### 1NC

#### The standard is maximizing expected wellbeing

#### Independently:

#### 1] Extinction outweighs---it’s the upmost moral evil and disavowal of the risk makes it more likely.

Burns 2017 (Elizabeth Finneron-Burns is a Teaching Fellow at the University of Warwick and an Affiliated Researcher at the Institute for Futures Studies in Stockholm, What’s wrong with human extinction?, <http://www.tandfonline.com/doi/pdf/10.1080/00455091.2016.1278150?needAccess=true>, Canadian Journal of Philosophy, 2017)

Many, though certainly not all, people might believe that it would be wrong to bring about the end of the human species, and the reasons given for this belief are various. I begin by considering four reasons that could be given against the moral permissibility of human extinction. I will argue that only those reasons that impact the people who exist at the time that the extinction or the knowledge of the upcoming extinction occurs, can explain its wrongness. I use this conclusion to then consider in which cases human extinction would be morally permissible or impermissible, arguing that there is only a small class of cases in which it would not be wrong to cause the extinction of the human race or allow it to happen. 2.1. It would prevent the existence of very many happy people One reason of human extinction might be considered to be wrong lies in the value of human life itself. The thought here might be that it is a good thing for people to exist and enjoy happy lives and extinction would deprive more people of enjoying this good. The ‘good’ in this case could be understood in at least two ways. According to the first, one might believe that you benefit a person by bringing them into existence, or at least, that it is good for that person that they come to exist. The second view might hold that if humans were to go extinct, the utility foregone by the billions (or more) of people who could have lived but will now never get that opportunity, renders allowing human extinction to take place an incidence of wrongdoing. An example of this view can be found in two quotes from an Effective Altruism blog post by Peter Singer, Nick Beckstead and Matt Wage: One very bad thing about human extinction would be that billions of people would likely die painful deaths. But in our view, this is by far not the worst thing about human extinction. The worst thing about human extinction is that there would be no future generations. Since there could be so many generations in our future, the value of all those generations together greatly exceeds the value of the current generation. (Beckstead, Singer, and Wage 2013) The authors are making two claims. The first is that there is value in human life and also something valuable about creating future people which gives us a reason to do so; furthermore, it would be a very bad thing if we did not do so. The second is that, not only would it be a bad thing for there to be no future people, but it would actually be the worst thing about extinction. Since happy human lives have value, and the number of potential people who could ever exist is far greater than the number of people who exist at any one time, even if the extinction were brought about through the painful deaths of currently existing people, the former’s loss would be greater than the latter’s. Both claims are assuming that there is an intrinsic value in the existence of potential human life. The second claim makes the further assumption that the forgone value of the potential lives that could be lived is greater than the disvalue that would be accrued by people existing at the time of the extinction through suffering from painful and/or premature deaths. The best-known author of the post, Peter Singer is a prominent utilitarian, so it is not surprising that he would lament the potential lack of future human lives per se. However, it is not just utilitarians who share this view, even if implicitly. Indeed, other philosophers also seem to imply that they share the intuition that there is just something wrong with causing or failing to prevent the extinction of the human species such that we prevent more ‘people’ from having the ‘opportunity to exist’. Stephen Gardiner (2009) and Martin O’Neill (personal correspondence), both sympathetic to contract theory, for example, also find it intuitive that we should want more generations to have the opportunity to exist, assuming that they have worth-living lives, and I find it plausible to think that many other people (philosophers and non-philosophers alike) probably share this intuition. When we talk about future lives being ‘prevented’, we are saying that a possible person or a set of possible people who could potentially have existed will now never actually come to exist. To say that it is wrong to prevent people from existing could either mean that a possible person could reasonably reject a principle that permitted us not to create them, or that the foregone value of their lives provides a reason for rejecting any principle that permits extinction. To make the first claim we would have to argue that a possible person could reasonably reject any principle that prevented their existence on the grounds that it prevented them in particular from existing. However, this is implausible for two reasons. First, we can only wrong someone who did, does or will actually exist because wronging involves failing to take a person’s interests into account. When considering the permissibility of a principle allowing us not to create Person X, we cannot take X’s interest in being created into account because X will not exist if we follow the principle. By considering the standpoint of a person in our deliberations we consider the burdens they will have to bear as a result of the principle. In this case, there is no one who will bear any burdens since if the principle is followed (that is, if we do not create X), X will not exist to bear any burdens. So, only people who do/will actually exist can bear the brunt of a principle, and therefore occupy a standpoint that is owed justification. Second, existence is not an interest at all and a possible person is not disadvantaged by not being caused to exist. Rather than being an interest, it is a necessary requirement in order to have interests. Rivka Weinberg describes it as ‘neutral’ because causing a person to exist is to create a subject who can have interests; existence is not an interest itself.3 In order to be disadvantaged, there must be some detrimental effect on your interests. However, without existence, a person does not have any interests so they cannot be disadvantaged by being kept out of existence. But, as Weinberg points out, ‘never having interests itself could not be contrary to people’s interests since without interest bearers, there can be no ‘they’ for it to be bad for’ (Weinberg 2008, 13). So, a principle that results in some possible people never becoming actual does not impose any costs on those ‘people’ because nobody is disadvantaged by not coming into existence.4 It therefore seems that it cannot be wrong to fail to bring particular people into existence. This would mean that no one acts wrongly when they fail to create another person. Writ large, it would also not be wrong if everybody decided to exercise their prerogative not to create new people and potentially, by consequence, allow human extinction. One might respond here by saying that although it may be permissible for one person to fail to create a new person, it is not permissible if everyone chooses to do so because human lives have value and allowing human extinction would be to forgo a huge amount of value in the world. This takes us to the second way of understanding the potential wrongness of preventing people from existing — the foregone value of a life provides a reason for rejecting any principle that prevents it. One possible reply to this claim turns on the fact that many philosophers acknowledge that the only, or at least the best, way to think about the value of (individual or groups of) possible people’s lives is in impersonal terms (Parfit 1984; Reiman 2007; McMahan 2009). Jeff McMahan, for example, writes ‘at the time of one’s choice there is no one who exists or will exist independently of that choice for whose sake one could be acting in causing him or her to exist … it seems therefore that any reason to cause or not to cause an individual to exist … is best considered an impersonal rather than individual-affecting reason’ (McMahan 2009, 52). Another reply along similar lines would be to appeal to the value that is lost or at least foregone when we fail to bring into existence a next (or several next) generations of people with worth-living lives. Since ex hypothesi worth-living lives have positive value, it is better to create more such lives and worse to create fewer. Human extinction by definition is the creation of no future lives and would ‘deprive’ billions of ‘people’ of the opportunity to live worth-living lives. This might reduce the amount of value in the world at the time of the extinction (by killing already existing people), but it would also prevent a much vaster amount of value in the future (by failing to create more people). Both replies depend on the impersonal value of human life. However, recall that in contractualism impersonal values are not on their own grounds for reasonably rejecting principles. Scanlon himself says that although we have a strong reason not to destroy existing human lives, this reason ‘does not flow from the thought that it is a good thing for there to be more human life rather than less’ (104). In contractualism, something cannot be wrong unless there is an impact on a person. Thus, neither the impersonal value of creating a particular person nor the impersonal value of human life writ large could on its own provide a reason for rejecting a principle permitting human extinction. It seems therefore that the fact that extinction would deprive future people of the opportunity to live worth-living lives (either by failing to create either particular future people or future people in general) cannot provide us with a reason to consider human extinction to be wrong. Although the lost value of these ‘lives’ itself cannot be the reason explaining the wrongness of extinction, it is possible the knowledge of this loss might create a personal reason for some existing people. I will consider this possibility later on in section (d). But first I move to the second reason human extinction might be wrong per se. 2.2. It would mean the loss of the only known form of intelligent life and all civilization and intellectual progress would be lost A second reason we might think it would be wrong to cause human extinction is the loss that would occur of the only (known) form of rational life and the knowledge and civilization that that form of life has created. One thought here could be that just as some might consider it wrong to destroy an individual human heritage monument like the Sphinx, it would also be wrong if the advances made by humans over the past few millennia were lost or prevented from progressing. A related argument is made by those who feel that there is something special about humans’ capacity for rationality which is valuable in itself. Since humans are the only intelligent life that we know of, it would be a loss, in itself, to the world for that to end. I admit that I struggle to fully appreciate this thought. It seems to me that Henry Sidgwick was correct in thinking that these things are only important insofar as they are important to humans (Sidgwick 1874, I.IX.4).5 If there is no form of intelligent life in the future, who would there be to lament its loss since intelligent life is the only form of life capable of appreciating intelligence? Similarly, if there is no one with the rational capacity to appreciate historic monuments and civil progress, who would there be to be negatively affected or even notice the loss?6 However, even if there is nothing special about human rationality, just as some people try to prevent the extinction of nonhuman animal species, we might think that we ought also to prevent human extinction for the sake of biodiversity. The thought in this, as well as the earlier examples, must be that it would somehow be bad for the world if there were no more humans even though there would be no one for whom it is bad. This may be so but the only way to understand this reason is impersonally. Since we are concerned with wrongness rather than badness, we must ask whether something that impacts no one’s well-being, status or claims can be wrong. As we saw earlier, in the contractualist framework reasons must be personal rather than impersonal in order to provide grounds for reasonable rejection (Scanlon 1998, 218–223). Since the loss of civilization, intelligent life or biodiversity are per se impersonal reasons, there is no standpoint from which these reasons could be used to reasonably reject a principle that permitted extinction. Therefore, causing human extinction on the grounds of the loss of civilization, rational life or biodiversity would not be wrong. 2.3. Existing people would endure physical pain and/or painful and/or premature deaths Thinking about the ways in which human extinction might come about brings to the fore two more reasons it might be wrong. It could, for example, occur if all humans (or at least the critical number needed to be unable to replenish the population, leading to eventual extinction) underwent a sterilization procedure. Or perhaps it could come about due to anthropogenic climate change or a massive asteroid hitting the Earth and wiping out the species in the same way it did the dinosaurs millions of years ago. Each of these scenarios would involve significant physical and/or non-physical harms to existing people and their interests. Physically, people might suffer premature and possibly also painful deaths, for example. It is not hard to imagine examples in which the process of extinction could cause premature death. A nuclear winter that killed everyone or even just every woman under the age of 50 is a clear example of such a case. Obviously, some types of premature death themselves cannot be reasons to reject a principle. Every person dies eventually, sometimes earlier than the standard expected lifespan due to accidents or causes like spontaneously occurring incurable cancers. A cause such as disease is not a moral agent and therefore it cannot be wrong if it unavoidably kills a person prematurely. Scanlon says that the fact that a principle would reduce a person’s well-being gives that person a reason to reject the principle: ‘components of well-being figure prominently as grounds for reasonable rejection’ (Scanlon 1998, 214). However, it is not settled yet whether premature death is a setback to well-being. Some philosophers hold that death is a harm to the person who dies, whilst others argue that it is not.7 I will argue, however, that regardless of who is correct in that debate, being caused to die prematurely can be reason to reject a principle when it fails to show respect to the person as a rational agent. Scanlon says that recognizing others as rational beings with interests involves seeing reason to preserve life and prevent death: ‘appreciating the value of human life is primarily a matter of seeing human lives as something to be respected, where this involves seeing reasons not to destroy them, reasons to protect them, and reasons to want them to go well’ (Scanlon 1998, 104). The ‘respect for life’ in this case is a respect for the person living, not respect for human life in the abstract. This means that we can sometimes fail to protect human life without acting wrongfully if we still respect the person living. Scanlon gives the example of a person who faces a life of unending and extreme pain such that she wishes to end it by committing suicide. Scanlon does not think that the suicidal person shows a lack of respect for her own life by seeking to end it because the person whose life it is has no reason to want it to go on. This is important to note because it emphasizes the fact that the respect for human life is person-affecting. It is not wrong to murder because of the impersonal disvalue of death in general, but because taking someone’s life without their permission shows disrespect to that person. This supports its inclusion as a reason in the contractualist formula, regardless of what side ends up winning the ‘is death a harm?’ debate because even if death turns out not to harm the person who died, ending their life without their consent shows disrespect to that person. A person who could reject a principle permitting another to cause his or her premature death presumably does not wish to die at that time, or in that manner. Thus, if they are killed without their consent, their interests have not been taken into account, and they have a reason to reject the principle that allowed their premature death.8 This is as true in the case of death due to extinction as it is for death due to murder. However, physical pain may also be caused to existing people without killing them, but still resulting in human extinction. Imagine, for example, surgically removing everyone’s reproductive organs in order to prevent the creation of any future people. Another example could be a nuclear bomb that did not kill anyone, but did painfully render them infertile through illness or injury. These would be cases in which physical pain (through surgery or bombs) was inflicted on existing people and the extinction came about as a result of the painful incident rather than through death. Furthermore, one could imagine a situation in which a bomb (for example) killed enough people to cause extinction, but some people remained alive, but in terrible pain from injuries. It seems uncontroversial that the infliction of physical pain could be a reason to reject a principle. Although Scanlon says that an impact on well-being is not the only reason to reject principles, it plays a significant role, and indeed, most principles are likely to be rejected due to a negative impact on a person’s well-being, physical or otherwise. It may be queried here whether it is actually the involuntariness of the pain that is grounds for reasonable rejection rather than the physical pain itself because not all pain that a person suffers is involuntary. One can imagine acts that can cause physical pain that are not rejectable — base jumping or life-saving or improving surgery, for example. On the other hand, pushing someone off a cliff or cutting him with a scalpel against his will are clearly rejectable acts. The difference between the two cases is that in the former, the person having the pain inflicted has consented to that pain or risk of pain. My view is that they cannot be separated in these cases and it is involuntary physical pain that is the grounds for reasonable rejection. Thus, the fact that a principle would allow unwanted physical harm gives a person who would be subjected to that harm a reason to reject the principle. Of course the mere fact that a principle causes involuntary physical harm or premature death is not sufficient to declare that the principle is rejectable — there might be countervailing reasons. In the case of extinction, what countervailing reasons might be offered in favour of the involuntary physical pain/ death-inducing harm? One such reason that might be offered is that humans are a harm to the natural environment and that the world might be a better place if there were no humans in it. It could be that humans might rightfully be considered an all-things-considered hindrance to the world rather than a benefit to it given the fact that we have been largely responsible for the extinction of many species, pollution and, most recently, climate change which have all negatively affected the natural environment in ways we are only just beginning to understand. Thus, the fact that human extinction would improve the natural environment (or at least prevent it from degrading further), is a countervailing reason in favour of extinction to be weighed against the reasons held by humans who would experience physical pain or premature death. However, the good of the environment as described above is by definition not a personal reason. Just like the loss of rational life and civilization, therefore, it cannot be a reason on its own when determining what is wrong and countervail the strong personal reasons to avoid pain/death that is held by the people who would suffer from it.9 Every person existing at the time of the extinction would have a reason to reject that principle on the grounds of the physical pain they are being forced to endure against their will that could not be countervailed by impersonal considerations such as the negative impact humans may have on the earth. Therefore, a principle that permitted extinction to be accomplished in a way that caused involuntary physical pain or premature death could quite clearly be rejectable by existing people with no relevant countervailing reasons. This means that human extinction that came about in this way would be wrong. There are of course also additional reasons they could reject a similar principle which I now turn to address in the next section. 2.4. Existing people could endure non-physical harms I said earlier than the fact in itself that there would not be any future people is an impersonal reason and can therefore not be a reason to reject a principle permitting extinction. However, this impersonal reason could give rise to a personal reason that is admissible. So, the final important reason people might think that human extinction would be wrong is that there could be various deleterious psychological effects that would be endured by existing people having the knowledge that there would be no future generations. There are two main sources of this trauma, both arising from the knowledge that there will be no more people. The first relates to individual people and the undesired negative effect on well-being that would be experienced by those who would have wanted to have children. Whilst this is by no means universal, it is fair to say that a good proportion of people feel a strong pull towards reproduction and having their lineage continue in some way. Samuel Scheffler describes the pull towards reproduction as a ‘desire for a personalized relationship with the future’ (Scheffler 2012, 31). Reproducing is a widely held desire and the joys of parenthood are ones that many people wish to experience. For these people knowing that they would not have descendants (or that their descendants will endure painful and/or premature deaths) could create a sense of despair and pointlessness of life. Furthermore, the inability to reproduce and have your own children because of a principle/policy that prevents you (either through bans or physical interventions) would be a significant infringement of what we consider to be a basic right to control what happens to your body. For these reasons, knowing that you will have no descendants could cause significant psychological traumas or harms even if there were no associated physical harm. The second is a more general, higher level sense of hopelessness or despair that there will be no more humans and that your projects will end with you. Even those who did not feel a strong desire to procreate themselves might feel a sense of hopelessness that any projects or goals they have for the future would not be fulfilled. Many of the projects and goals we work towards during our lifetime are also at least partly future-oriented. Why bother continuing the search for a cure for cancer if either it will not be found within humans’ lifetime, and/or there will be no future people to benefit from it once it is found? Similar projects and goals that might lose their meaning when confronted with extinction include politics, artistic pursuits and even the type of philosophical work with which this paper is concerned. Even more extreme, through the words of the character Theo Faron, P.D. James says in his novel The Children of Men that ‘without the hope of posterity for our race if not for ourselves, without the assurance that we being dead yet live, all pleasures of the mind and senses sometimes seem to me no more than pathetic and crumbling defences shored up against our ruins’ (James 2006, 9). Even if James’ claim is a bit hyperbolic and all pleasures would not actually be lost, I agree with Scheffler in finding it not implausible that the knowledge that extinction was coming and that there would be no more people would have at least a general depressive effect on people’s motivation and confidence in the value of and joy in their activities (Scheffler 2012, 43). Both sources of psychological harm are personal reasons to reject a principle that permitted human extinction. Existing people could therefore reasonably reject the principle for either of these reasons. Psychological pain and the inability to pursue your personal projects, goals, and aims, are all acceptable reasons for rejecting principles in the contractualist framework. So too are infringements of rights and entitlements that we accept as important for people’s lives. These psychological reasons, then, are also valid reasons to reject principles that permitted or required human extinction.

