoly of just one element of space power, the Axis would have won the war. But modern space power involves far more than just reconnaissance satellites. The use of space-based GPS can endow munitions with 100 times greater accuracy, while space-based communications provide an unmatched capability of command and control of forces. Knock out the enemy’s reconnaissance satellites and he is effectively blind. Knock out his comsats and he is deaf. Knock out his navsats and he loses his aim. In any serious future conventional conflict, even between opponents as mismatched as Japan was against the United States — or Poland (with 1,000 tanks) is currently against Russia (with 12,000) — it is space power that will prove decisive. Not only Europe, but the defense of the entire free world hangs upon this matter. For the past 70 years, U.S. Navy carrier task forces have controlled the world’s oceans, first making and then keeping the Pax Americana, which has done so much to secure and advance the human condition over the postwar period. But should there ever be another major conflict, an adversary possessing the ability to locate and target those carriers from space would be able to wipe them out with the push of a button. For this reason, it is imperative that the United States possess space capabilities that are so robust as to not only assure our own ability to operate in and through space, but also be able to comprehensively deny it to others. Space superiority means having better space assets than an opponent. Space supremacy means being able to assert a complete monopoly of such capabilities. The latter is what we must have. If the United States can gain space supremacy, then the capability of any American ally can be multiplied by orders of magnitude, and with the support of the similarly multiplied striking power of our own land- and sea-based air and missile forces be made so formidable as to render any conventional attack unthinkable. On the other hand, should we fail to do so, we will remain so vulnerable as to increasingly invite aggression by ever-more-emboldened revanchist powers. This battle for space supremacy is one we can win. Neither Russia nor China, nor any other potential adversary, can match us in this area if we put our minds to it. We can and must develop ever-more-advanced satellite systems, anti-satellite systems and truly robust space launch and logistics capabilities. Then the next time an aggressor commits an act of war against the United States or a country we are pledged to defend, instead of impotently threatening to limit his tourist visas, we can respond by taking out his satellites, effectively informing him in advance the certainty of defeat should he persist. If we desire peace on Earth, we need to prepare for war in space.

# Case

## Framework

**Util**

**The standard is maximizing expected well-being.**

**1] Phenomenal introspection**

**2] Actor specificity.**

**3] Only consequentialism explains degrees of wrongness**

**4] Extinction first**

Bostrom 12 [(Nick Bostrom, Faculty of Philosophy & Oxford Martin School University of Oxford) “Existential Risk Prevention as Global Priority.” Global Policy, 2012] TDI

These reflections on moral uncertainty suggest an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate.¶ Our present understanding of axiology might well be confused. We may not now know — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet be able to imagine the best ends of our journey. If we are indeed profoundly uncertain about our ultimate aims, then we should recognize that there is a great option value in preserving — and ideally improving — our ability to recognize value and to steer the future accordingly. Ensuring that there will be a future version of humanity with great powers and a propensity to use them wisely is plausibly the best way available to us to increase the probability that the future will contain a lot of value. To do this, we must prevent any existential catastrophe.

### Cap Good – Life Standards

#### Capitalism provides a myriad of social and economic benefits – net good for society

**Skarbek ’10** (Emily Skarbek, research fellow at Independent Institute, Capitalism and Economic Growth, 15 April 2010, https://www.independent.org/issues/article.asp?id=2769) - NR

