

The standard is maximizing expected well-being.

1] Only pleasure and pain are intrinsically valuable – all other frameworks collapse.

Moen 16 [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] TDI

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that pleasure is intrinsically valuable and pain is intrinsically disvaluable. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative.² The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values. If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good.³ As Aristotle observes: “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”⁴ Presumably, a similar story can be told in the case of pains, for if someone says “This is painful” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday reasoning about values, it seems that pleasure and pain are both places where we reach the end of the line in matters of value.

2] Extinction first ..moral uncertainty.

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

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

3] Actor specificity: A] Governments must aggregate since every policy benefit some and harms others, which also means side constraints freeze action. B] States lack wills or intentions since policies are collective actions. C] Actor-specificity comes first since different agents have different ethical standings.

4] Ground – Both debaters have ground to engage under util – Aff gets plans, while Neg gets DAs and counterplans. AND anything can function under util if it has an external benefit. Other fwks deny 1 side engagement on link and impact level. TJFs outweigh because concerns fairness – outweighs all args concede valid of fairness.

BioTech

U.S dominance over biotech now BUT Misguided policy cedes control to China.

Gupta 6/11

["As Washington Ties Pharma's Hands, China Is Leaping Ahead.", Gaurav Gupta, *Opinion | America Risks Ceding Its Biotech Dominance to China* | Barron's, Barrons, 11 June 2021, www.barrons.com/articles/as-washington-ties-pharmas-hands-china-is-leaping-ahead-51623438808., Gaurav Gupta, a physician, is the founder of the biotechnology investment firm Ascendant BioCapital.]/Lex AKu

There should be no doubt that we are living at the dawn of a golden age of biomedical innovation. **The American scientific engine that produced Covid-19 vaccines in record time was fueled by a convergence of advances in genomics, biomarkers, data science, and manufacturing years in the making.** The first Food and Drug Administration approvals of a host of new product formats—oligonucleotide, bispecific, oncolytic virus, CAR-T, and lentivirus/AAV—all took place within the last decade. These represent an unprecedented expansion of the armamentarium that physicians have at their disposal to treat and cure disease. **In the last few years, 47% of all new medicines were invented by U.S. biopharma companies, with homegrown startups driving the majority of innovation.** The bulk of the remainder were developed by foreign companies specifically for the U.S. market. An indirect benefit of these trends is that most novel therapeutics undergo clinical development and early commercial launch here in the U.S. The rest of the world understands that the American patient has earlier and broader access to groundbreaking therapies via these mechanisms. Indeed, the past decade is filled with examples of medical "firsts" for American patients: the first cure for Hepatitis C, the first gene therapy for blindness, the first immunotherapy for cancer. Future rewards will be greater still if we preserve our current system of incentivizing and protecting the remarkable innovation capacity of our biopharmaceutical industry ought to be a source of national pride. Yet **while "Made in America" is the global standard for medicines in development today, misguided policy risks ceding our scientific prowess to other countries in the future.** This is particularly true in the case of **China, where biotechnology has become a strategic pillar for the health of its people and economy.** From 2016 to 2020, the **market capitalization of all Chinese biopharma companies increased exponentially from \$1 billion to over \$200 billion.** China saw **over \$28 billion invested in its life sciences sector** in 2020, double the previous year's amount. Returns on **China's investment are already arriving.** The FDA approved a drug developed in China for the first time ever in 2019. **While China's innovation capacity currently remains behind America's,** my experiences as a biopharma professional make it clear **they are doing everything they can to catch up and catch up fast.** In fact, **when I speak to Chinese biotechnology executives, they boast that they can run clinical trials faster than their U.S. counterparts.** The danger of misguided policies that disincentivize pharmaceutical innovation in the U.S. is effectively driving that same innovation to China. If we close off the market in the U.S. at the same time that China is opening its market to innovative new products, then we will see companies choose to first launch impactful novel medicines in China, based on clinical trials conducted in China. Because the FDA rarely accepts data generated entirely outside the U.S., this relocation of research capacity will negatively affect Americans' access to cutting-edge therapies. The **biotechnology field is advancing rapidly. Promising technologies such as targeted protein degradation and gene editing are perhaps not far from being developed into impactful medicines, and the U.S. risks these technologies being mastered by Chinese companies.**

The plan chills American biomed innovation and cedes control to China.