#### 2] Complacency goes neg – academics and the wider public actively discount the probability AND magnitude of existential risks – only giving them extra attention in debate solves – that means our impact outweighs even in we lose the rest of framing

Javorsky 18 [Emilia Javorsky is a Boston-based physician-scientist focused on the invention, development and commercialization of new medical therapies. She also leads an Artificial Intelligence in Medicine initiative with The Future Society at the Harvard Kennedy School of Government. Why Human Extinction Needs a Marketing Department. January 15, 2018. https://www.xconomy.com/boston/2018/01/15/why-human-extinction-needs-a-marketing-department/]

Experts at Oxford University and elsewhere have estimated that the risk of a global human extinction event this century—or at least of an event that wipes out 10 percent or more of the world’s population— is around 1 in 10. The most probable culprits sending us the way of the dinosaur are mostly anthropogenic risks, meaning those created by humans. These include climate change, nuclear disaster, and more emerging risks such as artificial intelligence gone wrong (by accident or nefarious intent) and bioterrorism. A recent search of the scientific literature through ScienceDirect for “human extinction” returned a demoralizing 157 results, compared to the 1,627 for “dung beetle.” I don’t know about you, but this concerns me. Why is there so little research and action on existential risks (risks capable of rendering humanity extinct)?

A big part of the problem is a lack of awareness about the real threats we face and what can be done about them. When asked to estimate the chance of an extinction event in the next 50 years, U.S. adults in surveys reported chances ranging from 1 in 10 million to 1 in 100, certainly not 10 percent. The awareness and engagement issues extend to the academic community as well, where a key bottleneck is a lack of talented people studying existential risks. Developing viable risk mitigation strategies will require widespread civic engagement and concerted research efforts. Consequently, there is an urgent need to improve the communication of the magnitude and importance of existential risks. The first step is getting an audience to pay attention to this issue.

#### 3] Non util ethics are impossible

Greene 07 – Joshua, Associate Professor of Social science in the Department of Psychology at Harvard University (The Secret Joke of Kant’s Soul published in Moral Psychology: Historical and Contemporary Readings, accessed: <https://www.gwern.net/docs/philosophy/ethics/2007-greene.pdf>, pages 47-50)

**What turn-of-the-millennium science** **is telling us is that human moral judgment is not a pristine rational enterprise**, that our **moral judgments are driven by a hodgepodge of emotional dispositions, which themselves were shaped by a hodgepodge of evolutionary forces, both biological and cultural**. **Because of this, it is exceedingly unlikely that there is any rationally coherent normative moral theory that can accommodate our moral intuitions**. Moreover, **anyone who claims to have such a theory**, or even part of one, **almost certainly doesn't**. Instead, what that person probably has is a moral rationalization. It seems then, that we have somehow crossed the infamous "is"-"ought" divide. How did this happen? Didn't Hume (Hume, 1978) and Moore (Moore, 1966) warn us against trying to derive an "ought" from and "is?" How did we go from descriptive scientific theories concerning moral psychology to skepticism about a whole class of normative moral theories? The answer is that we did not, as Hume and Moore anticipated, attempt to derive an "ought" from and "is." That is, our method has been inductive rather than deductive. We have inferred on the basis of the available evidence that the phenomenon of rationalist deontological philosophy is best explained as a rationalization of evolved emotional intuition (Harman, 1977). Missing the Deontological Point I suspect that **rationalist deontologists will remain unmoved by the arguments presented here**. Instead, I suspect, **they** **will insist that I have simply misunderstood what** Kant and like-minded **deontologists are all about**. **Deontology, they will say, isn't about this intuition or that intuition**. It's not defined by its normative differences with consequentialism. **Rather, deontology is about taking humanity seriously**. Above all else, it's about respect for persons. It's about treating others as fellow rational creatures rather than as mere objects, about acting for reasons rational beings can share. And so on (Korsgaard, 1996a; Korsgaard, 1996b). **This is, no doubt, how many deontologists see deontology. But this insider's view**, as I've suggested, **may be misleading**. **The problem**, more specifically, **is that it defines deontology in terms of values that are not distinctively deontological**, though they may appear to be from the inside. **Consider the following analogy with religion. When one asks a religious person to explain the essence of his religion, one often gets an answer like this: "It's about love**, really. It's about looking out for other people, looking beyond oneself. It's about community, being part of something larger than oneself." **This sort of answer accurately captures the phenomenology of many people's religion, but it's nevertheless inadequate for distinguishing religion from other things**. This is because many, if not most, non-religious people aspire to love deeply, look out for other people, avoid self-absorption, have a sense of a community, and be connected to things larger than themselves. In other words, secular humanists and atheists can assent to most of what many religious people think religion is all about. From a secular humanist's point of view, in contrast, what's distinctive about religion is its commitment to the existence of supernatural entities as well as formal religious institutions and doctrines. And they're right. These things really do distinguish religious from non-religious practices, though they may appear to be secondary to many people operating from within a religious point of view. In the same way, I believe that most of **the standard deontological/Kantian self-characterizatons fail to distinguish deontology from other approaches to ethics**. (See also Kagan (Kagan, 1997, pp. 70-78.) on the difficulty of defining deontology.) It seems to me that **consequentialists**, as much as anyone else, **have respect for persons**, **are against treating people as mere objects,** **wish to act for reasons that rational creatures can share, etc**. **A consequentialist respects other persons, and refrains from treating them as mere objects, by counting every person's well-being in the decision-making process**. **Likewise, a consequentialist attempts to act according to reasons that rational creatures can share by acting according to principles that give equal weight to everyone's interests, i.e. that are impartial**. This is not to say that consequentialists and deontologists don't differ. They do. It's just that the real differences may not be what deontologists often take them to be. What, then, distinguishes deontology from other kinds of moral thought? A good strategy for answering this question is to start with concrete disagreements between deontologists and others (such as consequentialists) and then work backward in search of deeper principles. This is what I've attempted to do with the trolley and footbridge cases, and other instances in which deontologists and consequentialists disagree. **If you ask a deontologically-minded person why it's wrong to push someone in front of speeding trolley in order to save five others, you will get** characteristically deontological **answers**. Some **will be tautological**: **"Because it's murder!"** **Others will be more sophisticated: "The ends don't justify the means**." "You have to respect people's rights." **But**, as we know, **these answers don't really explain anything**, because **if you give the same people** (on different occasions) **the trolley case** or the loop case (See above), **they'll make the opposite judgment**, even though their initial explanation concerning the footbridge case applies equally well to one or both of these cases. **Talk about rights, respect for persons, and reasons we can share are natural attempts to explain, in "cognitive" terms, what we feel when we find ourselves having emotionally driven intuitions that are odds with the cold calculus of consequentialism**. Although these explanations are inevitably incomplete, **there seems to be "something deeply right" about them because they give voice to powerful moral emotions**. **But, as with many religious people's accounts of what's essential to religion, they don't really explain what's distinctive about the philosophy in question**.

#### We don’t link to the last 1AC Beller evidence – our theory is one that governments ought to use, util makes no claim as to how individuals should act in their daily lives as agents. They also link though, they force people to be part of a communist movement, regardless of their subjectivity and intent, which strips them of their agency and is a coercion DA.

### 1NC

#### CP: We endorse the entirety of the aff with the exception of Large Satellite Constellations used for the purposes of emergency communications in the event of disaster relief or external shocks. The significant subsidization of Large Satellite Constellations used for the purposes of emergency communications in the event of disaster relief or external shock is just.

#### Private LEO constellations are economically viable in the long term, but require upfront investment – those uniquely solve disaster response because of satellite internet’s connectivity options for island countries

Garrity and Husar 21 Garrity, John, and Arndt Husar. John Garrity is an economist, policy advisor, and project manager focusing on digital inclusion, universal internet access policy, and last-mile connectivity. He has coauthored numerous reports on technology and development and has presented around the world on efforts to close the digital divide. Arndt Husar facilitates the effective use of digital technology, advising ADB clients, regional departments, as well as sector and thematic groups on digital transformation. " Digital Connectivity and Low Earth Orbit Satellite Constellations: Opportunities for Asia and the Pacific." (2021).

Satellite communication plays a necessary role in the global connectivity ecosystem, connecting rural and remote populations, providing backhaul connectivity to mobile cellular networks, and rapidly establishing communication in emergency and disaster response scenarios. This Asian Development Bank (ADB) Sustainable Development Working Paper, the first in a series reviewing emerging innovations in connectivity technologies, focuses on low Earth orbit (LEO) satellites, which have been in deployment for decades and are again a subject of intensive investment as new large constellations are in early stages of deployment. These new LEO constellations, such as those being deployed by Starlink by SpaceX, Project Kuiper by Amazon, OneWeb, Lightspeed by Telesat, among others, may prove to be transformational to the connectivity landscape based on their global coverage and their suitability for areas not served by fiber optic cable networks. ADB’s developing member countries are well placed to leverage and benefit from this expansion of internet connectivity, particularly for underserved geographies and countries with limited international internet bandwidth, such as landlocked developing countries and small island developing states. With their global reach and coverage, LEO constellations are expected to dramatically expand the availability of high-speed broadband internet access with levels of service that rival fiber optic cables in terms of speed and latency, and at significantly reduced price levels compared to traditional geostationary satellites. A proactive engagement with LEO solutions is likely to yield benefits as the relevant business models are still evolving. Well-informed early action by regulators and investors can ensure that developing member countries prepare for opportunities presented by the anticipated expansion of connectivity bandwidth. I. IntRoDUCtIon This Emerging Connectivity Innovations Case Study on SpaceX Starlink and low Earth orbit (LEO) satellite constellations is intended to provide readers, particularly in developing countries in Asia and the Pacific, with a background understanding of the role of satellite communications in global internet connectivity and an exploration of the potential impact of the next generation of LEO constellation systems. While the adoption of internet connectivity across the world has generally increased incrementally, some innovations have been transformational, dramatically expanding the geographic reach of connectivity and bandwidth capacity. For example, the introduction of basic mobile phones in the late 1990s and early 2000s led to rapid adoption of mobile telephony across low- and middle-income countries (a phenomenon known as the “mobile miracle”). Similarly, public and private investment in undersea fiber optic cables circling sub-Saharan Africa in the 2000s significantly reduced the cost of bandwidth in many countries in the region. Satellites have used low Earth orbits since the beginning of space exploration; however, private investment in LEO constellations, consisting of hundreds or thousands of satellites, has been limited because significant up-front capital expenditure is required. While it remains to be seen how the next generation of LEO satellite constellations will evolve, LEOs are forecasted to significantly increase the available internet bandwidth in remote and rural geographies not currently served by fiber optic cables. This increased bandwidth could be leveraged to increase economic and social development opportunities for individuals, organizations, businesses, and government facilities (including public schools) located in these areas, provided that the private sector satellite companies investing in LEO constellations see market opportunities to extend service to these areas. This case study is intended to introduce to Asian Development Bank developing member countries how to start preparing for the expansion of LEO satellite communication services. II. BACKGRoUnD: sAteLLIte ConneCtIVItY As A MeAns FoR BRoADBAnD InteRnet Internet connectivity has become a necessary component of every country’s critical infrastructure given the reliance of all aspects of economic activity, governance, and social development on internet communications. The coronavirus disease (COVID-19) pandemic dramatically increased the importance of internet communications infrastructure. Trade, employment, learning, leisure, and communications quickly shifted into the digital sphere and countries with robust internet infrastructure and high adoption rates of internet-enabled devices were better able to adjust and adapt to the shift to digital activity. The United Nations estimates that 1.6 billion learners were affected by school closures in 2020, affecting 94% of the world’s student population and up to 99% in low and lower middle-income countries.1 1 United Nations. 2020. Policy Brief: Education during COVID-10 and beyond. 2 ADB Sustainable Development Working Paper Series No. 76 Access to distance learning opportunities varies greatly by country and income groups, with estimates of less than half of students in low-income countries able to access distance learning.2 Internet access and adoption in the developing member countries (DMCs) of the Asian Development Bank (ADB) continues to grow, particularly as a result of public and private investment in telecommunications infrastructure, increased competition, and allocation of shared resources, such as spectrum auctions and assignment. Despite these efforts, large access gaps remain in Asia, where the most remote, difficult to reach, or sparsely populated districts remain disconnected, leaving more than half of the population without access to the internet. This lack of digital infrastructure represents a missed opportunity to accelerate economic and social development. Despite the rapid expansion of internet connectivity infrastructure across the world, significant gaps in internet adoption and infrastructure access remain. This highlights the importance of satellite communications that can bridge gaps, swiftly expand network coverage, and enhance existing infrastructure. The latest estimates from the International Telecommunication Union (ITU) show that 3.7 billion people are still not participating online (49% of the global population), and 63% of rural households are without internet access (Figure 1).3 Also, 1.5 billion people reside in areas without high-speed mobile data coverage (fourth generation long-term evolution or 4G LTE), while 607 million people reside in areas with no mobile data coverage at all (at least 4G or third generation [3G] coverage). Furthermore, 313 million people reside in areas with only basic voice and short messaging service (SMS) coverage (second generation [2G]), and 220 million people reside in areas with no cellular coverage. The ITU estimates that nearly $428 billion is required to achieve universal access to broadband globally, $251 billion of which is required for Asia, with approximately 75% coming from the private sector and the remainder with support from the public sector.4 The majority of the world’s population, over 5 billion people, live more than 10 kilometers (km) away from any fiber optic cable infrastructure (3.6 billion reside more than 25 km away).5 Other issues, such as affordability, digital literacy, and the lack of relevant or local language content, have resulted in 2.4 billion people who live within 4G coverage not subscribing to 4G data services. [FIGURE 1 OMITTED] Satellite connectivity is predominantly used for backhaul connectivity for remote cellular base stations and as a last-mile connection for individual subscribers and enterprises. Figure 2 provides an overview of the internet infrastructure network components, from international connectivity to the last mile. Because of the higher relative cost of bandwidth transmitted via satellite versus terrestrial technologies, satellite is currently primarily used in situations where fiber optic cables and other high-capacity technologies are not financially viable due to low population densities and large distances between high-capacity networks and last-mile networks.6 However, in a few cases, satellite connectivity is relied upon for international internet gateway traffic or as part of a country’s core network. For landlocked developing countries that are dependent on terrestrial fiber connectivity, in some cases, satellite connectivity serves as a substitute to complex bilateral and multilateral negotiations to extend costly fiber connectivity to their country. [FIGURE 2 OMITTED] Satellite connectivity is predominantly used for backhaul connectivity for remote cellular base stations and as a last-mile connection for individual subscribers and enterprises. Figure 2 provides an overview of the internet infrastructure network components, from international connectivity to the last mile. Because of the higher relative cost of bandwidth transmitted via satellite versus terrestrial technologies, satellite is currently primarily used in situations where fiber optic cables and other high-capacity technologies are not financially viable due to low population densities and large distances between high-capacity networks and last-mile networks.6 However, in a few cases, satellite connectivity is relied upon for international internet gateway traffic or as part of a country’s core network. For landlocked developing countries that are dependent on terrestrial fiber connectivity, in some cases, satellite connectivity serves as a substitute to complex bilateral and multilateral negotiations to extend costly fiber connectivity to their country. Particularly in situations where a high degree of data throughput is required per site, such as satellite backhaul for broadband cellular networks, the data volumes as well as the distance to the nearest backbone node play a significant role in cost comparisons between satellite connectivity versus terrestrial network deployments (microwave backhaul, in particular). Figure 4 illustrates how higher data bandwidth requirements are more cost-effectively supplied by terrestrial ground networks; however, a crossover point occurs where satellite capacity may end up being more cost-competitive, depending on different price points of satellite bandwidth and total traffic demand per month.12 Satellite connectivity is also well- suited to deploy in emergency situations, such as in response to natural disasters or other external shocks, that require expeditious deployment of network connectivity where terrestrial infrastructure is either nonexistent or destroyed. For many rural and remote communities, satellites are the only connectivity option. For geographies without direct access to fiber optic cable infrastructure or at great distances from high- capacity bandwidth capacity, satellite connectivity is the only option available. Even where terrestrial network infrastructure that could be used for backhaul connectivity is available, satellite deployments may still be preferred because satellite terminals require only electrical power and a clear line of sight to the sky. However, an expansi