Recent events and the words of our politicians have popularized the idea that while markets can be important to economic growth and prosperity, they can also undermine it. It is fashionable to give a nod to the forces of entrepreneurship but in the same breath assert that the power of markets must be tamed by regulation. It is complacently accepted that somehow, these regulators—the men and women in Washington—know what’s best for American consumers. When the current administration talks of entrepreneurship, they speak of politically favored businesses and privileged recipients of the taxpayers’ dollars. To be clear, that is not entrepreneurship. It has become conventional to say that those who openly embrace capitalism, free markets and free trade are dogmatic, ideologues, idealistic, or market fundamentalists. And if you look to the media and our leaders, you get the impression that being in favor of free markets is somehow an unreasonable position. Unless one is ashamed of unprecedented increases in income, rising life expectancy, greater education, and more political freedom, there is no reason to be a fair-weather fan of capitalism. Sprawling free markets in countries that became more capitalist over the last 25 years have meant many more people enjoy improvements in well being and opportunities to advance human capabilities. There is no evidence that countries that eschewed freer markets and embraced substantially greater state control performed better on any of these major indicators. On the contrary, those countries that adopt increased taxation, increased regulation, fiscal mismanagement and enormous public debt have performed demonstrably worse. From a global perspective, we have witnessed remarkable progress of mankind through the increased acceptance of free market policies in both rich and poor countries. Before the industrial revolution, 80% of the world’s population lived in abject poverty. By 1980, that number has fallen to 34.8% and by 2000, less than 20% of the population lives on less than $1 a day. In five years, the number is expected to fall to 10% if free trade is allowed to flourish. In just the past 25 years increased private ownership, increased free trade, and lower taxes all came at the hands of politicians like Deng Xiaoping in China, Margaret Thatcher in England, and Ronald Reagan in United States. In the years following the adoption of these policies by these global leaders, per capita income nearly doubled from 1980 to 2005; Tariffs fell and trade increased; Schooling and life expectancy grew rapidly, while infant mortality and poverty fell just as fast. In the average country that became more capitalist over the last 25 years, the average citizen gained a 43% increase in income, nearly half a decade in life expectancy, and a 2-year increase in the average years of schooling. In my lifetime alone, freer markets have improved the lives of billions of people from all walks of life. When we look back at our own history, the tremendous economic growth that Americans experienced from the time of the original Tea Party up to 1914 was the result of economic freedom from government regulation, open boarders for free immigration, and very few trade restrictions on the global flow of goods, services, and capital. Anyone could get on a boat, land on Ellis Island and become an immigrant and this benefited both domestic Americans and the immigrant alike. Business and labor were free to be entrepreneurial—and entrepreneurship created wealth. But we don’t want wealth for wealth’s sake. Wealth allows for the improvement of the human condition. For example, in 1905, our average life expectancy in the U.S. was 47. Today it is 78. A hundred years ago only 14% of homes had a bathtub; 8% had a phone; 95% of all births took place at home; most women washed their hair once a month; and the average worker made about $300 per year. As recent as 1984, it took the average American wage earner 456 hours of labor to earn enough to purchase a cellphone. Today, it takes the average American 4 hours. A computer has fallen from costing 435 hours of labor to less than 20. None of this accounts for the tremendous improvements in technological capacity. There are several reasons that the costs of goods have dropped so drastically, but perhaps the biggest is increased international trade. Simply put, the free market means the poor are less poor. Globalization extends and deepens a capitalist system that has for generations been lifting American living standards—for high-income households, of course, but for low-income ones as well. When the world embraces free market reforms, the world economy expanded greatly, the quality of life improves sharply for billions of people, and dire poverty was substantially scaled back. This is not a coincidence. It is a well-established fact that when people are free to buy from, sell to, and invest with one another as they choose, they can achieve far more than when governments attempt to control economic decisions. Widening the circle of people with whom we transact—including across political borders—brings benefits to consumers in the form of lower prices, greater variety, and better quality, and it allows companies to reap the benefits of innovation, specialization, and economies of scale that larger markets bring. Free markets are essential to prosperity, and expanding free markets as much as possible enhances that prosperity. Voluntary economic exchange is inherently fair and does not justify government intervention. When two free people come together on terms they have agreed upon to exchange peacefully, both benefit. Government intervention in voluntary economic exchange on behalf of some citizens at the expense of others is inherently unfair. One person is coerced in order to privilege another. It really is that simple. When goods, services, labor and capital flow freely across U.S. borders, Americans can take full advantage of the opportunities of the international marketplace. They can buy the best or least expensive goods and services the world has to offer; they can sell to the most promising markets; they can choose among the best investment opportunities; and they can tap into the worldwide pool of capital. Study after study has shown that countries that are more open to the global economy grow faster and achieve higher incomes than those that are relatively closed. This is capitalism. Growth is not guaranteed. It seems obvious that the central challenges facing America have to do with the with predatory regulatory and tax policies conducted by governments domestic and abroad. From an economic perspective, then, the case for unilateral trade liberalization—that is reducing our own trade barriers and subsidies without preconditions or reciprocal commitments from other countries—is the best policy to promote peace and prosperity globally. Politically, however, the concentrated and organized beneficiaries of protectionism are powerful relative to the much larger, disorganized, beneficiaries of free trade. Politicians tend to be most responsive to the loudest interest groups and are therefore inclined to view free trade unfavorably. But we as Americans must be clear—capitalism is not evil. It has done more good for more people than any acts of state, any stimulus spending, any health program or welfare initiative. Americans can no longer afford to fear freedom. Finally, acknowledging the relationship between free markets and economic prosperity does not make someone “dogmatic”. It is unreasonable to continue to ignore these facts. Capitalism’s superiority for economic growth and development deserves the unqualified support of everyone who believe that wealth is better than poverty, life is better than death, and liberty is better than oppression.

### Cap Good – War

#### Capitalist peace theory proves capitalism solves war

(Zack Beauchamp & Steven Pinker, 6/4/15, Steven Pinker is an experimental psychologist who conducts research in visual cognition, psycholinguistics, and social relations. He grew up in Montreal and earned his BA from McGill and his PhD from Harvard. Currently Johnstone Professor of Psychology at Harvard, he has also taught at Stanford and MIT. He has won numerous prizes for his research. Zack Beauchamp is a senior correspondent at Vox, where he covers global politics and ideology, He has an MSc from the London School of Economics in International Relations, 6-4-2015, "Steven Pinker explains how capitalism is killing war," Vox, https://www.vox.com/2015/6/4/8725775/pinker-capitalism, date accessed 6/25/19, dulbat)

The idea that war is on the decline — that is, that there are fewer wars today and fewer people are dying from them than ever before — is hard for a lot of people to believe (including Republican presidential candidates). And yet the data makes a very compelling case that that's true: battle deaths chart (Joe Posner/Vox) Those numbers were put together by Steven Pinker, a Harvard psychologist whose book The Better Angels of Our Nature makes the strongest case yet that the world is getting progressively more peaceful. Pinker's argument has come under fire recently, with some arguing that it's way too soon for anyone to say we've turned the corner from an era of war. I spoke with Pinker this week to discuss some of the reasons why, specifically, he thinks the world has gotten so much safer, especially in the past 70 years. We talked about the idea that war just isn't as profitable as it used to be, why Vladimir Putin and ISIS seem to think differently, and what world leaders should do if they actually want to make sure the unprecedented peace of the past 70 years holds. What follows is a transcript of our conversation, lightly edited for length and clarity. Zack Beauchamp: One story you hear from political scientists for why there's been less war recently that it's just less profitable —countries don't gain very much, economically or politically, from taking over new land anymore. Does that seem right to you? Steven Pinker: Yes, it's one of the causes. It's the theory of the capitalist peace: when it's cheaper to buy things than to steal them, people don't steal them. Also, if other people are more valuable to you alive than dead, you're less likely to kill them. You don't kill your customers or your lenders, so the arrival of the infrastructure of trade and commerce reduces some of the sheer exploitative incentives of conquest. This is an idea that goes back to the Enlightenment. Adam Smith and Montesquieu extolled it; it was on the minds of the founders when they built incentives for free trade into the Constitution. I don't think it's the entire story of the decline in war. But I do think it's part of the story. There was a well-known study from Bruce Russett and John Oneal showing statistically that countries that engage in more trade are less likely to get into militarized disputes, and countries that are more integrated into the world economy are less likely to get into trouble with their neighbors.

