# 1

#### NASA is preserving resources by leveraging private partnerships

Miriam Kramer 21, author of Space, “NASA's plans for the future hinge on the success of private companies,” Axios, 12-7-2021, https://www.axios.com/nasa-private-spaceflight-plans-5a5710e6-5223-4da3-8c5d-5a712e1d862e.html

The private space players who will drive NASA's plans for the coming decade are declaring themselves and defining the stakes. Why it matters: NASA plans to focus on getting people to Mars and the Moon, and its deep space exploration ambitions hinge on the agency being able to successfully hand over major operations in low-Earth orbit to private companies. The space agency hopes companies will build private space stations that its astronauts can use and to continue to buy space on private rockets for launching its satellites and other payloads to orbit and beyond. NASA's "big experiment" right now is to test where these commercial partnerships work, the Planetary Society's Casey Dreier told Axios. What's happening: Last week, NASA announced it would award multimillion-dollar contracts to three teams of commercial space companies to start designing and building privately operated space stations.

#### Plan forces spending trade-offs that crush effective Earth sciences --- risks catastrophic climate change

Haymet 7 (Tony, Director of the Scripps Institution of Oceanography – University of California, San Diego, Mark Abbott, Dean of the College of Oceanic and Atmospheric Science – Oregon State University, and Jim Luyten, Acting Director – Woods Hole Oceanographic Institution, “The Planet NASA Needs to Explore”, Washington Post, 5-10, [http://www.washingtonpost.com/wp-dyn/content/article/2007/05/09/AR2007050902451.html](http://www.lexis.com/research/retrieve))

Decades ago, a shift in NASA priorities sidelined progress in human space exploration. As momentum gathers to reinvigorate human space missions to the moon and Mars, we risk hurting ourselves, and Earth, in the long run. Our planet -- not the moon or Mars -- is under significant threat from the consequences of rapid climate change. Yet the changing NASA priorities will threaten exploration here at home.

NASA not only launches shuttles and builds space stations, it also builds and operates our nation's satellites that observe and monitor the Earth. These satellites collect crucial global data on winds, ice and oceans. They help us forecast hurricanes, track the loss of Arctic sea ice and the rise of sea levels, and understand and prepare for climate changes.

NASA's budget for science missions has declined 30 percent in the past six years, and that trend is expected to continue. As more dollars are reallocated to prepare for missions back to the moon and Mars, sophisticated new satellites to observe the Earth will be delayed, harming Earth sciences.

The National Academy of Sciences has noted that the Landsat satellite system, which takes important measurements of global vegetation, is in its fourth decade of operation and could fail without a clear plan for continuation. The same is true for the QuikSCAT satellite, which provides critical wind data used in forecasting hurricanes and El Niño effects.

In January, a partnership of university and NASA scientists demonstrated that climate change and higher ocean temperatures were reducing the growth of microscopic plants and animals at the heart of the marine food web.

Their analysis was based on nearly a decade of NASA satellite measurements of ocean color, which unfortunately are at risk of being interrupted for several years.

Sea levels are rising, and the Arctic Ocean may be ice-free in summer. The buildup of carbon dioxide in the oceans threatens to make them more acidic, which may in turn hinder the ability of some types of marine life, including corals, to build their shells and skeletons. We must learn as much as we can to assess these threats and develop solutions.

Satellites provide coverage of vast, remote regions of our planet that would otherwise remain unseen, especially the oceans, which play an important role in climate change. Without accurate data on such fundamentals as sea surface height, temperatures and biomass, as well as glacier heights and snowpack thickness, we will not be able to understand the likelihood of dangers such as more severe hurricanes along the Gulf Coast or more frequent forest fires in the Pacific Northwest.

Climate change is the most critical problem the Earth has ever faced.

Government agencies and the private sector, as well as individual citizens, need to better grasp the risks and potential paths of global climate change. Mitigating these risks and preparing for the effects of warming will require scientific understanding of how our complex planet operates, how it is changing, and how that change will affect the environment and human society.

John F. Kennedy's brilliant call to put a man on the moon by the end of the 1960s set an arbitrary deadline, but the deadline we face today is set by nature. NASA must continue to play a vital role in helping find ways to protect our planet for (and perhaps from) its intelligent life. Exploration of space is a noble quest. But we can't afford to be so starry-eyed that we overlook our own planet.

#### Warming causes extinction – a confluence of nonlinear and unpredictable effects will make human and natural systems inhospitable while increasing escalatory conflicts – even if the impacts are far off, only drastic action now solves

Melton 19 [Michelle Melton is a 3L at Harvard Law School. Before law school, she was an associate fellow in the Energy and National Security Program at the Center for Strategic and International Studies, where she focused on climate policy. Climate Change and National Security, Part II: How Big a Threat is the Climate? January 7, 2019. https://www.lawfareblog.com/climate-change-and-national-security-part-ii-how-big-threat-climate]

At least until 2050, and possibly for decades after, climate change will remain a creeping threat that will exacerbate and amplify existing, structural global inequalities. While the developed world will be negatively affected by climate change through 2050, the consequences of climate change will be felt most acutely in the developing world. The national security threats posed by climate change to 2050 are likely to differ in degree, not kind, from the kinds of threats already posed by climate change. For the next few decades, climate change will exacerbate humanitarian crises—some of which will result in the deployment of military personnel, as well as material and financial assistance. It will also aggravate natural resource constraints, potentially contributing to political and economic conflict over water, food and energy.

The question for the next 30 years is not “can humanity survive as a species with 1.5°C or 2°C of warming,” but, “how much will the existing disparities between the developed and developing world widen, and how long (and how successfully) can these widening political/economic disparities be sustained?” The urgency of the climate threat in the next few decades will depend, to a large degree, on whether and how much the U.S. government perceives a widening of these global inequities as a threat to U.S. national security.

By contrast, if emissions continue to creep upward (or if they do not decline rapidly), by 2100 climate-related national security threats could be existential. The question for the next hundred years is not, “are disparities politically and economically manageable?” but, “can the global order, premised on the nation-state system, itself based on territorial sovereignty, survive in a world in which substantial swathes of territory are potentially uninhabitable?”

National Security Consequences of Climate Change to 2050

Scientists can predict the consequences of climate change to 2050 with some measure of certainty. (Beyond that date, the pace and magnitude of climate change—and therefore, the national security threat posed by it—depend heavily on the level of emissions in the coming years, as I have explained.) There is relative agreement across modeled climate scenarios that the world will likely warm, on average, at least 1.5°C above pre-industrial levels by about 2050—but perhaps as soon as 2030. This level of warming is likely to occur even if the world succeeds in dramatically reducing greenhouse gas emissions, as even the recent Intergovernmental Panel on Climate Change (IPCC) report implicitly admits. In other words, a certain amount of additional warming—at least 1.5°C, and probably more than that—is presumptively unavoidable.

Looking ahead to 2050, it can be said with relative confidence that the national security consequences of climate change will vary in degree, not in kind, from the national security threats already facing the United States. This is hardly good news. Even small differences in global average temperatures result in significant environmental changes, with attendant social, economic and political consequences. By 2050, climate change will wreak increasing havoc on human and natural systems—predominantly, but not exclusively, in the developing world—with attenuated but profound consequences for national security.

In particular, changes in temperature, the hydrological cycle and the ranges of insects will impact food availability and food access in much of the world, increasing food insecurity. Storms, flooding, changes in ocean pH and other climate-linked changes will damage infrastructure and negatively impact labor productivity and economic growth in much of the world. Vector-borne diseases will also become more prevalent, as climate change will expand the geographic range and intensity of transmission of diseases like malaria, West Nile, Zika and dengue fever, and cholera. Rising public health challenges, economic devastation and food insecurity will translate into an increased demand for humanitarian assistance provided by the military, increased migration—especially from tropical and subtropical regions—and geopolitical conflict.

Long-term trends such as declining food security, coupled with short-term events like hurricanes, could sustain unprecedented levels of migration. The 2015 refugee crisis in Europe portends the kinds of population movements that will only accelerate in the coming decades: people from Africa, Southwest and South Asia and elsewhere crossing land and water to reach Europe. For the United States, this likely means greater numbers of people seeking entry from both Central America and the Caribbean. Such influxes are not unprecedented, but they are unlikely to abate and could increase in volume over the next few decades, driven in part by climate change-related food insecurity, climate change-related storms and also by economic and political instability. Food insecurity, economic losses and loss of human life are also likely to exacerbate existing political tensions in the developing world, especially in regions with poor governance and/or where the climate is particularly vulnerable to warming (e.g., the Mediterranean basin). While the Arab Spring had many underlying causes, it also coincided with a period of high food prices, which arguably contributed to the protests. In some situations, food insecurity, economic losses and public health crises, combined with weak and ineffectual governance, could precipitate future conflicts of this kind—although it will be difficult to know where and when without more precise local studies of both underlying political dynamics and the regionally-specific impacts of climate change.

2100 and Beyond

While the national security impacts of climate change to 2050 are likely to be costly and disruptive for the U.S. military—and devastating for many people around the world—at some point after 2050, if warming continues at its current pace, changes to the climate could fundamentally reshape geopolitics and possibly even the current nation-state basis of the current global order.

To be clear, both the ultimate level of warming and its attendant political consequences is highly speculative, for the reasons I explained in my last post. Nonetheless, we do know that the planet is currently on track for at least 3-4°C of warming by 2100. The “known knowns” of higher levels of warming—say, 3°C—are frightening. At that 3°C of warming, for example, scientists project that there will be a nearly 70 percent decline in wheat production in Central America and the Caribbean, 75 percent of the land area in the Middle East and more than 50 percent in South Asia will be affected by highly unusual heat, and sea level rise could displace and imperil the lives hundreds of millions of people, among other consequences.

But even higher levels of warming are physically possible within this century. At these levels of warming, some regions of the world would be literally uninhabitable, likely resulting in the depopulation of the tropics, to say nothing of the consequences of sea-level rise for economically important cities such as Amsterdam and New York. Even if newly warmed regions of the far north could theoretically accommodate the resulting migrants, this presumes that the political response to this unprecedented global displacement would be orderly and conflict-free borders on fantasy.

The geopolitical consequences of significant levels of warming are severe, but if these changes occur in a linear way, at least there will be time for human systems to adjust. Perhaps more challenging for national security is the possibility that the until-now linear changes give way to abrupt and irreversible ones. Scientists forecast that, at higher levels of warming—precisely what level is speculative—humanity could trigger catastrophic, abrupt and unavoidable consequences to the ecosystem. The IPCC has considered nine such abrupt changes; one example is the potential shutting down of the Indian summer monsoon. Over a billion people are dependent upon the Indian monsoon, which provides parts of South Asia with about 80 percent of its annual rainfall; relatively minor changes in the monsoon in either direction can cause disasters. In 2010, a wetter monsoon led to the catastrophic flooding in Pakistan, which directly affected 20 million people; a drier monsoon in 2002 led to devastating drought. Studies suggest that the Indian summer monsoon has two stable states: wet (i.e., the current state) and dry (characterized by low precipitation over the subcontinent). At some point, if warming continues, the monsoon could abruptly shift into the second, “dry” state, with catastrophic consequences for over a billion people dependent on monsoon-fed agriculture. The IPCC suggests that such a state-shift is “unlikely”—that is, there is a 10 to 33 percent chance that a state-shift will happen in the 21st century—but scientists also have relatively low confidence in their understanding of the underlying mechanisms in this and other large-scale natural systems.

The consequences of abrupt, severe warming for national security are obvious in general, if unclear in the specifics. In 2003, the Defense Department asked a contractor to explore such a scenario. The resulting report outlined the offensive and defensive national security strategies countries may adopt if faced with abrupt climate change, and highlighted the increased risk of inter- and intra-state conflict over natural resources and immigration. Although the report may be off in its imagined timeframe (positing abrupt climate change by 2020), the world it conjures is improbable but not outlandish. If the Indian monsoon were to switch to dry state, and a billion people were suddenly without reliable food sources, for example, it is not clear how the Indian government would react, assuming it would survive in its current form. Major wars or low-intensity proxy conflicts seem likely, if not inevitable, in such a scenario.

This is not to say that a parade of climate horribles is certain—or even likely—to come to pass. Scientific understanding of the sensitivities in the climate system are far from perfect. It is also possible that emissions will decline more rapidly than anticipated, averting the worst consequences of climate change. But this outcome is far from guaranteed. And even if global emissions decline precipitously, humanity cannot be sure when or whether the planet has crossed a climate tipping point beyond which the incremental nature of the current changes shifts from the current linear, gradual progression to a non-linear and abrupt process.

Within the next few decades, the most likely scenario involves manageable, but costly, consequences on infrastructure, food security and natural disasters, which will be borne primarily by the world’s most impoverished citizens and the members of the military who provide them with humanitarian assistance and disaster relief. But while the head-turning national security impacts of climate change are probably several decades away, the nature of the threat is such that waiting until these changes manifest is not a viable option. By the time the climate consequences are severe enough to compel action, there is likely to be little that can be done on human timescales to undo the changes to environmental systems and the human societies dependent upon them.

# 2

#### US wins space race now due to private competition – its key to space dominance and militarization is good – the plan nukes the US’s silver bullet against Chinese aggression

Weichert 21 – former Congressional staff member who holds a Master of Arts in Statecraft & National Security Affairs from the Institute of World Politics in Washington, D.C. He is the founder of The Weichert Report: An Online Journal of Geopolitics [Brandon, “The Future of Space Exploration Depends on the Private Sector,” 7/5/2021, https://www.nationalreview.com/2021/07/the-future-of-space-exploration-depends-on-the-private-sector/#slide-1]

As Jeff Bezos, the wealthiest man on the planet, readies to launch himself into space aboard one of his own rockets, the world is watching the birth of a new dawn in space. Previously, America relied on its government agency, NASA, to propel it to the cosmos during the last space race with the Soviet Union. Today, America’s greatest hopes are with its private sector.

Jeff Bezos is not engaging in such risky behavior simply because he’s an adrenaline junky. No, he’s launching himself into orbit because his Blue Origins is in a titanic struggle with Elon Musk’s SpaceX — and Bezos’s firm is losing.

Whatever happens, the American people will benefit from the competition that is shaping up between America’s space entrepreneurs. This has always been how innovation occurs: through the dynamic, often cutthroat competition between actors in the private sector. While money is their ultimate prize, fame and fortune are also alluring temptations to make men like Musk and Bezos risk much of their wealth to change the world.

The private space race among these entrepreneurs is part of a far more important marathon between Red China and the United States. Whichever nation wins the new space race will determine the future of the earth below.

Consider this: Since winning its initial contracts to launch sensitive U.S. military satellites into orbit, SpaceX has lowered the cost of military satellite launches on taxpayers by “over a million dollars less” than what bigger defense contractors can do. Elon Musk is convinced that he can bring these costs down even more, thanks to his reusable Falcon 9 rocket.

The competition between the private space start-ups is fierce — just as the competition between Edison and Westinghouse was — but the upshot is ultimately greater innovation and lower costs for you and me. In fact, Elon Musk insists that if NASA gives SpaceX the contract for building the Human Landing System for the Artemis mission, NASA would return astronauts to the lunar surface by 2024 — four years before NASA believes it will do so. (Incidentally, 2024 is also when China anticipates having a functional base on the moon’s southern pole.)

Whereas China has an all-of-society approach to its space race with the United States, Washington has yet to fully galvanize the country in the way that John F. Kennedy rallied America to wage — and win — the space race in the Cold War. America’s private sector, therefore, is the silver bullet against China’s quest for total space dominance. If left unrestricted by meddlesome Washington bureaucrats, these companies will ensure that the United States retains its overall competitive advantage over China — and all other challengers, for that matter.

Indeed, the next four years could prove decisive in who will be victorious.

Enter the newly minted NASA director, Bill Nelson, whose station at the agency has effectively poured cold water on the private sector’s ambitious space plans. “Space is not going to be the Wild West for billionaires or anyone else looking to blast off,” Nelson admonished an inquiring reporter.

Why not?

America’s actions during its western expansion created a dynamic and advanced nation that was well-positioned to dominate the world for the next century. Should we not attempt to emulate this in order to remain dominant in the next century?

More important, this is precisely how China treats space: as a new Wild West . . . but one in which Beijing’s forces will dominate. China takes a leap-without-looking approach to space development — everything that can be done to further its grand ambition of becoming the world’s most dominant power by 2049 will be done. Meanwhile, the Biden administration wants to prevent America’s greatest strength, the free market, from helping to beat its foremost geopolitical competitor.

Nelson’s comments are fundamentally at odds with America’s spirit and animating principles. Whatever one’s opinion about Bezos or Musk, the fact is that their private space companies are inspiring greater innovation today in the space sector after years of its being left in the sclerotic hands of the U.S. government.

Sensing that the federal government’s dominance of U.S. space policy is waning, the Biden administration would rather cede the strategic high ground of space to China than let wildcatting innovators do the hard work. Today, the Federal Aviation Authority (FAA) and NASA are contriving new ways for strangling the budding private space sector, just as it is taking flight.

Risk aversion is not how one innovates. Risk is what led Americans to the moon just 66 years after the Wright brothers flew their first airplane. A willingness for risk doesn’t exist today in the federal government — which is why the feds shouldn’t be running space policy.

The U.S. government should be partnering with the new space start-ups, not shunning them. The FAA should be automatically approving SpaceX launches, not stymying them. The federal government will not win space any more than it could win the West or build the locomotive. It takes strong-willed, brilliant individuals of a rare caliber to do that. All government can do is to give the resources and support to private-sector innovators and let them make history for us.

The next decade will decide who wins space. Let it be America — and let America’s dynamic start-ups win that race, not China’s state capitalism.

#### And, space dominance key to global peace – nuclear and conventional deterrence is collapsing, which will provoke civilization-ending revisionist aggression from Russia and China

Dr. Robert Zubrin 19, Masters in Aeronautics and Astronautics and Ph.D. in Nuclear Engineering from the University of Washington, President of Pioneer Energy, Founder and President of the Mars Society, Senior Fellow with the Center for Security Policy, The Case for Space: How the Revolution in Spaceflight Opens Up a Future of Limitless Possibility, p. Google Books

The United States needs a new national security policy. For the first time in more than 60 years, we face the real possibility of a large-scale conventional war, and we are woefully unprepared.

Eastern and Central Europe is now so weakly defended as to virtually invite invasion. The United States is not about to go to nuclear war to defend any foreign country. So deterrence is dead, and, with the German army cut from 12 divisions to three, the British gone from the continent, and American forces down to a 30,000-troop tankless remnant, the only serious and committed ground force that stands between Russia and the Rhine is the Polish army. It’s not enough. Meanwhile, in Asia, the powerful growth of the Chinese economy promises that nation eventual overwhelming numerical force superiority in the region.

How can we restore the balance, creating a sufficiently powerful conventional force to deter aggression? It won’t be by matching potential adversaries tank for tank, division for division, replacement for replacement. Rather, the United States must seek to totally outgun them by obtaining a radical technological advantage. This can be done by achieving space supremacy.

To grasp the importance of space power, some historical perspective is required. Wars are fought for control of territory. Yet for thousands of years, victory on land has frequently been determined by dominance at sea. In the 20th century, victory on both land and sea almost invariably went to the power that controlled the air. In the 21st century, victory on land, sea or in the air will go to the power that controls space.

The critical military importance of space has been obscured by the fact that in the period since the United States has had space assets, all of our wars have been fought against minor powers that we could have defeated without them. Desert Storm has been called the first space war, because the allied forces made extensive use of GPS navigation satellites. However, if they had no such technology at their disposal, the end result would have been just the same. This has given some the impression that space forces are just a frill to real military power — a useful and convenient frill perhaps, but a frill nevertheless.

But consider how history might have changed had the Axis of World War II possessed reconnaissance satellites — merely one of many of today’s space-based assets — without the Allies having a matching capability. In that case, the Battle of the Atlantic would have gone to the U-boats, as they would have had infallible intelligence on the location of every convoy. Cut off from oil and other supplies, Britain would have fallen. On the Eastern front, every Soviet tank concentration would have been spotted in advance and wiped out by German air power, as would any surviving British ships or tanks in the Mediterranean and North Africa. In the Pacific, the battle of Midway would have gone very much the other way, as the Japanese would not have wasted their first deadly airstrike on the unsinkable island, but sunk the American carriers instead. With these gone, the remaining cruisers and destroyers in Adm. Frank Jack Fletcher’s fleet would have lacked air cover, and every one of them would have been hunted down and sunk by unopposed and omniscient Japanese air power. With the same certain fate awaiting any American ships that dared venture forth from the West Coast, Hawaii, Australia and New Zealand would then have fallen, and eventually China and India as well. With a monopoly of just one element of space power, the Axis would have won the war.