on of terrestrial infrastructure usually requires extensive civil works (underground fiber ducts, pole attachments, or tower construction for cellular base stations), which comes with challenges such as securing the rights-of-way, permits, and having to pay the related fees. Satellite broadband is poised to become an even more important technology for addressing the growing digital divide. As information and communication technologies play an increasingly important role in commerce, government services, health care, education, and other sectors, satellite connectivity allows communities to get connected swiftly, bypassing the infrastructure deployment challenges that come with terrestrial infrastructure deployments. The role of satellite connectivity in emergency telecommunications has also been vital where the communications satellites are heavily relied upon in disaster recovery efforts.13 Satellite technology may also be complementary with traditional wired and mobile broadband, which are better suited for densely populated areas. Satellite service could become a default solution for remote areas, allowing terrestrial services to focus on improving access in their current coverage areas. Satellite connectivity is already being used for network redundancy at national levels for international internet capacity, as well as for backup in core and backhaul networks.14 The recent $50 million loan to Kacific by ADB for the deployment of a broadband satellite, which covers large parts of Southeast Asia and the Pacific, demonstrates the relevance of satellite connectivity for unserved and underserved regions.15 By deploying new satellite technology (in the Ka-band16), Kacific’s service offering is commercially viable despite the existing presence of other major competitors in Asia and the Pacific, including global entities such as Intelsat, SES, and Eutelsat, as well as more regional players such as AsiaSat, Thaicom, MEASAT, and SKY Perfect JSAT.

#### The Asia-Pacific is the most disaster-prone region in the world – the next catastrophe is a question of when, not if

Thomas Bickford et al 15, Ph.D., senior research scientist in CNA Corporation’s China Studies division, “The Role of the U.S. Army in Asia,” May, https://www.cna.org/CNA\_files/PDF/CRM-2015-U-010431-Final.pdf

Natural disasters As Typhoon Haiyan amply demonstrated when it hit the Philippines in November 2013, natural disasters can represent a significant threat to human security. In 2012, the Asia-Pacific region experienced 93 natural disasters, which affected some 75 million people.206 It is one of the most disaster-prone regions in the world:207 it is prone to typhoons and cyclones; it contains some of the world’s most active faults and volcanos; and many areas experience massive flooding. As former USARPAC commander Lieutenant General Wiercinski has noted, the only questions are when and where the next big disaster will occur. Admiral Locklear, Commander, USPACOM has noted that climate change is one of the region’s most pressing security challenges.209 While the ability to respond to natural disasters varies widely among countries in the region, even advanced countries can require international assistance, as Japan did after the March 2011 earthquake and tsunami.

#### Natural disasters are an existential threat – but increased preparation solves – outweighs all other risks

Anders **Sandberg 18**. Future of Humanity Institute, University of Oxford. 02/26/2018. “Human Extinction from Natural Hazard Events.” Oxford Research Encyclopedia of Natural Hazard Science. oxfordre.com, doi:10.1093/acrefore/9780199389407.013.293.

Systemic Risks

**Localized** disasters or slow-moving risks are unlikely **on their own** to spell doom for H. sapiens. It may appear that an unlikely intense global event or confluence of disasters need to occur in order to cause extinction. **However**, many risks are potentially **systemic**: a **sequence** or **combination** of disasters may **reduce resiliency** and the ability to **recover**, especially when interacting with the **human systems**. A model of how compound risks can act is the synchronous failure model of Homer-Dixon et al. (2015). **Multiple stresses** (such as climate change, resource shortages, or conflicts) can **interact** and **accumulate** in a social-ecological system, **pushing** **it** **to**ward a state where its **coping capacity** is **diminished**. Different sub**systems** become **coupled** because they require support from each other to function in the stressed state. When a **crisis occurs** (either externally triggered or because an internal component finally fails) it **rapidly cascades through the system**, spreading between subsystems and causing the **whole to fail**. Simultaneous damage is often **multiplicative in severity**. Many **human systems** such as **food, energy, finance and comm**unication**s** are **global**, densely interconnected systems where failures can **cascade** **rapidly** (Helbing, 2013). They have **developed** in a locally rational way: the gains in efficiency and reliability have been significant. However, the probability of global failures also has **increased** compared to more local, modular and redundant systems (Goldin & Vogel, 2010). While societal collapse does not imply extinction, humans are **dependent** on complex societies and their high productivity, and **any** long-term **collapse** would **reduce the human carrying capacity significantly**. A stressor such as **climate change** may **increase** the probability and severity of global failure, and once this occurs **vulnerability to further risks increases**. Various example scenarios can be constructed where plausible events produce gradual deterioration of the human system before it can recover; see, for example, Tonn and MacGregor (2009) and other papers in the same issue. Another example is sudden geoengineering cessation. If, as a response to climate change, solar radiation management geoengineering is used to maintain temperature, this will require ongoing technological maintenance. If a global disaster disrupts civilization, besides the damage from the primary disaster there would also be a rapid temperature change to close to what the un-modified climate would have been. This will likely produce massive **disruptions of ag**riculture and other human systems at the time when **vulnerability is maximal** (Baum, Maher, & Haqq-Misra, 2013). In this case a risk mitigation effort adds to systemic risk. Systemic effects are **hard to predict** (trade can both strengthen human societies by providing an adaptive system of distribution, prosperity, and incentives for innovation as well as destabilize them due to market bubbles, dependencies, and spread of pathogens). Taking uncertainty into account is possible but tends to lead to conservative policies (Weitzman, 2009). Another approach is to engineer human systems so they are naturally redundant, modular, and otherwise resilient to systemic stresses (Helbing, 2013). Probabilities Estimating existential risks can be done in many ways, each with their own merits and drawbacks; see (Tonn & Stiefel, 2013) for a review. It is possible to place upper bounds on extinction risks due to natural disasters by considering the fossil record. This can be done in several ways; the following will be based on the work of Toby Ord (2017). The simplest bound is based on the observation that H. sapiens has existed for 200,000 years: this observation would be unlikely if the extinction risk was higher than about 1 in 3,000 per century. One can say that an extinction rate of 0.15% or higher per century is ruled out at a 95% confidence level. Another bound uses now-extinct related hominin species as a reference class, producing estimates in the range 0.001% to 0.05% per century. This is in line with survival times for mammalian species, which typically is 1–2 million years (Raup, 1978) but shorter than for the entire fossil record where lifetimes of 5–10 million years are typical (Raup, 1986; May, Lawton, & Stork, 1995). H. sapiens is an unusually populous, well-dispersed, and adaptable large mammal species. However, it also has high food requirements and a long generation time. It may then be that the most likely risk to lead to extinction would be a mass-extinction level risk. Large mass extinctions occur at a rate of about 1 in 100 million years, producing a risk estimate of 0.0001% per century. One issue is that we are still discovering new kinds of existential risks. As noted above, supernovas have been recognized as a risk since the 1950s but gamma ray bursts were recognized as a risk first in the 1990s. High-energy physics risks were suggested in 1970s and later. Recognition of supervolcanism as a risk dates to the 1990s, in turn based on the models of nuclear winter in the 1980s. “Big rip” early endings of the universe were noticed in 2003 (Caldwell, Kamionkowski, & Weinberg, 2003). Since the rate of discovery does not seem to have slacked off, it is plausible that more natural hazards exist that we are unaware of, yet could pose a threat. At the same time, the above estimates bound the total risk: we are merely refining our understanding of what hazard categories exist. It should be noted that using past geological or fossil records to estimate risks that could have influenced the emergence of the species doing the risk estimation requires some care: risks that would have precluded the emergence of the species would naturally be underrepresented (Ćirković, Sandberg, & Bostrom, 2010). It is also clear that the peculiarities of the current situation may exacerbate some risks (e.g., pandemics) while reducing others (e.g., local disasters); these estimates merely show the risk magnitude for the earlier stages of the species’ history. The current probability is dynamically changing depending on human action. Probability estimates are on their own irrelevant: the point of risk assessment is to motivate rational risk management. This includes prioritizing mitigation efforts (typically toward the largest, most urgent, and most controllable risks) and research to reduce uncertainty and find more options. Mitigation Human extinction is an unusual risk since it can only occur once. Mitigation efforts need to succeed every time. Mitigating extinction risk can be done by reducing the probability of sufficiently severe hazards occurring, improving resilience mechanisms to reduce the damage, and endurance mechanisms to ensure that survivors can rebuild and repopulate. Many astrophysical extinction risks, supervolcanism and the emergence of new diseases are likely impossible to prevent, requiring resilience strategies. Impacts from near earth objects or comets can in principle be prevented given enough lead time and the right technological level (NRC, 2010). The amount of impulse needed to avoid an earth collision scales inversely with the lead time and proportional to the impactor mass: with enough time, even a high-precision weak intervention can move large objects. Managing atmospheric emissions and possibly intervening with geoengineering can influence climate risks (Wigley, 2006; Moreno-Cruz & Keith, 2013). Human systems can be designed to be resistant to various forms of systemic risks (Helbing, 2013). Prediction of extreme events is often impossible since they are the outcome of cascades in noisy, chaotic systems with hidden variables, and past data of less extreme cases often does not constrain models of phenomena of this magnitude. This requires using robust strategies taking large uncertainty into account (Weitzman, 2009). Although exact prediction may not be possible, rapid and improved response is possible and can enhance the resiliency against many of the listed threats. This includes better risk surveillance, preparation of responses and resources, as well as intergovernmental coordination. Many extinction risks have joint pathways. For example, supervolcanism, large meteor impacts, and nuclear winters (not discussed in this article) do most of their harm by precluding agricultural/fishing over a span of years leading to widespread starvation (Engvild, 2003). While they also cause other harms this particular shared pathway can be dealt with by emergency food stores or alternative food sources (Denkenberger & Pearce, 2014). Shielding in space against radiation sources could in principle mitigate the risk from supernovas, GRBs, superflares, and similar risks (Ćirković & Vukotić, 2016). Improved resiliency against particular damage pathways can hence improve chances against a large set of risks. Endurance mechanisms aim at ensuring survival, adaptation, and eventual recovery after a near-extinction disaster (Maher & Baum, 2013). An occasionally suggested endurance mechanism against extinction risks is the deliberate construction of refuges where people can survive (or the encouragement of natural refuges in isolated regions, nuclear submarines etc.). Ideally such refuges would be self-sufficient and independent of the earth’s surface (Baum, Denkenberger, & Haqq-Misra, 2015; Jebari, 2015). However, refuges only help against certain categories of disasters and their cost-effectiveness depends on the relative value of current and future generations (Beckstead, 2015). Undersupply of Mitigation Preventing extinction is important; **at least** as important as saving the lives of 7.2 billion people, and quite possibly **far more important** when taking future generations and their value into account (Parfit, 1984; Bostrom, 2003; Bostrom, 2013; Häggström, 2016). **Mitigating** extinction risk is an **undersupplied global public good**. For example, traditional statistical life valuations suggest that a $16–$32 billion annual investment in asteroid defense would be cost-effective yet U.S. government spending on asteroid detection (with no mitigation) is around $4 million per year, orders of magnitude smaller than funding for hazardous waste sites per unit of risk (Gerrard, 2000; Matheny, 2007). The annual cost to the world due to pandemic influenza has been estimated to $570 billion per year or 0.7% of global income, comparable to estimates of the long-term costs of climate change (Fan, Jamison, & Summers, 2016): the global influenza vaccine market has been estimated to less than $4 billion per year (Kaddar, 2013). These estimates merely take lives saved into account, not the value of future generations. Since existential risk mitigation is non-excludable and non-rivalrous there is a free-rider problem (non-participants gain the benefit without having to pay) and each producer of risk reduction would only gain a fraction of the total benefit. This is amplified by the transgenerational nature of risk reduction: most of the benefit will accrue to future generations. In principle the value to them of our present preventing extinction is near-infinite, but they cannot pay us any compensation (Matheny, 2007; Bostrom, 2013). Beside the normal logic of undersupply and lack of global coordination mechanisms there are also **cognitive** and **cultural** factors making existential risk mitigation rare. Part of the problem may be discomfort with the topic leading to willful denial or ignorance (Epstein & Zhao, 2009). Part of the problem is the difficulty to fit the topic with human **cognitive biases** (Yudkowsky, 2008; Wiener, 2016). Humans have **heuristics** that provide quick and adequate answers for many situations but lead to **systematic biases** in many situations removed from our ancestral everyday ones. For example, since extinction has not occurred in the past, the **availability heuristic** (“probabilities of events are roughly proportional to how easy examples of past events come to mind”) will underestimate likelihood. **Scope neglect** makes us relatively **insensitive** to the **number of lives** affected, making the willingness to make an effort scale sublinearly with the size of the problem. In general, without rich context information people are generally bad at judging differences between low probability events (Kunreuther, Novemsky, & Kahneman, 2001). Risks are judged not just by probability and severity but also by psychological aspects such as outrage and dread (Slovic, 1987). This can sometimes support efforts to mitigate global risks (since they tend to score highly on dread) but makes the focus strongly dependent on what is and is not discussed in public (Yudkowsky, 2008). This makes constructing risk management strategies that are resistant to behavioral biases vitally important for extreme risks (Kunreuther & Heal, 2012; Wiener, 2016). Conclusion There is **clear ev**idence that **natural events could cause** **the** **extinction** **of H. sapiens**. While astronomical risks may be the most dramatic, geophysical risks to food security and pathogenic risks appear to be more significant. It is unlikely that a **single disaster** will be severe enough to directly cause extinction, but it is plausible that it could place the species in **a vulnerable situation** for a long time, during which **other risks** could lead to **further vulnerability and** **extinction**.

#### Reject the arg on 1AR Theory

#### 1. Proportionality- punishment is worse than the skew which is solved by investment in the original arg and defending theory.

#### 2. Creates perverse incentives to collapse to theory instead of returning to substance- turns deterrence since theory over-proliferates which crowds out substance.

### 1NC – Theory

#### ROB/ROJ: Solely Evaluate the hypothetical consequences of the plan – anything else is self-serving, arbitrary, and impact justified, independently, they greenlight extra-T

#### Their aff doesn’t spill over and they don’t solve the public sector

#### Their theory of cybernetics is wrong – it’s historically inaccurate, immaterial, and doesn’t explain any of their impacts.

