

## **1NC – OFF**

**Interpretation---“Appropriation of outer space” by private entities refers to the exercise of exclusive control of space.**

TIMOTHY JUSTIN **TRAPP**, JD Candidate @ UIUC Law, '13, TAKING UP SPACE BY ANY OTHER MEANS: COMING TO TERMS WITH THE NONAPPROPRIATION ARTICLE OF THE OUTER SPACE TREATY UNIVERSITY OF ILLINOIS LAW REVIEW [Vol. 2013 No. 4]

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.<sup>214</sup> The ITU has, quite blatantly, created something akin to “property interests in outer space.”<sup>215</sup> It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.<sup>216</sup> This is directly in line with at least one definition of outer-space appropriation.<sup>217</sup> [\*\*Start Footnote 217\*\*Id. at 236 (“**Appropriation of outer space, therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.**”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*]The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.<sup>218</sup> In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were trying to accomplish, albeit through different means.<sup>219</sup>

**Violation---starlink doesn’t create exclusive control of any part of space it just creates satellites**

**Standards---**

**1] Limits—their interp means that affs about any outer space activity are topical: tourism, photography, sending rovers, collecting ice cores, launching satellites, deflecting debris, can’t sell rocks on EBAY, etc. This explodes neg prep burdens since affs are pushed to the fringes of the topic where no neg lit exists**

**2] Ground—they shift the controversy from sovereign domination to minute activity. The topic literature is grounded in a debate over sovereign control over space, which means core neg generics are space ownership bad, space democracy bad, not temporary resource extraction or expeditions. Their interp minimizes link uniqueness because our impacts will never be overcome the advantage.**

**Fairness and education are voters – debate’s a game that needs rules to evaluate it and education gives us portable skills like research, its why schools fund debate**

**Drop the debater for skewing neg prep—DTA is incoherent, if we win T that means we no longer have the burden of rejoinder.**

**Use competing interps – reasonability invites arbitrary britelines and judge intervention. CI is a prerequisite to reasonability because you have to use offense to determine if their interp is reasonable.**

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### **Starlink key to global broadband**

**Menon 21** [Arun Menon Sep 8, 2021 08, "SpaceX's Starlink kickstarts a satellite broadband market that could disrupt telecom — Menon," Fierce Telecom, <https://www.fiercetelecom.com/telecom/spacex-s-starlink-kickstarts-a-satellite-broadband-market-could-disrupt-telecom-menon> accessed 12/19/21] Adam

In recent years, more than 10 low earth orbit (LEO) satellite projects have surfaced, among which SpaceX's Starlink has a clear first-mover advantage. With 1,500+ active satellites, Starlink is by far the largest network in the orbit. Elon Musk most recently tweeted that Starlink has now shipped 100,000 terminals to users in 14 countries, with license applications pending in several other countries. That's significant given that a full commercial service has not yet begun.

RELATED: [Industry Voices—Menon: Satellite mega-constellations are connectivity's new frontier post-5G revolution](#)

Despite service downtimes during the initial beta-testing phase, Starlink's satellite broadband service managed to provide a comparable experience to fixed-based internet service. A recent post by broadband network intelligence firm Ookla noted Starlink as the only satellite broadband service provider in the U.S. to offer fixed-broadband-like latency figures of 45 ms and median download speeds at 97.23 Mbps (vs. fixed broadband's 14 ms and 115 Mbps) in 2Q21. Elsewhere, Starlink managed to beat the average download speeds of fixed broadband in markets like Canada (Starlink's 86.92 Mbps vs. fixed broadband's 84.24 Mbps), Germany (107.98 Mbps vs. 58.17 Mbps), New Zealand (127.02 Mbps vs. 78.85 Mbps), and the UK (108.30 Mbps vs. 50.14 Mbps).

All these stats point to Starlink emerging as a strong alternative for broadband service. As more Starlink satellites join the orbit, the occasional downtimes will reduce significantly, also improving the latency and speed. And if Elon Musk is to be believed, Starlink's speed will double to 300 Mbps by the end of this year, from the current promised speeds of 50-150 Mbps range.

Rivals make progress but lag Starlink's pace of growth

Several other players are prepping to launch new constellation projects. Three of the most promising LEO satellite projects (other than SpaceX's Starlink) include OneWeb, Amazon's Kuiper, and Telesat's Lightspeed. Starlink's direct competitor in terms of scale, goal, and target market is Amazon's Kuiper

which plans to operate a fleet of 3,236 LEO satellites. Though Amazon is yet to deploy any satellites, it received U.S. Federal Communications Commission (FCC) approval mid last year to deploy half of the satellites by mid-2026 and the rest by mid-2029. Despite signing a [contract](#) for nine launches of its Project Kuiper internet satellites on United Launch Alliance's Atlas V rockets, Amazon did not reveal any timeline for those launches. This is in stark contrast to [Starlink's satellite](#) internet service, which will be [up and running](#) commercially [by September](#) this year.

**Broadband is critical to American agriculture.**

Zippy **Duvall 18**, president of the American Farm Bureau Federation, 11-1-2018, "For farmers, broadband is a necessity, not a luxury," TheHill, <https://thehill.com/blogs/congress-blog/technology/414370-for-farmers-broadband-is-a-necessity-not-a-luxury>