But modern space power involves far more than just reconnaissance satellites. The use of space-based GPS can endow munitions with 100 times greater accuracy, while space-based communications provide an unmatched capability of command and control of forces. Knock out the enemy’s reconnaissance satellites and he is effectively blind. Knock out his comsats and he is deaf. Knock out his navsats and he loses his aim. In any serious future conventional conflict, even between opponents as mismatched as Japan was against the United States — or Poland (with 1,000 tanks) is currently against Russia (with 12,000) — it is space power that will prove decisive.

Not only Europe, but the defense of the entire free world hangs upon this matter. For the past 70 years, U.S. Navy carrier task forces have controlled the world’s oceans, first making and then keeping the Pax Americana, which has done so much to secure and advance the human condition over the postwar period. But should there ever be another major conflict, an adversary possessing the ability to locate and target those carriers from space would be able to wipe them out with the push of a button. For this reason, it is imperative that the United States possess space capabilities that are so robust as to not only assure our own ability to operate in and through space, but also be able to comprehensively deny it to others.

*Space superiority* means having better space assets than an opponent. Space supremacy means being able to assert a complete monopoly of such capabilities. The latter is what we must have. If the United States can gain space supremacy, then the capability of any American ally can be multiplied by orders of magnitude, and with the support of the similarly multiplied striking power of our own land- and sea-based air and missile forces be made so formidable as to render any conventional attack unthinkable. On the other hand, should we fail to do so, we will remain so vulnerable as to increasingly invite aggression by ever-more-emboldened revanchist powers.

For this reason, both Russia and China have been developing and actively testing antisatellite (ASAT) systems. Up till now, the systems they have been testing have been ground launched, designed to orbit a few times and then collide with and destroy targets below one thousand kilometers altitude. This is sufficient to take out our reconnaissance satellites but not our GPS and communications satellites, which fly at twenty thousand and thirty-six thousand kilometers respectively. However, the means to reach these are straightforward, and, given their critical importance to us, there is every reason to believe that such development is well underway.11

The Obama administration sought to dissuade adversaries from developing ASATs by setting a good example and not working on them ourselves. This approach has failed. As a consequence, many defense policy makers are now advocating that we move aggressively to develop ASATs of our own. While more hardheaded than the previous policy, such an approach remains entirely inadequate to the situation.

The United States armed forces are far more dependent upon space assets than any potential opponent. Were both sides in a conflict able to destroy the space assets of the other, we would be the overwhelming loser by the exchange.

#### Space dominance solves hegemony – deterrence strategies, even rudimentary ones, are perceived as weakness and causes aggression

Weichert 17 (Brandon J. Weichert. Brandon J. Weichert is a former Congressional staff member who holds a Master of Arts in Statecraft & National Security Affairs from the Institute of World Politics in Washington, D.C. He is the founder of The Weichert Report: An Online Journal of Geopolitics, “The High Ground: The Case for U.S. Space Dominance,” Orbis, Vol 61, Issue 2, 2017, pp 227 – 237, <https://www.sciencedirect.com/science/article/pii/S0030438717300108>)

While space superiority and space dominance share a militarized view of space, there are fundamental differences in their stated end goals. Those who favor space superiority view space as a global commons, accessible to all in peacetime. They take a more defensive and reactive view of space and the actors who seek access to this domain. The space superiority model understands that U.S. dependence on space is vital for the basic functioning of American civilization (banking transactions, cell phone signals, GPS functions, television broadcasts, as well as essential military surveillance and support functions all across satellites in space). Yet, this model also accepts that current budgetary constraints mean that the United States is unlikely to invest significantly more into unwieldy and expensive space systems.

A strategy of space superiority accepts the risk arising from reliance on space systems, while deterring attacks on space assets. As actors such as China or Russia become increasingly dependent on space systems themselves, space superiority advocates believe that U.S. willingness to retaliate in kind against any attack on its own space assets is sufficient.7 This is in keeping with the classic deterrence model of Mutual Assured Destruction (MAD).

Unfortunately, however, U.S. dependence on space assets for its very survival is so much greater than any other state that such a threat is unrealistic. The reason that states like China or Russia are developing counter-space capabilities is because the cost to them is extremely low, whereas the benefit for them (in the event of war with the United States) is high. For the cost of a ground-based laser or an anti-satellite (ASAT) missile launcher, China could knock out the ability of all U.S. forces in the Pacific to coordinate and adequately defend themselves from a Chinese offensive.

What could the United States do to the Chinese in return? The best option for U.S. retaliation in space would be to launch some blinding attacks on the handful of China's space assets. However, this ultimately would not deter China from escalating any future conflict since China's investment in space is so low compared to that of the United States. In addition, since Chinese forces are designed to operate in an environment without those assets, such retaliation grounded on deterrence-based models becomes highly problematic and ineffective.

Rather than serving as a stabilizing force in space, then, the defensive and reactive space superiority model would be an inducement for conflict in the strategic high ground of space. Or, rather, the direction of attack would be unidirectional: from U.S. adversaries toward essential U.S. space systems. Thus, while space confers unequivocal advantages to the U.S. forces that depend on space assets for their vital functions, it also provides adversaries with an unprecedented weakness for them to exploit.

The fact is that United States, China, or Russia's dependence on space is asymmetrical. Over the long run, a deterrent-based, space superiority model would eventually allow other states not only to gain and maintain access to space, but also effectively to gain strategic parity with the United States in space. Make no mistake, the more that states are able to access space, no matter how nascent or rudimentary their space programs may be, the more they will refine their capabilities and be able to develop space programs for their own strategic ends. While most defense analysts believe that deterrence during the Cold War led to bipolar stability, a deterrence-based model in space would create instability. If a near-peer competitor like China or Russia believed that it had acquired the capacity to achieve parity with the United States, what would stop that state from trying to gain strategic advantage over America in space?

A Hegemonic Model

The best solution to avoid this situation is a hegemonic model. The only way that the United States can ensure its continued strategic advantage in space is to embrace fully the space dominance model by weaponizing space. While space superiority advocates will denounce this policy as both cost-ineffective and destabilizing, a hegemonic approach to space is far more in keeping with U.S. traditions and values. Indeed, as John Lewis Gaddis asserts, the American response to foreign threat is traditionally to take “the offensive, by becoming more conspicuous, by confronting, neutralizing, and if possible overwhelming the sources of danger rather than fleeing from them. Expansion, we have assumed, is the path to security.”8

What of the claim that a deterrence-based space superiority model creates stability? The primary claim of deterrence efficacy is that during the Cold War, the more or less equal nuclear balance ensured that neither side had an incentive to launch a disarming first strike. This view was the basis of the mutual assured destruction theory. Since there was no conceivable advantage to either side from these weapons, both sides were forced into a more constructive diplomatic relationship. In all of the time that deterrence was employed, American policymakers assured the public that MAD was better than the alternatives—compellence,9 Rollback,10 and hegemony—because it restrained Soviet aggression.

American policymakers assumed that the Soviet strategists in the Kremlin viewed nuclear arms in the same apocalyptic terms that they did. As such, U.S. policymakers were not only content to allow American nuclear dominance to erode, but also to degrade actively those capabilities through strategic arms agreements. In the meantime, until 1986, mainstream Soviet strategists and policymakers were convinced that they could prevail in a nuclear war. They were just biding their time.11

In this light then, deterrence was not built around the concept of enlightened self-interest, but more likely the result of U.S. policymakers’ inability to see through the fog of the Cold War. The Soviets were by definition a revolutionary power. Even after they had renounced the concept of spreading global communist revolution, however, the urge to transform fundamentally the world order to reflect their own image remained a high strategic priority for the USSR. The United States failed to discern this situation until the Reagan Administration.

President Ronald Reagan, rather than accept the Cold War deterrence paradigm, planned to bring American technical and strategic dominance to bear in space in order to help defeat the Soviet Union. Reagan also recognized that the demilitarized sanctuary view of space was irrelevant, and he eschewed arms control agreements that sought to counteract the inherent American advantages in space. President Reagan not only embraced a militarized view of space, but in 1983, he also called for the weaponization of space with his Strategic Defense Initiative (SDI).

By the 1980s, the United States was becoming increasingly dependent on space for military purposes (primarily in the area of satellites). These space systems formed the backbone of the modern military force that Reagan was assembling to counter the Soviet Union. What is more, Reagan's preferred strategy of Rollback meant that the United States would no longer sacrifice its own strategic advantages on the altar of diplomacy. After all, Reagan did not accept the Soviets as an equal and legitimate global power. He detested communism and viewed its proponents in the USSR as the great villains on the world stage. Furthermore, Reagan was staunchly opposed to nuclear weapons. Therefore, he sought to remove the notion of deterrence through MAD and replace it with the concept of hegemony through “Mutual Assured Survival.”

These views coalesced into the Reagan Administration's commitment to placing missile defense systems in orbit. It also called for developing new technologies (i.e., directed-energy weapons) to be used in space. The United States would not only remove the threat of the Soviet nuclear arsenal by creating a working missile defense system in space, but it would also move beyond the Soviet threat by permanently dominating the high ground of space. This position was the basis of SDI.12 In fact, the Reagan Administration's shift in focus was a key factor in the collapse of the Soviet Union as the Soviet leadership then embarked on a tit-for-tat arms buildup that their economy simply could not sustain. 13

Even if deterrence did facilitate a significant reduction in hostility—thereby creating the bipolar stability—no such hope for stability exists in space today. As argued earlier, U.S. reliance on space assets for its most basic functions is far greater than that of other countries. Furthermore, there is no way that the United States can—or should—abandon its use of space as a strategic domain. Thus, a hegemonic model for space dominance is the only hope to create the stability that most planners seek, while at the same time defending the American position in space.

Space dominance as a model for stability is nothing new. Indeed, Hegemonic Stability Theory (HST) asserts that the most stable global systems are those in which one actor dominates the system. In such a system, power is aggregated so greatly into a single, dominant actor that such a hegemonic power acts as a stabilizing force. Due to its relative strength, the hegemonic power can set the agenda and the rules that govern the system. The relative weakness of the other actors in the system is well understood, which then prompts these weak actors to abandon any hope of challenging the hegemonic power's rule. Eventually, they end up accommodating the hegemonic power. The lack of challenge creates peaceful stability.14 The fact that one actor is setting the rules means that the system is simple to operate in, as well.

The same logic that buttresses the HST international relations theory arguably undergirds the military strategy of space dominance. If this claim is so, then American hegemony in space is essential for the continued survival of the United States. Whereas there are legitimate arguments to be made regarding the reliance on deterrence-based models for creating stability during the Cold War, the fact is that the world is more multipolar today than it was 25 years ago. Despite what writer Fareed Zakaria has dubbed “the rise of the rest,”15 the United States still retains greater relative power. Therefore, it is inevitable and logical that the United States should expand its hegemonic position in space, in order to secure its place there.

Whereas deterrence-based models, such as space superiority, may have worked in a less chaotic international system, no such stability can be achieved today. Many of America's competitors are revanchist states intent on redefining the world order. They are not interested in preserving the American position in space. Also, they are not cowed by a U.S. deterrence strategy in space. Rather, they view such a policy as a concession that the United States is becoming weaker.

Space dominance would create greater stability than space superiority. Missile defense systems, tungsten rods, and even directed-energy weapons potentially would all be placed in key orbits around the Earth. This, on top of the existing U.S. space infrastructure, would prove to the world that the United States is committed to preserving its position in space. In a world of rogue states, space-based weapons likely would prevent surprise nuclear attacks. Failing that, the fact that the United States possessed strategic, offensive weapons in orbit—that could be brought down against any hostile actor—undoubtedly, would make even the most intractable foe hesitant.

It is arguable that overwhelming U.S. space power would trickle down from the strategic high ground to lower strategic domains. Rather than wasting time demonstrating resolve by “temporarily blinding Chinese satellites,”16 for example, the overwhelming American presence in space presumably would dissuade potential attackers.

#### US hegemony prevents great-power conflicts that escalates to nuclear war

Brands and Edel 19 (Hal Brands and Charles Edel. Hal Brands is the Henry Kissinger Distinguished Professor of Global Affairs in the Johns Hopkins School of Advanced International Studies and a scholar at the American Enterprise Institute. Charles Edel is a senior fellow at the United States Studies Centre at the University of Sydney and previously served on the U.S. Secretary of State’s policy planning staff, “Rediscovering Tragedy. In The Lessons of Tragedy: Statecraft and World Order; Chapter 6: The Darkening Horizon,” Yale University Press, pp 128-131 <http://www.jstor.org/stable/j.ctvbnm3r9.11>)

Each of these geopolitical challenges is different, and each reflects the distinctive interests, ambitions, and history of the country undertaking it. Yet there is growing cooperation between the countries that are challenging the regional pillars of the U.S.-led order. Russia and China have collaborated on issues such as energy, sales and development of military technology, opposition to additional U.S. military deployments on the Korean peninsula, and military exercises from the South China Sea to the Baltic. In Syria, Iran provided the shock troops that helped keep Russia’s ally, Bashar al-Assad, in power, as Moscow provided the air power and the diplomatic cover. “Our cooperation can isolate America,” supreme leader Ali Khamenei told Putin in 2017. 34 More broadly, what links these challenges together is their opposition to the constellation of power, norms, and relationships that the U.S.-led order entails, and in their propensity to use violence, coercion, and intimidation as means of making that opposition effective. Taken collectively, these challenges constitute a geopolitical sea change from the post– Cold War era.

The revival of great-power competition entails higher international tensions than the world has known for decades, and the revival of arms races, security dilemmas, and other artifacts of a more dangerous past. It entails sharper conflicts over the international rules of the road on issues ranging from freedom of navigation to the illegitimacy of altering borders by force, and intensifying competitions over states that reside at the intersection of rival powers’ areas of interest. It requires confronting the prospect that rival powers could overturn the favorable regional balances that have underpinned the U.S.-led order for decades, and that they might construct rival spheres of influence from which America and the liberal ideas it has long promoted would be excluded. Finally, it necessitates recognizing that great-power rivalry could lead to great-power war, a prospect that seemed to have followed the Soviet empire onto the ash heap of history.

Both Beijing and Moscow are, after all, optimizing their forces and exercising aggressively in preparation for potential conflicts with the United States and its allies; Russian doctrine explicitly emphasizes the limited use of nuclear weapons to achieve escalation dominance in a war with Washington.35 In Syria, U.S. and Russian forces even came into deadly contact in early 2018. American airpower decimated a contingent of government-sponsored Russian mercenaries that was attacking a base at which U.S. troops were present, an incident demonstrating the increasing boldness of Russian operations and the corresponding potential for escalation.36 The world has not yet returned to the epic clashes for global dominance that characterized the twentieth century, but it has returned to the historical norm of great-power struggle, with all the associated dangers.

Those dangers may be even greater than most observers appreciate, because if today’s great-power competitions are still most intense at the regional level, who is to say where these competitions will end? By all appearances, Russia does not simply want to be a “regional power” (as Obama cuttingly described it) that dominates South Ossetia and Crimea.37 It aspires to the deep European and extra-regional impact that previous incarnations of the Russian state enjoyed. Why else would Putin boast about how far his troops can drive into Eastern Europe? Why else would Moscow be deploying military power into the Middle East? Why else would it be continuing to cultivate intelligence and military relationships in regions as remote as Latin America?

Likewise, China is today focused primarily on securing its own geopolitical neighborhood, but its ambitions for tomorrow are clearly much bolder. Beijing probably does not envision itself fully overthrowing the international order, simply because it has profi ted far too much from the U.S.-anchored global economy. Yet China has nonetheless positioned itself for a global challenge to U.S. influence. Chinese military forces are deploying ever farther from China’s immediate periphery; Beijing has projected power into the Arctic and established bases and logistical points in the Indian Ocean and Horn of Africa. Popular Chinese movies depict Beijing replacing Washington as the dominant actor in sub-Saharan Africa—a fi ctional representation of a real-life effort long under way. The Belt and Road Initiative bespeaks an aspiration to link China to countries throughout Central Asia, the Middle East, and Europe; BRI, AIIB, and RCEP look like the beginning of an alternative institutional architecture to rival Washington’s. In 2017, Xi Jinping told the Nineteenth National Congress of the Chinese Communist Party that Beijing could now “take center stage in the world” and act as an alternative to U.S. leadership.38

These ambitions may or may not be realistic. But they demonstrate just how signifi cantly the world’s leading authoritarian powers desire to shift the global environment over time. The revisionism we are seeing today may therefore be only the beginning. As China’s power continues to grow, or if it is successful in dominating the Western Pacifi c, it will surely move on to grander endeavors. If Russia reconsolidates control over the former Soviet space, it may seek to bring parts of the former Warsaw Pact to heel. Historically, this has been a recurring pattern of great-power behavior—interests expand with power, the appetite grows with the eating, risk-taking increases as early gambles are seen to pay off.39 This pattern is precisely why the revival of great-power competition is so concerning—because geopolitical revisionism by unsatisfied major powers has so often presaged intensifying international conflict, confrontation, and even war. The great-power behavior occurring today represents the warning light flashing on the dashboard. It tells us there may be still-greater traumas to come.

# 3

#### The United States federal government should deploy space-based ballistic missile defense including at least a Brilliant Pebbles constellation of interceptors. The United States federal government should refuse to cooperate with the Russian Federation over the appropriation of outer space through asteroid mining by private entities.

#### Brilliant pebbles shoot down any missile – solves Russia and Space War

COOPER et al. 17 – \*Chairman of the Board of High Frontier, Ph.D. from New York University in mechanical engineering, and BS and MS degrees from Clemson University, \*\*Malcolm R. O’Niell, Former Assistant Secretary of the Army for Acquisition, Logistics and Technology, PhD in Physics at Rice University, MS in Physics at Rice, \*\*\*Robert L. Pfaltzgraff, Shelby Cullom Davis Professor of International Security Studies at Tufts, PhD in Political Science at University of Pennsylvania, MBA at Wharton, MA in International Relations at the University of Pennsylvania, \*\*\*Rowland H. Worrell, former Director of the SDI Brilliant Pebbles Task Force, Director of the National Test Facility Joint Program Office and Vice Commander of the USAF Space Warfare Center [Malcolm, “Reexamining the Strategic Defense Initiative,” American Foreign Policy Council Defense Dossier, June 2017, Issue 19, <https://www.afpc.org/uploads/documents/defense_dossier_issue_19.pdf>, DKP]

Space-based missile defense, revisited

Admiral William Gortney, the former Commander of U.S. Northern Command, has observed that, in order to counter offensive nuclear ballistic missile threats, the United States needs to destroy ballistic missiles in their boost phase (shortly after launch), and not rely solely on midcourse- and terminal-phase interception, the current focus of U.S. ballistic missile defense (BMD) systems. Such boost-phase missile defense is most effectively provided from space, something that was judged feasible back in 1990, based on then maturing technology, and which served as the focus of President Ronald Reagan’s Strategic Defense Initiative.

The most advanced SDI concept, Brilliant Pebbles, consisted of a constellation of small interceptors that combined their own early warning and tracking capability with high maneuverability to engage attacking ballistic missiles in all phases of their flight trajectory, thereby providing multiple opportunities for interception. The then-cutting edge technology enabled lightweight onboard computers with sufficient capability to fully manage the entire constellation of thousands of lightweight “Pebbles,” each autonomous and networked with near- and far neighboring sensors, to provide a comprehensive overall defensive system that could be managed by a relatively small operations cadre.

Each interceptor, or “Pebble,” was designed to identify the nature of the attack, which might include thousands of ballistic missile warheads, based on a defense that included thousands of “Brilliant Pebbles.” And since it knew its own location and that of all other Pebbles, each “Pebble” could calculate an optimum attack strategy from its own perspective and execute an interception, while simultaneously informing other units of its action. The basic idea was to exploit the then-cutting-edge computational power of small handheld computers (and miniaturized sensors)—now several generations more mature—to enable a large constellation of small, lowearth-orbit satellites to perform the primary elements of battle management and maneuver into the path of ballistic missiles/warheads, beginning in the missile’s boost phase and continuing throughout its midcourse trajectory in space until some time after it began to reenter the Earth’s atmosphere in the terminal phase of flight.

Internally, the rejection of the Strategic Defense Initiative in 1993 for political reasons, and the corresponding emphasis on minimalist, or “limited,” missile defense that has evolved since, has placed the U.S. in a precarious position regarding its national security. Current BMD systems, such as Aegis and THAAD, were designed to defend against a small-scale attack from a state such as North Korea or Iran. They are thus largely incapable of handling a potential large-scale attack (or one utilizing hypersonic weapons) from a state such as Russia or China, or an attack from an advanced cruise missile by a hostile non-state actor. Additionally, due to the current reliance on a limited missile defense system and the lack of development of significant space-based BMD assets, the U.S. lacks robust early-warning coverage in its southern hemisphere, and is reliant on inadequately-tested and largely unreliable systems to provide multi-faceted BMD protection. With modern technology and adequate funding, a 21st century Brilliant Pebbles program could present the most comprehensive, integrated, and costeffective multi-layered BMD system out of all in use by the United States.