Paulsen 7/9

[ERIK PAULSEN: We can save the world with our vaccines — without surrendering our IP to China," Bakersfield Californian, https://www.bakersfield.com/opinion/erik-paulsen-we-can-save-the-world-with-our-vaccines-without-surrendering-our-ip-to/article_b0b87692-df61-11eb-9a13-d7fa02eefae.html]/Lex AKu

The **Biden administration gave Beijing a gift when it endorsed a petition before the World Trade**

Organization to force the American developers of Covid-19 vaccines and therapeutics to relinquish their intellectual property rights to these medicines. The Chinese government seeks to take over in biotech, a sector where U.S. innovators lead. Biotech is

included in its "Made in China 2025" plan, which lists 10 sectors that China aims to dominate. The government intends to force anyone doing business in China in those spheres to hand over

know-how. **Surrendering IP protections on biomedical technology has dire consequences.** Foremost, it **guts the**

foundation of biomedical innovation, which takes huge investments spanning many years to bear fruit. IP protections assure innovators that they can recover those investments and make a profit. Losing IP protection would have a chilling effect on investments in the sector. Equally injurious to America, the IP waiver would allow China to become a biotech powerhouse by piggybacking on American innovation. A waiver on IP for Covid-19 vaccines would accelerate the timeline for “Made in China 2025.” The mRNA technology, which undergirds the Pfizer-BioNTech and Moderna vaccines has uses beyond this pandemic. It has the potential to take on cancers and other diseases. With the waiver, China and others will be emboldened to use the once-proprietary mRNA know-how for broader research and applications. Is this in America’s interest? Mark Cohen, an expert on Chinese IP theft, recently told the Washington Post that the waiver would deliver “a competitive advantage to countries that are increasingly viewed as our adversaries, at taxpayer expense.” Beyond the damage that an mRNA giveaway will inflict on US R&D investments, the waiver sends a signal that America could agree to force American innovators to part with trade secrets every time there’s a global crisis. That attitude will arrest biopharmaceutical innovation. Small biotech firms spearhead 70 percent of the R&D pipeline, relying heavily on private investors to fund that work. If investors know that innovators may have to give away their discoveries in a global crisis, they’ll deploy their money elsewhere. That’ll make it even harder to draw the R&D investments needed to address infectious diseases, including drug-resistant infections and viruses. America is benefitting greatly from the early access to COVID-19 treatments and vaccines, saving lives and speeding economic recovery. Preserving U.S. leadership in biomedical innovation includes preserving the incentives that helped make it the world’s leader. A final downside of the waiver is the ability for American firms to find a cure for the next pandemic. Among the greatest threats is bacteria resistant to our current arsenal of antibiotics that becomes a pandemic-inducing superbug. Already, the market for new antimicrobials is broken. Only a handful of biotechs have them in development, and many have gone bankrupt trying to commercialize one. “A lot of people have rightly said we need to start thinking about preparing for the next pandemic now,” noted Craig Garthwaite, a healthcare-business professor at Northwestern University.

Suspending IP for vaccine manufacturers would send exactly the wrong signal for the future. For the sake of patients everywhere, American IP rights must stay protected. It’s the only way to keep China at bay and American innovators at work.

Biotech leadership key to future military primacy.

Moore 21 [(Scott Moore is a political scientist and administrator at the University of Pennsylvania and the author of a forthcoming book, “How China Shapes the Future,” on China’s role in public goods and emerging technologies.) 8-8-2021, “In Biotech, the Industry of the Future, the U.S. Is Way Ahead of China,” Lawfare, <https://www.lawfareblog.com/biotech-industry-future-us-way-ahead-china>]/Lex AKu

A continuing refrain from Washington in recent years has been that the United States is falling behind China in the development of critical emerging technologies. In some fields, this may be true. But not in biotechnology. To be sure, China’s biotech sector is growing at a torrid pace, and some of its firms are becoming leaders in certain areas, such as cancer treatment. Yet the U.S. retains a dominant position in research, development and commercialization, accounting for almost half of all biotech patents filed from 1999 to 2013. The triumph of its biotechnology industry during the coronavirus pandemic, producing two highly effective vaccines using