Just like every other U.S. business competing [in an increasingly global economy](#), [America's farmers](#) and ranchers [need reliable, high-speed internet](#) service. It is no longer a luxury; [it is an absolute necessity](#) in our digital age. Robust broadband networks foster [more efficient, economical and environmentally responsible agriculture operations](#). Rural broadband deployment is now a priority for Congress, the administration and federal agencies. But there is still work to do to ensure rural and agricultural communities have fair and open access to the fixed and mobile broadband networks they need to prosper and succeed. High-speed broadband networks are [vital to ensure farmers and ranchers can use the latest in precision agricultural equipment](#). They are central to following commodity markets and communicating with customers, vendors and suppliers. [Speedy internet connections mean American farmers can gain a foothold in new markets](#) around the world while ensuring they are complying with ever-changing regulatory standards. The nature and science and technology of farming is constantly changing. Modern farming techniques such as [precision agriculture give farmers important information to maximize yields](#) on every piece of the land they work right down to the square foot, in many cases. [But precision ag requires a wireless broadband connection for data collection and analysis](#) done on the farm and in remote data centers, too. [Farmers and ranchers cannot take full advantage of such cutting-edge equipment if they do not have access to wireless broadband](#) in the field or on the ranch. As time goes by, those connections will become ever more important in a world [expected to add more than 2 billion people by 2050](#). Rural communities – already under extreme economic pressure – need broadband now and will need it even more in the very near future. [Broadband is essential to help rural communities access health care and government services](#), as well as educational and business opportunities [that would otherwise be unavailable](#). Put simply, our rural and farming communities must be able to access high-speed internet just as easily and efficiently as suburban and urban communities. [Bridging this digital divide is critical to the success of America's farmers](#). Rural broadband is to this century what rural electrification was to the last: a critical part of economic survival. [Chances for economic recovery in rural America will fade unless we have broadband service throughout the nation.](#)

**Great power war.**

John **Castellaw 17**, 36-year veteran of the U.S. Marine Corps and the Founder and CEO of Farmspace Systems LLC, "Opinion: Food Security Strategy Is Essential to Our National Security," 5/1/17, <https://www.agri-pulse.com/articles/9203-opinion-food-security-strategy-is-essential-to-our-national-security>

[The United States faces many threats](#) to our National Security. These threats include continuing wars with extremist elements [such as ISIS and](#) potential [wars with](#) rogue state [North Korea](#) or regional

nuclear power **Iran**. The heated economic and diplomatic competition with **Russia and a surging China** could **spiral out of control**. Concurrently, we face threats to our future security posed by growing civil strife, famine, and refugee and migration challenges which create incubators for extremist and anti-American government factions. Our response cannot be one dimensional but instead must be a nuanced and comprehensive National Security Strategy combining all elements of National Power including a Food Security Strategy. **An American Food Security Strategy is an imperative factor in reducing the multiple threats impacting our National wellbeing**. Recent history has shown that **reliable food supplies and stable prices produce more stable and secure countries**. Conversely, food insecurity, particularly in poorer countries, can lead to instability, unrest, and violence. **Food insecurity drives mass migration** around the world from the Middle East, to Africa, to Southeast Asia, destabilizing neighboring populations, **generating conflicts**, and threatening our own security by **disrupting our economic, military, and diplomatic relationships**. Food system shocks from extreme food-price volatility can be correlated with protests and riots. Food price related protests toppled governments in Haiti and Madagascar in 2007 and 2008. In 2010 and in 2011, food prices and grievances related to food policy were one of the major drivers of the Arab Spring uprisings. Repeatedly, history has taught us that **a strong agricultural sector is an unquestionable requirement for** inclusive and sustainable growth, broad-based development progress, and **long-term stability**. The impact can be remarkable and far reaching. **Rising income**, in addition to reducing the opportunities for an upsurge in extremism, leads to changes in diet, producing **demand** for more diverse and nutritious foods provided, in many cases, from **American farmers and ranchers**. **Emerging markets** currently **purchase 20 percent of U.S. agriculture exports and that figure is expected to grow** as populations boom. Moving early to ensure stability in strategically significant regions requires long term planning and a disciplined, thoughtful strategy. To combat current threats and work to prevent future ones, our national leadership must employ the entire spectrum of our power including diplomatic, economic, and cultural elements. The best means to prevent future chaos and the resulting instability is positive engagement addressing the causes of instability before it occurs. This is not rocket science. We know where the instability is most likely to occur. The world population will grow by 2.5 billion people by 2050. Unfortunately, this massive population boom is projected to occur primarily in the most fragile and food insecure countries. This alarming math is not just about total numbers. Projections show that the greatest increase is in the age groups most vulnerable to extremism. There are currently 200 million people in Africa between the ages of 15 and 24, with that number expected to double in the next 30 years. Already, 60% of the unemployed in Africa are young people. Too often **these situations deteriorate into shooting wars** requiring the deployment of our military forces. We should be continually mindful that the price we pay for committing military forces is measured in our most precious national resource, the blood of those who serve. For those who live in **rural America**, this has a disproportionate impact. Fully 40% of those who serve in our military come from the farms, ranches, and non-urban communities that make up only 16% of our population. Actions taken now to increase agricultural sector jobs can provide economic opportunity and stability for those unemployed youths while helping to feed people. A recent report by the Chicago Council on Global Affairs identifies agriculture development as the core essential for providing greater food security, economic growth, and population well-being. **Our active support for food security, including agriculture development, has helped stabilize key regions over the past 60 years. A robust food security strategy, as a part of our overall security strategy, can mitigate the growth of terrorism, build important relationships, and support continued American economic and agricultural prosperity while materially contributing to our Nation's and the world's security.**

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**States ought to call a global constitutional convention and establish a constitution reflecting intergenerational concern with exclusive authority to ban appropriation of outer space by private entities and bind participating bodies to its result**

**That solves the aff – it addresses shared anxieties while building political consensus**

**Gardiner 14 1** [Stephen M. Gardiner, Professor of Philosophy and Ben Rabinowitz Endowed Professor of Human Dimensions of the Environment at the University of Washington, Seattle, “A Call for a Global

Constitutional Convention Focused on Future Generations,” 2014, *Ethics & International Affairs*, Vol. 28, Issue 3, pp. 299-315, <https://doi.org/10.1017/S0892679414000379>, EA]

### A Constitutional Convention

In my view, the above line of reasoning leads naturally to a more specific proposal: that we—concerned individuals, interested community groups, **national governments**, and transnational organizations—**should** initiate a **call for a global constitutional convention focused on future generations**. This proposal has two components. The first component is procedural. The proposal takes the form of a **“call to action.”** It is explicitly an attempt to **engage** a range of **actors**, **based on** a claim that **they** have or **should take on** a set of **responsibilities**, and a view about **how to go about discharging those responsibilities**. The second component is substantive. The main focus for action is a push for the creation of a constitutional convention at the global level, whose role is to pave the way for an overall constitutional system that appropriately embodies intergenerational concern.