The benefits of space-based defense

As envisioned, the autonomy of Brilliant Pebbles in detecting launch and dispatching interceptors would have complicated the use of countermeasures against them. And because of their number, these defenses would have multiple opportunities for interception, thus increasing their chances of a successful intercept in the boost and midcourse phases, or even high in the Earth’s atmosphere during the terminal phase. Such characteristics stand in contrast to the current generation of interceptors in use by the United States, which are hard pressed to provide more than one independent intercept opportunity because they lack redundancy and depend on proper positioning to carry out interception.

Although the Brilliant Pebbles program was terminated in early 1993, major advances in the commercial, civil, and other defense sectors since then should now permit even lighter mass, lower cost, and higher performance technologies, components, and systems than would have been achieved by the 1990-era technology base. Thus, lighter weight and smarter components building on twenty-first-century robotic technologies could now empower SBIs with greater acceleration/velocity, enabling boost-phase intercept of even short- and medium-range ballistic missiles, as well as high-acceleration ICBMs, thus surpassing the capabilities of the 1990 Brilliant Pebbles. For example, boost-phase interception will be essential to countering the hypersonic missiles

of the next decade in their boost phase, before they reach maximum speed and maneuverability.1

In addition, the capabilities of a twenty-first century space-based interceptor system would support other vital national security missions and enhance the survivability of critical space assets, on which all U.S. military operations depend. Such additional missions include early-warning, space domain awareness, anti-satellite (ASAT) detection and interdiction, detecting nuclear-test detonations, tactical intelligence, monitoring treaty compliance, and tracking the activities of potential proliferators.

Cost considerations

In the budget-constrained environment facing the Trump administration, Brilliant Pebbles has an additional advantage that addresses the offense/defense cost effectiveness problem. With the progress made in the past 25 years—including miniaturization, reduced computing, sensor, and launch costs, etc.—the price tag for a new Brilliant Pebbles program should be even lower than estimates of the originally conceived system, while providing substantially greater intercept capabilities and cost effective adjuncts to the overall missile defense system now operating around the world.

A price tag of $20 billion or less for an updated Brilliant Pebbles effort represents an extremely low and manageable cost given its vitally important mission to protect the U.S. homeland. The costs for space launch and on-orbit sustainment and operations have decreased in the last decade. Additional cost savings should also materialize as we develop robotic on-orbit autonomous servicing of satellites.2 Moreover, advances in miniaturization will allow more components to be packed into smaller packages and thus increase capabilities while simultaneously lowering launch costs. The availability and use of low cost, commercial off-the-shelf products and components will further reduce costs.

A new space based interceptor program should adopt a framework that includes leveraging technologies, products, and innovative manufacturing and management processes spearheaded in the commercial sector—as was pioneered with Brilliant Pebbles in the SDI era. Key programs also should restore active development of directed energy BMD systems. Competition in the commercial sector to provide reusable rocket boosters and engines, commercial off-the-shelf products and components such as computers, software, sensors, lightweight materials, etc., should be employed. It is equally important to utilize low-cost fabrication techniques and streamlined, best-practices management. Such a framework would restrain cost growth and reduce the time necessary to develop and deploy the Brilliant Pebble constellation.

The logic of space

Today, space-based interceptors have the potential to provide the greatest leverage against ballistic missiles of all ranges in a world of proliferating capabilities. In particular, SBIs hold out the prospect of interdiction in the boost phase of a ballistic missile’s flight, when the missile is most vulnerable and has not yet released its warheads and decoys. A boost-phase interception capability will greatly shift the cost exchange balance in favor of the defender, creating disincentives for attackers to invest in such technologies in the first place. A truly robust missile defense system, incorporating these capabilities, would give the United States the power to defend against a missile strike and provide it with strategic options other than resorting to a devastating nuclear attack in response. Finally, a Brilliant Pebbles-type system has the ability to support other crucial national security missions, resulting in operational efficiencies and cost savings.

For all of these reasons, the Trump administration should focus on revitalizing the concept of space-based missile defense to regain America’s military advantage and advance U.S. national security.

# 4

#### Space cooperation allows Russia to poach international prestige---that provides critical leverage that enables global authoritarianism.

Peter Juul 19. Senior policy analyst at the Center for American Progress. "Trump’s Space Force Gets the Final Frontier All Wrong," 3-20-2019, Foreign Policy. https://foreignpolicy.com/2019/03/20/trumps-space-force-gets-the-final-frontier-all-wrong

Today, however, the United States finds itself on the precipice of a new and uncertain era. American astronauts continue to live and work aboard the International Space Station, but no American has rocketed into orbit from U.S. territory since the last flight of the space shuttle in 2011. And back on Earth, the United States and its democratic allies in Europe and Asia have settled into a worldwide competition for power and influence with Russia and China. Now Russia remains the only nation that regularly launches humans into space. Meanwhile, reflecting their growing power, new players like India and China have embarked on their own ambitious robotic exploration missions to Mars and the far side of the moon. National prestige and international standing are once more at the forefront of space exploration, as is competition between nations—especially between democracies and autocracies—to make impressive achievements on the final frontier. To navigate the new space competition, the United States must first recognize that national prestige and global standing are critical national interests worth pursuing and not pointless—and possibly dangerous—chest-thumping exercises. And peaceful space exploration provides the United States a huge opportunity to restore pride at home and burnish its prestige overseas. It certainly beats other—perhaps less productive—ways of seeking international status, such as stockpiling nuclear weapons. America starts with an advantage on this front despite not having launched astronauts from its own soil in almost eight years. Even after five decades, the Apollo moon landings continue to stir pride at home and admiration abroad. The space shuttle remains iconic nearly a decade after retirement, while the cosmic images beamed back from the Hubble Space Telescope continue to provoke awe and wonder. Astronauts aboard the International Space Station have turned their own camera lenses back toward Earth and given the world stunning images of our home planet. Robotic explorers from Voyager to the Mars rovers and New Horizons have kept the country on the cutting edge of discovery in our solar system. But this advantage won’t last forever. Without consistent and increased funding for NASA, ambitious programs of both human and robotic exploration will literally fail to leave the ground. Without consistent and increased funding for NASA, ambitious programs of both human and robotic exploration will literally fail to leave the ground. Progress doesn’t entail an Apollo-level commitment of national resources, but instead [funding comparable to the early 1990s](https://docs.google.com/spreadsheets/d/e/2PACX-1vTU9FhDV4U6X4suHtvoiMLYDN-y56ipoGh-N7n9fNq7BW1PiMsx5fVlj10LsgvTYVbu3CiUDO_WD0We/pubhtml). An [additional $5 billion a year](https://democracyjournal.org/arguments/progressive-visions-of-space-exploration/) should get the job done, with $3 billion for human exploration and $2 billion for robotic missions. But funding isn’t everything, and in the new geopolitical context, democracy must be seen to work effectively. When it comes to space exploration, that means ratcheting back U.S. space cooperation with Russia as well as forgoing any equally intimate cooperation with China and its secretive space agency. The fact that the [head of Russia’s space agency remains under U.S. sanctions](https://spacenews.com/nasa-postpones-rogozin-visit/) for his role in Moscow’s military intervention in Ukraine illustrates the hazards involved in working with autocracies in space. Deep cooperation with autocratic powers in space gives autocracies a major point of diplomatic leverage over the United States, and more generally allows them to poach unearned international prestige by working on goals set and largely carried out by the United States. In today’s world, there’s no reason for the United States to give Russia or China this sort of standing by association. Cooperation between the United States and Russia won’t grind to an immediate halt, though. With the International Space Station in orbit until at least 2024—if not longer—it will take time to disentangle the web of functional ties that have bound NASA and its Russian counterpart over the last quarter century. Significant cooperation with China should be avoided altogether, especially given its [notoriously opaque](https://www.merics.org/en/blog/chinas-space-program-about-more-soft-power) and [military-run](https://www.theatlantic.com/science/archive/2017/01/china-space/497846/) space program. The space programs and agencies of other nations—NASA, the European Space Agency and its member-nation agencies, the Japan Aerospace Exploration Agency, and even Russia’s Roscosmos—remain led and run by civilians. In the meantime, the United States should buttress its already strong cooperative ties with fellow democracies like Japan, Canada, and the nations of the European Space Agency. Here, the main diplomatic challenge with partners like the ESA will be to convince them to curb their enthusiasm for cooperation with Russia and [China](https://www.dw.com/en/towards-the-moon-why-europe-wants-to-work-with-china/a-45644847) on space exploration. The United States should also forge stronger space ties with interested democratic allies like [South Korea](https://swfound.org/media/205872/us-korean_space_cooperation_final_sept_2010.pdf), as well as newcomers like India and Israel.

#### That normalizes Russian territorial aggression---causes nuclear war and extinction.

Frederick W. Kagan 19. American resident scholar at the American Enterprise Institute, and a former professor of military history at the U.S. Military Academy at West Point, less famous brother of our favorite neighborhood neocon Robert Kagan “CONFRONTING THE RUSSIAN CHALLENGE: A NEW APPROACH FOR THE U.S.,” Institute for the Study of War. June 2019. <https://www.politico.com/f/?id=0000016b-6eef-dc80-a3ff-ffff778c0000>

The Russian threat’s effectiveness results mainly from the West’s weaknesses. NATO’s European members are not meeting their full commitments to the alliance to maintain the fighting power needed to deter and defeat the emerging challenge from Moscow. Increasing political polarization and the erosion of trust by Western peoples in their governments creates vulnerabilities that the Kremlin has adroitly exploited. Moscow’s success in manipulating Western perceptions of and reactions to its activities has fueled the development of an approach to warfare that the West finds difficult to understand, let alone counter. Shaping the information space is the primary effort to which Russian military operations, even conventional military operations, are frequently subordinated in this way of war. Russia obfuscates its activities and confuses the discussion so that many people throw up their hands and say simply, “Who knows if the Russians really did that? Who knows if it was legal?”—thus paralyzing the West’s responses. Putin’s Program Putin is not simply an opportunistic predator. Putin and the major institutions of the Russian Federation have a program as coherent as that of any Western leader. Putin enunciates his objectives in major speeches, and his ministers generate detailed formal expositions of Russia’s military and diplomatic aims and its efforts and the methods and resources it uses to pursue them. These statements cohere with the actions of Russian officials and military units on the ground. The common perception that he is opportunistic arises from the way that the Kremlin sets conditions to achieve these objectives in advance. Putin closely monitors the domestic and international situation and decides to execute plans when and if conditions require and favor the Kremlin. The aims of Russian policy can be distilled into the following: Domestic Objectives Putin is an autocrat who seeks to retain control of his state and the succession. He seeks to keep his power circle content, maintain his own popularity, suppress domestic political opposition in the name of blocking a “color revolution” he falsely accuses the West of preparing, and expand the Russian economy. Putin has not fixed the economy, which remains corrupt, inefficient, and dependent on petrochemical and mineral exports. He has focused instead on ending the international sanctions regime to obtain the cash, expertise, and technology he needs. Information operations and hybrid warfare undertakings in Europe are heavily aimed at this objective. External Objectives Putin’s foreign policy aims are clear: end American dominance and the “unipolar” world order, restore “multipolarity,” and reestablish Russia as a global power and broker. He identifies NATO as an adversary and a threat and seeks to negate it. He aims to break Western unity, establish Russian suzerainty over the former Soviet States, and regain a global footprint.

Putin works to break Western unity by invalidating the collective defense provision of the North Atlantic Treaty (Article 5), weakening the European Union, and destroying the faith of Western societies in their governments. He is reestablishing a global military footprint similar in extent the Soviet Union’s, but with different aims. He is neither advancing an ideology, nor establishing bases from which to project conventional military power on a large scale. He aims rather to constrain and shape America’s actions using small numbers of troops and agents along with advanced anti-air and anti-shipping systems.

Recommendations A sound U.S. grand strategic approach to Russia: • Aims to achieve core American national security objectives positively rather than to react defensively to Russian actions; • Holistically addresses all U.S. interests globally as they relate to Russia rather than considering them theater-by-theater; • Does not trade core American national security interests in one theater for those in another, or sacrifice one vital interest for another; • Achieves American objectives by means short of war if at all possible; • Deters nuclear war, the use of any nuclear weapons, and other Weapons of Mass Destruction (WMD); • Accepts the risk of conventional conflict with Russia while seeking to avoid it and to control escalation, while also ensuring that American forces will prevail at any escalation level; • Contests Russian information operations and hybrid warfare undertakings; and • Extends American protection and deterrence to U.S. allies in NATO and outside of NATO. Such an approach involves four principal lines of effort. Constrain Putin’s Resources. Russia uses hybrid warfare approaches because of its relative poverty and inability to field large and modern military systems that could challenge the U.S. and NATO symmetrically. Lifting or reducing the current sanctions regime or otherwise facilitating Russia’s access to wealth and technology could give Putin the resources he needs to mount a much more significant conventional threat—an aim he had been pursuing in the early 2000s when high oil prices and no sanctions made it seem possible. Disrupt Hybrid Operations. Identifying, exposing, and disrupting hybrid operations is a feasible, if difficult, undertaking. New structures in the U.S. military, State Department, and possibly National Security Council Staff are likely needed to: 1. Coordinate efforts to identify and understand hybrid operations in preparation and underway; 2. Develop recommendations for action against hybrid operations that the U.S. government has identified but are not yet publicly known; 3. Respond to the unexpected third-party exposure of hybrid operations whether the U.S. government knew about the operations or not; 4. Identify in advance the specific campaign and strategic objectives that should be pursued when the U.S. government deliberately exposes a particular hybrid operation or when third parties expose hybrid operations of a certain type in a certain area; 5. Shape the U.S. government response, particularly in the information space, to drive the blowback effects of the exposure of a particular hybrid operation toward achieving those identified objectives; and 6. Learn lessons from past and current counter-hybrid operations undertakings, improve techniques, and prepare for future evolutions of Russian approaches in coordination with allies and partners. The U.S. should also develop a counter-information operations approach that uses only truth against Russian narratives aimed at sowing discord within the West and at undermining the legitimacy of Western governments.

Delegitimize Putin as a Mediator and Convener. Recognition as one of the poles of a multipolar world order is vital to Putin. It is part of the greatness he promises the Russian people in return for taking their liberty. Getting a “seat at the table” of Western-led endeavors is insufficient for him because he seeks to transform the international system fundamentally. He finds the very language of being offered a seat at the West’s table patronizing. He has gained much more legitimacy as an international partner in Syria and Ukraine than his behavior warrants. He benefits from the continuous desire of Western leaders to believe that Moscow will help them out of their own problems if only it is approached in the right way. The U.S. and its allies must instead recognize that Putin is a self-declared adversary who seeks to weaken, divide, and harm them—never to strengthen or help them. He has made clear in word and deed that his interests are antithetical to the West’s. The West should therefore stop treating him as a potential partner, but instead require him to demonstrate that he can and will act to advance rather than damage the West’s interests before engaging with him at high levels. The West must not trade interests in one region for Putin’s help in another, even if there is reason to believe that he would actually be helpful. Those working on American policy in Syria and the Levant must recognize that the U.S. cannot afford to subordinate its global Russia policy to pursue limited interests, however important, within the Middle East. Recognizing Putin as a mediator or convener in Syria—to constrain Iran’s activities in the south of that country, for example—is too high a price tag to pay for undermining a coherent global approach to the Russian threat. Granting him credibility in that role there enhances his credibility in his self-proclaimed role as a mediator rather than belligerent in Ukraine. The tradeoff of interests is unacceptable. Nor should the U.S. engage with Putin about Ukraine until he has committed publicly in word and deed to what should be the minimum non-negotiable Western demand—the recognition of the full sovereignty of all the former Soviet states, specifically including Ukraine, in their borders as of the dates of their admission as independent countries to the United Nations, and the formal renunciation (including the repealing of relevant Russian legislation) of any right to interfere in the internal affairs of those states