Gregory ’15 (Derek; 2015; Distinguished Professor at the University of British Columbia; Geographies of Knowledge and Power, “Gabriel’s Map: Cartography and Corpography in Modern War,” p. 116-118)

Paul Virilio’s (1989) account of War and cinema, and particularly his rendering of the logistics of perception during World War I, remains a **landmark analysis**. He made much of the connections between aviation and cinema, and his arguments have informed the opening sections of my own essay. In his eyes, aerial reconnaissance— which stood in the closest of associations to the cartographic—became successively “chronophotographic” and then cinematographic, as these new methods struggled both to keep pace with and to produce the new motility of a war that merely appeared to be static and fixed in place. But Virilio also advanced another, more problematic claim: “As sight lost its direct quality and reeled out of phase, the soldier had the feeling of being not so much destroyed as de-realized or de-materialized, any sensory point of reference suddenly vanishing in a surfeit of optical targets” (pp. 14–15). Here he continues to privilege the visual-optical register of cartography and **fails to register the bodily habitus** that, as I have shown in the closing sections, was **profoundly implicated** in the actions and affects of the ordinary infantryman. Virilio was not alone. A. M. Burrage (1930) wrote that [W]e are slowly realising that the job of the infantry isn’t to kill. It is the artillery and the machine-gun corps who do the killing. We are merely there to be killed. We are the little flags which the General sticks on the war-map to show the position of the front line. (p. 82) In sketching the outlines of a countervailing corpography established by those on that front line, I do not wish to privilege one mode of knowing over the other: each sutures knowledge to power in vital, significant but none the less **different ways**, and each both advances and repels military violence. But I do sympathize with Edmund Blunden’s (1928/2000) agonized question: Was it nearer the soul of war to adjust armies in coloured inks on vast maps at Montreuil or Whitehall, to hear of or to project colossal shocks in a sort of mathematical symbol, than to rub knees with some poor jaw-dropping resting sentry, under the dripping rubber sheet, balancing on the greasy fire-step . . . ? (p. 141) Of course, “a map is a weapon,” as Lt.-Col. E. M. Jack (“Maps GHQ”) insisted, and those “vast maps,” together with the panoply of trench maps, sketch maps, and all the rest, were some of the deadliest weapons in the staff officers’ armory; but they were **hardly sufficient sources** of knowledge. And so I understand, too, why Blunden (1928/2000) concluded that venturing into the killing fields armed with its pure, abstract, mathematical knowledge alone was sheer folly: [T]he new Colonel . . . sent forward from C Camp an officer fresh from England, and one or two men with him, to patrol the land over which our assault was intended, . . . This officer took with him his set of the maps, panoramas, photographs and assault programmes which had been served round with such generosity for this battle. He never returned ... (pp. 151–152) Coda In this essay I have been concerned with World War I but, as we approach its centenary, it is worth reflecting on the ways in which modern warfare has changed— and those in which **it has not**. Through the constant circulation of military imagery and its ghosting in video games, many of us have come to think of **contemporary warfare as optical war** hypostatized: a war fought on screens and through digital images, in which full motion video feeds from Predators and Reapers allow for an unprecedented degree of remoteness from the killing fields. In consequence, perhaps, many of us are **tempted to think** of the wars waged by advanced militaries, in contrast to World War I, as “surgical,” even body-less. These are wars without fronts, whose complex geometries have required new investments in cartography and satellite imagery, and there have been major advances in political technologies of vision and in the development of a host of other sensors that have dramatically increased the volume of geo-spatial intelligence on which the administration of later modern military violence relies. All of **this has transformed but not replaced** the cartographic imaginary. And yet, for all of their liquid violence, these wars are **still shaped and even confounded** by the multiple, acutely **material environments** through which they are fought. In Sebastian Junger’s (2011) remarkable dispatch from Afghanistan, he notes that for the United States and its allies “the war diverged from the textbooks because it was fought in such axle-breaking, helicopter-crashing, spirit-killing, mind-bending terrain that few military plans survive intact for even an hour” (p. 47). If that sounds familiar, then so too will MacLeish’s (2013) cautionary observations about soldiers as both vectors and victims of military violence: The body’s unruly matter is war’s most necessary and most necessarily expendable raw material. While many analyses of US war violence have emphasized the technologically facilitated withdrawal of American bodies from combat zones in favour of air strikes, smart bombs, remotely piloted drones, and privately contracted fighting forces, the wars in Iraq and Afghanistan **could not carry on without the physical presence** of tens of thousands of such bodies. (p. 11) In consequence, the troops have had to cultivate an intrinsically practical knowledge that, while its operating environment and technical armature are obviously different, still owes much to the tacit **bodily awareness** of the Tommy or the Poilu: In the combat zone there is a balance to be struck, a cultivated operational knowledge, that comes in large part from first-hand experience about what can hurt you and what can’t . . . So you need not only knowledge of what the weapons and armor can do for you and to you but a kind of bodily habitus as well—an ability to take in the sensory indications of danger and act on them without having to think too hard about it first. When you hear a shot, is it passing close by? Is it accurate or random? Is it of sufficient caliber to penetrate your vest, the window of your Humvee or the side of your tank? (MacLeish, 2013, p. 76) In the intricate nexus formed by knowledge, space, and military power, later modern war still relies on cartographic vision—and its agents still **produce their own corpographies**.

**Their theory totalizes the relationship between tech and social relations – that’s catastrophically wrong**

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A major irony of Feenberg’s book is the following contradiction: on several occasions, he criticizes, and distances himself from, technological determinism; key parts of his argument suggest, however, that he himself flirts with, if not subscribes to, technological determinism. He rightly maintains, and convincingly demonstrates, that ‘society and technology are inextricably imbricated’.240 This insight justifies **the underlying assumption that there is no comprehensive study of society without a critical sociology of technology**. Yet, to contend that ‘[s]ocial groups exist through the technologies that bind their members together’241 **is misleading. For not all social groups are primarily defined by the technologies that enable their members to relate to, and to bond with, one another**. Indeed, **not all social relations, or social bonds, are based on, let alone determined by, technology**.

**Of course**, Feenberg is right to argue that **‘technologically mediated groups influence technical design through their choices and protests’**.242 Ultimately, though, the previous assertion is tautological. This becomes clear if, in the above sentence, we replace the word ‘technological(ly)’ with terms such as ‘cultural(ly)’, ‘linguistical(ly)’, ‘political(ly)’, ‘economic(ally)’, or indeed another sociological qualifier commonly used to characterize the specificity of a social relation. Hence, we may declare that ‘culturally, linguistically, politically, and economically mediated groups influence cultural, linguistic, political, and economic conventions through their choices and protests’. **In saying so, we are stating the obvious. If**, however, **we aim to make a case for** cultural, linguistic, political, or economic **determinism, then this is problematic to the extent that we end up reducing the constitution of social arrangements to the product of one overriding causal set of forces** (whether these be cultural, linguistic, political, economic, technological, or otherwise).

While declaring that he is a critic of technological determinism, Feenberg – in central passages of his book – gives the impression that he is one of its fiercest advocates. Feenberg’s techno-Marxist evolutionism is based on the premise that ‘progress is realized essentially through technosystem change’243 – that is, on the assumption that, effectively, human progress is reducible to technological development. Feenberg is right to stress that ‘[t]echnical progress is joined indissolubly to the democratic enlargement of access to its benefits and protection from its harms’.244 ‘Concretization’,245 understood in this way, conceives of progress as a ‘local, context-bound phenomenon uniting technical and normative dimensions’.246 We may add, however, that **progress has not only technical (or technological) but also economic, cultural, and political dimensions, which contain objective, normative, and subjective facets. At times, the differentiation between these aspects is blurred, if not lost, in Feenberg’s account, given his tendency to overstate the power of technology at the expense of other crucial social forces**. In other words, **progress is not only ‘inextricably entangled with the technosystem’**,247 **but it is also indissolubly entwined with the economic, cultural, and political systems in which it unfolds and for (or against) which it exerts its** objective, normative, and subjective **power**.

The preceding reflection takes us back to the problem of techno-reductionism:

The struggle over the technosystem began with the labor movement. Workers’ demands for health and safety on the job were public interventions into production technology.248

**All struggles over social (sub)systems have not only a technological but also various other (notably economic, cultural, and political) dimensions. Demands made by particular subjects** (defined by class, ethnicity, gender, age, or ability – or a combination of these sociological variables) **are commonly expressed in public interventions not only into** production **technology, but also into economic, cultural, and political systems. In all social struggles** (including class struggle), **technology can be an important means to an end, but it is rarely an end in itself**. Put differently, **social struggles are partly – but seldom essentially, let alone exclusively – about technology**.

#### The world is not encoded by algorithmic accumulation.

Markland, 21—Teaching Fellow in Politics and International Relations at Aston University (Alistair, “Epistemic Transformation at the Margins: Resistance to Digitalisation and Datafication within Global Human Rights Advocacy,” Global Society, February 3, 2021, dml)

As established in the first section of this article, proponents of what I have heuristically defined as the “transformation thesis” have emphasised the revolutionary ruptures wrought by digital connectivity and datafication. Some of these proponents illustrate these changes using field specific case studies, as with Duffield’s (2018) suggestion that the transition to a “cybernetic episteme” is reflected in humanitarian practice. Other authors have taken a more abstract view, including Chandler’s (2018) discussion of new modes of governance in the digital era, or the post-humanist drive to reconceptualise “humanity” under conditions of technological entwinement (Cudworth and Hobden 2013). These assertions of macro-level transformation are also supported by network sociology, led principally by Manuel Castells (2010) analysis of how revolutions in information technology, economic globalisation and an emergent “space of flows” interact to produce a new kind of “network society”. This linkage of societal transformation to economic forces is also characteristic of more critical anti-capitalist perspectives, as with the Marxist critique of “cognitive capitalism” (Moulier-Boutang 2012; Zukerfeld 2017). Although these approaches differ in their conceptual frameworks, they are united in their ambition to highlight universal epistemic transformations brought about by technological change.

One of the pitfalls of these totalising perspectives is the neglect of the particular in favour of the universal. For instance, networked thinking encourages assumptions about lateral transformation across socio-political fields that are connected to the digital universe. But not all spheres of social or political activity move at the same pace when they are exposed to technological innovation. Datafication and digitalisation are processes that have uneven impacts on different social and political fields. For example, the testimony of Facebook’s CEO Mark Zuckerberg to the Senate Judiciary and Commerce Committees in April 2018, where US lawmakers appeared confused by the social media giant’s basic business model, is a stark illustration of the gap that still exists between the world of Big Tech and the operating logics of mainstream democratic politics (Stewart 2018). Bigo and Bonelli (2019, 115) have found that even in the field of transnational intelligence, a sphere that could have much to gain from algorithmic techniques, technological expertise tends to be contracted out to third parties while traditional, human-sourced intelligence approaches remain dominant. Therefore, grasping for totalising processes risks ignoring the empirical specificity of divergent social microcosms.

To remedy this blind side in transformationalist thinking, I assert the utility of applying Pierre Bourdieu’s field theory when conceptualising how certain spheres of social or political activity—including the field of global human rights advocacy discussed in the previous section—mediate pressures for epistemic transformation and potentially isolate technological changes and agents to the margins. Employing field theory, Ole Jacob Sending (2015, 11) sees global governance as divided into separate fields, where “actors compete with each other to be recognised as authorities on what is to be governed, how, and why”. Examples of such fields include international development, security, peacebuilding, humanitarianism, and human rights advocacy. However, each field varies in terms of its specific “rules of the game” (Bourdieu and Waquant 1992, 99). Fields are bounded, game-like social structures that are constituted by a unique constellation of actors. These actors struggle for authority according to the field’s principles of legitimation (Bourdieu 1989, 17). These principles of legitimation, which define a field’s cultural capital, are durable to the extent that dominant actors remain invested in their reproduction. Actors’ prolonged immersion in these fields subsequently shapes their own practical sensibilities, so that the field’s logics are internalised as common sense within the habitus (Bourdieu 1990, 53). It is the embedment of the field’s doxa (common sense) within the habitus of invested actors that makes fields durable and resistant to radical transformations. As seen in the previous section, the rules governing the human rights field are associated with its logic of political influence, persuasion, and moral authority.

Critics of Bourdieusian field theory have argued that it is overly structuralist, reproductive, and cannot grasp “the ever-shifting constellations of actors, institutions, data and forms of expression that make up the expertise” (Waever and Leander 2018, 2). However, alternative approaches such as actor-network theory or assemblage-based theories fail to centralise the importance of social and political struggles between agents which are key in defining the trajectory of digitalisation and datafication. As Ruppert, Isin, and Bigo (2017, 3), “[d]ata does not happen through unstructured social practices but through structured and structuring fields in and through which various agents and their interests generate forms of expertise, interpretation, concepts, and methods that collectively function as fields of power and knowledge”. Similarly, “data is not an already given artefact that exists (which then needs to be mined, analysed, brokered) but an object of investment (in the broadest sense) that is produced by the competitive struggles of professionals who claim stakes in its meaning and functioning” (Bigo, Isin, and Ruppert 2019, 11). Technological change can influence the trajectory of different global political fields by enabling the entry of new types of actors (such as data consultants in the case of human rights advocacy), as well as by producing emergent sources of cultural capital and associated epistemic practices (such as expertise in geospatial imaging).

As Bigo and Bonelli (2019, 120) have observed in the case of the transnational intelligence field, technological change can be accompanied by the growing influence of private companies who “have played a substantial role in the recruitment of IT specialists, network engineers, data analysts, integration platform software designers, language and coding specialists, cryptologists, and mathematicians tasked with creating or combining algorithms”. Such entryism can have a revolutionary effect if those new actors are able redefine a field’s organising logic, cultural capital, and principles of legitimation. For example, looking at the case of Sudan in the 1990s as an antecedent to the transformation of humanitarianism, Duffield (2018, 85) traces how donor governments asserted greater control over NGOs, who subsequently “seamlessly morphed into the ‘implementing partners’ of donor governments”. Alongside growing private sector partnerships, these developments stimulated the neoliberal re-alignment of the humanitarian field away from Third World solidarity and the progressive support for autonomous change and towards the governance of precarity. This exposed the field to an epistemic transformation that privileged datafication based on a “surveillance logic of command and control” (ibid., 168).

However, not all global political fields are so structurally conducive to this kind of radical transformation. The example of the human rights advocacy field illustrates how a strong autonomous organising logic—a logic of persuasion—generates entrenched forms of field-specific cultural capital—qualitative and humanistic accounts of raw suffering that establish clear legal responsibilities. Actors can mobilise digital or data infrastructures to diversify the range of tools and media at their disposal, as illustrated by the (limited) use of geospatial technology, data visualisations in human rights reporting, and a growing reliance on social media platforms to engage audiences. However, they do not necessarily threaten the epistemic practices that are at the centre of human rights advocacy. This is because the transformative potential of new technologies and methods depends on their epistemic, political, social, or moral value in the eyes of the fields’ dominant actors. The integration of data-based approaches has been one of slow adaptation, not revolution, and technological specialists—often employed as third-party consultants rather than as full-time human rights professionals—remain at the margins. The Bourdieusian concept of habitus is also helpful in illuminating how fields with strong professional structures and specific educational and career trajectories can endow members with enduring dispositions that favour both the reproduction of existing epistemic practices and resistance to new ones. The habitus of human rights professionals is still primarily defined by legal, journalistic, and liberal-cosmopolitan moral/political dispositions, rather than technological expertise. So long as processes of doxic reproduction remain stable, the potential for epistemic transformation through datafication remains limited.

Conclusion

This article has cautioned against the analytical trend towards treating datafication as a general process acting to radically transform the epistemic and governance practices across global political fields. Because different social and political fields are unique social microcosms that contain divergent organising principles, readers should be wary of post-humanist analyses making totalising claims about alleged transformations in the human condition. The polemical teleology of transformationalism, an approach that is in vogue among Silicon Valley hype merchants like Elon Musk, public intellectuals, and a growing number of social scientists, is certainly attention grabbing, but it does not measure up against the actual way in which technological and methodological innovations are instituted within different fields of practice. International relations and global governance scholars working on the interstitial cross-roads between technology and various political or social lifeworlds need to be attentive to how digital and data transformations are mediated at the meso level of global politics. This article has demonstrated how epistemic transformation can be resisted at the meso level through observing changes and continuities among elite human rights organisations. Bourdieusian field theory, with its emphasis on legitimacy, social reproduction, and the durability of practical dispositions, offers a suitable framework for conceptualising the absence of epistemic rupture within the field of human rights advocacy. However, because digitalisation and datafication processes are mediated through the specific logics of a given field, more work needs to be done on examining how different organising principles shape the potentialities for epistemic transformation. Thus, in the future, more comparative empirical research will be needed to observe technological changes across different areas of global governance.