an entirely new approach based on messenger RNA, and in record time, shows that the U.S.'s competitive edge in biotechnology remains largely intact. And that has important implications as Washington gears up for a sustained period of geopolitical competition with Beijing. Biotech is such a critical area for technological competition between the U.S. and China because it is transforming fields from medicine to military power. The great advances of the 19th century, like chemical fertilizers, resulted from mastering chemistry. In the 20th century, mastery of physics led to nuclear energy—and, more ominously, nuclear weapons. In the 21st century, biology offers a similar mix of peril and promise. This was illustrated dramatically by the award of the 2020 Nobel Prize for the discovery of an enzyme system known as CRISPR-Cas9, which allows an organism's genomes to be edited with high precision. It is a transformational breakthrough. But while CRISPR shows great promise in the development of new cures for long-untreatable diseases, it could also lead to a whole new generation of deadly bioweapons. That's a prospect that increasingly alarms U.S. intelligence officials. In 2016, then-Director of National Intelligence James Clapper warned Congress that "[r]esearch in genome editing conducted by countries with different regulatory or ethical standards than those of western countries probably increases the risk of the creation of potentially harmful biological agents or products." Although Clapper didn't name specific countries, it soon became clear that he was referring mainly to China. Four years later, his successor, John Ratcliffe, issued a far more pointed warning that China has even conducted human testing on members of the People's Liberation Army in hope of developing soldiers with biologically enhanced capabilities. There are no ethical boundaries to Beijing's pursuit of power. Such capabilities are almost certainly only speculative—but they underscore why biotech leadership is so important for national security as well as economic competitiveness. Beijing has long envied the United States's dominant position in biotechnology and spent heavily to overtake it. Biotech has been a priority sector for state investment since the 1980s, and by one estimate Beijing had poured some \$100 billion into the sector by 2018. Nowhere did it lavish more attention or invest more of its propaganda power than in developing a coronavirus vaccine. State media have spent months crowing that "China is working around the clock for breakthroughs in COVID-19 vaccines." Yet despite this push, China's vaccine program quickly took on a Potemkin air. In February 2020, barely two months after the onset of the pandemic and after a supposedly crash vaccine effort, a military doctor stood in front of a Chinese flag to receive what was billed as an experimental vaccine dose but was widely suspected to be a staged photo op. Now, having spent months talking up its two primary vaccine candidates to developing countries like Brazil and Indonesia, both of which have entered into purchase agreements with Chinese biotech firms, Chinese officials face severe mistrust among their nation's overseas partners. For China's leaders, the disappointing returns on their big bet on biotechnology look likely to cause them more headaches at home as well as abroad—there are already signs that affluent Chinese place more trust in foreign-developed coronavirus vaccines than the homegrown ones produced at such great expense. For U.S. officials, though, China's relative underperformance in vaccine development presents an opportunity to reassert the United States's leadership in biotechnology and public health and bolster the nation's depleted soft power in the process. The Biden administration has already signaled it will reengage in multilateral bodies such as the World Health Organization. Yet the U.S. shouldn't stop there. Washington should begin thinking now about how to emulate the success of the President's Emergency Plan for AIDS Relief (PEPFAR)—which, though imperfect, is widely regarded as one of the most successful single public health interventions in history—to address growing disparities in access to coronavirus vaccines between countries. At the moment, vaccine supplies are controlled largely by rich countries, creating the risk of moral and public health failure if the gap persists. While COVID-19, the respiratory disease caused by the novel coronavirus, differs in many respects from AIDS, PEPFAR combined research, prevention, and access to therapeutics. Developing a comparable institutional structure to close the coronavirus vaccine access gap is the right thing to do—but it would also go a long way to restoring America's battered global reputation. At the same time, the United States can't afford to rest on its laurels in biotechnology, or any other field. Aside from China, other nations like Singapore and Israel have also invested heavily to develop their biotechnology sectors, with Israel in particular giving rise to a thriving biotech industry. U.S. public investment in basic scientific research and development has meanwhile been on the decline for decades, and there are worrying signs that America's once world-beating innovation ecosystem is less productive, and less entrepreneurial, than it once was. Despite strengths in translational research, moreover, the frontiers of biology increasingly sit at the intersection with other disciplines like computer science, meaning that funding agencies, universities and other organizations need to break down disciplinary silos. Boosting support for biotechnology research, while reforming how that money is used, will go a long way toward shoring up the United States's leading position in the global biotech sector. The U.S. biotechnology sector also faces other threats, not least growing espionage and intellectual property theft by foreign actors, especially those linked to China. Several high-profile cases brought by the U.S. Department of Justice's China Initiative have involved biotechnology researchers, and American biotech firms have been top targets for cyber theft and intrusion. Sustained outreach to researchers and research institutions is critical to preventing such theft. But efforts to clamp down on the threats posed by espionage and intellectual property theft can easily go too far and must preserve the researcher mobility and data-sharing that is essential to doing cutting-edge science. Beyond its shores, the United States should work with its partners and allies to enhance export controls on dual-use biotechnology—used for both peaceful and military gain—especially DNA templates. Many forms of genetic material and synthetic biology products are already subject to U.S. export controls, but gaps remain, and screening for genetic sequence orders relies primarily on voluntary regulation by biotech firms. Better coordinating export controls among major economies and U.S. allies can dramatically reduce the risk of sophisticated bioweapons development in the decades to come.

Heg solves arms races, land grabs, rogue states, and great power war.