Defend NATO. The increased Russian threat requires increased efforts to defend NATO against both conventional and hybrid threats. All NATO members must meet their commitments to defense spending targets—and should be prepared to go beyond those commitments to field the forces necessary to defend themselves and other alliance members. The Russian base in Syria poses a threat to Western operations in the Middle East that are essential to protecting our own citizens and security against terrorist threats and Iran. Neither the U.S. nor NATO is postured to protect the Mediterranean or fight for access to the Middle East through the eastern Mediterranean. NATO must now prepare to field and deploy additional forces to ensure that it can win that fight. The West should also remove as much ambiguity as possible from the NATO commitment to defend member states threatened by hybrid warfare. The 2018 Brussels Declaration affirming the alliance’s intention to defend member states attacked by hybrid warfare was a good start. The U.S. and other NATO states with stronger militaries should go further by declaring that they will come to the aid of a member state attacked by conventional or hybrid means regardless of whether Article 5 is formally activated, creating a pre-emptive coalition of the willing to deter Russian aggression. Bilateral Negotiations. Recognizing that Russia is a self-defined adversary and threat does not preclude direct negotiations. The U.S. negotiated several arms control treaties with the Soviet Union and has negotiated with other self-defined enemies as well. It should retain open channels of communication and a willingness to work together with Russia on bilateral areas in which real and verifiable agreement is possible, even while refusing to grant legitimacy to Russian intervention in conflicts beyond its borders. Such areas could include strategic nuclear weapons, cyber operations, interference in elections, the Intermediate Nuclear Forces treaty, and other matters related to direct Russo-American tensions and concerns. There is little likelihood of any negotiation yielding fruit at this point, but there is no need to refuse to talk with Russia on these and similar issues in hopes of laying the groundwork for more successful discussions in the future. INTRODUCTION The Russian challenge is a paradox. Russia’s nuclear arsenal poses the only truly existential threat to the United States and its allies, but Russia’s conventional military forces have never recovered anything like the power of the Soviet military. Those forces pose a limited and uneven threat to America’s European allies and to U.S. armed forces, partially because many U.S. allies are not meeting their NATO defense spending commitments. Russia is willing and able to act more rapidly and accept greater risk than Western countries because of its autocratic nature. Its cyber capabilities are among the best in the world, and it is developing an information-based way of war that the West has not collectively properly understood, let alone begun developing a response to. That information-based warfare has included attempts to affect and disrupt elections in the U.S. and allied states. The complexity and paradoxical nature of the Russian threat is perhaps its greatest strength. It is one of the key reasons for the failure of successive American administrations and U.S. partners around the world to develop a coherent strategy for securing themselves and their people and advancing their interests in the face of Russian efforts against them. The West’s lack of continuous focus on the Russian challenge has created major gaps in our collective understanding of the problem—another key reason for our failure to develop a sound counter-strategy. American concerns about Russia are bifurcated, moreover. Many Americans see the Russian threat primarily as a domestic problem: Moscow’s interference in the 2016 presidential election, attempts to interfere in the 2018 midterm election, and efforts to shape the 2020 elections. The U.S. national security establishment acknowledges the domestic problem but is generally more concerned with the military challenges a seemingly reviving Russia poses to U.S. NATO allies and other partners in the Euro-Atlantic region; with Russia’s activities in places like Syria and Venezuela; and with Russia’s outreach to rogue states such as North Korea and Iran. Even that overseas security concern, however, is pervaded by complexity and some confusion. The recommendations of the current U.S. National Security Strategy (NSS) and National Defense Strategy (NDS) are dominated by responses to much-trumpeted Russian investments in the modernization of conventional and nuclear forces. At the same time, those documents acknowledge the importance of Russian capabilities at the lower end of the military spectrum and in the non-military realms of information, cyber, space, information, and economic efforts. Americans thus generally agree that Russia is a threat to which the U.S. must respond in some way, but the varying definitions of that threat hinder discussion of the appropriate response. Russia has entangled itself sufficiently in American partisan politics that conversation about the national security threat it poses is increasingly polarized. We must find a way to transcend this polarization to develop a strategy to secure the U.S. and its allies and advance U.S. interests, despite Russian efforts to undermine America’s domestic politics. AMERICAN INTERESTS—WHAT IS AT STAKE The Ideals of the American Republic The stakes in the Russo-American conflict are high. Russian leader Vladimir Putin seeks to undermine confidence in democratically elected institutions and the institution of democracy itself in the United States and the West.1 He is trying to interfere with the ability of American and European peoples to choose their leaders freely2 and is undermining the rules-based international order on which American prosperity and security rest. His actions in Ukraine and Syria have driven the world toward greater violence and disorder. The normalization of Putin’s illegal actions over time will likely prompt other states to emulate his behavior and cause further deterioration of the international system. Moscow’s war on the very idea of truth has been perhaps the most damaging Russian undertaking in recent years. The most basic element of the Russian information strategy, which we will consider in more detail presently, is the creation of a sense of uncertainty around any important issue. Russia’s strategy does not require persuading Western audiences that its actions in Ukraine’s Crimean Peninsula or the Kerch Strait, which connects the Black Sea and the Sea of Azov, for example, were legal or justified.3 It is enough to create an environment in which many people say simply, “who knows?” The “who knows?” principle feeds powerfully into the phenomena of viral “fake news,” as well as other falsehoods and accusations of falsehoods which, if left unchecked, will ultimately make civil discourse impossible. The Kremlin’s propaganda does not necessarily need its target audiences to believe in lies; its primary goal is to make sure they do not believe in the truth. This aspect of Putin’s approach is one of the greatest obstacles to forming an accurate assessment and making recommendations. It is also one of the most insidious threats the current Russian strategy poses to the survival of the American republic. The good news is that the war on the idea of truth does not involve military operations or violence, though it can lead to both. The bad news is that it is extraordinarily difficult to identify, let alone to counter. Yet we must counter it if we are to survive as a functioning polity. American Prosperity The debate about the trade deficit and tariffs only underscores the scale and importance of the role Europe plays in the American economy. Europe is the largest single market for American exports and the second-largest source of American imports, with trade totaling nearly $1.1 trillion.4 American exports to Europe are estimated to support 2.6 million jobs in the U.S.5 Significant damage to the European economy, let alone the collapse of major European states or Europe itself, would devastate the U.S. economy as well. American prosperity is tightly interwoven with Europe’s. American prosperity also depends on Europe remaining largely democratic, with market-based economies, and subscribing to the idea of a rulesbased international order. The re-emergence of authoritarian regimes in major European states, which would most likely be fueled by a resurgence of extremist nationalism, would lead to the collapse of the entire European system, including its economic foundations. European economic cooperation rests on European peace, which in turn rests on the continued submergence of extremist nationalism and adherence to a common set of values. Russian actions against Western democracies and support for extremist groups, often with nationalist agendas, reinforce negative trends emerging within Europe itself. These actions therefore constitute a threat to American prosperity and security over the long term. The American economy also depends on the free flow of goods across the world’s oceans and through critical maritime chokepoints. Russia posed no threat to those chokepoints after the Soviet Union fell, but that situation is changing. The establishment of what appears to be a permanent Russian air, land, and naval base on the Syrian coast gives Russia a foothold in the Mediterranean for the first time since 1991. Russian efforts to negotiate bases in Egypt and Libya and around the Horn of Africa would allow Moscow to threaten maritime and air traffic through the Suez Canal and the Red Sea.6 Since roughly 3.9 million barrels of oil per day transited the Suez in 2016, to say nothing of the food and other cargo moving through the canal, Russian interference would have significant impacts on the global economy—and therefore on America’s economy.7 Russia’s efforts to establish control over the maritime routes opening in the Arctic also threaten the free movement of goods through an emerging set of maritime chokepoints.8 Those efforts are even more relevant to the U.S. because the Arctic routes ultimately pass through the Bering Strait, the one (maritime) border America shares with Russia. Russian actions can hinder or prevent the U.S. and its allies from benefiting from the opening of the Arctic. Russia is already bringing China into the Arctic region through energy investment projects and negotiations about the use of the Northern Sea Route, despite the fact that China is a state with no Arctic territory or claims.9 NATO The collective defense provision of the NATO treaty (known as Article 5) has been invoked only once in the 70-year history of the alliance: on September 12, 2001, on behalf of the United States. NATO military forces provided limited but important assistance to the U.S. in the immediate wake of the 9/11 attacks, including air surveillance patrols over the United States, and have continued supporting the U.S. in the long wars that followed. NATO established military missions in both Iraq and Afghanistan in the next two decades, deploying tens of thousands of soldiers to fight and to train America’s Iraqi and Afghan partners. American allies, primarily NATO members, have suffered more than 1,100 deaths in the Afghan war, slightly under half the number of U.S. deaths.10 The non-U.S. NATO member states collectively spent roughly $313 billion on defense in 2018—about half the American defense budget.11 The failure of most NATO members to meet their commitment to spend 2 percent of their GDP on defense is lamentable and must be addressed. But the fact remains that the alliance and its members have spent large amounts of blood and treasure fighting alongside American forces against the enemies that attacked the U.S. homeland two decades ago, and that they provide strength and depth to the defense of Europe, which remains of vital strategic importance to the United States. The U.S. could not come close to replacing them without significantly increasing its own defense spending and the size of the U.S. military—to say nothing of American casualties. NATO is also the most effective alliance in world history by the standard that counts most: it has achieved its founding objective for 70 years. The alliance was formed in 1949 to defend Western Europe from the threat of Soviet aggression, ideally by deterring Soviet attack, and has never needed to fight to defend itself. The United States always provided the preponderance of military force for the alliance, but the European military contribution has always been critical as well. American conventional forces throughout the Cold War depended on the facilities and the combat power of European militaries, and the independent nuclear deterrents of France and Great Britain were likely as important to deterring overt Soviet aggression as America’s nuclear arsenal. The Soviets might have come to doubt that the U.S. would risk nuclear annihilation to defend Europe, but they never doubted that France and Britain would resort to nuclear arms in the face of a Soviet invasion. Has NATO become irrelevant with the passing of the Cold War and the drawdown of U.S. forces from Iraq and Afghanistan? Only if the threat of war has passed and Europe itself has become irrelevant to the United States. Neither is the case. Europe’s survival, prosperity, and democratic values remain central to America’s well-being, as noted above, and today’s global environment makes war more likely than it has been since the collapse of the Soviet Union. It is not a given that Europe will remain democratic and a part of the international rules-based order if NATO crumbles. The U.S. can and should continue to work with its European partners to increase their defense expenditures and, more to the point, military capabilities (for which the percent of GDP spent on defense is not a sufficient proxy). The U.S. must also recognize the centrality of the alliance to America’s own security, as both the National Security Strategy and the National Defense Strategy do.12 The maintenance and defense of NATO itself is a core national security interest of the United States. Cyber Russia is one of the world’s leading cyber powers, competing with the U.S. and China for the top spot, at least in offensive cyber capabilities. Russian hacking has become legendary in the U.S. thanks to Russia’s efforts to influence the 2016 presidential campaign, but Russia has turned its cyber capabilities against its neighbors in other damaging ways. Russia attacked Estonia in 2007 with a massive distributed denial-of-service attack. It attacked Ukrainian computers with the NotPetya malware in 2017, which eventually caused billions of dollars in damage, including in the Americas.13 It also employed cyberattacks in coordination with its ground invasions of Georgia in 2008 and Ukraine in 2014. Fears of Russian cyber capabilities are warranted. This report does not consider the Russian cyber challenge in detail because others with far more technical expertise and support are actively engaged in combating it, defending against it, and deterring it. Our sole contribution in this area will be to consider it in the specific context of information operations support for hybrid operations in the recommendations section below. This approach stems from the recognition that the Kremlin’s cyber operations largely serve as enablers for its larger campaigns, rather than as a main effort. One must note, however, that while deterrence with conventional and nuclear forces prevents attacks, the United States is subject to cyberattack every day and has not established an effective means of retaliation, and thus deterrence. Weapons of Mass Destruction Russia’s nuclear arsenal is large enough to destroy the United States completely. The U.S. currently has no fielded ability to defend against a full-scale Russian nuclear attack—nor can Russia defend against a U.S. nuclear attack. American missile defense systems, by design, do not have the characteristics or scale necessary to shoot down any important fraction of the number of warheads the Russians have aimed at the U.S. from land- and sea-based launch platforms. America’s security against Russian nuclear attack today rests on the same principle as it has since the Russians first acquired nuclear weapons: deterrence. Russia also lacks the ability to shoot down American land- or sea-launched missiles and may not even be able reliably to shoot down U.S. nuclear-armed fifth-generation bombers. Deterrence is extremely likely to continue to work against Putin, who is a rational actor without the kinds of apocalyptic visions that might lead another leader to opt for annihilation in pursuit of some delusional greater good.14 The U.S. must pursue necessary modernization of its nuclear arsenal to sustain the credibility of its nuclear deterrent forces, but there is no reason to fear that deterrence will fail against Putin if it does so.15 It is less clear that Russia will continue to abide by its commitments to abjure chemical weapons, however. Russian agents have already conducted several chemical attacks, bizarrely using distinctive, military-grade chemical agents in attempted assassinations in the United Kingdom.16 Putin has also given top cover to Syrian President Bashar al-Assad’s use of chemical weapons against his own people, despite Russia’s formal role in guaranteeing Assad’s adherence to his 2013 promise to destroy his chemical weapons stockpile and refrain from any such use.17 Periodic Russian-inspired “rumors” that Western military personnel and Ukraine—which has no chemical weapons program—were planning to use chemical weapons on Ukrainian territory raise the concern that Russian agents provocateurs might conduct false flag operations of their own.18 Russia has the capability to produce chemical weapons at will—as does any industrialized state—but it is now showing that it may be willing to do so and to use them. The Soviet Union also maintained a vibrant biological weapons program. Russia has not thus far shown any signs of having restarted it or of having any intent to do so. The completely false claims that the U.S. has built biological weapons facilities in Russia’s neighboring states raise some concern on this front, since they could theoretically provide cover for the use of Russia’s own biological weapons, but they are more likely intended to influence the information space and justify other Russian actions.19 Terrorism Russia poses several challenges to any sound American approach to counter-terrorism. In addition to Iran, the world’s most prolific state sponsor of terrorism, Moscow’s preferred partners in the Middle East are those whose actions most directly fuel the spread of Salafi-jihadi groups. Russia encouraged and supported systematic efforts to eliminate moderate, secular opposition groups in Syria to the benefit of the Salafi-jihadi groups. Putin aims to expel or constrain the U.S. in the Middle East and establish his own forces in key locations that would allow him to disrupt American efforts to re-engage.20 Russia is the co-leader of a political and military coalition that includes Iran, Lebanese Hezbollah, the Assad regime, and Iranian-controlled Iraqi Shi’a militias.21 Russia provides most of the air support to that coalition in Syria, as well as special forces troops (SPETSNAZ), intelligence capabilities, air defense, and long-range missile strikes.22 That coalition’s campaign of sectarian cleansing has driven millions of people from their homes, fueling the refugee crisis that has damaged Europe.23 The coalition seeks to reimpose a minoritarian ‘Alawite dictatorship in Syria and a militantly anti-American and anti–Sunni Arab government in Iraq.24 The atrocities Russian forces themselves have committed, including deliberate and precise airstrikes against hospitals, have increased the sense of desperation within the Sunni Arab community in Syria, which Salafi-jihadi groups such as ISIS and al Qaeda have exploited.25 Russia supported Assad’s campaign to destroy the non-Salafi-jihadi opposition groups opposing him—particularly those backed by the U.S.—to aid the narrative that the only choices in Syria were Assad’s government or the Salafi-jihadis.26 That narrative was false in 2015 when Russian forces entered the fight but has become much truer following their efforts.27 Russia backed this undertaking with military force, but even more powerfully with information operations that continually hammered on the theme that the U.S. itself was backing terrorists in Syria and Russia was fighting ISIS.28 The insidiousness of the Russian demands that the U.S. remove its forces from Syria is masked by the current U.S. administration’s desire to do exactly that.29 One can argue the merits of keeping American troops in Syria or pulling them out— and this is not the place for that discussion—but the choice should be America’s. At the moment it still is. The consolidation of Russian anti-access/ area-denial (A2/AD) systems in Syria, however, together with the prospect of the withdrawal (or expulsion) of American forces from Iraq (or the closure of Iraqi airspace to support U.S. operations in Syria), could severely complicate American efforts to strike against terrorist threats that will likely re-emerge in Syria over time.30 The more the U.S. relies on an over-the-horizon strategy of precision strikes against terrorists actively planning attacks on the American homeland, the more vulnerable it becomes to the potential disruption of those strikes by Russian air defense systems, whether operated openly by Russians or nominally by their local partners. RUSSIA’S OBJECTIVES Mention of Putin’s objectives or of any systematic effort to achieve them almost always elicits as a response the assertion that Putin has no plan: Putin has no strategy; there is no Russian grand strategy, and so on. The other extreme of the debate considers Putin a calculated strategist with a grand master plan. The question of whether Putin has a plan, however that word is meant by those who assert that he does not, has important consequences for any American strategy to advance U.S. interests with regard to Russia. The trouble is that it is not clear what it would mean for Putin to have a plan or to lack one. We must first consider that more abstract question before addressing whether he has one. To have a plan usually means to have articulated goals, specific methods by which one will seek to achieve those goals, and identified means required for those methods to succeed. Goals, methods, and means can range from very specific to extremely vague and can be more flexible or more rigid. Specificity and flexibility can vary among the elements of this triad, moreover—goals may be very specific and rigid, methods general and flexible, means specific and flexible, or any other logical combination. When considering the question of Putin’s plan, therefore, we must break the discussion down into these four components: Does he have goals? Has he determined methods of achieving his goals? Has he specified resources required for those methods? How specific and how flexible are his goals, his methods, and the resources he allocates? Putting this discussion in context is helpful. Does a U.S. president have “a plan”? Not in any technical or literal sense. Every U.S. administration produces not a plan, but a National Security Strategy that is generally long on objectives—often reasonably specific—and very short on details of implementation (methods). Different national security advisers oversee processes within the White House to build out implementation details to greater or lesser degrees, but the actual implementation plans (methods) are developed by the relevant Cabinet departments. Those departments are also generally responsible for determining the resources that will be needed to implement their plans. The White House must then approve both the plans themselves and the allocation of the requested resources—and then must persuade Congress actually to appropriate the resources in the way the White House wishes to allocate them. This entire process takes more than a year from the start of a new administration and is never complete—the world changes, personnel turn over, and annual budget cycles and mid-term elections cause significant flutter. The one thing that does not happen is that a president receives and signs a “plan” with clear goals, detailed and specified methods, and the specific resources required, which is then executed.31 Putin does not have more of a plan than the U.S. does. It is virtually certain that he also lacks any such clear single document laying out the goals, methods, and means that he and his ministers are executing. But does he have as much of a plan as Presidents George W. Bush, Barack Obama, and Donald Trump have had? By all external signs, he does. Putin has clearly articulated a series of overarching objectives and goals for Russia’s foreign policy and national security. Putin has been continuously communicating them through various media, including Russia’s doctrinal documents, regular speeches, his senior subordinates, and the Kremlin’s vast propaganda machine for the past two decades. Russia has a foreign policy concept similar in scope and framing to the U.S. National Security Strategy, a military doctrine similar to the U.S. National Defense Strategy, and a series of other strategies (such as maritime, information security, and energy security) relating to the other components of national power and interest.32 These documents remain very much living concepts and have gone through multiple revisions in the decades since the fall of the Soviet Union. Through regular speeches, Putin consistently communicates his goals and the key narratives that underpin Russian foreign policy. He makes an annual speech to the Russian Federal Assembly that is similar in some respects to the U.S. president’s State of the Union address. Putin’s addresses tend to be even more specific (and much more boring) in presenting the previous year’s accomplishments and an outline of goals and intentions for the next year.33 Russia’s doctrines and concepts match Putin’s speeches closely enough to suggest that there is some connection between them. Putin also makes other regular speeches, including at the UN General Assembly, the Valdai Discussion Club, the Munich Security Conference at times, and during lengthy press conferences with the Russian media. These remarks are usually rather specific in their presentation of his objectives and sometimes, some of the means by which he intends to pursue them. Such speeches are neither less frequent nor less specific than the major policy speeches of American presidents. The widespread belief that Putin is simply or even primarily an opportunist who reacts to American or European mistakes is thus erroneous. Nor is Putin’s most common rhetorical trope—that he is the innocent victim forced to defend Russia against unjustified Western aggression—tethered to reality.34 Putin’s statements, key Russian national security documents, and the actions of Putin’s senior subordinates over the two decades of his reign cannot be distilled into a “plan,” but rather represent a set of grand strategic aims and strategic and operational campaigns underway to achieve them. Putin has remained open and consistent about his core objectives since his rise to power in 1999: the preservation of his regime, the end of American “global hegemony,” and the restoration of Russia as a mighty force to be reckoned with on the international stage. Some of his foreign policy pursuits are purely pragmatic and aimed at gaining resources; others are intended for domestic purposes and have nothing to do with the West. Putin has articulated a vision of how he wants the world to be and what role he wishes Russia to play in it. He seeks a world without NATO, where the U.S. is confined to the Western Hemisphere, where Russia is dominant over the former Soviet countries and can do what it likes to its own people without condemnation or oversight, and where the Kremlin enjoys a veto through the UN Security Council over actions that any other state wishes to take beyond its borders.35 He is working to bring that vision to reality through a set of coherent, mutually supporting, and indeed, overlapping lines of effort. He likely allows his subordinates a great deal of latitude in choosing the specific means and times to advance those lines of effort—a fact that makes it seem as if Russian policy is simply opportunistic and reactive. But we must not allow ourselves to be deluded by this impression any more than by other Russian efforts to shape our understanding of reality. Putin’s Domestic Objectives Maintaining relative contentment within his power circle is a key part of regime preservation. Putin has a close, trusted circle of senior subordinates, including several military and intelligence officials who have been with him for the past 20 years.36 His power circle has several outer layers, which include—but are not limited to—major Russian businessmen, often referred to as “oligarchs.” The use of the term “oligarch” to describe those who run major portions of the economy is inaccurate, however. Those individuals have power because Putin gives it to them, not because they have any inherent ability to seize or hold it independently. He shuffles them around—and sometimes retires them completely—at his will, rather than in response to their demands.37 They do not check or control Putin either individually or collectively, and they rarely, if ever, attempt to act collectively in any event. Putin controls Russia and its policies as completely as he chooses. This situation is different from the way in which the Soviet Union was ruled after Joseph Stalin’s death in 1953. The post-Stalin USSR really was an oligarchy. Politburo members had their own power bases and fiefdoms. They made decisions—including selecting new members, choosing new leaders, and even firing one leader (Stalin’s successor, Nikita Khrushchev)—by majority vote. There is no equivalent of the Politburo in today’s Russia, no one to balance Putin, and certainly no one to remove him. Putin seeks to keep the closest circle of subordinates and the broader Russian national security establishment content, as they form one of the core pillars of his power. He thus seeks to maintain a relative degree of contentment within various layers of his power structures, including among the “oligarchs.” For example, the Kremlin offered to help mitigate sanctions-related consequences for Russian businessmen.38 Kremlin-linked actors, in another example, reportedly embezzled billions of dollars in the preparations for the 2014 Winter Olympics in Sochi, Russia—the $50 billion price tag of which was the highest for any Olympic games.39 Putin can still retire any of the “oligarchs” at will without fear of meaningful consequences—yet his regime is much more stable if they collectively remain reasonably satisfied. This reality will drive Putin to continue to seek access to resources, legal and illegal, with which to maintain that satisfaction. Maintaining popular support is a core objective of Putin’s policies. Putin is an autocrat with democratic rhetoric and trappings. Putin’s Russia has no free elections, no free media, and no alternative political platforms. He insists, however, on maintaining the “democratic” façade. He holds elections at the times designated by law (even if he periodically causes the law to be amended) and is genuinely (if decreasingly) popular. Nor is his feint at democratism necessarily a pose. The transformation of the Soviet Union into a democracy was the signal achievement of the 1990s.40 Putin played a role in that achievement, supporting St. Petersburg mayor Anatoliy Sobchak, then Boris Yeltsin, in their battles against attempts by communists to regain control and destroy the democracy, and then by an extreme right-wing nationalist party to gain power.41 Putin has called out many weaknesses of the Yeltsin era—but never the creation of a democratic Russia. Putin has not yet shown any sign of formally turning away from democracy as the ostensible basis of his power, although he has constrained the political space within Russia to the point that the elections are a sham. However, were he to abandon the democratic principles to which he still superficially subscribes, he would need fundamentally to redesign the justification of his rule and the nature of his regime. Nevertheless, he can only maintain even the fiction of democratic legitimacy if he remains popular enough to win elections that are not outrageously stolen. He has not been able to fix the Russian economy, despite early efforts to do so. The fall of global oil prices from their highs in the 2000s, as well as the Western sanctions imposed for his actions in Ukraine, among other things, are causing increasing hardship for the Russian people.42 Putin has adopted an information operations approach to this problem by pushing a number of core narratives, evolving over time, to justify his continued rule and explain away the failures of his policies. He has also grown the police state within Russia for situations in which the information operations do not work to his satisfaction. Putin’s justification of his rule has evolved over time. He first positioned himself as the man who will bring order. The 1990s was a decade of economic catastrophe for Russia. Inflation ran wild, unemployment skyrocketed, crime became not only pervasive but also highly organized and predatory, and civil order eroded. Putin succeeded Yeltsin with a promise to change all that. His “open letter to voters” in 2000 contained a phrase fascinating to students of Russian history: “Our land is rich, but there is no order.” That phrase is similar to one supposedly sent by the predecessors of the Russians at the dawn of Russian history to a Viking prince who would come to conquer them: “Our land is rich, but there is no order. Come to rule and reign over us.” By using the first part of that line, Putin, like Riurik, the founder of Russia’s first dynasty, cast himself as the founder of a new Russia in which order would replace chaos.43 Putin’s initial value proposition to his population was thus order and stability. He did, indeed, attempt to bring order to Russia’s domestic scene. Putin strengthened government institutions and curbed certain kinds of crime. He restored control over the region of Chechnya through a brutal military campaign. He tried to work with economic technocrats to bring the economy into some kind of order. The task was immense, however—Soviet leaders had built the entire Russian industrial and agricultural system and economic base in a centralized fashion. Undoing that centralization and creating an economy in which the market really could work was beyond Putin’s skill and patience. He largely abandoned the effort within a few years, both because it was too hard and because it seemed unnecessary.44 The rising price of oil in the early 2000s fueled the Russian economy and filled the government’s coffers on the one hand.45 The genuine structural reforms and innovation that were needed, on the other, also became antithetical to Putin’s ability to maintain control, as government corruption is a powerful tool of influence in Russia. Putin began to erode civil liberties in that period offering the unspoken but clear exchange: Give me your liberties and I will give you prosperity and stability. The 2008 global financial crisis collapsed oil prices, and the post-2014 sanctions regime removed the patches and workarounds Putin had used to offset his failure to transform Russia’s economy. Continuing low oil prices (and sanctions) have prevented it from recovering with much of the rest of the global economy, even as Putin has continued to eschew any real effort to address the systemic failings holding Russia’s economy back. Putin has therefore refocused on a different value proposition: Give me your liberties and I will give you greatness. He is increasingly linking the legitimacy of his own autocracy with Russia’s position on the world stage and with Russia’s ability to stand up to American “global hegemony.”46 Putin has simultaneously erected a narrative to deflect criticism for Russia’s problems onto the West. The West, supposedly fearful of Russia rising and determined to keep Russia down, has thwarted its rightful efforts to regain its proper place in the world at every turn. Putin claims the Russian economy is in shambles because of unjust and illegal sanctions that have nothing to do with Russia’s actions and are simply meant to keep “the Russian bear in chains.”47 Putin has also consistently fostered a complex narrative that combines diverse and—from the Western perspective—often conflicting elements, including Soviet nostalgia, Eastern Orthodoxy, Russian nationalism, and the simultaneous emphasis on Russia’s multiethnic and multireligious character. The importance Putin gives this narrative is visible in things large and small. He has named Russia’s ballistic missile submarines after Romanov tsars and Muscovite princes.48 He issued a decree in 2009 mandating the introduction of religious education in Russian schools, which began in 2012.49 He continues to place a major emphasis on Soviet-era achievements. Putin and his information machine take these various elements, refine and tailor them, and produce a mix of ideas to cater to various parts of the Russian population. We can expect Putin’s narratives to continue to shift to accommodate changing realities, but the current rhetorical linkage between Russia’s position on the world stage and the legitimacy of Putin’s domestic power is concerning. It suggests that Putin may be more stubborn about making and retaining gains in the international arena than he was in the first 15 years of his rule, as he seeks ways to bolster his popularity, which is flagging, and on which his mythos relies. Blocking a “color revolution” in Russia is the overarching justification Putin gives for the erosion of political freedom and the expansion of Russia’s police state. Revolutions overturned post-Soviet governments in Georgia (the Rose Revolution in 2003), Ukraine (the Orange Revolution in 2004), and Kyrgyzstan (the Tulip Revolution in 2005). Putin blamed all of them on efforts by the West, primarily the U.S., to undermine pro-Russian governments, even though all three emerged indigenously and spontaneously without external assistance. He regarded the Ukrainian EuroMaidan Revolution of 2014 as an extension of this phenomenon.50 The rhetoric Putin and other Russian officials and writers use about “color revolutions” is extreme. It paints them as part of a coherent Western effort aimed ultimately at overthrowing the Russian government itself. It is quite possible that Putin believes that there is such an effort underway and that the events that rocked the post-Soviet states were a part of it. Even if he did not believe this when he started to talk about it, he may well have convinced himself of it after 15 years of vituperation on the subject. The notion of a “color revolution” conspiracy against Russia is also a convenient way for Putin to discredit any opposition, an easy way to tar political opponents as foreign agents and traitors, to control and expel foreign non-governmental organizations, and generally to justify the erosion of civil liberties, human rights, and free expression in Russia. It externalizes resistance to Putin’s increasing autocracy while simultaneously providing scapegoats to blame for Russia’s problems. It also creates the narrative basis for casting any Western efforts to constrain Russian actions anywhere as part of a larger effort to set preconditions for a “color revolution” in Moscow. It fuels a narrative to which Russians are historically amenable: that Russia is surrounded and under siege by hostile powers trying to contain or destroy it. Putin can cast almost any action foreign states take of which he does not approve as part of this effort.51 The net effects of this narrative are threefold. First, it tends to consolidate support behind Putin as he presents himself as the defender of Russia against a hostile world—and his near-total control of the information most of his people receive makes it difficult for many to hear and believe any other side. Second, it constantly confronts the West with the suspicion that someone really is trying to orchestrate a conspiracy to cause “regime change” in Russia. Although no state or alliance has had any such objective since the fall of the Soviet Union in 1991, the negative connotations of even the idea of attempting regime change create opposition to policies labeled in this way. Third, it also creates opposition to a potential peaceful change in the nature of the Russian regime from within, as Putin has associated the idea of political change with the “color revolution” prism of chaos, destruction, and an inevitably worsening economy. Putin presents his people a simple (but false) choice between the prospect of going back to something like the chaos and poverty of the 1990s ... or Vladimir Putin. Using the bogey of the “color revolution” conspiracy theory and other narratives, Putin is expanding the already-significant state control over his people’s communications and moving to a more rigid authoritarian model. He has prevented the emergence of any significant political opposition party or leader. Key opposition figures have been murdered, imprisoned, poisoned, and otherwise attacked.52 Putin’s regime suppresses—sometimes brutally— political dissent in the form of peaceful street protests or demonstrations, despite their small sizes.53 The political environment in Russia today is not markedly different from that of the Soviet Union in its last decade. Putin has brought the overwhelming majority of significant Russian media outlets into line with his own desired narratives, presenting the Russian people with a coherent stream of propaganda virtually without deviation. He appears to have decided that even this level of information control is insufficient, however, and has recently begun to assert even greater technical and policy control over Russians’ access to the internet.54 He has not yet matched these activities with recreation of an internal security apparatus on the scale needed to control the population through coercion, intimidation, and force, but he has been steadily expanding the internal security services during his two decades of rule. He has centralized some elements of the internal security apparatus under the control of a loyal lieutenant, but he would need to expand it considerably to be able to rely on it to maintain order by force beyond Moscow and St. Petersburg.55 In assessing whether Putin aims to shift the basis of his rule to more overt dictatorship, one of the key indicators to watch for is further expansion of that apparatus. It is also an indicator of the degree to which he sincerely believes that any sort of “color revolution” is in the offing. Expansion of the Russian economy remains an important component of Putin’s ability to sustain and grow his assertive foreign policy, popular support, and the resources subsidizing his close circle. Putin seems largely to have given up the idea of reforming the economy and has thus set about at least two major undertakings to improve it without reform. Undermining the Western sanctions regime. The imposition of major sanctions on Russia following the invasion of Ukraine and the annexation of Crimea in 2014 has inflicted great damage on the Russian economy. Putin has launched a number of efforts to erode and break those sanctions, both in Europe and in the U.S. Despite repeated declarations about the ineffectiveness of sanctions, Putin clearly believes that nothing would improve the economy more dramatically and rapidly than their elimination. The Mueller Report amply documents Putin’s fear of new sanctions after the 2016 elections and his efforts to deflect them or have them nullified.56 He even went so far as to promise not to retaliate against the sanctions the Obama administration imposed, in hopes of persuading the incoming Trump administration to reverse or block them. His efforts failed, however, as Congress insisted on new sanctions and President Trump did not stop them. Russian activities in Europe have aimed in part to suborn one or more members of the European Union (EU) to refuse to renew the sanctions imposed following Russia’s 2014 invasion of Ukraine. Openly pro-Russian governments in Budapest and now Rome, along with other states that have indicated greater reluctance to continue the sanctions regime, have not yet cast the vote to stop the renewal of sanctions. Putin has not given up, however, and continues to work to shape the political, informational, and economic environment in Europe to make it safe for one country to vote against sanctions renewal—and one vote is all he needs in the consensus-based EU model. The collapse of the sanctions regime and a flood of foreign direct investment into Russia could dramatically increase the resources available to support Putin’s foreign and defense efforts, even without fundamentally addressing the problems of the Russian economy. Putin would likely use those resources to return to the aggressive conventional military buildup he was pursuing before the imposition of sanctions in 2014 and to supercharge his economic efforts to establish Russian influence around the world. Developing new revenue streams is another obvious approach to bringing cash into the Russian economy and government. Russia is at a disadvantage in this regard because of the structural weaknesses of its economy. Its principal exports are almost entirely in the form of mineral wealth—oil, coal, and natural gas, as well as other raw materials. Weapons and military training services are the major industrial export. The use of private military companies (PMCs) such as the Wagner Group is a foreign policy tool for the Kremlin, but also one of the main exportable “services.” Civilian nuclear technology is a niche expertise that Putin is willing to sell as well. Putin has worked hard to expand Russia’s economic portfolios in all these areas. He has pushed both the Nord Stream II and the Turk Stream natural gas pipelines to make Europe ever more heavily dependent on Russian natural gas and to eliminate Russia’s dependency on the Ukrainian gas transit system. His lieutenants are actively negotiating deals throughout the Middle East and Africa to sell civilian nuclear technology. This generates continuous revenue because the states that commit to using Russian nuclear reactor technology will likely become dependent on Russian equipment and expertise to keep it running.57 Russia’s military activities in Syria can be described as a massive outdoor weapons exposition.58 The Russian armed forces have ostentatiously used several advanced weapons systems that were not required for the specific tactical tasks at hand.59 The Russian military staged these displays with the informational and geopolitical aim of demonstrating Russia’s renewed and advanced conventional capabilities. They also showed the effectiveness of weapons and platforms whose export versions are for sale. Russian military hardware salesmen are active throughout the Middle East and are having success. Turkish President Recep Tayyip Erdogan seems committed to purchasing the S-400 air defense system, despite vigorous American and NATO opposition and the threat that the U.S. will refuse to complete planned sales of the F-35 stealth aircraft to Turkey.60 The U.S. should certainly not deliver the F-35 to Turkey if Erdogan proceeds with purchase of the S-400. A Turkish trade of the F-35 for the S-400 would nevertheless be a significant victory for Putin in both economic and political terms. Putin’s efforts to steal arms business from the U.S. would also be assisted by legislation or executive decisions blocking the export of weapons systems to Saudi Arabia over the conduct of the war in Yemen. Income from such sales is a trivial percentage of American net exports, to say nothing of U.S. GDP, but would be much larger in the Russian ledgers, where totals are more than an order of magnitude smaller. The proliferation of Russian PMCs is another potential source of revenue—in addition to being a Kremlin foreign policy tool—although it is hard to assess its significance because of the secrecy surrounding the entire PMC enterprise. The reported numbers of mercenaries deployed by various Russian PMCs are generally in the low hundreds here and there—not large enough, in principle, to suggest that the income from them would be very great. There is no knowing the terms of their contracts, however, or what other activities they might engage in while stationed in poorly governed states rife with corruption and organized crime. None of these activities is likely to generate floods of money into Russia’s coffers in the near term, which is likely why Putin remains so heavily focused on sanctions relief. Putin has no other viable options for obtaining resources on a large scale. A significant increase in the price of hydrocarbons—either oil or natural gas—would once again flood Russia with cash. But Putin has no obvious way of directly causing such an increase in the price of oil, since Russia’s share of the oil market is not large enough to allow him to force price increases on OPEC. His ability to manipulate the price he charges Europeans for natural gas is also constrained. If he raises it too high, he could drive the Europeans to search harder for alternative sources of fuel or, given the Trump Administration’s willingness to export American liquefied natural gas (LNG), to rely on the U.S. instead of Russia. Such a European turn away from Russian gas would be a disaster for Russia. Without the ability to export LNG on a large scale, Russia can only sell gas where the pipelines go—and right now, they go to Europe. Russia could expand cooperation with China to create another major source of cash. Putin is very likely aware of the long-term risks of growing Chinese influence over Russia and its neighbors, yet he still may pursue greater economic ties with Xi Jinping’s China, given the likely calculation that he can control this relationship in the near term. Even so, Chinese cash usually comes with a heavy non-cash price, and Putin is savvy enough to be wary of becoming too dependent on Beijing’s largesse. Russia’s economy is therefore likely critical but stable. None of the economic efforts Putin has put into effect will fix the Russian economy’s fundamental structural flaws. All are palliatives with half-lives. Putin lacks a meaningful plan in this sense—nothing he is saying or doing will create a stable economic basis for Russia’s future. Neither, on the other hand, is Russia heading for a crash. The current level of economic stagnation is likely stable and sustainable—a constraint on Putin’s ability to expand his conventional capabilities and use economic instruments of power abroad, but not a threat to his rule. Russia has been a relatively poor country for much of its history. Yet it has proved capable of asserting itself on the European or global stage for most of that time. Russians are used to being a “poor power”; this is a normal state. These realities do not undercut the value of Western economic pressure on Russia; they should, rather, help set the proper objectives and expectations in applying such pressure. Retaining power constitutionally and managing a succession are the last major domestic campaigns in which Putin is engaged. Putin faces a significant watershed when his current presidential term ends in 2024, as he is constitutionally prohibited from running for re-election again in that cycle. He faced this dilemma in 2008 and chose then to allow Dmitrii Medvedev to become president while he retained effective control of Russian policy from the post of prime minister. He could pursue a similar model in 2024, but it is unlikely that he will do so. Among other things, Medvedev appears to have made at least one decision of which Putin violently disapproved—the failure to veto the UN resolution authorizing intervention in Libya against Moammar Ghaddafi—but he chose not to stop or reverse it. His ability to continue to control Russian policy and, even more, manage his succession from a position nominally subordinate to even a puppetlike president could also become more problematic as he ages. Putin could always cause the Duma to adjust the constitution again to let him run for another term, but he has not been laying the groundwork for such an approach (although it is admittedly early days yet for such an action). He might be pursuing an effort that offers a more interesting potential resolution to the dilemma in the form of further implementation of the Union Treaty with Belarus. He has been actively “negotiating” with Belarusian President Alexander Lukashenko to create a full integration of the Russian and Belarusian armed forces and security services, bringing Belarus nearly completely back under de facto Russian control.61 Belarus would nevertheless remain a nominally independent sovereign state. The integrated forces would function under the rubric of a union of the two states, which would naturally have a president. Putin might shift to that role, retaining full control over the security apparatuses of both states, as well as the dominance he holds by virtue of his control of Russia’s economy and kleptocracy. He could then allow a puppet to take over as Russia’s president but now in a role subordinated to him rather than nominally superior to him. External Objectives Putin has been as explicit as it is possible to be in his overarching foreign policy aims: he seeks to end American dominance and the “unipolar” world order, restore “multipolarity,” and reestablish Russia as a global force to be reckoned with. He identifies NATO as an adversary and a threat and clearly seeks to weaken it and break the bonds between the U.S. and NATO’s European members. Breaking Western unity is thus one of Putin’s core foreign policy objectives. Three major lines of effort support this undertaking: invalidating the collective defense provision of the North Atlantic Treaty (Article 5), weakening or breaking the European Union, and destroying the faith of Western societies in their governments and institutions. Article 5 of the North Atlantic Treaty states that an attack on one member of the alliance is an attack on all, with the requisite defense commitments. The provision’s activation is far from automatic, however. A member state under attack must request support from the alliance whose political body, the North Atlantic Council (NAC), must then vote unanimously to provide it. The alliance has activated Article 5 only once, as noted above, and on behalf of the United States. Putin is working to ensure that it is never activated again. Putin can achieve this by creating a situation in which one or more member states votes against a request to activate Article 5, or in which a member state under attack does not request such a vote for fear that it will fail. If a state under Russian attack does not seek or fails to secure the alliance’s support, then the collective defense provision that is the bedrock of the alliance will have been weakened badly if it has not collapsed entirely. Putin’s efforts to secure Hungarian and also Italian support to end the renewals of EU sanctions help him in this undertaking as well, since both Hungary and Italy are NATO members. Hungary’s Viktor Orban in particular is so overtly pro-Russian that he could well seize on any doubt about the reality of a Russian hybrid intervention to refuse to vote for an Article 5 activation. Putin has acquired a potentially more interesting route to Article 5 nullification, moreover, in his entente with Turkey, also a NATO member, over Syria. His noteworthy failure to respond to the downing by the Turkish Air Force of a Russian fighter that crossed the Turkish border in 2015 has paid dividends. His efforts to sell the Turks the S-400 system are also advancing the aim of driving a deep wedge between Ankara and Washington. Erdogan’s suspicions that the U.S. backed the failed 2016 coup against him make very real the possibility that he would come before even Orban in refusing to vote for an Article 5 action in the case of a hybrid campaign in Latvia, for instance. The question of how much Putin seeks to destroy the collective defense provisions of the NATO treaty rather than simply to regain formerly Soviet territories should loom large in considerations of possible military scenarios. The direct deployment of regular, uniformed Russian armed forces personnel in one of the Baltic states would make it very difficult for any NATO member state to refuse to honor a request to invoke Article 5. Erdogan, Orban, or some other leader might still find a way, but the pressure to show alliance solidarity in such a situation would be intense. A Crimea-type scenario, then, in which the hybrid war starts with “little green men” (Russian soldiers out of uniform) but then escalates quickly to the use of conventional Russian military personnel, with their equipment and insignia, is much less likely if Article 5 is the target. A better Russian approach in that case would be the model Putin used in eastern Ukraine: Russian soldiers out of uniform work with local proxies, some already existing, others created as they go along, and try hard never to show themselves overtly.62 Russian information operations work around the clock to obfuscate emerging evidence of any Russian military presence, while the Kremlin praises the brave warriors of the Russianspeaking patriots within the target state, who are surprisingly well armed and well led. In such a case, Putin is more likely to attempt to leverage an insurgency (which he probably created) to break the government and create chaos of some sort than to move to overt deployment of conventional forces—at least until he is as sure as he can be that even such a deployment would not rouse the alliance to invoke Article 5 at the last moment. He might well accept or even prefer an ostensible “failure” to gain control of the target country (at that time) in return for making obvious to all that NATO is dead. After all, once the collective defense provisions of the alliance and the Western will to defend the Baltics are destroyed, Putin can pick them off at his leisure. Weaken or break the European Union. Putin has been energetically supporting Euroskeptic parties for many years—his financial aid to Marine Le Pen in France is the most ostentatious example, but there are numerous others.63 He stands to benefit from weakening or breaking the European Union in several ways. First, the EU is an exclusive economic club that Russia will be unable to join in Putin’s lifetime. The corruption and opacity of the Russian economy are too deeply established for Putin to imagine a time when Russia might meet the standards for EU membership—and Putin relies on this corruption and opacity, as we have noted, for continued control over the major economic actors in Russia. Nor is he likely to desire such membership. Sitting around a table on an equal basis with Luxembourg and Belgium is not appealing to a man who aspires to be one of the poles in a multipolar world. But the EU collectively wields great economic power through its ability to control trade with the bloc and impose sanctions. Putin would do much better in a Europe where he could negotiate and pressure individual states on a bilateral basis—and a Europe that was unable to impose multilateral sanctions on him and require all member states to abide by them—and he appears to understand that. Second, the Euroskeptic parties are generally extremely nationalistic. The reemergence of nationalism within Europe poses an enormous challenge to the stability of intra-European relations and could even undermine the long peace that has held in Western Europe since 1945.64 It would likely translate into conflict at the North Atlantic Council and could well drive increased tensions between individual European countries and the United States. Putin appears to be untroubled by the prospect of a reemergence of German nationalism, even though that ideology historically has targeted Russia. He may believe that the benefit of shattering the Western bloc outweighs risks that he likely expects to be able to handle in other ways. Weakening Western will and trust in democratic institutions is another line of effort Putin is pursuing to break the Western bloc. His interference in the Western political systems and information space is intended to destroy Westerners’ trust in their governments and in the idea of democracy, as much as to bring about the election or defeat of particular candidates—if not more so.65 He is explicit in his attacks on the Western political system: “Even in the so-called developed democracies, the majority of citizens have no real influence on the political process and no direct and real influence on power,” he said in 2016, adding that “it is not about populists … ordinary people, ordinary citizens are losing trust in the ruling class.”66 This effort benefits from trends in Western societies that were already undermining popular faith in institutions. Americans’ confidence in institutions generally has dropped by about 10 percent from its post–Cold War high in 2004.67 The Iraq War, the 2008 financial crisis, and revelations of classified U.S. surveillance programs, among other things, have eroded Americans’ trust in institutions almost across the board. The military is a remarkable exception to this trend. The massive, unauthorized release of classified materials by Edward Snowden was particularly important in this regard, as it has cemented the erroneous impression that the U.S. government was listening to the phone calls and reading the e-mails of all its citizens and those of many other countries. That impression has widened the wedge between some major technology companies and the government, hindering the development of a national cyber-defense capability and even the government’s ability to contract for advanced software.68 It is not surprising that Snowden ended up in Moscow or that Putin has granted him asylum. Snowden advanced a major Russian line of effort, apparently without any orders from Putin. These negative trends in the West have created openings that Putin is working to exploit by compromising elections, supporting extremist candidates, and pursuing aggressive information operations that stoke divisions and mistrust within Western societies. Establishing Russian suzerainty over the states of the former Soviet Union is a second major foreign policy objective. Suzerainty is “a dominant state controlling the foreign relations of a vassal state but allowing it sovereign authority in its internal affairs.”69 It is the most precise way of capturing Putin’s aims vis-à-vis the former Soviet states and the limitations of those aims. He is not attempting to reconquer the lost territory nor to govern it directly from Moscow. He has asserted, rather, that the world must recognize that post-Soviet states have only a truncated sovereignty over their own affairs. They may not freely join alliances such as NATO or economic blocs such as the EU without Moscow’s permission, for example. Putin further claims that Russia has the right to protect Russian speakers in those states against oppression or discrimination (as defined and determined by Putin), and that it may use military force to do so. Assertion of the right to defend Russian speakers abroad is not Putin’s innovation. Boris Yeltsin’s government articulated it in the early 1990s, but Yeltsin never acted on it.70 Opposition to NATO’s expansion also originated in the Yeltsin era, and the 1997 National Security Concept identified such expansion as a “national security threat.”71 But whereas Yeltsin nevertheless continued to try to work with NATO and establish a relationship with it, Putin has been frankly antagonistic toward the alliance. The actual expansion of NATO to include the three Baltic states as well as Romania, Bulgaria, Slovakia, and Slovenia in 2004 was likely a tipping point in Putin’s attitudes. The critical nuance to consider is that Putin has always been more concerned about the loss of control over Russia’s perceived sphere of influence than an actual NATO threat to Russia.72 NATO expansion coincided with the first of the “color revolutions” in Ukraine, which clearly fueled Putin’s fears that the former Soviet states were at risk of slipping entirely out of Moscow’s orbit. Putin initiated active efforts to regain control over the former Soviet states shortly after he took office in 1999-2000, but it took several years before he adopted a more combative tone and aggressive policies. Putin’s speech before the Munich Security Conference in 2007 and then his invasion of Georgia in 2008 underscored this overt turn.73 He has clearly made it a priority to ensure that no more former Soviet states join NATO or the EU, while working to undermine the bonds linking the Baltic states to the alliance. Putin’s claims to suzerainty over the former Soviet states have been met with ambivalence in the West. Russia experts and others often defend the assertion of a unique Russian sphere of influence over those states on historical or geopolitical bases.74 Even the seizure and annexation of Crimea has been presented as somehow ambiguous. Putin’s argument—that Soviet Communist Party secretary general Nikita Khrushchev’s transfer of the region from Russia to Ukraine was an internal matter that should not have led to the peninsula’s inclusion in an independent Ukraine—has gotten a surprising amount of traction in the expert community.75 Examined closely, however, Putin’s claims over the former Soviet states are completely indefensible. All 15 of the Soviet Socialist Republics, including Russia, were recognized as sovereign states after the USSR collapsed, and they were admitted to the UN on an equal basis with all other UN member states. The Russian Federation recognized them all and their UN accessions without reservations. The subsequent complaints by Yeltsin’s foreign minister, Yevgenii Primakov, and then Putin, about the folly of Yeltsin’s decisions to do so does not change or invalidate those decisions.76 The 15 former Soviet states thus have all the same rights as every other member of the UN—including the right to make such alliances and join such blocs as they choose without needing the permission of another power, and the right to govern their own people, including minorities, as they wish. It is ironic, to say the least, that Putin vigorously defends Assad’s right to conduct horrifying atrocities against his own people on the grounds of sovereignty, while claiming that alleged discrimination against the use of Russian language in post-Soviet states justifies his own military intervention in those states. Russia can certainly decide that the shift of post-Soviet states into the NATO or EU orbit poses such a significant threat to its security and interests that it must use force to stop or reverse it, just as any sovereign state can see threats in the actions of its neighbors and decide that it must respond with force. But the resort to force in such circumstances is aggression, not a defensive move, and must be regarded and treated as such by the international community. Accepting the Russian argument that Moscow has an inherent right to intervene, including militarily, in its neighbors based on their treatment of their Russian minorities or their intentions to join alliances is a truncation of their sovereignty that undermines the entire basis of international law and the UN Charter. Putin is actively working to establish precisely that principle as a matter of international norm and is making a distressing amount of progress. Both Yeltsin and Putin have retained Russian suzerainty over some post-Soviet states in legal and legitimate ways as well. Russian ground and air forces have remained in Armenia, Tajikistan, and Kyrgyzstan almost continuously since the fall of the Soviet Union at the invitation of the governments of those states. A small Russian military contingent also remains in Moldova in more ambivalent circumstances. The government in Chisinau does not welcome its presence and the parliament has called on it to depart, but the Moldovan government has not formally ordered the Russians to leave.77 These deployments give Russia significant influence in the Caucasus, eastern Central Asia, and Moldova. The deployment in Tajikistan also creates a platform for Russian engagement and interference in Afghanistan. The situation in Belarus is the most worrisome of the legal reconsolidation efforts because of the strategic impacts it could have on NATO’s ability to defend the Baltic states (see Appendix I for a more detailed consideration of this problem). Negotiations currently underway could lead to the merging of the Russian and Belarusian armed forces and the technical subordination of the governments of Russia and Belarus to some new Union State. It is tempting, as we have noted, to imagine Putin taking control of this new combined polity after the end of his current presidential term, thereby finding an elegant solution to the constitutional problems of extending his reign. Returning Russia to the status of a global power shaping the international system is the last major external objective Putin is pursuing. Several lines of effort support this objective: Regain a global military footprint. Putin has been working to regain parts of the Soviet global military position lost in the late 1980s. A principal aim of this undertaking is to impose increasing costs on America’s efforts to continue operating around the world as it chooses and to offset part of the huge financial deficit holding Putin back from pursuing his larger aims. It is not meant to create platforms for global or even major regional wars, still less to advance an ideology (one of the Soviet objectives in creating the footprint in the first place). Putin’s establishment of a long-term air and naval base in Syria was the first significant step in this effort.78 He has also been cultivating the leaders of other states that were formerly Soviet clients and partners, including Egypt, Libya, Iraq, Sudan, and Cuba.79 In addition, he has recently added to the list by deploying Russian mercenaries (at least) in Venezuela and solidifying an entente with Iran that the Soviet Union never had.80 The Russian armed forces and/or mercenaries are now openly operating out of bases in Syria, Ukraine, and Venezuela. Russian PMCs have also reportedly been operating in Sudan, Central African Republic, and Libya.81 Russian forces have episodically used bases in Iran as well.82 This footprint is far smaller than the Soviets’, but is a dramatic change from Russian policies and capabilities between 1991 and 2013. Indications are that Putin intends to expand further using the sale of advanced weapons systems as the entry wedge. One major reason the U.S. is unwilling to give Turkey the F-35 if Ankara proceeds with the Russian S-400 air defense system purchase is that Russian technical specialists would be stationed in Turkey with its deployment. For the U.S., the military implications of these efforts are complex. The Russian military does not now have the capability to deploy large enough numbers of advanced offensive conventional weapons systems to bases beyond its borders to challenge a major American military effort to destroy them. The defensive systems, especially advanced A2/AD systems like the S-300, S-400, and Bastion anti-ship cruise missile system pose much greater challenges.83 But the U.S. military could defeat the limited numbers of such systems the Russians have emplaced in Syria and might emplace elsewhere if it chose to allocate the necessary resources. The most immediate consequence of the expanded Russian global conventional footprint, then, is the requirement that the U.S. and its allies ensure the availability of the forces that might be needed to handle the Russian systems. That resource requirement is significant. Neither the U.S. nor NATO has anticipated having to fight in the Mediterranean since the end of the Cold War, and the alliance does not have the necessary assets permanently allocated to respond to such a threat. It has instead generally used the resources that would be needed to counter Russian positions to conduct counter-terrorism operations throughout the Middle East and North Africa (MENA) region. The Russian deployments thus force on the alliance, in the event of an escalation with Moscow, the choice of reducing counter-terrorism operations, reallocating forces from the Indo-Pacific theater (not really an option in the current geostrategic environment), or creating and deploying new forces to deal with the emerging threat. In this context, the loss of Turkey as a reliable U.S. partner is very damaging. The Turkish air force is significant in its own right, although it is still recovering from Erdogan’s post–coup attempt purge, and the ability to use Turkish bases for operations against Russian positions in Syria would be strategically very significant.84 But the burgeoning Russo-Turkish entente means that the U.S. and NATO cannot count on Ankara in a showdown, further raising the requirement to develop and deploy new resources. The Russian deployments in Syria, Venezuela, and elsewhere are, in fact, part of a hybrid operation aimed not at preparing to fight a conventional war, but rather, at persuading the U.S. and its allies to withdraw from the threatened regions or limit their operations. Putin likely aims to increase both the risk and the cost of continuing to conduct military operations in the MENA area to a level at which the U.S. yields to its ever-growing impulse to pull back from the region entirely. This operation is surely also aimed at securing economic resources. Recent Russian deployments to Venezuela have gone to key oil-producing areas, and Putin’s financial interactions with Nicolas Maduro are well reported.85 Russian forces in Syria are also supporting Putin’s efforts to gain at least partial control over the reconstruction resources expected to flow into that country if ever he can persuade the international community to send them.86 Putin’s Syria campaign has already helped leach resources for his inner circle. For example, a Russian company run by Yevgeniy Prigozhin, a close Putin associate central to Russia’s attack on the U.S. political system, secured a stake in Syrian oil and gas fields via the Assad regime.87 It is vital in assessing Russia’s apparent reconstruction of the Soviet global military posture to recognize the essential differences in aims driving Putin from those motivating the Soviets. Putin intends to raise the cost to the U.S. of being a global power to levels higher than he thinks Americans will wish to pay. The U.S. must recognize the limitations of his ambitions in this regard as it develops intelligent responses at reasonable cost, even while being clear-eyed about the real threats Russia’s expanding global footprint present.