#### Tech good –

#### 1 – Accurate predictions---the alt causes confirmation bias

Michael D. Ward 13, Professor of Political Science at Duke University, Niles W. Metternich, University of College London, Cassy L. Dorff, Max Gallop, Florian M. Hollenbach, Anna Schultz, and Simon Weschle, "Learning from the Past and Stepping into the Future: Toward a New Generation of Conflict Prediction", International Studies Review (2013) 15, 473-490

Political events are frequently framed as unpredictable. Who could have predicted the Arab Spring, 9/11, or the end of the cold war? This skepticism about prediction reflects an underlying desire to forecast. Predicting political events is difficult because they result from complex social processes. However, in recent years, our capacity to collect information on social behavior and our ability to process large data have increased to degrees only foreseen in science fiction. This new ability to analyze and predict behavior confronts a demand for better political forecasts that may serve to inform and even help to structure effective policies in a world in which prediction in everyday life has become commonplace. Only a decade ago, scholars interested in civil wars undertook their research with constrained resources, limited data, and statistical estimation capabilities that seem underdeveloped by current standards. Still, major advances did result from these efforts. Consider “Ethnicity, Insurgency and Civil War” by Fearon and Laitin (2003), one of the most venerated and cited articles about the onset of civil wars. Published in 2003, it has over 3,000 citations in scholar.google.com and almost 900 citations in the Web of Science (as of April 2013). It has been cited prominently in virtually every social science discipline in journals ranging from Acta Sociologica to World Politics; and it is the most downloaded article from the American Political Science Review.2 ¶ This article is rightly regarded as an important, foundational piece of scholarship. However, in the summer of 2012, it was used by Jacqueline Stevens in a New York Times Op-Ed as evidence that political scientists are bad forecasters. That claim was wildly off the mark in that Fearon and Laitin do not focus on forecasting, and Stevens ignored other, actual forecasting efforts in political science. Stevens’ point—which was taken up by the US Congress—was that government funding on quantitative approaches was being wasted on efforts that did not provide accurate policy advice. In contrast to Stevens, we argue that conflict research in political science can be substantially improved by more, not less, attention to predictions through quantitative approaches.¶ We argue that the increasing availability of disaggregated data and advanced estimation techniques are making forecasts of conflict more accurate and precise, thereby helping to evaluate the utility of different models and winnow the good from the bad. Forecasting also helps to prevent overfitting and reduces confirmation bias. As such, forecasting efforts can be used to help validate models, to gain greater confidence in the resulting estimates, and to ultimately present robust models that may allow us to improve the interaction with decision makers seeking greater clarity about the implications of potential actions.

#### 2 – Peacekeeping---algorithmic governance enables effective responses to global atrocities

John Karlsrud 14, Senior Research Fellow and Manager of the Training for Peace programme at NUPI, Peacekeeping 4.0: Harnessing the Potential of Big Data, Social Media, and Cyber Technologies, in “Cyberspace and International Relations: Theory, Prospects and Challenges,” https://www.researchgate.net/profile/Hakan\_Mehmetcik/publication/285282612\_A\_New\_Way\_of\_Conducting\_War\_Cyberwar\_Is\_That\_Real/links/5c63f67d45851582c3e47db7/A-New-Way-of-Conducting-War-Cyberwar-Is-That-Real.pdf

Brought together, the data can enable international organizations to follow and possibly prevent evolving situations and crises. This potential has been recognized; and, following the financial crisis, the UN Secretary-General created UN Global Pulse to explore opportunities for using real-time data to gain a more accurate understanding of population wellbeing, especially related to the impacts of global crises. The availability of real-time data holds great promise for helping us detect the early signs of stress on vulnerable populations. It represents an unprecedented opportunity to track the human impacts of crises as they unfold, and to get real-time feedback on how well policy responses are working (UN Global Pulse 2012b). As such, research undertaken by UN Global Pulse, notably though its networks of country-level “Pulse Labs,” may give the UN a better ability to follow, respond to and mitigate the impact of natural disasters and complex crises.

However, more than 90 % of the information will be unstructured, potentially rich in useful information. Turning structured and unstructured information into actionable data requires efficient ways of structuring and analyzing the information in real time in a data ecosystem (WEF 2010, p. 4). This process is often called “reality mining” (UN Global Pulse 2012a, p. 18; Eagle and Pentland 2006) or “data mining”—discovering patterns in large data sets (Cheshire 2011; Helbing and Balietti 2012). So, how can the UN and other multilateral actors make use of this data? Cooperation has been initiated with Google and other large corporations that are at the forefront in harvesting actionable data from the “data deluge” (The Economist 2010b).

Concurrently with this development, the digital divide is closing at an increasing speed. According to the World Bank, 44.9 out of every 100 people in subSaharan Africa had a mobile subscription in 2010 (World Bank 2012a), and by 2016 this figure will reach 91.3 (Portio Research 2012), although the high number may mask persons have more than one subscription. The percentage of population with access to internet is also increasing (World Bank 2012b). This means that the amount of both structured and unstructured data that can be analyzed and can inform multilateral efforts for conflict prevention and international security is increasing rapidly and can give a more even and realistic picture of the situation in question. However, there is a need to be realistic. There is great variance in the access to data between countries such as Syria and the Democratic Republic of Congo, and many have more than one mobile subscription to strengthen their resilience against patchy networks.

Other co-influencing factors are the rapid spread of 3G networks in developing countries and affordable smart phones at prices down to $50 or less (Jidenma 2011). There is also a current global mega-trend of access to the internet through mobile devices: “in a world where there are 6.3 bn mobile users and 2.3 bn internet users, the default access mode to broadband services is mobile” (Ulf Ewaldsson, Ericsson, quoted in ITU 2012a). According to the International Telecommunication Union, “the ubiquitous mobile phone provides an important foundation for the uptake of mobilebased Internet [in the developing world]. With the majority of countries worldwide having launched 3G mobile-broadband services, the prospects are promising” (ITU 2012b, p. 39, Evans 2012).

In the areas of conflict prevention, humanitarian action, and development, the UN has made some initial steps. But what then is the situation in the areas of peacekeeping and peacebuilding? Unfortunately, little progress has been made so far. Notwithstanding the inclusion of surveillance drones in one peacekeeping mission, the development of Joint Mission Analysis Cells and Joint Operations Centres (which I will return to in the next section), the use of mobile phones in community alert networks in eastern Congo, and the heightened focus on the strategic planning and coordination capacity of peacekeeping and peacebuilding operations, much work remains before peacekeeping operations can be said to be tapping the potential of big data, social media, and cyber-technology effectively, entering the age of “Peacekeeping 4.0.”

The good part of this story is that much work already has been undertaken in the similar and parallel fields of conflict prevention, humanitarian action and development. Many lessons from these fields could easily be imported, while other innovative approaches can be accessed through increased cooperation and coordination. Accomplishing this will require overcoming various bureaucratic hurdles and turfism, driven by support from engaged member states and the Secretary-General. Finally, the uptake of digital information in the planning of UN peace operations may also have implications for how the interaction between the UN, member states and civil society is theorized. IR theorists have increasingly underscored the importance of civil society actors as potential norm entrepreneurs (Keck and Sikkink 1998), and more recent research looking at the relationship between media and international organizations emphasize the potential role civil society and new technology can play in democratizing the access to information, but also the potential for groups spreading disinformation and incite hatred.

This chapter will seek to explore what chances the availability of Big Data and new technologies offer for peacekeeping and as well as inherent challenges. The chapter proceeds as follows: First, I narrow in on some key initiatives in the areas of conflict prevention, humanitarian action, and development that can be relevant to peacekeeping. The following section provides a short background on peacekeeping and its evolution from the end of the Cold War until present, noting some of the steps taken to date. Thirdly, I discuss some of the challenges and opportunities facing policymakers, and relate these to the area of peacekeeping in particular. Finally, the chapter sums up and offers some recommendations for policymakers among member states, in the UN, and among civil society, as well as pointing out areas in need of further research, to enable the UN to enter the era of fourth generation peacekeeping—“Peacekeeping 4.0.”

2 Cyberization of Conflict Prevention, Humanitarian Action, and Development

The age of Big Data and social media has dawned on the fields of humanitarian activity, social activism, and development. Here the application of big data and social media has advanced a great deal further than in the areas of peacekeeping and peacebuilding, particularly among civil society organizations (CSOs) and other independent actors.

One of these initiatives is Ushahidi. Ushahidi is a “web based reporting system that utilizes crowdsourced data to formulate visual map information of a crisis on a real-time basis” (Ushahidi 2012a). Ushahidi, which means “testimony” in Swahili, was originally a website established after the election violence in Kenya in 2008 to map incidents of violence (Ushahidi 2012b). Using crowdsourcing as a method means that everyone with access to common digital communication channels can contribute data.1 The data can be provided via text messages, email, twitter and web-forms. One recent example is Syria Tracker—a website set up to monitor violent incidents involving civilians in Syria: “Syria Tracker is a crowdsourced effort developed by individuals concerned about the harm inflicted upon civilians in Syria” (Syria Tracker 2012). Ushahidi and Syria Tracker are part of a tendency of “how non-state actors are increasingly collaborating online to tackle issues traditionally managed by governments” (Leson 2012).

Also in the area of monitoring and evaluation, internet platforms are being established to ease the sharing and coordination of information. One example is the ActivityInfo website established by UNICEF, OCHA, and bedatadriven; it “that helps humanitarian organizations to collect, manage, map and analyze indicators…and allow for real time monitoring of the humanitarian situation in the eastern part of the Democratic Republic of Congo” (ActivityInfo 2012).

Analyzing the use of Google searches or Twitter messages can give strong indications of evolving situations, or whether an epidemic is spreading. Paul and Dredze (2011) found a very strong correlation coefficient (0.958) between tweets and official flu statistics, where the tweets were in real time and the statistics available only afterwards. Analyzing trending topics in Google searches or Facebook and blog posts can also yield significant data (Ginsberg et al. 2009). Google Dengue Trends uses aggregated Google search data to estimate dengue activity (Google 2012a); there is a similar service for influenza (Google 2012b). Following the earthquake in Port-au-Prince, Haiti, researchers from Sweden’s Karolinska Institutet and Columbia University in New York used mobile phone data, tracking 1.9 million SIM cards (Bengtsson et al. 2011, p. 2). They were able to follow the population flows and destinations of 648,717 people who had been displaced (ibid.:3). Later that year, the same team followed population movement after a cholera outbreak (Bengtsson et al. 2010, p. 2).

Multilateral actors have started to catch on. The UN Secretary-General has created UN Global Pulse; the World Bank has begun discussing how big data can be used for development (World Bank 2012c), and has established “Mapping for Results” to visualize and track its programs and projects on the ground (World Bank 2012d). However, much remains to be done. In 2009, the UN Global Pulse Initiative launched the Rapid Impact and Vulnerability Analysis Fund (RIVAF).

However, a recent report published by the initiative reveals a focus on the use of traditional indicators, and a lack of focus on conflict and post-conflict countries, even though many of the UN agencies, funds, and programs involved in the RIVAF initiative operate in precisely such locations (UN Global Pulse 2011). Further work is necessary in this area, also to focus the energies of developmentoriented organizations to conflict and post-conflict countries and utilize the potential offered by big data, social media, and cyber-technology.

The UN has engaged with the Crisis Mappers community since 2010 (UN 2012a, p. 4, Crisis Mappers 2012); among other things, the Standby Task Force has supported OCHA crowdsourcing data for South Sudan, collecting “a total of 1,767 unique rows of data and 15,271 unique pieces of information records” in a mere 3 days (Standby Task Force 2012). At a recent meeting in New York to discuss the status of implementation of the UN’s Crisis Information Strategy, it was agreed that there is a need for Crisis Information Managers, and that the efforts towards convergence in crisis information management could support the “endeavours of ‘One UN’ and better coordination within the UN and the international community in general” (Swiss Mission to the United Nations 2012). A Crisis Management Training Course has since been established, with the first course being given in February 2013 at the International Peace Support Training Centre (IPSTC) in Nairobi, Kenya. The course will train civilians, military and police “working in multidimensional peace and humanitarian operations … to integrate new information technology into an information management system [and] demonstrate the opportunities and challenges of new ICTs [Information and Communication Technology] and social media tools…” (ICT4Peace 2012a). The challenge now will be to get the UN onboard and send staff to these courses, providing the organization with staff trained personnel that can enable it to make use of Big Data, ICTs and social media in its operations. The UN in Sudan has taken one step in this direction. With support of the United Kingdom, UNDP has run a Crisis Recovery and Mapping Analysis project since 2007 (UNDP 2012a), aimed at supporting both the UN country team (UNCT) and national authorities in making their activities more evidence-based and conflict-responsive (see also Bott and Young 2012).2

In Georgia, the Caucasus Research Resource Centers and Saferworld have joined forces with developers to produce Elva, combining “the data-rich mapping of Ushahidi with the meticulous requirements of human-rights researchers” (Sifry 2012). The platform is used to create a community safety network where a community representative, using SMS, can report violent or security incidents on a weekly basis. A similar initiative was developed by Columbia University in connection with the Voix des Kivus program in the Democratic Republic of Congo (DRC) to “overcome the problems associated with the collection of conflict data” (van der Wind and Humphreys 2012). It involved distributing prepaid cellphones, solar chargers, and code sheets to community representatives in 18 villages in Eastern Congo (ibid.). For both projects, protecting the identity of those reporting against possible reprisals became an important concern (ibid., p. 24; see also Puig 2012).

Together with the crisis mapping community, OCHA is experimenting with developing twitter dashboards for humanitarian crises. These use “Machine Learning (ML) techniques and social computing methods… to extract relevant information from twitter and aggregate this information according to Cluster for analytical purposes” (Meier 2012). A similar dashboard for peacekeeping operations “that looks across social media content and perhaps uses corporate data” could be envisaged (Interview with Meier 2012).

#### 3 – Equalizes power relations in diplomacy

Katharina Höne 19, PhD, research associate in diplomacy and global governance at DiploFoundation, with; Eline Chivot, senior policy analyst at the Center for Data Innovation; citing the opinion of; Andrew-Tony Camilleri, Permanent Representation of Malta to the European Union; 2/4/19, “Event Recap: The Impact of AI on Diplomacy and International Relations,” https://www.datainnovation.org/2019/02/event-recap-the-impact-of-ai-on-diplomacy-and-international-relations/

Camilleri described three reasons why AI harbors great potential as a tool for diplomacy. First, AI can act as an equalizer between small and big member states and help in dealing with understaffing issues. For example, Malta’s foreign affairs department in charge of the examination of proposals issued by the Commission includes one person, compared to two or three persons in other countries. Malta could greatly benefit from a tool for processing and performing data-heavy analyses. In addition, using such tools could add speed to managing affairs at an EU level—which may help in solving societal and economic challenges arising from slow political decision-making and bureaucratic systems. Second, AI solutions can increase the efficiency of diplomatic practice, and can support ministries and governments as a whole through more coordinated and consistent approaches. AI could help in dealing with employee turnover as attachés and other civil servants tend to change postings, or with successive national governments. This will retain institutional memory and address information growth, even as the teams that discuss and negotiate proposals change over time. Finally, AI as a tool for diplomatic practice can support the preparation of negotiations through various AI-enabled research tools.

#### Tech is nascent---there’s time to regulate before their impacts become reality---the AFF is key to this---liberal institutions coordinate regulatory AI schemes

Yuval Noah Harari and Li 19, PhD from University of Oxford, Professor in the Department of History at the Hebrew University of Jerusalem, with; Fei-Fei Li, Professor of Computer Science at Stanford University; 4/28/19, “Will Artificial Intelligence Enhance or Hack Humanity?” https://www.wired.com/story/will-artificial-intelligence-enhance-hack-humanity/

FL: So I want to make two comments and this is where my engineering, you know, personally speaking, we’re making two very important assumptions in this part of the conversation. One is that AI is so omnipotent, that it's achieved to a state that it's beyond predicting anything physical, it's getting to the consciousness level, it’s getting to even the ultimate love level of

capability. And I do want to make sure that we recognize that we're very, very, very far from that. This technology is still very nascent. Part of the concern I have about today's AI is that super-hyping of its capability. So I'm not saying that that's not a valid question. But I think that part of this conversation is built upon that assumption that this technology has become that powerful and I don't even know how many decades we are from that. Second related assumption, I feel our conversation is being based on this that we're talking about the world or state of the world that only that powerful AI exists, or that small group of people who have produced the powerful AI and is intended to hack humans exists. But in fact, our human society is so complex, there's so many of us, right? I mean humanity in its history, have faced so much technology if we left it in the hands of a bad player alone, without any regulation, multinational collaboration, rules, laws, moral codes, that technology could have, maybe not hacked humans, but destroyed humans or hurt humans in massive ways. It has happened, but by and large, our society in a historical view is moving to a more civilized and controlled state. So I think it's important to look at that greater society and bring other players and people into this dialog. So we don't talk like there's only this omnipotent AI deciding it's gonna hack everything to the end. And that brings me to your topic that in addition to hacking humans at that level that you're talking about, there are some very immediate concerns already: diversity, privacy, labor, legal changes, you know, international geopolitics. And I think it's, it's critical to to tackle those now.