### Cap Good – Warming

#### Refutation against cap causes warming - Cap actually solves warming – technology solves and alternatives fail.

Smith 19 (Noah Smith; PhD in economics from the University of Michigan and Bloomberg Opinion columnist. He was an assistant professor of finance at Stony Brook University; 4/5/19; "Dumping Capitalism Won’t Save the Planet"; https://www.bloomberg.com/opinion/articles/2019-04-05/capitalism-is-more-likely-to-limit-climate-change-than-socialism; Bloomberg; accessed 7/23/19; LR)

It has become fashionable on social media and in certain publications to argue that capitalism is killing the planet. Even renowned investor Jeremy Grantham, hardly a radical, made that assertion last year. The basic idea is that the profit motive drives the private sector to spew carbon into the air with reckless abandon. Though many economists and some climate activists believe that the problem is best addressed by modifying market incentives with a carbon tax, many activists believe that the problem can’t be addressed without rebuilding the economy along centrally planned lines. The climate threat is certainly dire, and carbon taxes are unlikely to be enough to solve the problem. But eco-socialism is probably not going to be an effective method of addressing that threat. Dismantling an entire economic system is never easy, and probably would touch off armed conflict and major political upheaval. In the scramble to win those battles, even the socialists would almost certainly abandon their limitation on fossil-fuel use — either to support military efforts, or to keep the population from turning against them. The precedent here is the Soviet Union, whose multidecade effort to reshape its economy by force amid confrontation with the West led to profound environmental degradation. The world's climate does not have several decades to spare. Even without international conflict, there’s little guarantee that moving away from capitalism would mitigate our impact on the environment. Since socialist leader Evo Morales took power in Bolivia, living standards have improved substantially for the average Bolivian, which is great. But this has come at the cost of higher emissions. Meanwhile, the capitalist U.S managed to decrease its per capita emissions a bit during this same period (though since the U.S. is a rich country, its absolute level of emissions is much higher). In other words, in terms of economic growth and carbon emissions, Bolivia looks similar to more capitalist developing countries. That suggests that faced with a choice of enriching their people or helping to save the climate, even socialist leaders will often choose the former. And that same political calculus will probably hold in China and the U.S., the world’s top carbon emitters — leaders who demand draconian cuts in living standards in pursuit of environmental goals will have trouble staying in power. The best hope for the climate therefore lies in reducing the tradeoff between material prosperity and carbon emissions. That requires technology — solar, wind and nuclear power, energy storage, electric cars and other vehicles, carbon-free cement production and so on. The best climate policy plans all involve technological improvement as a key feature. Recent developments show that the technology-centered approach can work. A recent report by Bloomberg New Energy Finance analyzed about 7000 projects in 46 countries, and found that large drops in the cost of solar power from photovoltaic systems, wind power and lithium-ion batteries have made utility-scale renewable electricity competitive with fossil fuels. A 76 percent decline in the cost of energy for short-term battery storage since 2012 is especially important. In a blog post, futurist and energy writer Ramez Naam underscores the significance of these developments. Naam notes the important difference between renewables being cheap enough to outprice new fossil-fuel plants, and being inexpensive enough to undercut existing plants. The former is already the case across much of the world, which is among the reasons for an 84 percent decrease in the number of new coal-fired plants worldwide since 2015. But when it becomes cheaper to scrap existing fossil-fuel plants and build renewables in their place, it will allow renewables to start replacing coal and gas much more quickly. Naam cites examples from Florida and Indiana where this is already being done. He cites industry predictions that replacing existing fossil-fuel plants with renewables will be economically efficient almost everywhere at some point in the next decade. Electricity is far from the only source of carbon emissions — there’s also transportation, manufacturing (especially of steel and cement), home and office heating, and agriculture to worry about. But the rapid advance of solar technology is a huge victory in the struggle against climate change, because it will allow people all over the world to have electricity without cooking the planet. And how was this victory achieved? A combination of smart government policy and private industry. Massachusetts Institute of Technology researchers Goksin Kavlak, James McNerney and Jessika Trancik in a recent paper evaluated the factors behind the solar-price decline from 1980 to 2012. They concluded that from 1980 to 2001, government-funded research and development was the main factor in bringing down costs, but from 2001 to 2012, the biggest factor was economies of scale. These economies of scale were driven by private industry increasing output, but with government subsidies helping to increase the incentive to ramp up production. It’s apparent, therefore, that both government and profit-seeking enterprises have their roles to play. Government funds the development of early-stage technology and then helps push the private sector toward adopting those technologies, while private companies compete to find ever-cheaper methods of implementation. Instead of eco-socialism, it’s eco-industrialism. If there’s any system that can beat climate change, this looks like it.