Brands 18 [Hal, Henry Kissinger Distinguished Professor at Johns Hopkins University's School of Advanced International Studies and a senior fellow at the Center for Strategic and Budgetary Assessments." American Grand Strategy in the Age of Trump." Page 129-133]

Since World War II, the United States has had a military **second to none**. Since the Cold War, **America has committed to having overwhelming military primacy**. The idea, as George W. Bush declared in 2002, that America must possess “strengths beyond challenge” has featured in every major U.S. strategy document for a quarter century; it has also been reflected in concrete terms.⁶ From the early 1990s, for example, the **United States** consistently accounted for around 35 to 45 percent of world defense spending and **maintained peerless global power-projection capabilities**.⁷ Perhaps more important, U.S. primacy was also **unrivaled in key overseas strategic regions**—Europe, East Asia, the Middle East. From **thrashing Saddam** Hussein’s million-man Iraqi military during Operation Desert Storm, to deploying—with impunity—two carrier strike groups off Taiwan during the China-Taiwan crisis of 1995–96, Washington has been able to project military power **superior** to anything a **regional rival** could employ even **on its own geopolitical doorstep**. This **military dominance** has constituted the **hard-power backbone** of an ambitious global strategy. After the Cold War, U.S. policymakers committed to averting a return to the **unstable multipolarity** of earlier eras, and to perpetuating the more favorable unipolar order. They committed to building on the successes of the postwar era by further advancing **liberal political values** and an open international **economy**, and to **suppressing** international scourges such as **rogue states**, **nuclear proliferation**, and catastrophic **terrorism**. And because they recognized that military force remained the ultimate ratio regum, they understood the **centrality** of military preponderance. **Washington** would **need the military power** necessary **to underwrite** worldwide **alliance commitments**. It would **have to preserve substantial overmatch** versus any potential **great-power rival**. It must be able to answer the sharpest challenges to the international system, such as Saddam’s invasion of Kuwait in 1990 or jihadist extremism after 9/11. Finally, **because prevailing global norms generally reflect hard-power realities**, America would need the superiority to assure that its own **values remained ascendant**. It was impolitic to say that U.S. **strategy** and the international order **required** **“strengths beyond challenge,”** but it was not at all inaccurate. American primacy, moreover, was eminently affordable. At the height of the Cold War, the United States spent over 12 percent of GDP on defense. Since the mid-1990s, the number has usually been between 3 and 4 percent.⁸ In a historically favorable international environment, Washington could enjoy primacy—and its geopolitical fruits—on the cheap. Yet U.S. strategy also heeded, at least until recently, the fact that there was a limit to how cheaply that primacy could be had. The American military did shrink significantly during the 1990s, but U.S. officials understood that if Washington cut back too far, its primacy would erode to a point where it ceased to deliver its geopolitical benefits. **Alliances** would **lose credibility**; the **stability** of key **regions** would be **eroded**; **rivals** would be **emboldened**; **international crises** would **go unaddressed**. American primacy was thus like a **reasonably priced insurance policy**. It required nontrivial expenditures, but protected against far costlier **outcomes**.⁹ Washington paid its insurance premiums for two decades after the Cold War. But more **recently** American primacy and strategic solvency have been imperiled.

THE DARKENING HORIZON For most of the post–Cold War era, the international system was—by historical standards—remarkably benign. Dangers existed, and as the terrorist attacks of September 11, 2001, demonstrated, they could manifest with horrific effect. But for **two decades after the Soviet collapse**, the world was characterized by **remarkably low levels of great-power competition**, high levels of **security** in key theaters such as **Europe** and **East Asia**, and the **comparative weakness** of those **“rogue” actors**—Iran, Iraq, North Korea, al-Qaeda—who most aggressively challenged American power. During the 1990s, some observers even spoke of a “strategic pause,” the idea being that the end of the Cold War had afforded the United States a respite from normal levels of geopolitical danger and competition. Now, however, **the strategic horizon is darkening**, due to four factors. First, **great-power military competition is back**. The world’s two leading authoritarian powers—**China** and **Russia**—are **seeking regional hegemony**, contesting global norms such as nonaggression and freedom of navigation, and **developing the military punch** to underwrite these ambitions. Notwithstanding severe economic and demographic problems, Russia has conducted a major military **modernization** emphasizing **nuclear weapons**, high-end conventional capabilities, and rapid-deployment and special operations forces—and utilized many of these capabilities in conflicts in Ukraine and Syria.¹⁰ China, meanwhile, has **carried out a buildup of historic proportions**, with constant-dollar defense outlays rising from US\$26 billion in 1995 to US\$226 billion in 2016.¹¹ Ominously, these **expenditures** have **funded** development of **power-projection and antiaccess/area denial (A2/AD) tools** necessary to threaten China’s neighbors and complicate U.S. intervention on their behalf. Washington has grown accustomed to having a generational military lead; **Russian and Chinese modernization**