The substantive idea rests on several key ideas. Still, for the purposes of a basic proposal, I suggest that these be understood in a relatively open way that, as far as is practicable, does not prejudice the outcome of the convention, and especially its main recommendations. First, **the convention itself should be understood as “a representative body called together for some occasional or temporary purpose”** and “constituted by statute to represent the people in their primary relations.”<sup>14</sup> Second, **a constitutional system should be thought of in a minimalist sense as “a set of norms** (rules, principles or values) **creating, structuring, and possibly defining the limits of government power or authority.”**<sup>15</sup> Third, **the “instigating” role of the convention should be to discuss, develop, make recommendations toward, and set in motion a process for the establishment of a constitution.** Fourth, its primary **subject matter should be the need to adequately reflect and embody intergenerational concern**, where this would include at least the **protection of future generations, the promotion of their interests** (where “interests” is to be broadly conceived so as to include rights, claims, welfare, and so on), **and the discharging of duties with respect to them.** It may also (and in my view should) include some way of reflecting concern for past generations, including responsiveness to at least certain of their interests and views. However, I will leave that issue aside in what follows.

The proposal to initiate a **call** for a global constitutional convention has at least two attractive features. First, it **is based in a deep political reality**, and does not underplay the challenge. **It acknowledges the problem as it is, both specific and general, and calls attention to the heart of that problem, including to the failures of the current system, the need for an alternative, and the background issue of responsibility.** Moreover, though **the proposal is** dramatic and rhetorically eye-catching, it is so in a way that is **appropriately responsive to the seriousness of the issue at hand, the persistent political inertia surrounding more modest initiatives, and the fact that (grave though concerns about it are) climate change is only one instance of the tyranny of the contemporary (and the wider perfect moral storm), and we should expect others to arise over the coming decades and centuries.**

The second attractive feature of **the proposal is** that, though ambitious, it is **not alienating**. While it does not succumb to despair in the face of the challenge, neither does it **needlessly polarize and divide** from the outset (for example, by leaping to specific recommendations about how to fill the institutional gap). Instead, it **acknowledges** that there are **fundamental difficulties and anxieties**, **but** uses them to **start the right kind of debate**, rather than to foreclose it. As a result, **the proposal is a promising candidate to serve as** the subject of a **wide and overlapping political consensus**, at least among those who share intergenerational concern.

### Selective Mirroring

To quell some initial anxieties, it is perhaps worth clarifying the open-ended and non-alienating character of the proposal. **One temptation would be to view** the call for **a global constitutional convention as a fairly naked plea for world**

**government**, a prospect that would be deeply alienating—indeed anathema—to many. However, that is not my intention. Though it is possible that a global constitutional convention would lead in this direction, it is **by no means certain**.

At a minimum, no such body could plausibly recommend any form of “world government” without simultaneously advancing detailed suggestions about how to avoid the standard threats such an institution might pose. Moreover, it seems perfectly conceivable, even likely under current ways of thinking, that a global constitutional convention would pursue what we might call a **selective mirroring** strategy. Specifically, a convention would seek to develop a broader system of institutions and practices that reflected the desirable features of a powerful and highly centralized global authority but neutralized the standing threats posed by it (for example, it might employ familiar strategies such as the separation of powers). In all likelihood, one feature of a selective mirroring approach would be the significant preservation of existing institutions to serve as a bulwark against the excesses of any newly created ones. Whether and how such a strategy might be made effective against the perfect moral storm, and whether something closer to a “world government” would do better, would be a central issue for discussion by the convention.

It spills over to foster broader intergenerational representation, but independence is key

**Gardiner 14 2** [Stephen M. Gardiner, Professor of Philosophy and Ben Rabinowitz Endowed Professor of Human Dimensions of the Environment at the University of Washington, Seattle, “A Call for a Global Constitutional Convention Focused on Future Generations,” 2014, *Ethics & International Affairs*, Vol. 28, Issue 3, pp. 299-315, <https://doi.org/10.1017/S0892679414000379>, EA]

One set of guidelines concerns how the global constitutional convention relates to other institutions. The first guideline concerns relative independence:

- (1) **Autonomy:** Any global constitutional convention should have considerable autonomy from other institutions, and especially from those dominated by factors that generate or facilitate the tyranny of the contemporary (and the perfect moral storm, more generally).

Thus, for example, attempts should be made to insulate the global constitutional convention from too much influence from short-term and narrowly economic forces.

The second guideline concerns limits to that independence:

- (2) **Mutual Accountability:** Any global constitutional convention should be to some extent accountable to other major institutions, and they should be accountable to it.

Thus, for example, though the global constitutional convention should not be able to decide unilaterally that national institutions should be radically supplanted, nevertheless such institutions should not have a simple veto on the recommendations of the convention, including those that would result in sharp limits to their powers.

A third guideline concerns adequacy:

- (3) **Functional Adequacy:** The global constitutional convention should be constructed in such a way that it is highly likely to produce recommendations that are functionally adequate to the task.