### Cap Good – Poverty

#### A less regulated free-market solves poverty – current regulation is the reason for poverty

Hathaway 18 (Jesse Hathaway, research fellow, 10/28/18, "Want to end poverty? Promote capitalism, not socialism," Washington Examiner, https://www.washingtonexaminer.com/opinion/op-eds/want-to-end-poverty-promote-capitalism-not-socialism, Accessed: 7-23-2019, MWM)

“Can’t #endpoverty without ending capitalism,” claimed a recent post on Teen Vogue, an online-only media organ that's part of an empire estimated to generate hundreds of millions of dollars in revenue each year.

Ironically, Teen Vogue is owned by Conde Nast, a company that wouldn’t exist were it not for capitalism. That should shed some light on the credibility of Teen Vogue’s claim. The reality is, all attempts to indoctrinate the youth with failed ideologies aside, that we need more capitalism and less socialism to end poverty.

Capitalism is an economic system based on the idea of the free market. Instead of using central planners and compulsion, a free-market economy harnesses the natural incentives of millions and billions of individuals to pursue their own self-interest, and from these forces it produces widespread prosperity.

As Adam Smith, the Scottish philosopher known for studying real-world human behavior and formalizing economics into a science, wrote, “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”

Smith’s philosophy of enlightened self-interest may sound selfish, but it’s not: Although the average Teen Vogue employee gets what he or she wants, namely money to spend on desires and necessities, the employee is also providing a service to Teen Vogue. Conde Nast gets what it wants, an online platform with controversial clickbait articles, and it provides an outlet for employees to have their work published and for companies to advertise their products. The various companies paying Teen Vogue advertising money get exposure to potential consumers.

All the actors are pursuing their own interest without being forced to do so. And this results in cooperation and benefits for all involved — wealth creation, useful employment, and goods and services that people want.

Socialism is enforced by government and the threat of violence. It is a win-lose proposition and a zero-sum game. Under socialist regimes, the government uses the force of the state to take from some and gives to others. Capitalism, on the other hand, creates a win-win scenario. In any given transaction in a free market, every person involved believes they benefited, and they’re all correct, or else the transaction would not happen.

Teen Vogue’s preposterous promotion of socialism is even more hypocritical than that, though. It's not just that these calls for more socialism are being made by entities that couldn't exist without capitalism, but the free-market principles they are demonizing comprise history's only proven way to end poverty.

In 1981, 44 percent of the world's population was classified as living in “extreme poverty,” which means earning $1.90 per day or less in wages, according to the World Bank. As of 2013, that number had declined to just 10.7 percent. This was the direct result of the transition by many large countries — including China, India, and Russia — to largely free-market economies and away from socialism.

Unfortunately, many countries, including the United States, cling to suboptimal big-government policies and to policies that subject market forces to political considerations. This is known as "crony capitalism." But although flawed, this is still far better than a full-fledged socialist system, which would cause poverty to skyrocket.

If people truly want to end poverty — and they should — they should choose the only proven way to do that, instead of endorsing pie-in-the-sky fantasies and long-discredited ideologies. Big government wealth redistribution policies are a main cause of poverty. People who create and innovate, including the bright minds behind drawing readers and advertisers to Teen Vogue, should be celebrated for providing goods and services that people want.

To end poverty, government needs to get out of the way of the people, and let the magic of the free market work, as it has every single time it’s been allowed to do so.

### Cap Sustainable – Crises

#### Capitalist crises don’t prove unsustainability – they strengthen capitalism by making competition part of the solution

Bosch and Schmidt 19 – \*Institute of Geography, Chair for Human Geography, University of Augsburg, \*\*Institute of Geography, Full Professor, Chair for Human Geography, University of Augsburg (Stephan and Matthias, “Is the post-fossil era necessarily post-capitalistic? – The robustness and capabilities of green capitalism”, Ecological Economics, Vol. 161, pages 270-279, 4-1-2019, ScienceDirect, acc. 6-29-2019)//kb