NT: I love talking to AI researchers, because five years ago, all the AI researchers were saying it's much more powerful than you think. And now they're like, it's not as powerful as you think. Alright, so I'll just let me ask—

FL: It’s because five years ago, you had no idea what AI is, now you're extrapolating too much.

NT: I didn't say it was wrong. I just said it was the thing. I want to go into what you just said. But before we do that, I want to take one question here from the audience, because once we move into the second section we’ll be able to answer it. So the question is for Yuval, How can we avoid the formation of AI powered digital dictatorships? So how do we avoid dystopia number two, let's enter that. And then let's go, Fei-Fei, into what we can do right now, not what we can do in the future.

YNH: The key issue is how to regulate the ownership of data. Because we won't stop research in biology, and we won't stop researching computer science and AI. So from the three components of biological knowledge, computing power and data, I think data is is the easiest, and it's also very difficult, but still the easiest kind to regulate, to protect. Let’s place some protections there. And there are efforts now being made. And they are not just political efforts, but you know, also philosophical efforts to really conceptualize, What does it mean to own data or to regulate the ownership of data? Because we have a fairly good understanding of what it means to own land. We had thousands of years of experience with that. We have a very poor understanding of what it what it actually means to own data and how to regulate it. But this is the very important front that we need to focus on in order to prevent the worst dystopian outcomes.

#### AI detects asteroid collision

Bruce Dorminey, 06-07-2019, (Dorminey is a science journalist and author of "Distant Wanderers: The Search for Planets Beyond the Solar System" who writes about over-the-horizon technology, primarily astronomy and space science. A 1998 winner in the Royal Aeronautical Society's Aerospace Journalist of the Year Awards.), "Can Artificial Intelligence Save Us From Asteroidal Armageddon?," Forbes, https://www.forbes.com/sites/brucedorminey/2019/06/07/can-artificial-intelligence-save-us-from-asteroidal-armageddon//ceng

Even in this age of high-speed data analysis, a keen human eye normally can’t be beaten when poring over images of potential asteroidal impactors. But Artificial Intelligence (A.I.) could soon change all that. The El Segundo, Calif.-based Aerospace Corporation is now testing A.I. software designed to help astronomers speed up the process of identifying and tracking threatening Near-Earth Objects (NEOs). NASA’s Planetary Defense Coordination Office already uses numerous telescopes to find and monitor NEOs that might have the potential to impact Earth. But the non-profit Aerospace Corporation’s A.I. team is working with NASA on implementing software dubbed NEO AID (Near-Earth Object Artificial Intelligence Detection) to differentiate false positives from asteroids and comets that might be real threats. Nightly, researchers at locations such as the Catalina Sky Survey on Mount Lemmon in Tucson, Ariz. pore over hundreds of images of star fields in search of fast-moving objects that need more scrutiny, says Aerospace Corporation. It’s here that Aerospace A.I. engineers used 100 terabytes of data to build and train an artificial intelligence model that is now capable of classifying NEO targets of interest. And by Aerospace Corporation’s calculations, this new A.I. tech has already increased the sky survey’s performance by 10 percent with room for development. NASA’s Center for Near-Earth Object studies says that with over 90 percent of NEOs larger than one kilometer already discovered, the NEO program is now focusing on finding the 90 percent larger than 140 meters. However, there are still space rocks in the 10- to 20-meter diameter range that comes closer than the distance from the Earth to the Moon. That happens at least once or twice a month and if any of these objects were to actually strike a highly-populated area, they would do significant damage. But how would this new A.I. tech help NASA in its current search? NASA still relies on human eyes to determine a NEO’s threat assessment. The hope is that A.I. can streamline that process by classifying an image as high priority or low priority. The software technology that Aerospace Corporation has developed reduces the number of false identifications that human observers have to review, Jon Neff, Aerospace Corporation’s senior project leader for artificial intelligence, analytics, and innovation department, told me. Human eyes and brains are very good at finding small differences in images, he says. By training neural networks to imitate the way humans classify images of the night sky taken by telescopes, astronomers can automatically identify objects with a high probability of being NEOs. But Neff is quick to point out that this new NEO AID technology is designed to complement current methods of measurements, not replace them. As for the tech’s costs? The prototype software cost about $50,000 to develop, says Neff. We think an operational software system would cost about $500,000 , he says. How would this tech help in preventing the kind of high-inclination civilization-ending comets to which astronomers are still mostly blind? As with cancer, the key to survival is early detection and diagnosis, says Neff. The first step is to point telescopes where they can find high inclination objects; the next step is sorting through millions of images to find the small number of objects that pose a threat, he says. “Our technology can help save civilization by increasing the rate at which new objects are detected,” said Neff. “If we can detect threats early enough, we may have time to deflect them.”

#### Asteroids cause extinction

Corey S. Powell, 18, (Corey S. Powell, Book author, journalist, former editor in chief of Discover, 10-5-2018, Forbes, If We Discovered That An Asteroid Would Hit Earth In 20 Years, How Would We Stop It?, https://www.forbes.com/sites/quora/2018/10/05/if-we-discovered-that-an-asteroid-would-hit-earth-in-20-years-how-would-we-stop-it/#47b3ced45fb7, 8-11-2019) SCade

First off, could there be an undiscovered 20-mile-wide asteroid headed our way in the foreseeable future? The answer is a qualified yes. The killer could not come from the asteroid belt. Astronomers have already plotted the orbit of every asteroid that size (and a lot smaller) in great detail. There is no object that size that could plausibly hit Earth any time in the next few thousand years—probably not in the next few million years. There is one way that an object like that could be on its way without anyone knowing, however. If it were a giant comet or dislodged Kuiper Belt Object coming toward us on an extremely elliptical path (ie. falling almost straight toward the Sun), it would be very hard to detect. We plausibly might not spot it until it was somewhere between the orbits of Uranus and Neptune. An object at that distance would, in fact, take about 20 years to reach us. Keep in mind that 20-mile-wide objects are extremely rare, relatively speaking. There is no record of Earth being struck by anything that size in the past two billion years. The likelihood of it happening in the next few years is, well, astronomically small. But let’s play out the scenario. OK, what would happen if the asteroid struck? We’re talking about an object that is 2–3 times the diameter of the asteroid that hit us at the end of the Cretaceous. Given its steep path toward the Sun, it would be moving at a high velocity as well. It might pack 100 times the energy of the impact that ushered the old dinosaurs off the scene. This would be a full-on extinction-level event. There’s no precedent in the history of complex life on Earth, so we can only extrapolate. All of Earth’s surface would be set on fire. There would be tremendous earthquakes and tsunamis, followed by massive volcanism around the impact zone. The ozone layer would be destroyed. The oceans would turn acidic. The Sun would be blotted out, probably for decades. All surface infrastructure would be destroyed. Most complex species would surely perish in the aftermath. Now that we have the scope of the problem mapped out, we can think about the response. Idea one: Can we deflect the thing? The most likely approach, based on a recent study (Scientists design conceptual asteroid deflector and evaluate it against massive potential threat) would be to explode multiple nuclear warheads right next to the asteroid, vaporizing part of its surface and changing its orbit. If NASA, Roscosmos, the ESA, and the Chinese space agency (plus private industry) started cooperating right away, I can imagine that a coordinated set of launches could take off in about 2 years, and would intercept the asteroid about 10 years after that. Unlike many of the cynics here, I think that kind of international cooperation would happen. The threat is just too huge. All other concerns would become secondary; there will be no nations and governments to worry about if this thing hits. But will it work? That’s really hard to say. We’ve never attempted anything like this. The closest is missions like Hayabusa-2 and OSIRIS-REx, which will rendezvous with asteroids and touch the surface, or New Horizons, which did a precision high-speed flight to Pluto. But we’d be trying to deflect an object while knowing little about its shape and composition. Probably we would launch the nukes as quickly as possible, then adapt the mission parameters as we learned more about the asteroid.

#### 1AC Beller says “genetic engineering” bad – we’ll impact turn that

#### CRISPR solves disease

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Infectious disease is a common cause of death worldwide, but the rise of antibiotic-resistant bacterial strains and lack of effective antiviral treatments means a potential future risk of increased mortality and global economic burden due to untreatable infections. This article discusses how CRISPR-Cas gene-editing technology is helping in the fight against increasingly resistant bacterial infections and rapidly mutating viruses—from facilitating a better understand of host-pathogen interactions and improving diagnosis, to potentially providing a new way to treat infectious disease.

The CRISPR revolution

The CRISPR locus (short for clustered regularly interspersed short palindromic repeats) was first discovered in E.coli in 1987 and found to be the basis of a bacterial adaptive immune system, providing prokaryotes with protection against foreign genetic material.1 The CRISPR-Cas system has since been repurposed into a powerful but relatively simple programmable gene-editing technology. A short single-guide RNA molecule (sgRNA) guides the Cas9 endonuclease to the target site, where a double-strand break is introduced. This activates intrinsic cellular DNA repair pathways, either the non-homologous end joining (NHEJ) pathway that results in a disabling deletion of the target gene, or homologous repair (HR) that allows the integration of a donor sequence at the target locus. As well as gene knockout and targeted changes to the genetic sequence, gene expression can be regulated. Other modifications at the target site are also possible with the use of a catalytically inactive version of Cas9 (dCas9)—the expanded CRISPR toolkit also includes modulation of gene expression (CRISPRi and CRISPRa) and base editing.

Since the first CRISPR gene-editing experiments were demonstrated in 2012, the CRISPR-Cas9 technology has exploded into the biological sciences and been rapidly adopted by the scientific community. CRISPR has already shown promise in the prevention of malaria, tuberculosis, and herpes simplex virus.2 Below, we highlight a few ways in which CRISPR has been recently applied to improving our understanding, treatment, and ongoing diagnosis of infectious disease.

Functional genomics with CRISPR to determine new antimicrobial targets

There is currently a distinct lack of new antibiotics and antiviral drugs making it to the clinic. Understanding host-pathogen mechanisms that govern how microbes induce pathogenesis is crucial for identifying new targets for rapid drug discovery and vaccine development. Soon after its debut, CRISPR-Cas9 was applied to functional genomic screening. Using a pooled sgRNA library workflow, CRISPR-Cas9 was successfully used at scale to enable high-throughput, genome-wide loss of function studies. CRISPR-Cas9 genome-wide screening has since been employed in a variety of pathogens to determine the molecular pathways that drive pathogenesis. These include identifying how the α-hemolysin virulence factor S.aureus causes cytotoxicity and genes involved in host-cell dependencies from Zika virus.3,4

CRISPR-Cas9 as a next-generation diagnostic for antimicrobial-resistance genes

Since the discovery of penicillin in 1928, antibiotics have been the main treatment against bacterial infections, reducing mortality and significantly improving life expectancy the world over. But the ability of microbes to rapidly mutate and share genetic information, as well as the overprescription of antibiotics, has led to the emergence of superbugs—strains that are resistant to existing treatments. According to the UN, antibiotic resistance is thought to cause around 700,000 deaths per year, which could rise to 10 million by 2050.

Determining whether genes responsible for antimicrobial resistance (AMR) are present is crucial when formulating an optimal treatment strategy to limit the spread of drug resistance. Unfortunately, real-time metagenomic analysis is hampered by the low abundance of resistant pathogens against a high background. Recent work from the Crawford lab at the University of California, San Francisco used CRISPR to develop a novel NGS-targeted enrichment system called FLASH (finding low abundance sequences by hybridization), which they use as a diagnostic.5 By using sgRNA to guide Cas9 to AMR genes, those sequences are cleaved ready for next-generation sequencing. FLASH enables amplification of AMR targets and high levels of multiplexing and was shown to successfully identify AMR genes in patient samples, including those infected with pneumonia-causing bacteria and Plasmodium falciparum, the malaria parasite.

Selectively controlling the microbiome

The human microbiome is a complex ecosystem of species that all play a role in health —but treatment with broad-spectrum antibiotics to destroy pathogens also kills the “good” bacteria, upsetting the delicate balance and the positive symbiotic relationships that help control pathogens. This blunt instrument also provides a selective pressure that can lead to the further development of antibiotic-resistant strains.

In a recent Nature Communications paper, Hamilton et al used CRISPR-Cas9 to selectively target and kill Salmonella enterica but leave other bacteria species in a co-culture unharmed.6 Their work utilizes a conjugative plasmid to put the delivery machinery together with the necessary Cas9 molecules in a cis-conjugative system to selectively target essential genes in S. enterica cells and destroy them. The authors also suggest their new delivery system could be beneficial in controlling microbial imbalances on biofilms with potential applications in medicine, healthcare, and industrial processes—for example in treating Clostridium difficile, a hospital-acquired infection that is placing an increasing economic burden on healthcare systems worldwide.

CRISPR: as nature intended?

In nature, CRISPR is an endogenous bacterial system used to protect from foreign genetic material, so it makes sense that it is now being used in medicine against the bacteria themselves to fight infectious disease. And not only bacteria—recent work from the Broad Institute used the Cas13 protein from the CRISPR system to selectively target and destroy single-stranded RNA viruses, including Influenza A, significantly and rapidly reducing viral load and infectiousness.7

The programmable nature of the CRISPR gene-editing system means that as microbes continue to evolve and mutate, the CRISPR machinery can be quickly altered to destroy the new target as an antimicrobial drug, or detect it as a diagnostic. Work will now move onto demonstrate that these CRISPR-based antimicrobial applications can work in the clinic and help combat the growing specter of antimicrobial resistance and infectious disease.

#### diseases cause extinction

Mooney 21 — (Tom Mooney, Senior Communications & Advocacy Manager for the Coalition for Epidemic Preparedness Innovations, “Preparing for the next “Disease X””, CEPI, 2-1-21, Available Online at <https://cepi.net/news_cepi/preparing-for-the-next-disease-x/>, accessed 9-10-21, HKR-AM)

Disease X represents the knowledge that a serious international pandemic could be caused by a pathogen currently unknown to cause human disease. It was first included in the WHO’s list of priority pathogens in 2018. COVID-19 represents the first occurrence of Disease X since its designation was established, emerging much sooner than anticipated.

While the world battles to control COVID-19, we know that future outbreaks of Disease X are inevitable. Our interconnected world has made us more vulnerable than ever to the rapid spread of new emerging infectious diseases. Rapid urbanisation, deforestation, intensive agriculture, livestock rearing practices, climate change and globalisation are increasing opportunities for animal-to-human contacts and for human-to-human transmission of disease on a global scale. The threat of Disease X infecting the human population, and spreading quickly around the world, is greater than ever before.

COVID-19: CEPI’s first Disease X

When CEPI was established in 2017 we classed Disease X as a serious risk to global health security, for which the world needed to prepare. Prior to the COVID-19 pandemic, CEPI had initiated a rapid response programme—including mRNA vaccines—against novel pathogens. Our goal was to be able to start safety testing of vaccines within months of a new pathogen being genetically sequenced.

In January 2020—within 2 weeks of the publication of the genome sequence of the COVID-19 virus, and with just 141 confirmed cases of COVID-19 globally—CEPI began work on developing vaccine candidates against the virus. CEPI was able to move with such agility because it had already identified coronaviruses as serious threats and invested over $140 million in the development of vaccines against MERS. Within a few weeks of the COVID-19 outbreak, most of CEPI’s MERS vaccine development partners had pivoted to work on the new virus.

Just one year later, two CEPI-supported vaccine candidates are amongst the first in the world to be approved by regulatory authorities and deployed to protect people from the virus; and potentially over one billion doses of vaccine enabled by CEPI investment will be available to the COVAX Facility in 2021.

The speed of the scientific progress has been astounding, compressing vaccine development—which typically takes a decade into the space of 12 months—yet over 2 million lives have been lost to COVID-19 already and economies the world over have been devastated.

So, could we move even faster next time?

What next for Disease X?

We don’t know where or when the next Disease X will emerge, only that it will. As COVID-19 has demonstrated, diseases do not respect borders so we need to be prepared on a global scale to respond to future outbreaks of Disease X, and we need to do it fast.

In many ways COVID-19 is a proof of concept for rapidly developing a vaccine against a new viral threat. Scientists were already working on vaccines against MERS and SARS—pathogens from the same virus family as COVID-19—which gave us a crucial head start this time around.

25 viral families are known to infect humans, and over 1.6 million yet-to-be-discovered viral species from these viral families are estimated to exist in mammal and bird hosts—the most important reservoirs for viral zoonoses.