Thus, for example, the **tasks** of the global constitutional convention **should not be assigned to any currently existing body** whose design and authority is clearly unsuitable. In my view, this guideline rules out proposals such as the Royal Society's suggestion that governance of geoengineering should be taken up by the United Nations' Commission on Sustainable Development,<sup>20</sup> or the Secretary-General's recommendation of a new United Nations' High Commissioner for Future Generations.<sup>21</sup> Though **such proposals** may have merit for some purposes (for example, **as pragmatic, incremental suggestions to highlight the importance of intergenerational issues**), they **are too modest**, in my opinion, **to reflect the gravity of the threats** posed by climate change in particular, **and the perfect moral storm** more generally.

#### Aims

A second set of guidelines concerns the aims of the global constitutional convention. Here, **the perfect moral storm analysis would suggest:**

(4) **Comprehensiveness:** The **convention should** be under a mandate to **consider a very broad range of global, intergenerational issues**, to focus on such issues **at a foundational level**, and to recommend institutional reform accordingly.

(5) **Standing Authority:** Though **the convention** may recommend the establishment of some temporary and issue-specific bodies, its focus **should** be on the **establishment of institutions with standing authority over the long term**.

These **guidelines** are significant in that they **stand against existing issue-specific approaches** to global and intergenerational problems, **and encourage** not only **a less ad hoc** but also a **more proactive approach**. In particular, the global constitutional convention might be expected to recommend institutions that would be charged with identifying, monitoring, and taking charge of intergenerational issues as such. For example, such **institutions should address not only specific policy issues** (such as climate change, large asteroid detection, and long-term nuclear waste) **but also** the need to **identify similar threats** before they arise.

#### **Proactive measures mitigate a laundry list of emerging catastrophic risks – extinction**

**Beckstead et al. 14** [Nick Beckstead, Nick Bostrom, Niel Bowerman, Owen Cotton-Barratt, William MacAskill, Seán Ó hÉigeartaigh, Toby Ord, \* Future of Humanity Institute, University of Oxford, \*\* Director, Future of Humanity Institute, University of Oxford, \*\*\* Global Priorities Project, Centre for Effective Altruism; Department of Physics, University of Oxford, \*\*\*\* Global Priorities Project, Centre for Effective Altruism; Future of Humanity Institute, University of Oxford, \*\*\*\*\* Uehiro Centre for Practical Ethics, University of Oxford, \*\*\*\*\*, Cambridge Centre for the Study of Existential Risk; Future of Humanity Institute, University of Oxford, \*\*\*\*\*, Programme on the Impacts of Future Technology, Oxford Martin School, University of Oxford, "Policy Brief: Unprecedented Technological Risks," 2014, *The Global Priorities Project, The Future of Humanity Institute, The Oxford Martin Programme on the Impacts of Future Technology, and The Centre for the Study of Existential Risk*, <https://www.fhi.ox.ac.uk/wp-content/uploads/Unprecedented-Technological-Risks.pdf>, Accessed: 03/13/21, EA]

In the near future, **major technological developments will give rise to new unprecedented risks**. In particular, like nuclear technology, **developments in synthetic biology, geoengineering, distributed manufacturing and artificial intelligence** create **risks of catastrophe** on a **global scale**. These



new technologies will have **very large benefits** to humankind. But, without proper regulation, they **risk** the creation of **new weapons of mass destruction**, the start of **a new arms race**, or catastrophe through **accidental misuse**. Some experts have suggested that these **technologies are even more worrying than nuclear weapons**, because they are **more difficult to control**. Whereas nuclear weapons require the rare and controllable resources of uranium-235 or plutonium-239, once these new technologies are developed, they will be very difficult to regulate and easily accessible to small countries or even terrorist groups.

Moreover, **these risks are currently underregulated**, for a number of reasons. Protection against such risks is a **global public good** and thus **undersupplied** by the market. Implementation often **requires cooperation among many governments**, which **adds political complexity**. Due to the **unprecedented nature** of the risks, **there is little** or no **previous experience** from which to draw lessons and form policy. And the **beneficiaries** of preventative policy include **people who have no sway over current political processes** — our children and grandchildren.

Given the unpredictable nature of technological progress, **development of these technologies may be unexpectedly rapid**. A **political reaction** to these technologies only when they are already **on the brink** of development **may therefore be too late. We need** to implement **prudent and proactive policy measures** in the near future, even if no such **breakthroughs** currently appear imminent.

## Maintaining sustainable use of outer space is key to future generations

**Islam 18** [Mohammad Saiful Islam, Mohammad works for the Institute of Advanced Judicial Studies and the Beijing Institute of Technology. 4-27-2018, "The Sustainable Use of Outer Space: Complications and Legal Challenges to the Peaceful Uses and Benefit of Humankind," Beijing Law Review, <https://www.scirp.org/journal/paperinformation.aspx?paperid=85201> accessed 12/12/21] Adam

### 4.2. Ensure the Rights of Future Generations in Outer Space

Sustainable development is the **establishing principle for achieving present human needs without damaging** the demands of **future generations** maintaining integrity and constancy of the natural systems. The modern idea of sustainable development is derived from the Brundtland Report in 1987. Generally considered in modern **application and exploration of outer space**, fundamental elements are the area **must be dedicated to peaceful purposes**; and the area must be **preserved for future generations** (Heim, 1990). It is an **indispensable and inordinate challenge to confirm uphold the healthy environment** and make sure development **without destroying** the rights of **future generations** in space. Article IX of The Outer Space Treaty provided, in the exploration and use of outer space, **States should pursue** studies and conduct **exploration of outer space** so as **to avoid harmful contamination** and also adverse changes in the environment of the Earth (**Outer Space Treaty, 1967**). The issues of what constitutes harmful contamination in Earth's environment have yet to be interpreted. The legal definition of "adverse" and "harmful" will also modification as Earth, indigenous sciences progress, separately or in concert, with the planetary exploration space sciences (Robinson, 2005). As a result of multifaceted political, economic, scientific, technological, educational, and other global problems, **there has been practicing exclusively only international cooperation for sustainable space development among the developed countries** (Noichim, 2005). The space faring nations should **promote** a supportive environment for **peaceful and sustainable use of space**, decrease environmental effects on Earth and



protect the terrestrial environment. We should escape a regime that will ultimately reflect the over-exploitation of resources and environmental havoc ([Fountain, 2002](#)).