3.2. Crisis as an element of capitalist social order We hold the view that the occurrence of crises in capitalism is not due to it being an ailing, doomed economic order; nor is it a proof of capitalism's ineptitude for meeting ecological challenges. Instead, we deem that crisis is a fundamental element of the capitalist social order that actually provides a chance for readjusting economic processes. Harvey (2011) explains that anything blocking the circulation and accumulation of capital may pose a threat to the capitalist system and induce a fundamental crisis. The finiteness of fossil fuels is a crisis of this kind (McCarthy, 2015). Altvater (2007) is convinced that capitalism will not be able to overcome this crisis; therefore, future technologic progress had to be embedded in a non-fossil, non-capitalist framework. Kallis (2011) also emphasises that the approach to a steady state (cf. Daly, 1991, Daly, 2005) will transform the institutional preconditions of property, work, banking, and distribution to such an extent that in the end, it will be impossible to still identify them as capitalistic. With regard to Kallis' doubts concerning the institutional robustness of capitalism, Schumpeter points out that precisely the ups and downs of industrial development, which are the outcomes of successful innovations' intensifying competition, enable progress (Herzog and Honneth, 2016). As crises therefore represent an immanent part of the capitalist system, an environmental and resources-related crisis caused by the capitalistic process does not provide sufficient evidence to suggest a possible downfall of the capitalistic social order. The crisis might even be taken as proof of an economic cycle, if it is regarded as a period of depression between the dwindling fossil and the emerging regenerative age. Böhm et al. (2012) and McCarthy (2015) confirm that capitalism is capable of overcoming even fundamental crises, actually using these as starting points of its further expansion. Concerning the environmental crisis, Harriss-White and Harriss (2007) also concede that the deployment of renewable energies holds the potential of founding a new form of capitalism that is characterised by a much lower degree of materialistic lavishness. Bettini and Karaliotas (2013) emphasise that from a neo-liberal point of view, the accusation of capitalism bringing about a resources-related and environmental crisis does not at all provoke self-doubts. Rather, it caused the profitable marketing of adequate approaches to solutions in the field of resource depletion and environmental impacts to move into economic focus. Even Altvater (2007) points out that the externalised effects of production and consumption on nature become relevant for companies once they jeopardise profitability and accumulation. In that case, environmental problems and their solutions can actually be made part of capitalist logic. Solomon and Krishna (2011) are convinced that in order to solve the environmental crisis, it were not even necessary to achieve further technologic breakthroughs, as the technologies needed for the remodeling of society towards energy efficiency were already mature and cost-efficient. Even if capitalism might be sufficiently robust, Kallis (2011) still takes the crisis as a chance to break up obstructive social and political lock-ins that have hitherto seemed unalterable and have lead into the crisis. Yet he does not regard the ability of social and political transformation to be inherent in the traits of market, but as a characteristic of a social order orientated towards degrowth. Certainly, Kallis is right in saying that the market is hard to control, making a concerted transformation towards sustainability difficult. Still his criticism only refers to that form of capitalism which Schumpeter characterised as trustified capitalism and which does lead to ecologically problematic lock-in effects. The criticism cannot, however, be applied to competitive capitalism, which generates those basic innovations giving rise to the revolutionary crises described as so fertile by Kallis (2011). Thus, an opportunity is provided for alternative social conditions to be brought about – but within the capitalist social order – and for substantiating these new conditions through further innovations. Innovations may emerge outside of competition and market economy, but will then lack the required frequency and force, as growth represents the most important incentive of innovation (Wangler, 2013). On the other hand, a continuous process of innovation again leads to growth, which may revolutionise the present social conditions, as Schumpeter states (Herzog and Honneth, 2016). Thereby, a new combination of the given means of production within new sites of production emerges, generating new goods, methods, and markets. Productive resources are applied to hitherto untested usages while being withdrawn from those usages they served before (Geels, 2011). What Kallis (2011) terms technological optimism with regard to the ecological innovative power of capitalism, is therefore technological realism in the context of Schumpeter's competitive capitalism. Without doubt, innovative boosts on the part of already established companies are also conceivable and may give rise to the possibility of maintaining trustified capitalism with its ecologically precarious structures. An example hereof is the innovation ‘Carbon Dioxide Capture and Storage’, by which the ecological impact of the emission intensive electrical conversion of coal is being reduced (Benson and Orr, 2008). Technological progress may hence stabilise the existent system of economy and policy that is accountable for the environmental crisis (Bettini and Karaliotas, 2013). In Schumpeter's view, however, the decisive economic order is competitive capitalism, which is characterised by the aggressive economic demeanour of new, innovative enterprises economically challenging the establishment (Herzog and Honneth, 2016). The start-ups of new companies, which are inseparably connected with the processes of innovation, withdraw production goods from the present capitalist system by underbidding, disturbing the former economic balance that is so destructive for nature. Competition is therefore essential for overcoming the environmental crisis. In that respect, the concept of ‘solidary economics’ and its precept of surmounting the allegedly ruthless principle of competition and emancipating oneself from the logic of the markets (Embshoff and Giegold, 2008), is counterproductive, as the renunciation of competition impedes the breakup of crusted economic structures, which thus continue to harm the environment. After all, the big energy providers' strategy was and is to hold on to the fossil-nuclear power plant pool for as long as possible, suppressing alternative concepts of energy supply (Gawel et al., 2012). A radical transformation of the energy system therefore cannot emerge from the existent structures, as Schumpeter assesses (Herzog and Honneth, 2016). Instead, innovative processes emerge outside of the old major companies until proceeding to attack the incumbent regime through the rededication of means of production (Geels, 2011). Innovative marketing strategies of small and middle scale businesses supplanting cumbersome large companies play an essential part especially in the field of renewable energies (Walsh, 2012). In this, competition is a decisive element that cannot easily be superseded.

### Cap Sustainable – Growth

#### No limits to growth - their models ignore feedback effects.

Lynch 16 (Michael, President of Strategic Energy and Economic Consulting, Director of Asian Energy and Security at the Center for International Studies at MIT, and a Lecturer at Tufts and Vienna University. The “peak oil” scare and the coming oil flood. 63-74.)

More recently, there has been a clamor about "peak everything" based on the idea that, well, everything is finite and we 're using it up, so it is "running out." Or at least, production must peak. Or, as one physicist [END OF PAGE 63] points out, eventually human energy production will generate as much heat as the sun does-eventually being 1400 years.

Flat Earth

Colin Campbell, in the famed (well, famous in the IEA's offices) debate at the IEA in 1997, compared resource optimists to the conservative Spanish court that opposed the visionary, Columbus, and has since referred to those, like Adelman and me, who disagreed with him as "flat-earth economists." Albert Bartlett later explained that the term actually meant that economists thought the earth had two dimensions and thus was infinite, containing equivalently infinite resources.