efforts are now creating a far more competitive environment. Second, the international outlaws are no longer so weak. North Korea's conventional forces have atrophied, but it has amassed a growing nuclear arsenal and is developing an intercontinental delivery capability that will soon allow it to threaten not just America's regional allies but also the continental United States.¹² Iran remains a nuclear threshold state,^{one} that continues to develop ballistic missiles and A2/AD capabilities while employing sectarian and proxy forces across the Middle East. The Islamic State, for its part, is headed for defeat, but has displayed military capabilities unprecedented for any terrorist group, and shown that counterterrorism will continue to place significant operational demands on U.S. forces whether in this context or in others. Rogue actors have long preoccupied American planners, but the rogues are now more capable than at any time in decades. Third, the democratization of technology has allowed more actors to contest American superiority in dangerous ways. The spread of antisatellite and cyberwarfare capabilities; the proliferation of man-portable air defense systems and ballistic missiles; the increasing availability of key elements of the precision-strike complex—these phenomena have had a military leveling effect by giving weaker actors capabilities which were formerly unique to technologically advanced states. As such technologies proliferate worldwide,[”] Air Force Chief of Staff General David Goldfein commented in 2016, “the technology and capability gaps between America and our adversaries are closing dangerously fast.”¹³ Indeed, as these capabilities spread, fourth-generation systems (such as F-15s and F-16s) may provide decreasing utility against even non-great-power competitors and far more fifth-generation capabilities may be needed to perpetuate American overmatch. Finally, the number of challenges has multiplied. During the 1990s and early 2000s, Washington faced rogue states and jihadist extremism—but not intense great-power rivalry. America faced conflicts in the Middle East—but East Asia and Europe were comparatively secure. Now, the old threats still exist—but the more permissive conditions have vanished. The United States confronts rogue states, lethal jihadist organizations, and great-power competition; there are severe challenges in all three Eurasian theaters. “I don't recall a time when we have been confronted with a more diverse array of threats, whether it's the nation state threats posed by Russia and China and particularly their substantial nuclear capabilities, or non-nation states of the likes of ISIL, Al Qaida, etc.,” Director of National Intelligence James Clapper commented in 2016. Trends in the strategic landscape constituted a veritable “litany of doom.”¹⁴ The United States thus faces not just more significant, but also more numerous, challenges to its military dominance than it has for at least a quarter century.

Goes nuclear!

Leaders 18 [(Leaders take part in “a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress.”) “The growing danger of great-power conflict” January 27, 2018. *The Economist*. <https://www.economist.com/leaders/2018/01/25/the-growing-danger-of-great-power-conflict>]

IN THE past 25 years war has claimed too many lives. Yet even as civil and religious strife have raged in Syria, central Africa, Afghanistan and Iraq, a devastating clash between the world's great powers has remained almost unimaginable. No longer. Last week the Pentagon issued a new national defence strategy that put China and Russia above jihadism as the main threat to America. This week the chief of Britain's general staff warned of a Russian attack. Even now America and North Korea are perilously close to a conflict that risks dragging in China or escalating into nuclear catastrophe. As our special report this week on the future of war argues, powerful, long-term shifts in geopolitics and the proliferation of new technologies are eroding the extraordinary military dominance that America and its allies have enjoyed. Conflict on a scale and intensity not seen since the second world war is once again plausible. The world is not prepared. The pressing danger is of war on the Korean peninsula, perhaps this year. Donald Trump has vowed to prevent Kim Jong Un, North Korea's leader, from being able to strike America with nuclear-armed ballistic missiles, a capability that recent tests suggest he may have within months, if not already. Among many contingency plans, the Pentagon is considering a disabling pre-emptive strike against the North's nuclear sites. Despite low confidence in the success of such a strike, it must be prepared to carry out the president's order should he give it. Even a limited attack could trigger all-out war. Analysts reckon that North Korean artillery can bombard Seoul, the South Korean capital, with 10,000 rounds a minute. Drones, midget submarines and tunnelling commandos could deploy biological, chemical and even nuclear weapons. Tens of thousands of people would perish; many more if nukes were used. This newspaper has argued that the prospect of such horror means that, if diplomacy fails, North Korea should be contained and deterred instead. Although we stand by our argument, war is

a real possibility (see article). Mr Trump and his advisers may conclude that a nuclear North would be so reckless, and so likely to cause nuclear proliferation, that it is better to risk war on the Korean peninsula today than a nuclear strike on an American city tomorrow. Even if China stays out of a second Korean war, both it and Russia are entering into a renewal of great-power competition with the West. Their ambitions will be even harder to deal with than North Korea's. Three decades of unprecedented economic growth have provided China with the wealth to transform its armed forces, and given its leaders the sense that their moment has come. Russia, paradoxically, needs to assert itself now because it is in long-term decline. Its leaders have spent heavily to restore Russia's hard power, and they are willing to take risks to prove they deserve respect and a seat at the table. Both countries have benefited from the international order that America did most to establish and guarantee. **But they see its pillars—universal human rights, democracy and the rule of law—as an imposition that excuses foreign meddling and undermines their own legitimacy.** They are now revisionist states that want to challenge the status quo and look at their regions as spheres of influence to be dominated. For China, that means East Asia; for Russia, eastern Europe and Central Asia. Neither China nor Russia wants a direct military confrontation with America that they would surely lose. But they are using their growing hard power in other ways, in particular by exploiting a “grey zone” where aggression and coercion work just below the level that would risk military confrontation with the West. In Ukraine Russia has blended force, misinformation, infiltration, cyberwar and economic blackmail in ways that democratic societies cannot copy and find hard to rebuff. China is more cautious, but it has claimed, occupied and garrisoned reefs and shoals in disputed waters. China and Russia have harnessed military technologies invented by America, such as long-range precision-strike and electromagnetic-spectrum warfare, to raise the cost of intervention against them dramatically. Both have used asymmetric-warfare strategies to create “anti-access/area denial” networks. **China aims to push American naval forces far out into the Pacific where they can no longer safely project power into the East and South China Seas. Russia wants the world to know that, from the Arctic to the Black Sea, it can call on greater firepower than its foes—and that it will not hesitate to do so.** If America allows China and Russia to establish regional hegemonies, either consciously or because its politics are too dysfunctional to muster a response, it will have given