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### **Internet is open to massive vulnerabilities now**

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

Hong Kong (CNN) - On July 29, 1858, two steam-powered battleships met in the middle of the Atlantic Ocean. There, they connected two ends of a 4,000 kilometer (2,500 mile) long, 1.5 centimeter (0.6 inch) wide cable, linking for the first time the European and North American continents by telegraph. Just over two weeks later, the UK's Queen Victoria sent a congratulatory message to then US President James Buchanan, which was followed by a parade through the streets of New York, featuring a replica of a ship which helped lay the cable and fireworks over City Hall. In their inaugural cables, Queen Victoria hailed the "great international work" by the two countries, the culmination of almost two decades of effort, while Buchanan lauded a "triumph more glorious, because far more useful to mankind, than was ever won by conqueror on the field of battle. The message took over 17 hours to deliver, at 2 minutes and 5 seconds per letter by Morse code, and the cable operated for less than a month due to a variety of technical failures, but a global communications revolution had begun. By 1866, new cables were transmitting 6 to 8 words a minute, which would rise to more than 40 words before the end of the century. In 1956, Transatlantic No. 1 (TAT-1), the first underwater telephone cable, was laid, and by 1988, TAT-8 was transmitting 280 megabytes per second – about 15 times the speed of an average US household internet connection – over fiber optics, which use light to transmit data at breakneck speeds. In 2018, the Marea cable began operating between Bilbao, Spain, and the US state of Virginia, with transmission speeds of up to 160 terabits per second – 16 million times faster than the average home internet connection. Today, there are around 380 underwater cables in operation around the world, spanning a length of over 1.2 million kilometers (745,645 miles). **Underwater cables** are the invisible force **driving** the

**modern internet**, with many in recent years being funded by internet giants such as Facebook, Google, Microsoft and Amazon. They **carry almost all our communications** and yet – in a world of wireless networking and smartphones – we are barely aware that they exist. Yet as the internet has become more mobile and wireless, the amount of data traveling across undersea cables has increased exponentially. "Most people are absolutely amazed" by the degree to which the internet is still cable-based, said Byron Clatterbuck, chief executive of Seacom, a multinational telecommunications firm responsible for laying many of the undersea cables connecting Africa to the rest of the world. "People are so mobile and always looking for Wi-Fi," he said. "They don't think about it, they don't understand the workings of this massive mesh of cables working together. "They only notice when it's cut." Network down In 2012, **Hurricane Sandy**

**slammed** into the US East Coast, causing an estimated \$71 billion in damage and knocking out several key exchanges where **undersea cables** linked North America and Europe. "It was a major disruption," Frank Rey, director of global network strategy for Microsoft's Cloud Infrastructure and Operations division, said in a statement. "The **entire network between North America and Europe was isolated for a number of hours.** For us, the storm **brought to light a potential challenge in the consolidation of transatlantic cables** that all landed in New York and New Jersey." For its newest cable, Marea, Microsoft chose to base its US operation further down the coast in Virginia, away from the cluster of cables to minimize disruption should another massive storm hit New York. But most often when a cable goes down nature is not to blame. There are about **200** such **failures each year** and the **vast majority are caused by humans.** "**Two-thirds** of cable failures are **caused by accidental human activities**, fishing nets and trawling and also ships' anchors," said Tim Stronge, vice-president of research at TeleGeography, a **telecoms market research firm.** "The next largest category is natural disaster, mother nature – sometimes earthquakes but also underwater landslides." A magnitude-7.0 earthquake off the southwest coast off Taiwan in 2006, along with aftershocks, cut eight submarine cables which caused internet outages and disruption in Taiwan, Hong Kong, China, Japan, Korea and the Philippines. Stronge said the reason most people are not aware of these failures is because the whole industry is designed with it in mind. Companies that rely heavily on undersea cables spread their data across multiple routes, so that if one goes down, customers are not

cut off. How a cable gets laid Laying a cable is a years-long process which costs millions of dollars, said Seacom's Clatterbuck. The process begins by looking at naval charts to plot the best route.

Cables are safest in deep water where they can rest on a relatively flat seabed, and won't rub against rocks or be at risk of other disturbances. "The deeper the better," Clatterbuck said. "When you can lay the cable down in deep water you rarely have any problems. It goes down on the bottom of the seabed and just stays there." Things become more difficult the closer you get to shore. A cable that is only a few centimeters thick on the bottom of the ocean must be armored from its environment as it reaches the landing station that links it with the country's internet backbone. "Imagine a long garden hose, inside of which are very small tubes that house a very, very thin fiber pair," Clatterbuck said. That hose is wrapped in copper, which conducts the direct current that powers the cable and its repeaters, sometimes up to 10,000 volts. "The fibers are wrapped in urethane and wrapped in copper and wrapped again in urethane," he said. "If we're going to have to put that cable on a shoreline that is very shallow and has a lot of rocks, you're now going to have to armor coat that cable so no one can hack through it." Cables in less hospitable areas can be far thicker than garden hoses, wrapped in extra plastic, kevlar armor plating, and stainless steel to ensure they can't be broken. Depending on the coast, cable companies might also have to build concrete trenches far out to sea, to tuck the cable in to protect it from being bashed against rocks. "Before the cable-laying vessels go out they send out another specialized ship that maps the sea floor in the area when they want to go," said TeleGeography's Stronge. "They want to avoid areas where there's a lot of undersea currents, certainly want to avoid volcanic areas, and avoid a lot of elevation change on the sea floor." Once the route is plotted and checked, and the shore connections are secure, huge cable laying ships begin passing out the equipment. "Imagine spools of spools of garden hose along with a lot of these repeaters the size of an old travel trunk," Clatterbuck said. "Sometimes it can take a month to load the cable onto a ship." The 6,600 kilometer (4,000 mile) Marea cable weighs over 4.6 million kilograms (10.2 million pounds), or the equivalent of 34 blue whales, according to Microsoft, which co-funded the project with Facebook. It took more than two years to lay the entire thing. Malicious cuts The blackout came without warning. In February 2008, a whole swath of North Africa and the Persian Gulf suddenly went offline, or saw internet speeds slow to a painful crawl. This disruption was eventually traced to damage to three undersea cables off the Egyptian coast. At least one – linking Dubai and Oman – was severed by an abandoned, 5,400 kilogram (6-ton) anchor, the cable's owner said. But the cause of the other damage was never explained, with suggestions it could have been the work of saboteurs. That raises **the issue of another threat to undersea cables:**