But this description ignores two important variables: capital and knowledge. Additional investment can often increase the production of renewables like agricultural products and nonrenewables like minerals and oil in the same amount of space, as can better technology. Neo-Malthusians tend to ignore this factor and argue that the rate of technological advance (and greater scientific knowledge) has diminished or disappeared, as described in Chapter 7.

The argument is somewhat specious and relies in part the question of the finiteness of resources, discussed earlier-or a static measure of resources and dynamic view of consumption, as in The Limits to Growth.

HOW LONG?

Perhaps the most important factor that raises skepticism is the fact that at least some exponential alarmists fear the distant future. Any number of pundits have looked at long-term forecasts of economic and/or technological development and characterized them as foolish. We have no flying cars, nuclear power is not too cheap to meter, and no one is eating Soylent Green. On the other hand, most of these were not serious forecasting efforts, but rather off-the-cuff remarks (or the equivalent), and those making them were not particularly serious about achieving them within a specific time frame. And we do eat Soylent Green already; only we call it tofu and vegemite. (Read the book, it wasn't people.)

NEWTON'S FIRST LAW

The biggest mistakes have come from an apparent source: extrapolation of a trend endlessly, as if there were no feedback or other variables [END PAGE 64] involved. Jay Forrester, the inventor of Systems Dynamics, which was used in The Limits to Growth model (and which I have used), reportedly once said that feedback effects tend to overwhelm the initial stimuli, which is probably true in many cases. Yet, many neo-Malthusians and especially peak oil advocates tend to extrapolate a given trend endlessly, assuming no feedback effect whatsoever.

Indeed, the first wave of peak oil advocates explicitly argued that no feedback effect would occur: prices didn't affect production or consumption levels. Technological advances were either unimportant or had ceased and so could not increase the resource base.

An important element of the fear of exponential growth is the analysts' choice of particularly high growth rates. As Figure 4.1 showed, Ehrlich chose the highest observed growth in the 20th century for his calculations, even though it represented the post-World War II baby boom and should have been considered an exception, not the norm. Similarly, Bartlett, writing in 1998, talks about the growth in oil demand from the 1950s and 1960s at 7 [percent] a year, which causes a doubling of use every decade, 25 which sounds alarming, given the arguments about the difficulty of making a speedy energy transition, until you realize that consumption growth dropped to 3% per year in the 1970s (a doubling time of 24 years), and under 1 [percent] per year in the 1980s (a doubling period of 75 years), before recovering to 1.5% in the seven years before his talk (48 years).¶ This emphasizes the lack of feedback mechanism used in these simplistic models and how important they are in the real world.

REAL SCARCITY

Indeed, the subtext of the fear of resource scarcity is that renewable resources have repeatedly been the source of problems. In Tainter's The Collapse of Complex Societies, he talks about resources as causing the fall of a number of (mostly) ancient civilizations; nearly all suffered from problems like lengthy droughts and salt buildup in irrigated farmland. 26¶ And similar problems continue today, especially if you consider endangered species, from rhinos to tuna. In all cases, these are renewable resources, the very ones that are NOT finite, that are sustainable, that we can rely on for all eternity-in theory. No lasting shortage of nonrenewable resources minerals and energy-has occurred since the advent of the global economy.

### Reformation alt

#### Capitalism can not be reformed- Reforms only serve to reaffirm capitalist ideology

Richard D. Wolff Is Professor Of Economics Emeritus At The University Of Massachusetts, Amherst, JI Where He Taught Economics From 1973 To 2008. He Is Currently A Visiting Professor In The JI

Capitalism’s basic problems are intrinsic. They comprise the employer-employee relationship at its core and that relationship’s results for the broader economy, politics and culture. Modern society’s systemic problem is capitalism, not this or that kind of capitalism. Reforms have replaced one kind of capitalism with another. Beside the problems that reforms could not solve, the reforms themselves proved temporary and insecure. Usually won by employees’ long battles, the reforms get lost because capitalists have the incentives (profits) and resources (profits) to evade, weaken or repeal them. For example, progressive give way to regressive taxes, once-separated commercial investment banking are allowed to recombine, minimum wages are not adjusted to inflations, and so on. Struggles for reforms proposed today increasingly get the response: been there, done that

### Socialism alt

#### Socialism is destined for failure – a lack of economic calculation ensures instability and insecurity

**Richard M. 20** [Richard M., Why Socialism Is Impossible, No Publication, 10-1-2004, Accessible Online at https://fee.org/articles/why-socialism-is-impossible/] DL 7-14-2020