Normalize Russia’s violations of international law. The Russian cyberattack against Estonia in 2007; invasion of Georgia in 2008, with the subsequent annexation of the Georgian territories of Abkhazia and South Ossetia; invasion of Ukraine in 2014; deliberate attacks against civilians in Syria; defense of Assad’s use of chemical weapons and other crimes against humanity; chemical-weapons attacks on Russian expatriates in the UK; and seizure of Ukrainian naval vessels and personnel attempting to transit the Kerch Strait are all violations of international law. Russia has paid virtually no price for any of them except the invasion of Ukraine. On the contrary, Putin has positioned himself as a mediator in Syria (although not a successful one) by convening a pseudo–peace process in Astana that competes with the internationally recognized Geneva Process (which has also been unsuccessful, to be sure). Putin continues to portray Russia as a mediator even in the Ukraine conflict where he is a belligerent. He successfully obfuscated the illegality of his actions in and beyond the Kerch Strait, and has deflected some of the opprobrium his activities in Syria deserve by accusing the U.S. of supporting terrorists and the Syrian opposition of conducting the chemical weapons attacks.88 The expulsion of Russian officials—including intelligence officers— by the U.S., UK, and other states in response to the chemical weapons attacks in Britain was hardly a crippling response.89 The net result of these repeated violations of international law that do not result in meaningful consequences is their normalization. Each one establishes a precedent that Putin can and will then use to defend similar or even more aggressive activities. If the West accepted the clearly illegal seizure of Ukrainian ships in international waters near the Kerch Strait, how will it react if Russian forces seize some other ship on a trumped-up pretext while it attempts to transit the opening Arctic shipping route? Having taken no action against Russia for its defense of Assad’s use of chemical weapons, how would the West respond to a covert Russian operation to use chemical warfare in Ukraine while attributing the incident to the Ukrainian or a Western government? The principled answer is that, of course, failure to act in one case does not preclude action in subsequent cases. If the West has not responded adequately to most of these Russian transgressions, neither has it explicitly condoned them—yet. That is a line that we must be very wary of inadvertently crossing. Imagine an unlikely but not an impossible situation in which Ukraine’s President Volodymir Zelensky, elected in April 2019, asks the U.S. and the EU to waive Russian sanctions for Ukraine—or lift them altogether—as part of a deal he is negotiating to “end the conflict” in his country. It would be difficult to resist such a request since ending wars is desirable, especially if it can be done with the apparent acceptance of both sides. The net effect of endorsing such a deal, however, which would surely leave Crimea in Russia’s hands and eastern Ukraine in a changed political relationship to Kyiv, would be to endorse retroactively the violations of international law Putin committed in 2014. Doing so would indeed establish a precedent that Putin can impose his will on other states as long as he subsequently succeeds well enough to convince or coerce those states into recognizing his actions. There is, of course, no new principle at work here. It has always been true in the modern states system that a successful aggressor can have his aggression legitimized by a subsequent peace agreement, even one forcefully imposed on the defeated state. The novelty in this situation is twofold. First, Russia has not been universally identified as the aggressor— Putin’s efforts in Ukraine are not generally accepted as the offensive land-grab they actually were—and Putin’s role in any deal would be as mediator rather than belligerent. It is one thing to accept that Putin launched, waged, and won a war of aggression, the outcome of which the defeated state chose to accept; it is another to say that he facilitated and mediated a peace agreement in a conflict to which he was not actually party, when, in fact, he initiated it and directly benefited from it. Second, the principle at issue goes beyond the straightforward one of legitimizing a forcible conquest—it also touches on the nature of the post-Soviet states’ sovereignty. Putin has asserted, as we have argued, that Russia has the right to intervene by force in any of the post-Soviet states and the international community has no right to interfere (including even by offering an opinion). Recognizing his activities in Ukraine ex post facto recognizes this principle as well. It establishes as a firm precedent, reinforcing the precedent already established by the invasion of Georgia, that there are degrees of sovereignty in the international community and that some states are more sovereign than others. Putin is clearly attempting to establish precisely that principle. The West must resist the temptations he may offer to allow him to do so. Create a constellation of alliances and friendly states that gravitate toward Russia. Putin has been working hard to create multiple blocs and groupings of which Russia is either the sole center or one of a small number of core states, as an alternative to the U.S.-dominated international order he so opposes.90 Few of these individual efforts have been particularly effective, nor is it clear that the sum of them will result in a truly Russia-centric constellation of states. But the tenacity with which he has pursued this objective and the sheer number of attempts to reach it demonstrate, if nothing else, the importance he seems to attach to it. Some of these groupings offer Russia little inherent influence. BRICS (Brazil, Russia, India, China, South Africa) began simply as an acronym to describe major emerging markets, for example. It has no formal decision-making process, nor are its members aligned with one another on political or economic policies. It has no military component at all. Some, such as the Shanghai Cooperation Organization (SCO) require Russia to compete with China for predominant influence.91 That competition is not going well for Moscow, at least in the case of the SCO, leading Putin to de-emphasize this forum for the moment. Some, like the Eurasian Economic Union, remain largely aspirational. They have not yet established themselves as meaningful associations through which Russia could hope to exert influence now, nor is it clear that they will gain more significance over time—although Putin continues to work at it.92 Others are operational and meaningful. The Astana Process tripartite has not brought peace to Syria, but it has helped establish Putin at the heart of a triad with Iran and Turkey that is shaping Ankara’s drift away from NATO and toward Moscow. The Quartet Intelligence Center has not yet integrated the Iraqi military or government into the Russian orbit as fully as Putin might like, but it gives form to the very real military coalition of Russia, Iran, and Syria that is fighting in Syria.93 Still others, such as the Collective Security Treaty Organization (CSTO) and the Commonwealth of Independent States (CIS) are largely moribund at the moment, but the Union Treaty with Belarus had also been dormant almost since its creation in the 1990s, and Putin is attempting to reify it.94 We cannot discount the possibility that he may do so with one of the other agreements that are legacies of the 1990s. The purpose of laying out these various efforts is not to suggest that they are likely to succeed, or that their success would have dire consequences for American national security—it might or might not, depending on the circumstances. The purpose is, rather, to demonstrate again the coherence between Putin’s stated grand strategic vision and the undertakings the Russian state is pursuing to achieve it. Putin’s goals are antithetical to the security and national interests of the United States and its allies. We must prevent him from achieving them, without resorting to major war if at all possible. We turn next, therefore, to the means by which Putin and his subordinates pursue his aims—an examination that will show the tremendous challenges his methods pose, on the one hand, and the opportunities to respond with means well short of war, on the other. THE RUSSIAN WAY OF WAR The Russian way of war today is based on recognition of Russia’s fundamental weaknesses and the fact that Russia is not a near-peer of the U.S. and will not become one any time soon. It is designed to achieve Moscow’s objectives without fighting a major war against the West that Russia would likely lose if it did not escalate to using nuclear weapons.95 Its technological emphases have therefore been on less-expensive and asymmetric capabilities such as information operations, cyber operations, A2/ AD systems, and nuclear systems. Its intellectual development has focused on the category of political-informational-military activities encapsulated in the terms “hybrid war” or “gray zone” conflict.96 Russia is optimizing itself to fight a poor man’s war because it is poor and will remain so. Putin is sufficiently in contact with reality to know that he will fail if he attempts to regain anything approaching conventional military parity with the West.