### **deliberate human attacks**

In a 2017 paper for the right-wing think tank Policy Exchange, British lawmaker Rishi Sunak wrote that **"security remains a challenge" for undersea cables**. "Funneled through exposed choke points (often with minimal protection) and their isolated deep-sea locations entirely public, the arteries upon which the Internet and our modern world depends have **been left highly vulnerable**," he said. "The threat of these vulnerabilities being exploited is growing. A successful attack would deal a crippling blow to Britain's security and prosperity." However, with more than 50 cables connected to the UK alone, Clatterbuck was skeptical about how useful a deliberate outage could be in a time of war, pointing to the level of coordination and resources required to cut multiple cables at once. "If you wanted to sabotage the global internet or cut off a particular place you'd have to do it simultaneously on multiple cables," he said. "You'd be focusing on the hardest aspect of disrupting a network."

## **SpaceX satellites are key to internet access**

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

I don't have enough deep knowledge about SpaceX's business or financials to reliably gauge the actual bankruptcy risk here, and the piece's reporter is skeptical. I will note, however, that although the company is currently valued at around \$100 billion, the bank Morgan Stanley assigns it a valuation "of somewhere between \$5bn and \$200bn, with uncertainty about its success accounting for the wide range," according to The Economist. Starship and Starlink are key to that upper bound. (Also: A Morgan Stanley survey of "institutional investors and industry experts" expect SpaceX to become more valuable than Tesla, currently a trillion-dollar company. We'll see.) So it's not surprising that Musk emphasizes the importance of the **Starlink**

**internet** satellite venture here, especially its next incarnation. Now go and Twitter search on the terms "Musk," "ruining," and "sky," and you'll find plenty of

complaints about the Starlink constellation — **with currently more than 1,700 satellites** in low-Earth orbit. For many of these keyboard critics, Starlink is nothing more than an uberbillionaire's reckless effort to become an even wealthier uberbillionaire. Or maybe it's just another Muskian vanity project, like building rockets to Mars. Either way, these diehard anti-Muskers see a cluttered sky for visual astronomers, both amateur and professional, as a horrific tradeoff just so the entrepreneur can sell global internet access. Now, the extreme version of this critique is unserious, little more than anti-billionaire emoting. The profit potential of Starlink is unclear, though it seems to be Musk's goal that the telecom business will one day help fund his Mars ambitions. But the venture isn't there yet. Last summer, Musk estimated that Starlink would likely need between \$20 billion and \$30 billion in investment. "If we succeed in not going bankrupt, then that'll be great, and we can move on from there," Musk said. For now, **Starlink aims to add another 1,000**

**satellites a year**, even more when Starship is operational. That is, assuming Starship become operational. But the astronomy issue is a real one, as SpaceX has acknowledged. And after astronomer complaints about the brightness of the first group of 60 satellites launched in 2019, SpaceX developed a work-around to minimize the glare from solar reflection on subsequent launches. Of course, some scientists don't want to rely on the goodwill of SpaceX and other satellite companies. They see an international regulatory agreement, perhaps a new protocol under the Outer Space Treaty, as a necessity. But as such an add-on is unlikely to happen anytime soon, notes The Economist, "not least because other issues raised by the mega constellations, such as risks from debris, will doubtless seem more pressing." Here's one of the many pictures floating around the Internet showing the impact of Starlink satellites — "the 333-