In the Nineteenth century, critics of socialism generally made two arguments against the establishment of a collectivist society. First, they warned that under a regime of comprehensive socialism the ordinary citizen would be confronted with the worst of all imaginable tyrannies. In a world in which all the means of production were concentrated in the hands of the government, the individual would be totally and inescapably dependent on the political authority for his very existence. The socialist state would be the single monopoly provider of employment and all the essentials of life. Dissent from or disobedience to such an all-powerful state could mean material destitution for the critic of those in political authority. Furthermore, that same centralized control would mean the end to all independent intellectual and cultural pursuits. What would be printed and published, what forms of art and scientific research permitted, would be completely at the discretion of those with the power to determine the allocation of society’s resources. Man’s mind and material well-being would be enslaved to the control and caprice of the central planners of the socialist state. Personal freedom and virtually all traditional civil liberties were crushed under the centralized power of the Total State. Second, these Nineteenth-century anti-socialists argued that the socialization of the means of production would undermine and fundamentally weaken the close connection between work and reward that necessarily exists under a system of private property. What incentive does a man have to clear the field, plant the seed, and tend the ground until harvest time if he knows or fears that the product to which he devotes his mental and physical labor may be stolen from him at any time? Similarly, under socialism man would no longer see any direct benefit from greater effort, since what would be apportioned to him as his “fair share” by the state would not be related to his exertion, unlike the rewards in a market economy. Laziness and lack of interest would envelop the “new man” in the socialist society to come. Productivity, innovation, and creativity would be dramatically reduced in the future collectivist utopia. The Twentieth-century experiences with socialism, beginning with the communist revolution in Russia in 1917, proved these critics right. Personal freedom and virtually all traditional civil liberties were crushed under the centralized power of the Total State. Furthermore, the work ethic of man under socialism was captured in a phrase that became notoriously common throughout the Soviet Union: “They pretend to pay us, and we pretend to work.” The defenders of socialism responded by arguing that Lenin’s and Stalin’s Russia, Hitler’s National Socialist Germany, and Mao’s China were not “true” socialism. A true socialist society would mean more freedom, not less, so it was unfair to judge socialism by these supposedly twisted experiments in creating a workers’ paradise. Furthermore, under a true socialism, human nature would change, and men would no longer be motivated by self-interest but by a desire to selflessly advance the common good. Without such a competitively generated system of market prices, there would be no method for rational economic calculation. In the 1920s, 1930s, and 1940s, the Austrian economists, most notably Ludwig von Mises and Friedrich A. Hayek, advanced a uniquely different argument against a socialist society. They, Mises, in particular, accepted for the sake of argument that the socialist society would be led by men who had no wish to abuse their power and crush or abrogate freedom, and further, that the same motives for work would prevail under socialism as under private property in the market economy. Even with these assumptions, Mises and Hayek devastatingly demonstrated that comprehensive socialist central planning would create economic chaos. Well into the Twentieth century, socialism had always meant the abolition of private property in the means of production, the end of market competition by private entrepreneurs for land, capital, and labor, and, therefore, the elimination of market-generated prices for finished goods and the factors of production, including the wages of labor. Yet, without such a competitively generated system of market prices, Mises argued, there would be no method for rational economic calculation to determine the least-cost methods of production or the relative profitability of producing alternative goods and services to best satisfy the wants of the consuming public. It may be possible to determine the technologically most efficient way to produce some good, but this does not tell us whether that particular method of production is the most economically efficient way to do it. Mises explained this in many different ways, but we can imagine a plan to construct a railway through a mountain. Should the lining of the railway tunnel be constructed with platinum (a highly durable material) or with reinforced concrete? The answer to that question depends on the value of the two materials in their alternative uses. And this can be determined only through knowing what people would be willing to pay for these resources on the market, given competing demand and uses. Prices Encapsulate People’s Valuations On the free market, private entrepreneurs express their demand through the prices they are willing to pay for land, capital, resources, and labor. The entrepreneurs’ bidding is guided by their anticipation of the demand and prices consumers may be willing to pay for the goods and services that can be produced with those factors of production. The resulting market prices encapsulate the estimates of millions of consumers and producers concerning the value and opportunity costs of finished goods and the scarce resources, capital, and labor of the society. A socialist planned economy would be left without the rudder of economic calculation. But under comprehensive socialist central planning, there would be no institutional mechanism to discover these values and opportunity costs. With the abolition of private ownership in the means of production, no resources could be purchased or hired. There would be no bids and offers expressing what the members of society thought the resources were worth in their alternative employments. And without bids and offers, there would be no exchanges, out of which emerges the market structure of relative prices. Thus socialist planning meant the end of all economic rationality, Mises said — if by rationality we mean an economically efficient use of the means of production to produce the goods and services desired by the members of society. Given that nothing ever stands still — that consumer demand, the supply of resources and labor, and technological knowledge are continually changing — a socialist planned economy would be left without the rudder of economic calculation to determine whether what was being produced and how was most cost-effective and profitable. Neither Mises nor Hayek ever denied that a socialist society could exist or even survive for an extended period of time. Indeed, Mises emphasized that in a world that was only partly socialist, the central planners would have a price system to rely on by proxy, that is, by copying the market prices in countries where competitive capitalism still prevailed. But even this would only be of approximate value since the supply-and-demand conditions in a socialist society would not be a one-to-one replica of the market conditions in a neighboring capitalist society. Socialist and even some pro-market critics of Mises have sometimes ridiculed his supposed extreme language that socialism is “impossible.” But by “impossible,” Mises simply meant to refute the socialist claim in the Nineteenth and early Twentieth centuries that a comprehensive centrally-planned economy would not merely generate the same quantity and quality of goods and services as a competitive market economy, but would far exceed it. Socialism could not create the material paradise on earth the socialists had promised. The institutional means (central planning) that they proposed to achieve their stated ends (a greater material prosperity than under capitalism) would instead lead to an outcome radically opposite to what they said they wanted to achieve. Without market prices, there can be neither economic calculation nor the social coordination of multitudes of individual consumers and