Assessing the novelty of this Russian approach is difficult. None of the concepts or technologies on which it relies is new or unique to it. Most of the key intellectual framework goes back to the early days of Soviet military thinking. Some can be traced back centuries to Sun Tsu. Nor has Russia abandoned traditional military approaches and conventional capabilities. It would be both wrong and dangerous to ascribe to Russia the invention of an entirely new way of war that is the only way in which it will fight now, or in the future. There are nevertheless important differences between the current Russian approach and the approach that characterized Russian military and national security strategy and doctrine in the 2000s and the 1990s, to say nothing of the Soviet period. The differences lie partly in emphasis and partly in the degree of intellectual development of certain concepts at the expense of others. It would be equally wrong and dangerous, therefore, to see the current Russian approach to war as the same as, or even congruent with, all of the post-Soviet period. The Russian military in the 1990s and 2000s focused largely on acquiring the capabilities it most envied in the stunning conventional American military victories against Iraq in 1991 and 2003. It sought to acquire long-range precision-strike capabilities that the Soviet military never had, stealth technology, and tanks and aircraft roughly equivalent with the mainstay technologies of NATO countries.97 It also sought to transform itself from a mass cadre-andreserve conscript force into a volunteer professional military, recognizing the tremendous value the U.S. transition to the all-volunteer force had brought on the battlefield.98 It has managed to achieve only partial success in most of these measures after nearly three decades. It has re-equipped many, but by no means all, of its combat units with weapons systems roughly equivalent to American fourth-generation aircraft (such as the F-15E Strike Eagle), M1 tanks, etc. It has struggled to field a force of fifth-generation aircraft and is unlikely to build a large enough arsenal of such aircraft to pose a serious challenge to American capabilities in any short period of time.99 It has acquired and demonstrated the ability to employ precision weapons, including long-range precision missile systems. Its mix of those systems and “dumb bombs” in Syria, however, was more similar to the mix the U.S. used in 1991 than to the mix American forces use today—the large majority of Russian munitions dropped in Syria were not precision-guided munitions because the Russian stockpiles are not large enough to support their widespread employment.100 The Russian military has notably failed to transition fully to an all-volunteer force, moreover, and has given up the effort. It has become, therefore, a segmented force with a volunteer element (so-called contract soldiers) and a large body of conscripts serving one-year terms (half the two-year service requirement for conscripts in the Red Army). This partial professionalization will continue to exercise a drag on its ability to complete its modernization programs; one-year conscripts simply cannot learn both how to be soldiers and how to use very advanced modern weapons systems. Russia’s modernization efforts lurched dramatically in 2008 with the appointment of Anatolii Serdyukov as defense minister.101 Serdyukov’s mandate was to reduce the cost of the Russian military significantly in response to the collapse in global oil prices resulting from the global financial crisis. He sought to make major personnel cuts, to restructure weapons system acquisition, and to reorganize the military, especially the ground forces, in a way that would have severely degraded its ability to conduct large-scale conventional warfare without optimizing it for any other sort of warfare. Serdyukov’s successor, Sergei Shoigu, along with Chief of the General Staff Valeriy Gerasimov, have reversed many, but not all, of those reforms. It is important to note, therefore, that some of the changes being made to the Russian military that enhance its ability to fight maneuver war are reversals of changes made in 2008 for cost-cutting purposes, rather than new improvements on an already-sound structure. The emphasis in Russian military development has changed significantly since the start of Russian involvement in Ukraine in 2014 and Syria in 2015. Gerasimov published a noteworthy article in 2013, discussion of which in the Western press gave rise to the phrase “Gerasimov doctrine.”102 The author of that phrase subsequently not only retracted it, but also aggressively attacked the idea of its existence.103 As with “hybrid war” and “gray zone,” this paper will not attempt to defend or attack the validity of the term, but will explore the collection of concepts and actions to which it could meaningfully be said to apply and that do actually comprise the current Russian approach to war.104 The heart of this approach is the conclusion that wars are won and lost in the information space rather than on the battlefield. Russian military thinkers have gone so far as to argue that every strategic, operational, and even tactical undertaking should be aimed first at achieving an effect in the information space, and that it is the information campaign that is decisive.105 Formal Russian doctrine has not gone this far, nor has Russian military activity on the ground, but the extreme statement is a measure of how important the concept is.106 The importance of information operations is old hat for any Sovietologist. The Soviets were renowned for the “active measures” of the KGB, for “disinformation” and various efforts to suborn groups in the West, sometimes unwittingly, to advance their ideological and concrete agendas. The Soviet military evolved an elaborate theory of deception, bringing the term “maskirovka” into common parlance among those who studied it. The Soviets also built out a concept called “reflexive control” that is the most noteworthy element of Putin’s ability to play a poor hand well.107 Reflexive control is a fancy way of saying “gaslighting.” It is the effort to shape the information space in which an adversary makes decisions so that he voluntarily chooses to act contrary to his own interests and his own benefit—all the while believing that he is actually advancing his own cause. Reflexive control is a form of intellectual jiu-jitsu, which may be one reason it appeals to Putin, who is a long-time and high-level practitioner of the Russian form of judo known as sambo.108 It uses the enemy’s strength against him in the best case, but at least causes him to avoid bringing his strength to bear against you. None of this, again, is new. Even the additions of cyber operations and cyber-enabled information operations such as bots and troll farms are not new or unique to the Russian approach to war. The novelty comes in part from the relative emphasis in Russian operations on efforts to shape the information space and the frequent subordination of conventional military operations and the threat of such operations to those efforts. Another novel aspect is the vulnerability of Western societies to these kinds of efforts, resulting in part from the effects of changes in the technological shape of the information space and the way in which it interacts with the psychology and sociology of Western individuals and societies. The current information environment favors the attacker over the defender for several reasons. The extremely widespread penetration of the internet in Western societies gives an attacker almost universal access to the population, unfiltered by government agency or corporate leadership. The anonymity made possible by the internet makes it difficult or impossible for individuals to know who is speaking to them. The decentralization of sources of information magnifies the effect of that anonymity by allowing it to seem that multiple independent sources verify and validate each other even when a single individual or group controls all of them. And the psychological asymmetry of outrage and retraction means that corrections and fact-checking almost never fully undo the damage done by a false accusation and often have little effect. These characteristics of the modern information space have created the ideal environment in which ideas first developed and attempted by the Soviets can flourish in ways the Soviets could never have imagined. We must be careful to avoid attributing too much brilliance to Putin and Gerasimov. It is not necessarily the case, or even likely, that they perceived the opportunities these phenomena would present and skillfully designed a “doctrine” to take advantage of them. On the contrary, they and their Russian and Soviet predecessors have been trying to make these approaches work all along. The increased intellectual, doctrinal, and organizational emphasis on them, starting overtly in 2015, likely results instead from the realization that they were suddenly working very well. As with all important military innovations, therefore, the emergence of the current Russian approach to war was almost certainly the result of theory, action, experience, and reflections on interactions with the adversary rather than a sudden explosion of insight. Whatever its origins and novelty or lack thereof, this Russian approach has allowed Putin to make gains he could never have hoped to make with conventional military forces alone.109 Syria is a case in point. Russia could never have established a lodgment on the Syrian coast and then expanded it to encompass a naval facility, a permanent and expanded military airbase, and a ground forces garrison—all protected by advanced air defense systems—through conventional military operations, against the wishes of the U.S. and its allies. Russian aircraft flying to Syria must transit either NATO airspace (through Turkey or Romania or Bulgaria and then Greece) or Iraqi airspace (via Iran) that the U.S. dominates. Had the U.S. been determined to prevent Russian planes from getting to Syria, the Russian Air Force could not have penetrated the defenses the U.S. and its allies could have put up. But the U.S. and its allies made no such decision. They have, on the contrary, worked hard to avoid any risk of military confrontation with Russian aircraft—a project made challenging, not unironically, by the periodic aggressiveness of Russian pilots. The prospect of a Russian naval expedition forcing its way into the Tartus naval facility in the face of efforts by the U.S. Sixth Fleet to stop it is even more fanciful. The key to Putin’s success in this gambit lay in his ability to persuade American and NATO leaders that Russia’s military presence in Syria was not a threat and might even be helpful—while simultaneously stoking the belief that any U.S. effort to oppose or control the Russian deployment would lead to major, possibly nuclear, war. The key to that success, in turn, lay in the fact that neither the Obama nor the Trump administration wanted to be in Syria or wished to fight any kind of conflict with Russia. President Obama, on the contrary, invited Putin into Syria in 2013 to help him out of the trap he had created by announcing that any further use of chemical weapons by Assad was a “red line”—without actually being willing to enforce that red line when Assad crossed it. Obama’s decision to reach out to Moscow likely resulted in part from the long bipartisan trend of seeking to “reset” relations with Russia, bring Russia back into the fold of responsible international stakeholders, and generally return to what Americans saw as the golden age of U.S.-Russian cooperation in the 1990s. This trend began in the first years of the George W. Bush administration, shortly after Putin’s accession to power. It continued with Hillary Clinton’s vaunted push of the “reset” button and Donald Trump’s praise for Putin and continued attempts to find ways to cooperate with him toward supposedly common objectives.110 The conviction that a Russian reset and a return to the golden years of the 1990s is just one phone call or summit away has become one of the few truly bipartisan foreign policy assumptions in this increasingly polarized era. Putin has used it skillfully to advance his own projects while offering few or no concessions in return. Conventional military forces play a critical role in the Russian approach to war nevertheless. Russian airpower and long-range precision-strike capability were critical to preserving, stabilizing, and then expanding the Assad regime and the territory it controlled in Syria. Iran, Lebanese Hezbollah, and the other components of the pro-regime coalition all lack similar capabilities. The hardening of opposition defenses in various parts of Syria before the Russian intervention raised the requirement for continued regime offensive operations beyond what the pro-regime coalition could provide.111 The Russian intervention was therefore essential to the survival of the regime and remains essential to its precarious stability and to any hope it has of regaining control of the rest of Syria. The very limited deployment of a few dozen aircraft and salvoes of long-range missiles made Russia indispensable to the pro-regime coalition and gave Putin enormous leverage in Syria at relatively low risk and low cost. The deployment of Russian S-300 and S-400 anti-aircraft systems to Syria dramatically increased that leverage, again at very low risk and cost. The American military could destroy those systems and operate freely over Syrian airspace even against Moscow’s wishes, but the cost in U.S. aircraft and missiles devoted to the operation, in time, and possibly in casualties and aircraft losses would be significant. The range of the S-300 and the reported locations at which launchers were deployed, moreover, means that most Israeli Air Force and some Turkish Air Force aircraft are within range of those systems the moment they take off from airbases in Israel and Turkey. That fact has not been lost on Israeli or Turkish leaders. Putin has also used conventional military forces on a limited scale in Ukraine. He relied on the naval infantry forces already deployed in Crimea, reinforced by small numbers of special forces and other units, to seize control of that peninsula in 2014. Small numbers of conventional forces battalion tactical groups and similar-sized formations helped local proxies seize and hold ground in eastern Ukraine, while highly skilled special forces elements supported them in the battle area and in the rear of the Ukrainian forces.112 Russia has provided air defense capabilities and significant electronic warfare support to its Ukrainian proxies and also to its fighters and allies in Syria. The highly targeted assistance of Russia’s conventional military is probably even more essential to Putin’s proxies in Ukraine than in Syria. The Ukrainian Armed Forces are likely to regain control over the Russian-occupied territories in Ukraine if the Russian military stops supporting its proxies on the battlefield. The current Russian way of war, therefore, truly is hybrid. It requires the use of limited numbers of highly capable conventional forces able to conduct expeditionary operations beyond Russia’s borders. However, it also relies on the creation and maintenance of a political and information environment that facilitates the presence and activities of those forces without serious opposition from any state or actor that could meaningfully challenge them. The conventional forces themselves are enablers to a larger political-informational campaign rather than being the main effort. Evidence for that assessment lies in Putin’s response to the several occasions on which his conventional forces suffered losses— specifically, the Turkish downing of a Russian aircraft in 2015; the accidental downing of another Russian plane by Syrian forces during an Israeli airstrike in 2018; and the killing of several hundred members of the Wagner PMC during an attack by that group on an outpost in eastern Syria held by the opposition, where American advisers were also present.113 Washington and the world held their breath in each case, worrying about Putin’s possible response. The U.S. Chairman of the Joint Chiefs of Staff, General Joseph Dunford, reached out immediately to Gerasimov to send messages of both deterrence and de-escalation each time.114 Putin did not retaliate militarily on any of these occasions. He responded to the Turkish shoot-down by deploying Russian S-300 systems operated by Russian troops, and to the Syrian shoot-down by completing a contract with the Assad regime for S-300 systems of its own, which had long been held up. He made no meaningful response to the Wagner incident and did not even use his air defense systems to disrupt the massive U.S. air operations against the attacking Wagner forces as they were destroyed. Putin has similarly refrained from using his own S-300 and S-400 systems to shoot at Israeli aircraft during any of Israel’s repeated airstrikes against regime targets within Syria and has, reportedly, prevented the Syrians from using their S-300 system.115 Nor has Putin retaliated against Israel for those strikes or against the U.S. for the 2017 missile strikes Washington launched against the Shayrat airbase in response to Assad’s renewed use of chemical weapons. The aircraft and missile systems Putin has deployed to Syria, therefore, are clearly not meant to give him control over Syria’s skies. They are also obviously not meant to challenge the ability of the U.S., Turkey, or Israel to conduct anti-regime operations, at least within the current limits of such operations. Lastly, they are not meant to enable Putin to retaliate in any symmetrical tit-for-tat manner for Russian losses suffered directly or indirectly at the hands of the U.S., Turkey, or Israel. The relative inaction of Russia’s aircraft against those states could be at least partially explained by Moscow’s focus on fighting the opposition. But the air defense systems can only be intended to defend against the U.S., Turkey, and Israel, since the opposition has never had aircraft against which those systems are effective.116 The Kremlin has, in other words, deployed systems to defend against attacks that have, in fact, come—and yet not used those systems to defend against those attacks. This conundrum can only be resolved by recognizing that the purpose of those systems is to shape the behavior of the U.S., Turkey, and Israel rather than to fight openly against them. The deployments of advanced air defense weapons, and also of some of the air-to-air-optimized aircraft Russia has periodically sent to Syria, support a political-informational campaign rather than a conventional military operation (even if we regard counter-insurgency and counter-terrorism as being in that category). Circumstances might, of course, arise in which Putin would authorize his troops to use some or all of their capabilities conventionally against the U.S. and its partners and allies. That fact drives the fear of escalation that leads the U.S. Joint Chiefs chairman to jump on the phone to Moscow every time a major incident occurs. It also shapes American, Turkish, and Israeli calculations about military options they might choose. This is exactly the point from Moscow’s perspective. Putin’s S-300 and S-400 systems in Syria work best if they are never used. Problems of Escalation—for Russia The U.S. military and those who study it are preoccupied, understandably, by its shortcomings and inadequacies. The shortcomings are real, and the military is, indeed, inadequate for the global requirements it must meet. The preoccupation with our own failings has tended to obscure an objective assessment of the relative risks to the U.S. and Russia of a conventional military confrontation in Syria, however. The U.S. has therefore tended to overestimate the likelihood that a crisis with Russia in Syria will escalate to the point of such a major confrontation and, as a result, has allowed Putin’s very limited deployment of combat power and good use of the information space to drive a high degree of American self-deterrence. Russia has rarely had more than a couple of dozen combat aircraft at its airfields in Syria at any given time.117 Most of them are usually ground-attack planes (principally Su-25 Frogfoots, which are roughly similar to the U.S. Air Force A-10), and they have limited ability to conduct air-to-air combat against U.S. fighter bombers. The rest are generally variants of the Su-30 fighter bomber, sometimes with a few more-advanced airframes optimized for air-to-air combat, including, occasionally, the Su-57 stealth fighter bomber. A single U.S. carrier strike group has around 48 strike fighters, all with air-to-air and air-to-ground capabilities. The U.S. Navy alone has more than 775 strike aircraft (including all variants of the F/A-18 and the F-35).118 The U.S. Air Force has more than 1,240 fighters and fighter bombers, as well as around 140 strategic bombers.119 The single carrier strike group—almost invariably in the Mediterranean or in or near the Persian Gulf—thus outguns the Russian aircraft in Syria by a significant margin, and the U.S. Air Force and Navy could rapidly begin to flow crushing numbers of reinforcements to the theater. The Russian Air Force, by contrast, has a total of roughly 745 fighter bombers in its entire inventory, according to the most recently published Defense Intelligence Agency estimates.120 It has an additional 215 attack aircraft (mostly Su-25s) and another 141 strategic bombers. It is thus somewhat larger than the U.S. Navy, considerably smaller than the U.S. Air Force, and about one-third the size of both together. These numbers exclude the roughly 240 F-16s in the Turkish Air Force—which have demonstrated their ability to shoot down Russian fighters in limited engagements, and so should not be dismissed—as well as those of America’s other NATO allies, not to mention the Israeli Air Force, one of the best in the world. The U.S. thus has absolute escalation dominance in an air-to-air fight over the skies of Syria, unless one imagines that Russian aircraft and pilots are an order-of-magnitude more lethal than their American counterparts—a notion there is no evidence for, and considerable evidence against.121 Critics of this argument need not challenge this assertion, but could argue instead that it is beside the point. The U.S. military cannot focus solely on fighting the Russians in Syria. It must support American ground forces deployed in Iraq and Afghanistan; conduct counter-terrorism operations throughout Africa; and deter and be ready to respond to aggressions by China, North Korea, and Iran, at least. The concentration of aircraft, ships, and pilots needed to fight a significant air war against Russia in Syria would severely degrade the U.S. military’s ability to meet these other requirements. This fact more than any fear of confronting the Russian military in the Middle East explains the self-paralysis of the U.S. military. Putin, by contrast, has projected a willingness to mix it up in Syria. His pilots ostentatiously fly close to American aircraft, engage in risky maneuvers near them, lock targeting radars on them, and in other ways portray almost an eagerness to engage in a fight.122 The Turkish downing of a Russian aircraft in 2015 resulted from repeated violations of Turkish airspace by Russian pilots in another set of deliberate provocations.123 Putin’s message through these actions has consistently been: You will not fight me here, but I am willing to fight you. Yet on each occasion when blows have been traded, Putin has backed down. One reason is that his escalation calculus is far worse than America’s. The Russian Air Force also has essential tasks outside Syria that would prevent it from concentrating all, or even most of its available assets there. It must cover Russia’s enormous periphery, the largest land border of any country in the world, including a long border with China. Putin would be foolish to strip aircraft from St. Petersburg, a short flight from NATO airfields, while fighting the U.S. in Syria. Nor could he denude his forces in Crimea, linked to the Russian mainland by a single bridge, or his forces in and near eastern Ukraine. He could not even prudently strip his far east of all advanced aircraft. He might— or might not—decide that China would not take advantage of any weakening of his defenses, but the U.S. can threaten him from carriers in the Pacific even if Japan opts to deny the use of its bases in a conflict with Russia to which it is not party. Would the U.S. bomb St. Petersburg or Vladivostok while fighting Russia in Syria? Of course not. But strategic calculus does not work that way. It is a fact that the U.S. could conduct such attacks, and any professional military staff forced to confront the prospect of an escalation to major conventional war in one theater would have to consider the possibility that such a war might spread to other theaters. Best professional military advice in such a situation would be to maintain sufficient combat power in any other vulnerable theater to deter and, if necessary, defeat enemy attempts to transfer the conflict there. It is equally true, after all, that a rapid U.S.-Russia dustup in Syria would be very unlikely to trigger a Chinese military adventure or a North Korean invasion of South Korea. Yet the U.S. military allows the fears of just such scenarios to undermine its willingness to contemplate fighting Russia in Syria— and the Russian military will behave no differently. Even that calculation is not Russia’s most serious problem with the idea of escalation to conventional conflict in the skies over Syria. The biggest problem is actually financial. Russia could not afford to replace the losses it would inevitably take in such a fight, whereas the U.S. could. Bad as the differential in aircraft looks for the Russians, we must recall that the differential in overall economic power and in defense budgets looks much worse. The Russian economy and defense budgets are less than one-tenth the size of America’s. Its military is struggling to “modernize” to a level of technology similar to what the U.S. has had for decades. The cost of having to replace many lost modern aircraft would disrupt Russian defense programs for years. The U.S. could make good such losses in short order if it chose.