second exposure shows at least 19 satellites passing overhead” — on astronomical observations, via the IFLScience website: Of course, framing the trade-off as the above picture vs. “better global internet” doesn’t quite capture the benefits of the latter. And they are considerable. **There remains a stark digital divide in global internet access.** As the World Economic Forum notes: “Globally, only just over half of households (55 percent) have an internet connection, according to UNESCO. In the developed world, 87 percent are connected compared with 47 percent in developing nations, and just 19 percent in the least developed countries.” It seems pretty clear that **broadband internet access brings considerable economic gains, particularly to poorer countries.** (Musk has specifically said this is a goal of Starlink.) Here are a few examples from the August 2021 analysis “The Economic Impact of Internet Connectivity in Developing Countries” by Jonas Hjort (Columbia University) and Lin Tian (INSEAD): **Quite a few studies convincingly estimate the effect on consumption** of specific internet-enabled technologies (rather than internet connectivity itself) through model-based approaches, and a few do so more directly. **Jack & Suri (2014) show that access to mobile money decreased consumption poverty by two percentage points in Kenya.** In contrast, Couture et al. (2021) finds that expansion of e-commerce in China has little effect on income to rural producers and workers. Different areas of Sub-Saharan Africa got access to basic internet at different times starting in the early 2000s. **Exploiting variation arising from the gradual arrival of submarine cable connections and using nighttime satellite image luminosity as a proxy for economic activity, Goldbeck & Lindlacher (2021) estimate that basic internet availability leads to about a two percentage point increase in economic growth.** As we briefly discussed in Sub-section 3.1.1, **Bahia et al. (2020) show evidence that the gradual roll-out of mobile broadband in Nigeria between 2010 and 2016 increased labor force participation and employment.** The paper also shows that **household consumption simultaneously increased and poverty decreased.** Households that had at least one year of mobile broadband coverage experienced an increase in total consumption of about 6 percent. **Masaki et al. (2020) document a similarly striking result.** Combining household expenditure surveys with data on the location of fiber-optic transmission nodes and coverage maps of 3G mobile technology, they show that **3G coverage is associated with a 14 percent increase in total consumption and a 10 percent decline in extreme poverty in Senegal.** Finally, **Bahia et al. (2021) use a similar empirical approach to study the effect of mobile broadband roll-out in Tanzania and find a comparable increase in household consumption and decline poverty in this setting. The eventual endgame here is that there are going to be many tens of thousands more satellites in orbit, enabling total global internet coverage.** And they will be joined by all manner of human-occupied installations for tourist, commercial, and scientific endeavors. (You may have missed the late October announcement that Blue Origin, the space company owned by Jeff Bezos, is teaming up with other firms to build a space station in Earth orbit.) Stargazing from Earth will never be the way it used to be. Then again, people still complain about shadows from skyscrapers even as humanity continues to build them. But recall one of the running themes of this newsletter: Technology solves one problem, creates another, then solves that one — rinse and repeat — even as the overall direction is forward. More astronomy in the future will be space based. And if all those space objects and structures make even low-Earth orbit astronomy difficult, more of it will need to be performed further out, as with the James Webb Space Telescope. Or maybe via telescopes on the Moon, such as the proposed Lunar Crater Radio Telescope, which would deploy robots to transform a half-mile wide crater into an observatory by attaching a wire mesh along the crater walls. And once there are lots of satellites around a fully colonized Moon, off to Mars — which might be accessible thanks to Starlink funding Musk’s deep-space ambitions. Meanwhile, **there will be a lot less global poverty here on Earth than otherwise.**

## Internet access checks multiple existential threats

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

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

**Epidemics can be deflected** by telepresence

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

The internet will predict natural disasters

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

Discoveries are retained and shared

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

### **Tyranny is mitigated**

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

### **Human capital is vastly increased**

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

Energy expenditure is reduced

Societal collapse can often be understood in terms of an energy budget: when energy spend outweighs energy return, collapse ensues. This has taken the form of deforestation or soil erosion; currently, the worry involves fossil-fuel depletion. The internet addresses the energy problem with a natural ease. Consider the massive energy savings inherent in the shift from paper to electrons -- as seen in the transition from the post to email. Ecommerce reduces the need to drive long distances to purchase products. Delivery trucks are more eco-friendly than

individuals driving around, not least because of tight packaging and optimisation algorithms for driving routes. Of course, there are energy costs to the banks of computers that underpin the internet -- but these costs are less than the wood, coal and oil that would be expended for the same quantity of information flow.

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

## 1NC – OFF

**Space Commercialization drives Tech Innovation in the Status Quo – it provides a unique impetus.**

**Hampson 17** Joshua Hampson 1-25-2017 “The Future of Space Commercialization”

<https://republicans-science.house.gov/sites/republicans.science.house.gov/files/documents/TheFutureofSpaceCommercializationFinal.pdf> (Security Studies Fellow at the Niskanen Center)//Elmer

The size of the space economy is far larger than many may think. In 2015 alone, the global market amounted to \$323 billion. Commercial infrastructure and systems accounted for 76 percent of that 9 total, with satellite television the largest subsection at \$95 billion. The global space launch market’s 10 11 share of that total came in at \$6 billion dollars. It can be hard to disaggregate how space benefits 12 particular national economies, but in 2009 (the last available report), the Federal Aviation Administration (FAA) estimated that commercial space transportation and enabled industries generated \$208.3 billion in economic activity in the United States alone. Space is not just about 13 satellite television and global transportation; while not commercial, GPS satellites also underpin personal navigation, such as smartphone GPS use, and timing data used for Internet coordination.<sup>14</sup> Without that data, there could be problems for a range of Internet and cloud-based services.<sup>15</sup> There is also room for growth. The FAA has noted that while the commercial launch sector has not grown dramatically in the last decade, there are indications that there is latent demand. This <sup>16</sup> demand may catalyze an increase in launches and growth of the wider space economy in the next decade. The Satellite Industry Association’s 2015 report highlighted that their section of the space economy outgrew both the American and global economies. The FAA anticipates that growth to <sup>17</sup> continue, with expectations that small payload launch will be a particular industry driver.<sup>18</sup> In the future, emerging space industries may contribute even more the American economy. Space tourism and resource recovery—e.g., mining on planets, moons , and asteroids—in particular may become large parts of that industry. Of course, their viability rests on a range of factors, including costs, future regulation, international problems, and assumptions about technological development. However, there is increasing optimism in these areas of economic production. But the space economy is not just about what happens in orbit, or how that alters life on the ground. The growth of this economy can also contribute to new innovations across all walks of life. Technological Innovation Innovation is generally hard to predict; some new technologies seem to come out of nowhere and others only take off when paired with a new application. It is difficult to predict the future, but it is reasonable to expect that a growing space economy would open opportunities for technological and organizational innovation. In terms of technology, the difficult environment of outer space helps incentivize progress along the margins. Because each object launched into orbit costs a significant amount of money—at the moment between \$27,000 and \$43,000 per pound, though that will likely drop in the future —each <sup>19</sup> reduction in payload size saves money or means more can be launched. At the same time, the ability to fit more capability into a smaller satellite opens outer space to actors that previously were priced out of the market. This is one of the reasons why small, affordable satellites are increasingly pursued by companies or organizations that cannot afford to launch larger traditional satellites. These small <sup>20</sup> satellites also provide non-traditional launchers, such as engineering students or prototypers, the opportunity to learn about satellite production and test new technologies before working on a full-sized satellite. That expansion of developers, experimenters, and testers cannot but help increase innovation opportunities. Technological developments from outer space have been applied to terrestrial