producers. Mises emphasized that a socialist society also would lack the consumer-oriented activities of private entrepreneurs. In the market economy, profits can be earned only if the means of production are used to serve consumers. Thus in their own self-interest, private entrepreneurs are driven to apply their knowledge, ability, and “reading” of the market’s direction in the most effective way, in comparison to their rivals who are also trying to capture the business of the buying public. Certainly, incentives motivate the private entrepreneur. If he fails to do better than his rivals, his income will diminish and he may eventually go out of business. But the private entrepreneur, as much as the central planner, would be “flying blind” if he could not function within a market order with its network of competitive prices. Thus, for Austrian economists like Mises, economic calculation is the benchmark by which to judge whether socialist central planning is a viable alternative to the free-market economy. Without market prices, there can be neither economic calculation nor the social coordination of multitudes of individual consumers and producers with their diverse demands, localized knowledge, and appraisements of their individual circumstances. Central Planning versus Rational Planning The pricing system is what gives rationality — an efficient use of resources — and direction to society’s activities in the division of labor, so that the means at people’s disposal may be successfully applied to their various ends. Central planning means the end to rational planning by both the central planners and the members of society since the abolition of a market price system leaves them without the compass of economic calculation to guide them along their way. The chaos of the Soviet economy was centered on the lack of a real price system and, therefore, a method of economic calculation. In the Soviet Union, for example, the older criticisms of collectivism were verified. The Total State did create a cruel, brutal, and murderous tyranny. And the abolition of private property resulted in weakened and often perverse incentives, in which individual access to wealth, position, and power came through membership in the Communist Party and status within the bureaucratic hierarchy. In reality, the rulers of the communist countries had other ends than that of the material and cultural improvement of those over whom they ruled. They pursued personal power and privilege, as well as various ideologically motivated goals. They artificially set prices for both consumer goods and resources at levels that had no relationship to their actual demand or scarcity. As a consequence, the degree of misuse of resources was such that virtually all manufacturing or industrial projects in the Soviet Union used up far more raw materials and labor hours per unit of output than anything comparable in the more market-oriented Western economies. The chaos of the Soviet economy was centered on the lack of a real price system and, therefore, a method of economic calculation. There could not be a real price system in the Soviet Union because it would have required the reversal of the very rationale for the socialist system on which the Soviet rulers’ power was based — government control and central planning of production. And they could not set their network of artificial prices at levels comparable to those in some Western countries because it would have made clear just how misguided their entire planning and distribution process actually was. Thus, along with the inherent irrationality of the central planning system due to the lack of real prices were the weakened incentives for the ordinary Soviet citizen to be industrious and creative in the official economy, as well as the perverse incentives of the political system in which personal gain was achieved through a near-total disregard for the interests of the wider society. That the Soviet planners had agendas other than serving consumers only further distorted the system. Just how misdirected and inefficient the use of resources were under socialism only became clear after the Soviet Union collapsed and a limited market economy emerged in Russia. The End of Civilization In his arguments against socialist central planning, Mises often couched his reasoning in rhetoric that warned of the end of civilization as we know it if the collectivist road were followed. In the 1930s and 1940s, when Mises most forcefully raised these fears, he was far from being alone in this dire warning, given the brutality and violent tyranny then being experienced in Nazi Germany and Stalin’s Soviet Union. If nothing else, the “priorities” of the “workers’ state” would be different from those under decentralized, profit-oriented decision-making. But Mises’s more fundamental point was that the very nature of a socialist system threatened the economic and cultural standard of well-being that Western man had come to take for granted over the preceding hundred years. With every passing day, a socialist system would be less like the market society that preceded it. The allocation of resources, the utilization of capital, and the employment of labor would have to be modified and shifted from previous uses to new ones. If nothing else, the “priorities” of the “workers’ state” would be different from those under decentralized, profit-oriented decision-making. Should a new public hospital be constructed in a particular location, or should the limited resources be assigned to building additional public-housing complexes in a different part of the country? Should a piece of land in a particular area be used for a new “people’s recreational facility” or should it become the site of a new industrial factory? If a new housing complex is chosen for construction, should it be made mostly of brick and mortar, or of steel and glass? Should the efforts of some scientists be employed for additional cancer research or for possible development of a tastier and longer-lasting chewing gum? What represents the more highly valued use for various resources that can be employed making different types of machines, which could then be used either to produce more books on religion and faith or to increase the productivity of workers in agriculture? Would a new technological idea be worth the investment in time, resources, and labor, even though its payoff may be years away (assuming it worked as initially conceived)? Without prices for finished goods and the factors of production to provide the information and signals to guide the decision-making, each passing day would mean more such decisions were made in the dark. It would be analogous to sea travelers in the ancient world before the invention of the sextant or the compass. Every movement out of sight of land — the known and the familiar — would be into uncharted waters with no way of knowing the direction or the consequences of the course chosen. Better to stay close to the shore than to explore unknown seas. And if the journey on the open sea under cloud-covered skies is undertaken, it is uncertain where it will lead or whether the shortest and best course has been selected. The establishment of a comprehensive system of socialist central planning would be equivalent to going back in time. It is for reasons such as this that Mises referred to economic calculation as “the guiding star of action under a social system of division of labor. It is the compass of the man embarking upon production.” Thus, even if the rulers of a socialist state were completely benevolent and concerned only with the well-being of their fellow men, without economic calculation a collectivist society potentially faced what Mises titled one of his books, planned chaos. Thus, the establishment of a comprehensive system of socialist central planning would be equivalent to going back in time, before the institutions of private property and market competition had enabled the utilization of prices for rational decision-making. Luckily, the attempt to create socialism in the Twentieth century made enough of an impression that it seems unlikely that such a dramatic abolition of the fundamental institutions of the market economy will be tried again anytime soon. The dilemma of our own time is that governments, through regulation, intervention, redistribution, and numerous controls, prevent the market and the price system from functioning as they should and could in a free society.