We cannot develop vaccines against all potential viral threats, but we could produce a library of prototype vaccines and other biological interventions against representative pathogens from each of these 25 viral families. Having such a library of prototype vaccines, which could be ‘pulled off the shelf’, and advanced into clinical testing as soon as a related threat emerges would dramatically accelerate the development of vaccines.

We also know that beta coronaviruses that cause SARS and MERS are associated with case fatality rates of 10-35% (25-88 times worse than COVID-19) and that coronaviruses circulate widely in animal reservoirs. The emergence of a coronavirus variant combining the transmissibility of COVID-19 with the lethality of SARS or MERS would be utterly devastating. We must minimise this threat as a matter of urgency. One way to do this in the long-term would be to develop a vaccine that provides broad protection against coronaviruses in general.

If we can produce vaccines against Disease X in a matter of months instead of a year or more, we could revolutionise the world’s ability to respond to epidemic and pandemic diseases. Disease X and other emerging infectious diseases pose an existential threat to humanity. But for the first time in history, with the right level of financial commitment and political will, we could credibly aim to eliminate the risk of epidemics and pandemics.

### 1NC – Cap

#### They don’t get offense for their autoation stuff – extra T at worst and heavily non-unique at best, they have done nothing via the speech act of their 1ac

#### Star this: info dissuasive/info overload is not in this 1AC, hold the line if this gets extended into the 1AR. Regardless, info not dissuasive

#### Sustainability flows neg -- Tech and innovation solve all their impacts and green the global economy – its feasible, likely, and not too late

**Krupp** et al **19** [FRED KRUPP is President of the Environmental Defense Fund. “Less Than Zero Can Carbon-Removal Technologies Curb Climate Change?”, March/April, https://www.foreignaffairs.com/articles/2019-02-12/less-zero]

But it is not too late to solve the global climate crisis. A decade of extraordinary innovation has made the greening of the global economy not only feasible but also likely. The market now favors clean energy: in many U.S. states, it is cheaper to build new renewable energy plants than to run existing coal-fired power plants. By combining solar power with new, efficient batteries, Arizona and other sunny states will soon be able to provide electricity at a lower cost per megawatt-hour than new, efficient natural gas plants. Local, regional, and federal governments, as well as corporations, are making measurable progress on reducing carbon pollution. Since 2000, 21 countries have reduced their annual greenhouse gas emissions while growing their economies; China is expected to see emissions peak by 2025, five years earlier than it promised as part of the negotiations for the Paris climate agreement in 2015. At the UN climate talks held late last year in Poland, countries agreed on rules for how to report progress on meeting emission-reduction commitments, an important step in implementing the Paris accord.

What’s more, an entirely new arsenal is emerging in the fight against climate change: negative emission technologies, or NETs. NETs are different from conventional approaches to climate mitigation in that they seek not to reduce the amount of greenhouse gases emitted into the atmosphere but to remove carbon dioxide that’s already there. These technologies range from the old-fashioned practice of reforestation to high-tech machines that suck carbon out of the sky and store it underground. The window of opportunity to combat climate change has not closed—and with a push from policymakers, NETs can keep it propped open for longer.

#### Beller is citing nobody and no data – reject sustainability arguments without basic ev standards – every metric for quality of life is improving -- Wealth, life expectancy, energy use, poverty, democracy, literacy, education, all on the rise, err on the side of optimism for futures sake

#### No limits to growth – solar energy and the knowledge economy enable clean growth and solve climate change better than degrowth

Michael Liebreich 18, Visiting Professor at Imperial College’s Energy Future Lab, “The Secret of Eternal Growth,” 10/29/18, http://ifreetrade.org/article/the\_secret\_of\_eternal\_growth\_the\_physics\_behind\_pro\_growth\_environmentalism

The earth, however, is not an isolated system. It may be nearly closed, exchanging limited matter across the planetary boundary, but it is far from isolated, as it receives a huge daily flux of energy from the sun and radiates almost as much away to space. In his book, Georgescu-Roegen even acknowledged the existence of huge solar energy fluxes, but that didn’t stop him from basing his seminal work on a scientific error. Later in his career, after ruefully acknowledging his mistake, he invented a Fourth Law of Thermodynamics, claiming that “material entropy” would forever prevent materials from being perfectly recycled. Pure fake science.

Around the same time as Georgescu-Roegen was making up thermodynamic laws, a group of concerned environmentalists calling themselves the Club of Rome invited one of the doyens of the new field of computer modelling, Jay Forrester, to create a simulation of the world economy and its interaction with the environment. In 1972 his marvellous black box produced another best-seller, Limits to Growth (iv), which purported to prove that almost every combination of economic parameters ended up not just with growth slowing, but with an overshoot and collapse. This finding, so congenial to the model’s commissioners, stemmed entirely from errors in its structure, as pointed out by a then fresh-faced young economics professor at Yale, William Nordhaus.

A third foundational work in the degrowth canon is Steady State Economics (v) by Herman Daly, later Senior Economist in the Environment Department of the World Bank. In it he explains that “the economy is an open subsystem of a finite and nongrowing ecosystem. Any subsystem of a finite nongrowing system must itself at some point also become nongrowing.” It’s a repeat of Georgescu-Roegen’s error. Daly must have known it too, since he noted that six days’ worth of radiation from the sun contained more useful energy (or exergy, to give it its correct name) than that embodied in all the fossil fuel reserves known at the time.

The point here is not that solar power is the key to endless growth, though it could well be - nuclear fission and fusion are other strong contenders. The point is that when you scratch the surface of any of the seminal tracts of the degrowth movement, you find they are based on the same fake science, right through to the present day.

Jeremy Rifkin’s 1980 Entropy: a New World View (vi) states that “here on earth material entropy is continually increasing and must ultimately reach a maximum”. In 2009, Professor Tim Jackson, the favourite anti-capitalist of the TED generation, published Prosperity Without Growth (vii). In it he pays homage to Daly’s “pioneering case for a ‘steady state economy’” and cheerfully recommends it to students hungering for alternative wisdom – either not understanding or not caring that it is based on a fallacy.

This matters because, for all that the neo-liberal world economy has delivered extraordinary improvements in living standards – in life span, levels of education, infant survival, maternal health, poverty reduction, leisure, and so on (viii) – it is currently failing to address severe, systemic environmental challenges, first and foremost among them climate change. Unless the free-trade, pro-growth, pro-trade right offers a coherent plan, it is ceding the argument to the degrowth, anti-capitalist, anti-trade left.

Climate change is real, serious, and urgent. That recent IPCC 1.5°C report is based on rigorous research. Of course climate change is being co-opted by the “Academic Grievance Studies” brigade (ix), but that doesn’t make the underlying physical science less real. As the world continues to burn through its remaining carbon budget, as temperatures continue to rise, as the ‘signal’ of climate damage becomes clearer against the background ‘noise’ of weather, the demand for dramatic action will only increase.

Limiting the impact of climate change will require the application of technology, both new and yet-to-be-developed, on a heroic scale. Destroying the ability of the world economy to deliver these solutions is the very opposite of what we should be doing. And that is where Nordhaus and Romer come in.

Romer’s great contribution was to identify the contribution of knowledge to economic growth. Before his Endogenous Growth Theory, no one could explain differences in growth rates of as much as 10 percent between countries at a similar stage of development. Romer’s work is the perfect riposte to those who think that economic growth is the same thing as ever-increasing physical material use and pollution; it is also the perfect riposte to those who believe that extractive industries can ever deliver long-term wealth and those who believe the same of agricultural subsidies and import tariffs.

Nordhaus, for his part, was the creator of the first Integrated Assessment Models, bringing together the physics of climate change, its economic impact, and the functioning of the economy. He was also the first person to suggest that attaching a cost to emissions – low at first but rising – would squeeze greenhouse gases out of the economy. Nordhaus is no climate fundamentalist, famously diverging from the view propounded in the Stern Review, that the world needs super-high carbon taxes immediately. Nordhaus accepted that environmental challenges and climate change will act as a drag on the economy but, unlike others before him, he quantified the drag and showed that it is highly unlikely to reverse economic growth.

Nordhaus and Romer are not the only Nobel Prize-winners whose work suggests that an open, liberal, trade-friendly economy – though one pricing in externalities – will do a better job of addressing climate change and other environmental problems than stalling or reversing economic growth.

Simon Kuznets, who won the 1971 Nobel Prize for Economics (x), described how a variable can get worse in the early phases of a country’s development, and then improve as growth continues. He focused mainly on inequality, but the Environmental Kuznets Curves has been shown to govern most forms of local pollution.

Ilya Prigogine won the 1977 Nobel Prize in Chemistry for his research into non-equilibrium “dissipative” structures – how a flow of energy across closed system can drive the creation of “order out of chaos” (xi). This is a real scientific expert on entropy proving that the economy can grow for as long as there is still a sun in the sky (which would give us about another five billion years).

#### Financialization impact empirically denied

Steven N. Kaplan 17, Neubauer Family Professor of Entrepreneurship and Finance at the University of Chicago Booth School of Business, “Are U.S. Companies Too Short-Term Oriented? Some Thoughts,” May 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=2972117

U.S. companies are frequently criticized for focusing too much on the short run and not enough on the long run. For example, Laurence Fink, the CEO of BlackRock, one of the largest money managers, wrote that “the effects of the short-termist phenomenon are troubling . . . more and more corporate leaders have responded with actions that can deliver immediate returns to shareholders, such as buybacks or dividend increases, while underinvesting in innovation, skilled workforces or essential capital expenditures necessary to sustain long-term growth.”1 The Report of the Commission on Inclusive Prosperity (co-chaired by Larry Summers) similarly weighed in, “An additional reason for the absence of inclusive prosperity is the changing nature of corporate behavior. Business leaders, government officials and academics have pointed out that corporations have shifted their traditional focus on long-term profit maximization to maximizing short-term stock-market valuations. One reason that economists have advanced for this transition to corporate short- termism is the overwhelming shift to stock-market-based compensation for CEOs and other highly compensated executives at publicly traded corporations.”2

In other words, these critics argue that US companies as a group destroy value by not investing for the long run. More formally, the short-term argument can be summarized as follows. U.S companies as a group underinvest in capital expenditures as well as research and development. According to the argument, this benefits the companies in the short- term, but harms the companies in the long run where the short-term is usually defined as the current quarter or, perhaps, current year or two, while the long-term would be more than five years out. Poor corporate governance and overly generous pay plans for CEOs that reward short-term behavior are often cited as accomplices to short-termism.3

The critics also point to empirical evidence to support their positions. For example, Graham et al. (2005) survey 401 financial executives and find that 78 percent would sacrifice long-term value to smooth earnings. Others point to corporate dividends and buybacks. Lazonick (2014) shows that S&P 500 companies paid out over 90% of their net income in dividends and share repurchases, leaving little available for investment in the long-term. Lazonick and others contend that companies buy back their own stock to boost their share prices in the short run, regardless of the long-term impact.

These criticisms, however, are not new. They have been raised, prominently, in some form or another since the late 1970s. In this paper, I present those historical criticisms. I then consider the implications of sustained short-termism for corporate profits, venture capital investment and returns, private equity investment and returns, and corporate valuations. In fact, there is **very little long-term evidence** that is consistent with the predictions of the short-term critics.4

1. Some Short-termist History

The criticism that US companies are plagued by short-termism and poor governance has a long history. In 1980, Harvard Business School’s Robert H. Hayes and William J. Abernathy wrote an influential article criticizing American companies for being too short-term oriented:

“By their preference for servicing existing markets rather than creating new ones and by their devotion to short-term returns and management by the numbers, many of them have effectively forsworn long-term technological superiority as a competitive weapon. In consequence, they have abdicated their strategic responsibilities.”

Similarly, Marty Lipton wrote in 1979:

“It would not be unfair to pose the policy issue as: Whether the long-term interests of the nation’s corporate system and economy should be jeopardized in order to benefit speculators interested . . . only in a quick profit . . . ?”

In 1992, Harvard’s Michael E. Porter repeated the argument:

“The U.S. system of allocating investment capital is failing, putting American companies at a serious disadvantage and threatening the long-term growth of the nation's economy… Many American companies invest too little, particularly in those intangible assets and capabilities required for competitiveness – R&D, employee training and skills development … The U.S. system, first and foremost advances the goals of shareholders at the expense of the long-term performance of American companies. In global competition, where investment increasingly determines a company's capacity to upgrade and innovate, the U.S. system does not measure up.”

And the short-term argument is being repeated today by the likes of Laurence Fink and Larry Summers. While some, like Fink, focus on public companies, the arguments of Abernathy and Hayes, Porter, Summers refer to the overall U.S. economy.

2. U.S. Corporate Profits

It is clear from the previous section that critiques of U.S. businesses as overly short-term oriented have been with us for at least 35 years. And the criticisms have not changed much, if at all, in their basic tenor.

But, this has **very strong implications** for the short-term argument. It’s been more than 35 years since the publication of the Hayes and Abernathy article, and 25 years since the appearance of Porter’s. By any measure, today is the long-term that U.S. companies supposedly have underinvested in since the 1980s. Accordingly, the short-term logic implies that U.S. business should be performing poorly today.

But **that is unequivocally not the case**. Figure 1 reports U.S. corporate profits before tax as a fraction of GDP since 1951. Today, corporate profits are near all-time highs (over that post-war period). The uptrend began just around the time of the Hayes and Abernathy article, and has continued since.

The early 1980s is precisely the time that many observers believe finance and the goal of shareholder value maximization became ascendant. It is also the time that Wall Street and the financial sector began to grow substantially—both in the US and internationally. The early 1980s also coincided with the rise of management consultants who spread techniques across US firms and across the world.5 In 1980, consulting firms were relatively new and relatively small. Today, McKinsey & Company has offices in more than 60 countries; the Boston Consulting Group has offices in more than 40. And the early 1980s also coincided with an explosion in information technology and globalization.

Consistent with the increase in corporate profits, both Autor et al. (2017) and Burkai (2016) explore explanations for the strong corporate profitability and, concomitant, weak labor share of GDP.

Whatever its source, the strong profitability of U.S. corporations is difficult for the short-termists to explain. It is obviously not consistent with poor corporate performance over the long-term. Nevertheless, short-termists continue to repeat the criticisms of the 1980s and 1990s.

It is worth adding that the strong corporate performance also is inconsistent with poor corporate governance overall, suggesting that criticisms of U.S. corporate governance also are overstated. This is arguably the type of example that the quote by John Stuart Mill that begins this paper had in mind.

#### Decline shreds US China relations which are key to solving a host of existential risks

**Johnson** and Gramer **20** [Keith Johnson is Foreign Policy's global geoeconomics correspondent, Robbie Gramer is a diplomacy and national security reporter at Foreign Policy, covering the State Department. “The Great Decoupling”, May 14th, https://foreignpolicy.com/2020/05/14/china-us-pandemic-economy-tensions-trump-coronavirus-covid-new-cold-war-economics-the-great-decoupling/]

“What we have now through the beginnings of economic decoupling is the removal of that economic ballast in the U.S.-China relationship, which has historically differentiated it from the characteristics of the U.S.-Soviet relationship in the Cold War,” said Rudd, the former Australian prime minister.

“If we have another pandemic, or environmental issues, or financial-sector issues, or Iran, or North Korea, how effective are you going to be if you don’t have a working relationship with China?”

In concrete terms, that will likely make it harder for the United States to nudge China to make any of the reforms Washington has pushed for years, let alone to moderate its increasingly belligerent and aggressive foreign policy. “If the question is whether breaking economic ties will lead to increased friction, the answer has to be yes,” Zoellick said. “The nature of decoupling doesn’t mean the Chinese will stop” their disruptive behavior, “they will just be less concerned with norms that the United States would otherwise push.”

In other words, after almost two decades of urging, sometimes successfully, China to become a “responsible stakeholder” in the global system, as then-Deputy Secretary of State Zoellick famously urged in a 2005 speech, the United States would essentially be throwing in the towel. And, on a host of global challenges, giving up influence and engagement with the world’s largest population, second-largest economy, and a permanent member of the U.N. Security Council could undermine U.S. interests across the board, he warned.