Nuclear Escalation The prospect of the world’s two largest nuclear powers going to war, even in a limited conventional way, is of course terrifying. The U.S. certainly should do everything in its power to achieve its objectives without resorting to major combat operations against Russia—that is the guiding principle of current national security documents and of this report. The straightforward equation sometimes made between any such local conflict and global nuclear war, however, is entirely unjustified. It simply is not the case that any major conventional war will lead inevitably, or even probably, to nuclear war. One can trace escalation paths from a conventional war Putin is losing in Syria to his use of a theater nuclear weapon, either to change the odds or to try to force the U.S. to back down. He could use such a weapon to destroy a U.S. airfield in one of the regional states (Turkey, perhaps, or Kuwait) or a U.S. aircraft carrier strike group. The destruction of any single airbase or carrier would not prevent the U.S. from carrying forward an air war to successful conclusion. There are simply too many bases and carriers the U.S. could use for the elimination of a single one to terminate a campaign. Unless Putin were willing to destroy many airbases in many different countries (most of them NATO members) and sink every carrier moving into the theater, he could not prevent the U.S. from destroying his assets in the Middle East. It is impossible to predict the American response to such a use of nuclear weapons—regardless of the occupant of the White House. The U.S. could respond by using theater nuclear weapons of its own against Russian forces in the Middle East (which this report emphatically does not support or recommend)—and here, a single nuclear device dropped on the airfield near Latakia would pretty much destroy Russian capabilities to continue the air war in the region. Alternatively, Washington could engage in either conventional or nuclear retaliation against Russian forces beyond the region, including in Russia proper (and, again, this report does not support or recommend using nuclear weapons under any circumstances, except possibly in extremis situations far more dire than those under consideration here). Putin would then be forced to decide whether to escalate further. He could conduct a larger nuclear strike against NATO (since any effort seriously to disrupt U.S. military capabilities in and around Europe would require breaking or badly damaging the alliance). He could also go directly for a strike on the U.S. homeland. If he chose the latter and launched an all-out strike, the U.S. president would likely respond in kind, leading to the destruction of both Russia and the U.S.—and possibly life on Earth. One could endlessly consider lesser variants, but they all lead to dramatically increased risk of Armageddon.

Thus, the real questions are, would Putin risk Armageddon for Syria, or is he likely to miscalculate an American response to a nuclear escalation badly enough to end up there against his will?

Full-scale global thermonuclear war is an insane undertaking. The reason for maintaining large arsenals of strategic nuclear weapons is to deter such a war, not to fight it. A tiny handful of leaders in the past have been willing to accept their own total destruction in pursuit of some larger cause—Hitler being the prime exemplar of this, as of so many evils—but none of them, mercifully, has had nuclear weapons. Putin does not fall anywhere near this category. He is a thoroughly rational actor who has prospered by taking prudent risks and backing down, rather than escalating, on almost every occasion when the breaks did not go his way.124 He holds to no ideology that transcends his own existence sufficiently to cause him to prefer obliteration to defeat. Considerable evidence opposes the idea that he would accept, let alone embrace, full-scale nuclear war if given any choice to avoid it.