life since the earliest days of space exploration. The National Aeronautics and Space Administration (NASA) maintains a website that lists technologies that have spun off from such research projects. Lightweight 21 nanotubes, useful in protecting astronauts during space exploration, are now being tested for applications in emergency response gear and electrical insulation. The need for certainty about the resiliency of materials used in space led to the development of an analytics tool useful across a range of industries. Temper foam, the material used in memory-foam pillows, was developed for NASA for seat covers. As more companies pursue their own space goals, more innovations will likely come from the commercial sector. Outer space is not just a catalyst for technological development. Satellite constellations and their unique line-of-sight vantage point can provide new perspectives to old industries. Deploying satellites into low-Earth orbit, as Facebook wants to do, can connect large, previously-unreached swathes of 22 humanity to the Internet. Remote sensing technology could change how whole industries operate, such as crop monitoring, herd management, crisis response, and land evaluation, among others. 23 While satellites cannot provide all essential information for some of these industries, they can fill in some useful gaps and work as part of a wider system of tools. Space infrastructure, in helping to change how people connect and perceive Earth, could help spark innovations on the ground as well. These innovations, changes to global networks, and new opportunities could lead to wider economic growth.

### **Strong Innovation solves Extinction.**

**Matthews 18** Dylan Matthews 10-26-2018 “How to help people millions of years from now”  
<https://www.vox.com/future-perfect/2018/10/26/18023366/far-future-effective-altruism-existential-risk-doing-good> (Co-founder of Vox, citing Nick Beckstead @ Rutgers University)//Re-cut by Elmer

If you care about improving human lives, you should overwhelmingly care about those quadrillions of lives rather than the comparatively small number of people alive today. The 7.6 billion people now living, after all, amount to less than 0.003 percent of the population that will live in the future. It's reasonable to suggest that those quadrillions of future people have, accordingly, hundreds of thousands of times more moral weight than those of us living here today do. That's the basic argument behind Nick Beckstead's 2013 Rutgers philosophy dissertation, “On the overwhelming importance of shaping the far future.” It's a glorious mindfuck of a thesis, not least because Beckstead shows very convincingly that this is a conclusion any plausible moral view would reach. It's not just something that weird utilitarians have to deal with. And Beckstead, to his considerable credit, walks the walk on this. He works at the Open Philanthropy Project on grants relating to the far future and runs a charitable fund for donors who want to prioritize the far future. And arguments from him and others have turned “long-termism” into a very vibrant, important strand of the effective altruism community. But what does prioritizing the far future even mean? The most literal thing it could mean is preventing human extinction to ensure that the species persists as long as possible. For the long-term-focused effective altruists I know, that typically means identifying concrete threats to humanity's continued existence — like unfriendly artificial intelligence, or a pandemic, or global warming/out of control geoengineering — and engaging in activities to prevent that specific eventuality. But in a set of slides he made in 2013, Beckstead makes a compelling case that while that's certainly part of what caring about the far future entails, approaches that address specific threats to humanity (which he calls “targeted” approaches to the far future) have to complement ‘broad’ approaches, where instead of trying to predict what's going to kill us all, you just generally try to keep civilization running as best it can, so that it is, as a whole, well-equipped to deal with potential extinction events in the future, not just in 2030 or 2040 but in 3500 or 95000 or even 37 million. In other words, caring about the far future doesn't mean just paying attention to low-probability risks of total annihilation; it also means acting on pressing needs now. For



example: We're going to be better prepared to prevent extinction from AI or a supervirus or global warming if society as a whole makes a lot of scientific progress. And a significant bottleneck there is that the vast majority of humanity doesn't get high-enough-quality education to engage in scientific research, if they want to, which reduces the odds that we have enough trained scientists to come up with the breakthroughs we need as a civilization to survive and thrive. So maybe one of the best things we can do for the far future is to improve school systems — here and now — to harness the group economist Raj Chetty calls “lost Einsteins” (potential innovators who are thwarted by poverty and inequality in rich countries) and, more importantly, the hundreds of millions of kids in developing countries dealing with even worse education systems than those in depressed communities in the rich world. What if living ethically for the far future means living ethically now? Beckstead mentions some other broad, or very broad, ideas (these are all his descriptions): Help make computers faster so that people everywhere can work more efficiently Change intellectual property law so that technological innovation can happen more quickly Advocate for open borders so that people from poorly governed countries can move to better-governed countries and be more productive Meta-research: improve incentives and norms in academic work to better advance human knowledge Improve education Advocate for political party X to make future people have values more like political party X “If you look at these areas (economic growth and technological progress, access to information, individual capability, social coordination, motives) a lot of everyday good works contribute,” Beckstead writes. “An implication of this is that a lot of everyday good works are good from a broad perspective, even though hardly anyone thinks explicitly in terms of far future standards.” Look at those examples again: It's just a list of what normal altruistically motivated people, not effective altruism folks, generally do. Charities in the US love talking about the lost opportunities for innovation that poverty creates. Lots of smart people who want to make a difference become scientists, or try to work as teachers or on improving education policy, and lord knows there are plenty of people who become political party operatives out of a conviction that the moral consequences of the party's platform are good. All of which is to say: Maybe effective altruists aren't that special, or at least maybe we don't have access to that many specific and weird conclusions about how best to help the world. If the far future is what matters, and generally trying to make the world work better is among the best ways to help the far future, then effective altruism just becomes plain ol' do-goodery.