them a green light to pursue their interests by brute force. **When that was last tried, the result was the first world war. Nuclear weapons, largely a source of stability since 1945, may add to the danger. Their command-and-control systems are becoming vulnerable to hacking by new cyber-weapons or “blinding” of the satellites they depend on. A country under such an attack could find itself under pressure to choose between losing control of its nuclear weapons or using them.**

Nuclear war causes extinction – mass starvation and ice age.

Starr 15 (Steven Starr 15. “Nuclear War: An Unrecognized Mass Extinction Event Waiting To Happen.” Ratical. March 2015. <https://ratical.org/radiation/NuclearExtinction/StevenStarr022815.html>) TG

A war fought with 21st century strategic nuclear weapons would be more than just a great catastrophe in human history. If we allow it to happen, such a war **would be a mass extinction event** that ends human history. There is a profound difference between extinction and “an unprecedented disaster,” or even “the end of civilization,” because even after such an immense catastrophe, human life would go on. ^{But} extinction, by definition, is an event of utter finality, and a nuclear war that could cause human extinction should really be considered as the ultimate criminal act. It certainly would be the crime to end all crimes. **The world's leading climatologists now tell us that nuclear war threatens our continued existence as a species.** ^{Their} studies predict that a large nuclear war, especially one fought with strategic nuclear weapons, would create a post-war environment in which for many years **it would be too cold and dark to even grow food.** Their findings make it clear that **not only humans, but most large animals and many other forms of complex life would likely vanish forever in a nuclear darkness** of our own making. **The environmental consequences of nuclear war would attack the ecological support systems of life at every level. Radioactive fallout produced not only by nuclear bombs, but also by the destruction of nuclear power plants and their spent fuel pools, would poison the biosphere.** Millions of tons of smoke would act to destroy Earth's protective ozone layer **and block most sunlight from reaching Earth's surface, creating Ice Age weather conditions that would last for decades.** Yet the political and military leaders who control nuclear weapons strictly avoid any direct public discussion of the consequences of nuclear war. They do so by arguing that nuclear weapons are not intended to be used, but only to deter. Remarkably, the leaders of the Nuclear Weapon States have chosen to ignore the authoritative, long-standing scientific research done by the climatologists, **research that predicts virtually any nuclear war, fought with even a fraction of the operational and deployed nuclear arsenals, will leave the Earth essentially uninhabitable.**

Innovation

IP protection is critical to innovation – it incentivizes risk-taking by boosting investments

Ezell and Cory 19 [(Stephen, vice president, global innovation policy, at the Information Technology and Innovation Foundation, B.S. from the School of Foreign Service at Georgetown University, and Nigel, associate director covering trade policy at the Information Technology and Innovation Foundation, former researcher in the Southeast Asia Program at the Center for Strategic and International Studies, MA in public policy from Georgetown University) “The Way Forward for Intellectual Property Internationally,” Information Technology and Innovation Foundation, 4/25/2019] TDI

IPR reforms also introduce strong incentives for domestic innovation. Sherwood, using case studies from 18 developing countries, concluded that poor provision of intellectual property rights deters local innovation and risk-taking.⁴⁷ In contrast, IPR reform has been associated with increased innovative activity, as measured by domestic patent filings, albeit with some variation across countries and sectors.⁴⁸ For example, Ryan, in a study of biomedical innovations and patent reform in Brazil, found that patents provided incentives for innovation investments and facilitated the functioning of technology markets.⁴⁹ Park and Lippoldt also observed that the provision of adequate protection for IPRs can help to stimulate local innovation, in some cases building on the transfer of technologies that provide inputs and spillovers.⁵⁰ In other words, local innovators are introduced to technologies first through the technology transfer that takes place in an environment wherein protection of IPRs is assured; then, they may build on those ideas to create an evolved product or develop alternate approaches (i.e., to innovate). Related research finds that trade in technology—through channels including imports, foreign direct investment, and technology licensing—improves the quality of developing-country innovation by increasing the pool of ideas and efficiency of innovation by encouraging the division of innovative labor and specialization.⁵¹ However, Maskus notes that without protection from potential abuse of their newly developed technologies, foreign enterprises may be less willing to reveal technical information associated with their innovations.⁵² The protection of patents and trade secrets provides necessary legal assurances for firms wishing to reveal proprietary characteristics of technologies to subsidiaries and licensees via contracts.