#### The market is stable now but big crash in the US would cause global economic decline – independently collapses capitalism’s legitimacy

Halligan 18 [Liam Halligan is a British economist, journalist and broadcaster. Since 2003, Halligan has written his weekly "Economics Agenda" column in The Sunday Telegraph – which has been recognised with a British Press Award. This is the stock market crash we needed. February 10, 2018.https://www.spectator.co.uk/2018/02/this-is-the-stock-market-crash-we-needed/]

A fully blown stock-market crash would have major political implications, of course. The emerging narrative about failing global capitalism in crisis would go into overdrive. With the big emerging giants like China boasting massive financial reserves, and likely to ride out any storm, more power would shift from west to east. And with continental Europe still harbouring a slew of bad bank debt, certainly compared with the US and UK, the eurozone is likely to suffer disproportionately — as it did after 2008. And, like last time, the UK economy would certainly be hit. The likelihood, though, is that this is not the start of a big crash but instead a soft landing, a necessary downturn in stock prices, part of a process that will mean savers might finally start to be given a return on their bank deposits. Serious market slumps also generally follow a US recession and, for now, Trump’s America looks strong — perhaps a little too strong for the market’s liking. And across the world, there’s a lot of cash waiting on the sidelines, ready to enter the market. The market upswing of recent years reflects, in part, optimism about the world economy: partly based on technological advances and post-Lehman ‘bounce back’. But much of the rise was due to cronyism, the emergence of cartels, unjustified share buybacks, dividend payments from borrowed money and, above all, QE and absurdly low interest rates. That’s why a falling market — for all the pain of adjustment — shows financial logic, and genuine capitalism is fighting back. And about time too.

#### Even without complete collapse, that causes nuke war with North Korea – draws in Russia and China. NoKo will exploit the crisis narrative

Farley 17 [Robert Farley is a Senior Lecturer at the Patterson School of Diplomacy and International Commerce. His work includes military doctrine, national security, and maritime affairs. A War with North Korea Would Be a Conflict Like No Other (And Millions Could Die). November 28, 2017. nationalinterest.org/blog/the-buzz/war-north-korea-would-be-conflict-no-other-millions-could-23407?page=show]

Even if a world economic collapse does not bring capitalism to its knees, another such crisis could put stress on the relationship between South Korea, Japan, and the United States. North Korean prospects in the war depend utterly on sidelining the United States in some fashion, either through the presentation of a fait accompli, or through high stakes deterrence. The situation with Japan is more complex, but Tokyo views North Korea as sufficiently threatening that a war would almost certainly incur some kind of intervention, if not necessarily in direct support of RoK forces. The other scenario under which DPRK might decide to attack would come in anticipation of a major U.S.-ROK attack against the North. In such a situation, the North Korean leadership might decide that it has little to lose. The military balance would, in such a context, strongly favor pre-emptive action on North Korea’s part. In War… The clearest path to North Korean victory in war depends on a quick defeat of South Korean forces, providing the United States and Japan with a fait accompli that Pyongyang will expect Beijing to back. The North Korean attack would likely involve a classic 20th century combined arms assault, using artillery to disrupt RoK defenses and soften up positions (as well as create civilian panic), infantry to break holes in the South Korean lines, and mechanized forces to exploit those gaps. The North Koreans could well add special forces (potentially deployed to South Korea before the initiation of hostilities) and regular forces deployed by tunnel to South Korean rear areas. The Korean People’s Air Force is ancient, and has received no significant infusion of Russian or Chinese technology in years. The force has very little counter-air capability relative to the Republic of Korea Air Force, and its fighters would find themselves easy prey for well-trained South Korean pilots flying sophisticated aircraft. The KPA can expect very little ground support, either on the tactical or operational scales, and would likely struggle under South Korean air attacks. To remedy these problems, North Korea would likely reserve a large proportion of its land-attack cruise missiles and short-range ballistic missiles for attacks on South Korean air bases, in the hopes of destroying fighters on the ground and rendering facilities useless. The Korean People’s Navy would play a dual role in the operation. Offensively, it would try to attack Republic of Korea Navy (ROKN) capital ships (including the Dokdo-class amphibs, and the Sejong the Great-class destroyers, the latter of which have anti-ballistic missile capabilities) with submarines and cruise missiles, while also attempting to disrupt port operations. Defensively, the KPN would try to protect North Korea’s coastline from bombardment and amphibious assault, both of which had a great impact on the 1950 war. Any North Korean invasion would also include attacks on South Korean ports, both to disrupt trade and to complicate the arrival of large-scale reinforcements. These attacks would likely involve conventionally-armed ballistic missiles, although the DPRK might resort to nuclear or chem-bio weapons for some particularly lucrative targets (such as Busan). With luck (and the North Koreans would need tremendous amounts of luck) the Korean People’s Army (KPA) could disrupt U.S. and RoK forces sufficiently to seize control of the major entry and exit points to Seoul, at which point it could consider either trying to roll up the rest of the peninsula, or hold for a negotiated peace that would leave the DPRK in a stronger position. This decision would hinge both on the tactical situation, as well as an assessment of whether North Korea’s national goals lie mainly in reunification, or in regime survival. But Diplomacy Has a Role… The longer the war continues, the grimmer North Korea’s prospects look. Consequently, Pyongyang needs the support of Beijing to end the war and secure its gains quickly. Why would Beijing concede to act as guarantor of the fruits of North Korean aggression? Not because of any lingering affinity with the North Korean regime, but rather out of a desire to prevent further disruption and instability along its border. Similarly, its frustrations with North Korea aside, China has little interest in the establishment of a U.S. or Japanese client across the whole of the Korean Peninsula. In this situation, North Korea would hope that the prospect of war against China (and perhaps Russia) would deter the United States from pursuing the liberation of South Korea. This calculus is remarkably similar to that of Kim il-Sung in 1950, although in this case North Korea’s own nuclear arsenal (presumably directed at Japan) would provide some deterrent.

#### The 1AC did not read an impact to environmental degradation or warming

#### Cap solves warming

Shi-Ling Hsu 21, D'Alemberte Professor of Law at the Florida State University College of Law, Sept 2021, Capitalism and the Environment, Cambridge University Press, p. 50-52

2.8 CHOOSING CAPITALISM TO SAVE THE ENVIRONMENT: LARGE-SCALE DEPLOYMENT Finally, a third reason that capitalism is suited to the job of environmental restoration and protection is its ability to undertake and complete projects at very large scales. In keeping with a major thesis of this book, construction at very large scales should give us a little pause, because of the propensity of capital to metastasize into a source of political resistance to change. But some global problems, especially climate change, may require very large-scale enterprises. For example, because greenhouse gas emissions may already have passed a threshold for catastrophic climate change, technology is almost certainly needed to chemically capture carbon dioxide from ambient air. But carbon dioxide is only about 0.15% of ambient air by molecular weight, and a tremendous amount of ambient air must be processed just to capture a small amount of carbon dioxide. This technology has often been referred to as "direct air capture," or "carbon removal." Given that inherent limitation, direct air capture technology must be deployed at vast scales in order to make any appreciable difference in greenhouse gas concentrations. There is certainly no guarantee that direct air capture will be a silver bullet. But if it is to be an effectual item on a menu of survival techniques, it will more assuredly be accomplished under the incentives of a capitalist economy. Capitalism might also help with the looming crisis of climate change by helping to ensure the supply of vital life staples such as food, water, and other basic needs in future shortages caused by climate-change. In a climate-changed future, there is the distinct possibility that supplies of vital life staples may run short, possibly for long periods of time. Droughts are projected to last longer, with water supplies and growing conditions increasingly precarious. Capitalist enterprise could, first of all, provide the impetus to finally reform a dizzying multitude of price distortions that plague water supply and agriculture worldwide. Second, capitalist enterprise can undertake scale production of some emergent technologies that might alleviate shortages. Desalination technology can convert salty seawater into drinkable freshwater.54 A number of environmental and economic issues need to be solved to deploy these technologies at large scales, but in a crisis, solutions will be more likely to present themselves. A technology that is already being adopted to produce food is the modernized version of old-fashioned greenhouses. The tiny country of the Netherlands, with its 17 million people crowded onto 13,000 square miles, is the second largest food exporter in the world,55 exporting fully three-quarters that of the United States in 2017.56 The secret to Dutch agriculture is its climate-controlled, low-energy green-houses that project solar panel-powered artificial sunlight around the clock. Dutch greenhouses produce lettuce at ten times the yield57 and tomatoes at fifteen times the yield outdoors in the United States58 while using less than one-thirteenth the amount of water,59 very little in the way of synthetic pesticides and, of course, very little fertilizer given its advanced composting techniques. Sustained shortages in a climate-changed future might require that a capitalist take hold of greenhouse growing and expand production to feed the masses that might otherwise revolt. 2.9 CHOOSE CAPITALISM Clearly, the job in front of humankind is enormous, complex, and many-faceted. The best hope is to be able to identify certain human impacts that are clearly harmful to the global environment, and to disincentivize them. Getting back to notions of institutions in capitalism, what is crucial is aligning the right incentives with profit-making activity. What capitalism does so well — beyond human comprehension — is coordinate activity and send broad signals about scarcity. Information about a wide variety of environmental phenomena is extremely difficult to collect and process. If a set of environmental taxes can help establish a network of environ-mental prices, then an unfathomably large and complex machinery will have been set in motion in the right direction. Also, because of the need for new scientific solutions to this daunting list of problems, new science and technology is desperately needed. Capitalism is tried and true in terms of producing innovation. Again drawing upon the study of institutions, it is not so much that individuals need a profit-motive in order to tinker, but the prospect of profit-making has to be present in order for institutions, including corporations, to devote resources, attention, and energy towards the development of solutions to environmental problems. Corporations can and should demonstrate social responsibility by attempting to mitigate their impacts on the global environment, but a much more conscious push for new knowledge, new techniques, and new solutions are needed. Finally, the scale of needed change is profound. Huge networks of infrastructure centered upon a fossil fuel-centered economy must somehow be replaced or adapted to new ways of generating, transmitting, consuming, and storing energy. A global system of feeding seven billion humans (and counting), unsustainable on its face, must be morphed into something else that can fill that huge role. About a billion and a half cars and trucks in the world must, over time, be swapped out for vehicles that must be dramatically different. This is a daunting to-do list, but look a bit more carefully among the gloomy news. Elon Musk, a freewheeling, pot-smoking entrepreneur shows signs of breaking into not one, but two industries dominated by behemoths with political power. Thanks to California emissions standards, automobile manufacturers have developed cars that emit a fraction of what they did less than a generation ago. Hybrid electric vehicles have thoroughly penetrated an American market that powerful American politicians had tried to cordon off for American manufacturers only. At least two companies have developed meat substitutes that are now widely judged to be indistinguishable from meat, and have established product outposts in the ancient power centers of fast food, McDonald's and Burger King. The tiny country of the Netherlands, about half the size of West Virginia, exports almost as much food as the United States, able to ship fresh produce all the way to Africa. At bottom, all of these accomplishments and thousands more are and were capitalist in nature. While they collectively repre-sent a trifle of what still needs to be accomplished, they were also undertaken without the correct incentives in place, and thus also represent the tremendous promise of capitalism.

**Alt fails - military and economic confrontation in transition**

**Posen 18** [Adam Posen is the President of the Peterson Institute for International Economics, The Post-American World Economy: Globalization in the Trump Era, February 13, <https://www.foreignaffairs.com/articles/united-states/2018-02-13/post-american-world-economy>]

The **U**nited **S**tates’ motivation for building the **postwar economic system** was as much **preventing conflict** as promoting growth. In setting out **the rules** by which all members would conduct business, the architects of the system hoped to **separate economic from military competition**. U.S. **withdrawal** need not result in economic or physical wars, but it will raise the risk of stumbling into conflict by **accident**. Without agreed-on rules, **even minor economic disputes** have the potential to set off escalating **counterattacks**. If the **norm of separation between economic and military confrontations** breaks down, economic frictions, such as Chinese theft of intellectual property or restrictions on trade with a nuclear Iran or North Korea, could turn into **outright conflict**. It is plausible that as the **U**nited **S**tates retreats and thereby **weakens its economy**, the Trump administration will **blame** the economic damage not on its own actions but on **foreign governments**, creating a self-perpetuating **cycle of anger**. When other major countries **step forward** to preserve the open economic order, or defend themselves against U.S. economic aggression, Washington may **interpret** that as an attack **on U.S. primacy**. The Trump administration might even **misinterpret** the current forbearance by China or the EU as **a sign of weakness** and an invitation to **escalate confrontations**.

#### Causes mass death---only capitalism enables a peaceful solution to poverty.

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Another question that is all too rarely asked is: What would be the price of eliminating inequality? In 2017, the renowned Stanford historian and scholar of ancient history Walter Scheidel presented an impressive historical analysis of this question: The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century. He concludes that societies that have been spared mass violence and catastrophes have never experienced substantial reductions in inequality.

Substantial reductions in inequality have only ever been achieved as the result of violent shocks, primarily consisting of war, revolution, state failure and systems collapse, and plague.

According to Scheidel, the greatest levelers of the twentieth century did not include peaceful social reforms, they were the two world wars and the communist revolutions. More than 100 million people died in each of the two world wars and in the communist social experiments.

Total War as a Great Leveler

World War II serves as Scheidel’s strongest example of “total war” leveling. Take Japan: In 1938, the wealthiest 1 percent of the population received 19.9 percent of all reported income before taxes and transfers. Within the next seven years, their share dropped by two-thirds, all the way down to 6.4 percent. More than half of this loss was incurred by the richest tenth of that top bracket: their income share collapsed from 9.2 percent to 1.9 percent in the same period, a decline by almost four-fifths. The declared real value of the income of the largest 1 percent of estates in Japan’s population fell by 90 percent between 1936 and 1945 and by almost 97 percent between 1936 to 1949. The top 0.1 percent of all estates lost even more during this period, 93 and 98 percent, respectively. During this period, the Japanese economic system was transformed as state intervention gradually created a planned economy that preserved only a facade of free-market capitalism. Executive bonuses were capped, rental income was fixed by the authorities, and between 1935 and 1943 the top income tax rate in Japan doubled.

Significant leveling also took place in other countries during wartime. According to Scheidel’s analysis, the two world wars were among the greatest levelers in history. The average percentage drop of top income shares in countries that actively fought in World War II as frontline states was 31 percent of the prewar level. This is a robust finding because the sample consists of a dozen countries. The only two countries in which inequality increased during this period were also those farthest from the major theaters of war (Argentina and South Africa).

Low savings rates and depressed asset prices, physical destruction and the loss of foreign assets, inflation and progressive taxation, rent and price controls, and nationalization all contributed in varying degrees to equalization. The wealth of the rich was dramatically reduced in the two world wars, whether countries lost or won, suffered occupation during or after the war, were democracies or run by autocratic regimes.

The economic consequences of the two world wars were, therefore, devastating for the rich—a fact that stands in direct opposition to the thesis that it was capitalists that instigated the wars in pursuit of their own economic interests. Contrary to the popular perception that the lower classes suffered most in the wars, in economic terms it was the capitalists who were the biggest losers.

Incidentally, the left-wing economist Thomas Piketty comes to a similar conclusion. In his book Capital in the Twenty-First Century, he argues that progressive taxation in the twentieth century was primarily a product of the two world wars and not of democracy.

Poverty is Eliminated Peacefully

The price of reducing inequality has thus usually involved violent shocks and catastrophes, whose victims have been not only the rich but millions and millions of people. Neither nonviolent land reforms nor economic crises nor democratization has had as great a leveling effect throughout recorded history as these violent upheavals. If the goal is to distribute income and wealth more equally, says historian Scheidel, then we simply cannot close our eyes to the violent ruptures that have so often proved necessary to achieve that goal. We must ask ourselves whether humanity has ever succeeded in equalizing the distribution of wealth without considerable violence. Analyzing thousands of years of human history, Scheidel’s answer is no. This may be a depressing finding for many adherents of egalitarian ideas.

However, if we shift perspective, and ask not “How do we reduce inequality?” but “How do we reduce poverty?” then we can provide an optimistic answer: Not violent ruptures of the kind that led to reductions of inequality, but very peaceful mechanisms, namely innovations and growth, brought about by the forces of capitalism, have led to the greatest declines in poverty. Or, to put it another way: The greatest “levelers” in history have been violent events such as wars, revolutions, state and systems collapses, and pandemics, but the greatest poverty reducer in history has been capitalism. Before capitalism came into being, most of the world’s population was living in extreme poverty—in 1820, the rate stood at 90 percent. Today, it’s down to less than 10 percent. And the most remarkable aspect of all this progress is that, in the recent decades since the end of communism in China and other countries, the decline in poverty has accelerated to a pace unmatched in any previous period of human history. In 1981, the rate was still 42.7 percent; by 2000, it had fallen to 27.8 percent, and in 2021 it was only 9.3 percent.