The relationship between IPR rights and innovation can also be seen in studies of how the introduction of stronger IPR laws, with regard to patents, copyrights, and trademarks, affect R&D activity in an economy. Studies by Varsakelis and by Kanwar and Evenson found that R&D to GDP ratios are positively related to the strength of patent rights, and are conditional on other factors.⁵³ Cavazos Cepeda et al. found a positive influence of IPRs on the level of R&D in an economy, with each 1 percent increase in the level of protection of IPRs in an economy (as measured by improvements to a country's score in the Patent Rights Index) equating to, on average, a 0.7 percent increase in the domestic level of R&D.⁵⁴ Likewise, a 1 percent increase in copyright protection was associated with a 3.3 percent increase in domestic R&D. Similarly, when trademark protection increased by 1 percent, there was an associated R&D increase of 1.4 percent. As the authors concluded, “Increases in the protection of the IPRs carried economic benefits in the form of higher inflows of FDI, and increases in the levels of both domestically conducted R&D and service imports as measured by licensing fees.”⁵⁵ As Jackson summarized, regarding the relationship between IPR reform and both innovation and R&D, and FDI, “In addition to spurring domestic innovation, strong intellectual property rights can increase incentives for foreign direct investment which in turn also leads to economic growth.”⁵⁶

Medical innovations key to future

Remes et al 20 (<https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/ten-innovations-that-can-improve-global-health>, McKinsey Global Institute Ten innovations that can improve global health July 15, 2020 | Article, Jaana Remes is a partner of the McKinsey Global Institute, where Jonathan Woetzel is a director and Sven Smit is co-chair and a director. Katherine Linzer is a partner in McKinsey's Chicago office. Shubham Singhal is a senior partner in the Detroit office. Martin Dewhurst and Penelope Dash are senior partners in the London office, where Kristin-Anne Rutter is a partner. Matthias Evers is a senior partner in the Hamburg office. Matt Wilson is a senior partner in the New York office. Aditi Ramdorai is a consultant in the Berlin office.//lex AL)

By 2040, new technologies could reduce the total burden of disease by 6 to 10 percent. Today's interventions are the innovations of the past. Without them, healthy lifespans would not be as long as they are. **Innovation continues to be critical to tackle diseases**

without known cures and to help increase uptake and adherence to interventions that work. As part of the report *Prioritizing health: A prescription for prosperity*, the McKinsey Global Institute identified ten **promising innovations**, now in progress, that could have a **material impact on health** by 2040. Focusing on technologies that address the greatest unmet needs, we determined the impact of these innovations by interviewing experts and evaluating the current biological understanding of each disease, as well as the effort and excitement surrounding the new techniques as measured by funding. Identifying and sizing the potential scope of innovations now in the pipeline is inherently difficult, but we estimate that these technologies could reduce the burden of disease by a further 6 to 10 percent, assuming aspirational yet realistic adoption rates by 2040—on top of the 40 percent from known interventions. Some of these **innovations could** not only fully cure a number of diseases but also **significantly extend healthy lifespans** by tackling the underlying biology of aging and therefore postponing the onset of several age-related conditions. These possibilities make a sharp contrast with the innovations of the past 30 years, many of which reduced the symptoms or delayed the progression of diseases but rarely prevented or cured them. In addition, the innovations we have identified here are more digitally enabled than those of the past; for example, artificial intelligence (AI) systems make advances in omics and molecular technologies, such as gene editing, faster and more accurate. How can we improve health globally over the next two decades? **Omics and molecular technologies** These technologies—key components of the Bio Revolution—are

therapeutics or diagnostics that **harness the various types of molecules within cells** (such as DNA, RNA, and proteins). Some omics and molecular technologies (for instance, genome editing) engineer these intracellular components or analyze them (such as proteomics and transcriptomics). Example: CRISPR and curbing malaria The current treatment includes antimalarial prophylactics and nonpharmaceutical measures (such as indoor residual spraying and insecticide-treated bed netting) and antimalarial medications. Genetically **modifying malaria-carrying mosquitos** by **using** gene-editing technologies, such as **CRISPR**, may **significantly reduce disease levels** by propagating the modified genes across the mosquito population. Next-generation pharmaceuticals Newer iterations of traditional chemical compounds (small molecules) and classes of molecules could be used as medicinal drugs, possibly with multiple and concurrent target structures. Example: Senolytics and the regulation of cellular aging Cellular aging (senescence) is considered an unavoidable physiological process that is not a viable field for drug development. But senolytics (a class of small molecules) may decrease or eliminate aging cells that can cause cellular inflammation, dysfunction, and tissue damage. This has implications for delaying age-related diseases. Cellular therapy and regenerative medicine Cellular therapy is a biological product, derived from living cells, used for therapeutic purposes to replace or repair damaged cells or tissues. Regenerative medicine has the power to restore diseased or injured tissues and organs, potentially decreasing reliance on transplantation. Example: CAR T-cell therapy and the treatment of solid tumors Today, treatment is based primarily on unspecific radiotherapy and chemotherapeutic agents, plus surgical interventions. In many cases, these approaches are ineffective. CAR T-cell therapy reprograms a patient's T-cells (immune-system cells) to target tumor cells. When infused into the patient, the T-cells bind to an antigen on tumor cells, attacking and destroying them.

Innovative vaccines Vaccines **stimulate the immune system to** respond to and **destroy a bacterium or virus**

Historically, they have **eradicated or controlled the spread of infectious diseases** around the world. In the future, vaccines may target noncommunicable diseases, such as cancer. Example: The AT04A vaccine and the lowering of cholesterol At present, patients take statins (lipid-lowering medicines) to control or lower high cholesterol levels in the blood. Patients with cardiovascular disease must take these daily, but adherence is often poor. AT04A is a vaccine made up of molecules that bind to blood cholesterol and degrade it. The vaccine would be required only once a year, potentially improving outcomes. Advanced surgical procedures These include treating injuries or disorders of the body with minimally invasive incisions or small instruments (including robotic surgery), as well as any technique that improves surgery-related processes outside the operating room. Example: Suspended animation for severe-trauma patients After patients suffer acute trauma (such as an accident) it may take time to get them to hospitals for surgery. That significantly decreases their chances of survival. Suspended animation for severe-trauma patients would involve, for example, injecting a cold saline solution into them on first contact to cool the body to 10–15°C and stop its normal functions. This would give the surgeon time to operate before resuscitating the patient. Connected and cognitive devices Portable, wearable, ingestible, or implantable devices can monitor health and fitness information, engage patients and their communities of caregivers, and deliver self-regulated therapies autonomously. Example: E-tattoos for heart diagnostics Today's technology relies on a Holter monitor (a battery-operated device) to monitor the heart continuously. The monitor's batteries last for no more than 48 hours, and the procedure can cause immense discomfort for patients. Ultrathin e-tattoos can monitor hearts for longer periods and make patients more comfortable while providing a wider range of data to enhance clinical decision making. **Electroceuticals** Small therapeutic agents can **target the neural circuits of organs** Such therapies map neural circuitry with neural

impulses (administered by an implantable device) delivered to these specific targets. Example: Implantable microchips to **mitigate chronic pain** Today, managing chronic pain involves nonindividualized treatment with multiple drugs (including opioids) and relatively ineffective late-stage surgery. But one technique now under development—stimulating the spinal cord—can improve the patient's quality of life by increasing mobility, enhancing sleep, and reducing the need for pain medication. Robotics and prosthetics A wide variety of programmable, self-controlled devices consisting of electronic, electrical, or mechanical units and of artificial substitutes or replacements for body parts are now under development. Example: Next-generation exoskeletons and mobility support Today's mechanical mobility aids do not fully restore movement in the elderly, so they do not prevent a loss of independence and the risk of accidental injuries. Next-generation exoskeletons, powered by small motors that mimic human muscles, could allow older patients to recover their autonomy while reducing the likelihood of accidents and falls. Digital therapeutics These preventive and therapeutic evidence-based interventions, for a broad spectrum of physical, mental, and behavioral conditions, are controlled by software. Example: An AI-powered app to change behavior Apart from brief consultations, doctors now have few tools to help patients with chronic conditions adopt healthy lifestyles. In the future, digital therapeutics, powered by AI, patient data, and behavioral science, can use gamification and other forms of engagement to help patients adopt and sustain healthy behaviors. Tech-enabled care delivery These ways to deliver care incorporate new and larger data sets, use new analytics capabilities to generate insights, and help providers apply them to patients to improve the outcome, experience, and efficiency of care. Example: **Multichannel care delivery** Inefficient data management and poor communication among patients,

payers, and providers hinder the continuity of care and therefore make treatment significantly less efficient. Innovative multichannel care delivery using online platforms may **facilitate data sharing and make treatment more efficient**. This is particularly relevant for chronic diseases, such as diabetes, because the glucose levels and other vital signs of patients are continuously shared with clinicians. **Innovation**—in the form of **new medicines, procedures, medical devices, technologies, and delivery models**—**will** clearly **be critical to go on improving the health of the world's population**. Realizing these innovations, however, will require continual R&D investments by pharmaceutical companies, medical and other technology companies, and academia.