The real risk of such a war emerging from a regional crisis, therefore, comes from the risk of miscalculation. It comes, in other words, from the notion that Putin might persuade himself that he could safely use a nuclear weapon of his own without triggering a nuclear retaliation that could escalate to total destruction.

Putin himself has set conditions, for fear of precisely this kind of miscalculation, through his discussions of “de-escalation” with regard to scenarios for warfare in the Baltic states. The Russian military has openly discussed using one or a small number of nuclear weapons to terminate a conventional, even a regional or local, conflict on its own terms.125 It is by no means clear, of course, that all three of the nuclear NATO states (the U.S., Britain, and France) would choose not to retaliate against a nuclear attack on another NATO member state. But neither is it obvious, in the current circumstances, that they would. Putin might have some reason to think he could successfully “escalate to de-escalate,” given the general ambivalence within some NATO capitals about the desirability of even fighting for the Baltics to begin with.

It is harder to imagine him making such a calculation in the context of the Syria scenario being considered here, however. In this scenario, the conflict involves American versus Russian forces directly, and the attack would be on American troops, with thousands or tens of thousands killed in the nuclear strike. The U.S. president would already have demonstrated a willingness to escalate to a high level conventionally, a fact that would weigh heavily against the notion that that president would tamely accept a Russian escalation to a higher level of conflict. Putin would have to be an imbecile, or a gambler of epic proportions, to persuade himself that he could safely escalate to de-escalate in such a conflict. Assuming deterrence continues to work at the strategic level, in other words, it is very likely to continue to work at the operational and tactical levels, even in a major conventional conflict involving American and Russian forces, at least outside of Russian territory.

The purpose of the foregoing discussion was not in any way to suggest that a U.S.-Russian conventional war in Syria or anywhere else is safe, would definitely not spread, and could not lead to nuclear war. Still less was it a brief to advocate for any such conflict. The aim, rather, was to show that the escalation paths from the current situation to higher levels of conflict look much worse for Putin than they do for the U.S., and that even adding the notion of the risk of nuclear war or escalation to de-escalate, Putin has every reason to believe that outright confrontation with the American military will end badly for him.

That is one of the main reasons behind his preference for hybrid warfare. It is the reason he is unlikely to abandon that preference any time soon but seems, rather, to be doubling down on it. This has implications far beyond Syria. It goes into the Baltics, Poland, NATO, and even Ukraine and Belarus with various important modifications. The current Russian way of war reflects the realities of Russia’s situation and the correlation of forces between Russia and the U.S. for the foreseeable future. This is the way of war against which the U.S. and its allies must most urgently prepare, and from which they must not allow themselves to be distracted, even while taking necessary steps to address deficiencies in conventional combat power and other areas. Hybrid war is not a façade or a fad— it is the only realistic way Putin has to achieve his objectives by force.

THE BLOWBACK PHENOMENON

# Case

## Asteroid Mining

#### Too many barriers to successful asteroid mining – err neg because the commercial space industry is overly optimistic

Scoles 17 (Sarah. 1/23. Contributing writer at WIRED Science, a contributing editor at Popular Science, and the author of the book ​Making Contact: Jill Tarter and the Search for Extraterrestrial Intelligence. “ASTEROID MINING SOUNDS HARD, RIGHT? YOU DON’T KNOW THE HALF OF IT” <https://www.wired.com/2017/01/asteroid-mining-sounds-hard-right-dont-know-half/>) 8/27/19 RK

THE COMMERCIAL SPACE industry pushes a particular brand of optimism. Its urge to inspire manifests as soaring soundtracks to three-minute mission-promo videos, press releases with words like “humanity,” and slick graphics of spacecraft that don’t exist yet but could any day now. In the particular case of asteroid mining, business leaders are selling a future in which materials plucked from space rocks make up for Earth’s shortfalls and support a thriving civilization. Everyone is rich, all are happy, and no one wants for anything. O pioneers! We are them! OK, fine, that’s an exaggeration. But the toned-down version of asteroid mining’s prospects is still hyperreal. "Our vision is to catalyze humanity's growth, both on and off the Earth," says Peter Diamandis, co-founder of mining company Planetary Resources, in a PR video. A graphical spacecraft, presumably future-theirs, flies away from our planet while he speaks. "At the end, the entire human race will be the beneficiary, as we expand our reach beyond the Earth, into the solar system," he continues. But traveling the road to space-based industry will require giant leaps. Like picking the most lucrative asteroids—the ones with lots of water and precious metals—from far afield. And negotiating spacecraft near their complicated gravitational fields. To do that, companies will have to leave the comfy confines of Earth's orbit, where they currently do all their experimenting. In May, Planetary Resources raised $21 million of venture capital for an Earth-observation program called Ceres. Ten small satellites will fly low around the planet, taking twice-daily images of Earth in wavelengths ranging from mid-infrared to visible—images that will “benefit multiple industries including agriculture, oil & gas, water quality, financial intelligence and forestry.” These satellites will, essentially, be prospecting Earth, using the same sensors Planetary Resources has developed to prospect asteroids. The utility, says president and CEO Chris Lewicki, is dual. “We are taking pictures of the Earth and using them not only to understand how our technology works but also to understand more about our planet,” he says. True enough, but it's also about the balance sheet: Earth-facing spacecraft, as all that venture capital suggests, are big money. Which is important for a company that has to continue existing until it can actually mine asteroids. The other big name in the industry, Deep Space Industries, is also in the Earth-observation business, kind of: It sells its spacecraft technologies to other companies, some of whom want to use them to peer down at our planet. Like HawkEye 360, a company that plans to monitor and map radio-wave broadcasts in near real-time. Deep Space Industries is the prime contractor developing and making the satellites that will become HawkEye's Pathfinder prototype. “Earth observation is kind of the hot thing in space right now,” says Meagan Crawford, Deep Space Industries' chief operating officer. “It’s where most of the value is being created.” But unlike Planetary Resources, Deep Space Industries isn’t planning its own world-watching missions, even if they plan to profit from others’. Their personal path to an asteroid is straighter: They hope to launch the prototype Prospector-X this year to see how its propulsion performs, how its avionics stand up to space radiation, and how its optical navigation system fares against obstacles. It will be in Earth orbit, but it’s not on the Earth-observation beat. It’s meant to show that the follow-on Prospector-1 will work—hopefully going to an asteroid by the end of the decade, the same timescale on which Deep Space is also working. “We think the best way to determine what these asteroids are really like is to go touch and feel and interact with one,” Crawford says. Spacecraft shortfalls Becoming a prime prospector of Earth doesn’t quite translate to asteroids, as the two space-body types are quite different. For one, Earth is, like, right here. Asteroids are way out there, moving very fast. And that makes getting to know them hard. The companies need to know about a specific rock's composition before embarking on a mining mission—something they can't accomplish with the same sensors they are deploying in Earth orbit, the same ones they hope to use to get detailed information once they are actually close to an asteroid. Scientific missions specced to learn more about what asteroids are made of, like NASA's newly funded Lucy and Psyche, will help the companies get the knowledge they need to get power. But Crawford admits that "the biggest missing piece for asteroid mining is scientific knowledge of target asteroids." Asteroids’ specifics are still fuzzy. That’s why space agencies keep sending missions like Lucy and Psyche, as well as the already-launched OSIRIS-REx, Dawn, and Hayabusa to them: because we don’t know a super lot about their details, beyond predictive models based on broad categories. “We don’t have a lot of experience with the real characteristics of asteroids,” says Zoe Szajnfarber, who studies the dynamics of technological innovation at George Washington University. What if a company chose a target asteroid based on predictions, only to find, upon arrival, that it holds much less water and platinum than checkbooks and customers hoped? Too bad, so sad. “If you make the choice to go to the one asteroid, that’s where you’re going,” says Szajnfarber. “It’s almost impossible to have enough fuel to change your mind and go to a different one.” Then, once you get there, there’s the problem of gravity. The companies' craft may master constellation- or formation-flying around our planet. But Earth, as globes have suggested for centuries, is basically a sphere. And its mass is pretty evenly distributed. Gravity is basically the same everywhere in a spacecraft’s orbit. Keeping spacecraft in line in such a boring gravitational field is “easy.” But have you seen pictures of asteroids? Those pockmarked potato colonies with weird peaks and valleys have complicated gravity and composition. The companies will have to climb over both these early obstacles before they get to even bigger ones: that part where they have to build robots that can mine and spacecraft that can bring the haul back into humanity’s reach. They can’t do any of it by planetary navel-gazing alone. But they are going to do planetary navel-gazing, whether under their own flags or customers’. That globe-centric system will at least make the companies money, which means they may be able to survive long enough to figure out how to do what they really want to do.

#### We’re still decades away from being able to mine asteroids

Zeitz, 11-26-2018 (Jessica Zeitz, "Asteroid Mining is a Loftier Goal than Previously Thought," Asgardia: The Space Nation, https://asgardia.space/en/news/asgardia-space-news-asteroid-mining-is-a-loftier-goal-than-previously-thought, 7-30-2019) AB

Neil deGrasse Tyson, the renowned astrophysicist, said in an interview in 2015, that the first trillionaire would be the person who exploits the natural resources on asteroids. And now numerous entrepreneurs are aiming to be the first to mine asteroids for the minerals or water they contain. One of the more prominent space-mining startups is Planetary Resources. They were founded in 2012 and feature high-profile investors such as movie director James Cameron and Google co-founder Larry Page. At the beginning of 2018, Planetary Resources had just launched a brand-new miniature satellite with a proprietary design, one that would use a mid-wave infrared imager to detect sources of water beyond Earth’s atmosphere. It was the first move toward their longer-term goal of mining the first asteroid. In 2016, Planetary Resources had raised $21 million, and then an additional $28 million via a partnership deal with the government of Luxembourg, a country aiming to position itself as the Earth-based hub for all things interplanetary mining–related. However, the company based in Redmond, Wash., soon found itself facing some issues: Not being able to raise enough funds caused employee layoffs. It was reported that the staff shrank from approximately 70 workers to only about ten workers. Moreover, Luxembourg sold its 10% stake in the company. By the end of August, CEO Chris Lewicki intended to auction off laptops and other equipment. Although asteroid mining is a potentially lucrative business, for instance, a report by Goldman Sachs estimated the platinum found on one asteroid could be worth as much as $50 billion, they still need to figure out ways to overcome the technical obstacles of mining them. External observers stated that any company looking at drilling into space rocks had best get ready for a long wait. George Sowers, a professor in the space resources program at the Colorado School of Mines, explained that there will be many bumps in the road to creating this entirely new field, so any startup company that had these grandiose ambitions has to be pragmatic about setting up a reliable revenue stream. Another asteroid mining competitor company called Deep Space Industries (DSI), based in San Jose, has given up on their focus to mine asteroids until they can be much more sure that the cost of travelling to those asteroids won’t bankrupt the business. For the past year and a half, DSI has been working on producing a spacecraft that will cost less than $10 million. CEO Bill Miller explained that there’s a big need for low-cost transportation to deep space and a commercially viable strategy, so that’s what the company is focusing on currently. This October marked another exciting turn of events for the asteroid-mining industry. They came across another technology vying to define the rest of the century. Planetary Resources’ assets were acquired by ConsenSys, a Brooklyn-based blockchain company founded by Joe Lubin, co-founder of the cryptocurrency Ethereum. However, no one knows precisely what a blockchain startup wants with a space-­mining company. Details surrounding the transaction are confidential, and in a statement, made by Lubin it seemed as if journeying into space is a natural outgrowth for his company, noting that the purchase reflects their belief in democratizing and decentralizing space initiatives. For the broad endeavour of fracking the galaxy for profit, however, the underlying message is a simple one: Find an alternative source of funding, at least for now. As per University of Arizona professor Dante Lauretta, a principal investigator for NASA’s Osiris-Rex asteroid mission, the concept of space mining within the next ten years seemed like a viable goal, in 2017. However, with 2019 soon approaching, he says, it now feels much loftier. Lauretta, who serves on Planetary Resources’ scientific advisory board, explained that it takes a long time to get up to an asteroid, to process material, to deliver that material. It’s a prospect that could take many decades to accomplish. However, that doesn’t mean no one will ever mine asteroids. The Osiris spacecraft is coming close to an asteroid known as Bennu and will try to land on its surface in the summer of 2020 to gather samples to send back to Earth. Lauretta is confident that the scientific and engineering challenges of asteroid mining will be overcome, stating that there’s nothing they can’t solve it’s just about getting the business case in place.

#### No miscalc or escalation

James Pavur 19, Professor of Computer Science Department of Computer Science at Oxford University and Ivan Martinovic, DPhil Researcher Cybersecurity Centre for Doctoral Training at Oxford University, “The Cyber-ASAT: On the Impact of Cyber Weapons in Outer Space”, 2019 11th International Conference on Cyber Conflict: Silent Battle T. Minárik, S. Alatalu, S. Biondi, M. Signoretti, I. Tolga, G. Visky (Eds.), <https://ccdcoe.org/uploads/2019/06/Art_12_The-Cyber-ASAT.pdf>

A. Limited Accessibility Space is difficult. Over 60 years have passed since the first Sputnik launch and only nine countries (ten including the EU) have orbital launch capabilities. Moreover, a launch programme alone does not guarantee the resources and precision required to operate a meaningful ASAT capability. Given this, one possible reason why space wars have not broken out is simply because only the US has ever had the ability to fight one [21, p. 402], [22, pp. 419–420]. Although launch technology may become cheaper and easier, it is unclear to what extent these advances will be distributed among presently non-spacefaring nations. Limited access to orbit necessarily reduces the scenarios which could plausibly escalate to ASAT usage. Only major conflicts between the handful of states with ‘space club’ membership could be considered possible flashpoints. Even then, the fragility of an attacker’s own space assets creates de-escalatory pressures due to the deterrent effect of retaliation. Since the earliest days of the space race, dominant powers have recognized this dynamic and demonstrated an inclination towards de-escalatory space strategies [23]. B. Attributable Norms There also exists a long-standing normative framework favouring the peaceful use of space. The effectiveness of this regime, centred around the Outer Space Treaty (OST), is highly contentious and many have pointed out its serious legal and political shortcomings [24]–[26]. Nevertheless, this status quo framework has somehow supported over six decades of relative peace in orbit. Over these six decades, norms have become deeply ingrained into the way states describe and perceive space weaponization. This de facto codification was dramatically demonstrated in 2005 when the US found itself on the short end of a 160-1 UN vote after opposing a non-binding resolution on space weaponization. Although states have occasionally pushed the boundaries of these norms, this has typically occurred through incremental legal re-interpretation rather than outright opposition [27]. Even the most notable incidents, such as the 2007-2008 US and Chinese ASAT demonstrations, were couched in rhetoric from both the norm violators and defenders, depicting space as a peaceful global commons [27, p. 56]. Altogether, this suggests that states perceive real costs to breaking this normative tradition and may even moderate their behaviours accordingly. One further factor supporting this norms regime is the high degree of attributability surrounding ASAT weapons. For kinetic ASAT technology, plausible deniability and stealth are essentially impossible. The literally explosive act of launching a rocket cannot evade detection and, if used offensively, retaliation. This imposes high diplomatic costs on ASAT usage and testing, particularly during peacetime. C. Environmental Interdependence A third stabilizing force relates to the orbital debris consequences of ASATs. China’s 2007 ASAT demonstration was the largest debris-generating event in history, as the targeted satellite dissipated into thousands of dangerous debris particles [28, p. 4]. Since debris particles are indiscriminate and unpredictable, they often threaten the attacker’s own space assets [22, p. 420]. This is compounded by Kessler syndrome, a phenomenon whereby orbital debris ‘breeds’ as large pieces of debris collide and disintegrate. As space debris remains in orbit for hundreds of years, the cascade effect of an ASAT attack can constrain the attacker’s long-term use of space [29, pp. 295– 296]. Any state with kinetic ASAT capabilities will likely also operate satellites of its own, and they are necessarily exposed to this collateral damage threat. Space debris thus acts as a strong strategic deterrent to ASAT usage.

#### No space war--- interdependence and deterrence check.

Bragg et al, July 2018 - \*Dr. Allison Astorino-Courtois, NSI’s Chief Analytics Officer (CAO) and Executive Vice President, PhD in IR @ NYU \*\*Dr. Robert Elder, PhD @ Emory, BA @ Clemson, Assistant prof of History @ Baylor \*\*\*Dr. Belinda Bragg, principle research scientist at NSI, Inc. Lecturer in polisci @ Texas A&M.;“Contested Space Operations, Space Defense, Deterrence, and Warfighting: Summary Findings and Integration Report,” NSI, https://nsiteam.com/social/wp-content/uploads/2018/11/Space-SMA-Integration-Report-Space-FINAL.pdf

Everyone needs space

While the US may be relatively more dependent on space for national security than are other states, it is far from alone in relying on space. Nuclear armed states are dependent on space for important command and control functions, and major powers are increasingly using space for battlefield situational awareness and communications. China and Russia were identified as having significant (and fairly equal) levels of strategic risk in space (ViTTa Q16), although their regional security priorities and (to date) less spacedependent economies place them at an advantage to the US. They may, therefore, see the strategic risk of conflict is space as lower than does the US. Still, space capabilities remain a source of economic expansion and national pride for both, and their calculations of the cost of conflict involving space may include consideration of these factors. Even now, there is a general consensus that the US and other actors have more to gain from space than they have from the loss of space-based capabilities (ViTTa Q3). This suggests that, although the US is more vulnerable in the space domain than are other states, the likelihood that aggressive action against an adversary’s space assets would be reciprocated may provide a degree of security. It also creates another incentive for actors to use diplomacy and international law to reduce risk and increase transparency in the space domain.

#### All the astroterror arguments are speculative and assume rogue states have the capability to launch asteroids into the earth which obviously isnt true – its their burden of proof

#### Squo tracking, shielding, and removal plans solve

Dr. Brian Koberlein 16, Professor of Physics at the Rochester Institute of Technology and PhD in Astrophysics from the University of Connecticut, “Cascade Effect”, 5-4, https://archive.briankoberlein.com/2016/05/04/cascade-effect/index.html

In the movie Gravity the driving force of the plot is a catastrophic cascade of space debris. An exploding satellite sends high speed debris into the path of other satellites, and the resulting collisions create more space debris until everything from a space shuttle to the International Space Station faces an eminent threat of destruction. Not unexpectedly, the movie portrayal of such a situation is not particularly accurate, but the risk of a debris cascade is very real.

It’s known as the Kessler syndrome, after Donald Kessler, who first imagined the scenario in the 1970s. The problem comes down to the fact that small objects in Earth orbit can stay in orbit for a very long time. If an astronaut drops a bolt, it can stay in orbit for decades or centuries. Because the relative speed of two objects in orbit can be quite large, it doesn’t take a big object to pose a real threat to your spacecraft. On the highway a small pebble can chip your car windshield. In space it can be done by a chip of paint traveling at thousands of kilometers per hour. In the history of the space shuttle missions, there were more than 1,600 debris strikes. Because of such strikes, more than 90 space shuttle windows had to be replaced over the lifetime of shuttle missions.

While that might sound alarming, it’s actually quite manageable. Upgrades and maintenance were quite common on the shuttle missions, and we tend to err on the side of caution when it comes to replacing parts. Modern spacecraft also have ways to mitigate the risk of small impacts, such as Whipple shields made of thin layers of material spaced apart so that objects disintegrate when hitting the shield rather than the spacecraft itself. We also have a tracking system that currently tracks more than 300,000 objects bigger than 1 cm, so we can make sure that most spacecraft avoid these objects.

But the risk of big collisions isn’t negligible. In 2009 the Iridium 33 and Kosmos-2251 satellites collided at high speed, destroying both spacecraft and creating more dangerous debris. It wouldn’t take many collisions like this for the debris numbers to rise dramatically, and more debris means a greater risk of collisions. In Gravity the cascade happens very quickly, triggered by a single event. The reality is not quite so grave. Instead of happening overnight, Kessler syndrome would occur gradually, raising collision risks to the point where certain orbits become logistically impractical. It could occur so gradually that we might not notice it early on, and there are some that argue it’s already underway.

The good news is that we’re aware of the threat. And, as the old saying goes, knowing is half the battle. Already we take steps to limit the amount of debris created. New spacecraft include end of life plans to remove them from orbit, either by sending them into Earths atmosphere to burn up, or sending them to a “graveyard orbit” that poses little risk to other spacecraft. There are also plans on the drawing board to clear orbits of debris, particularly in low-Earth orbit where the risk is greatest. The cascade effect is a real risk, but it’s also one we can likely manage with a bit of ingenuity.

## Russia

#### They solve 0% of the second advantage – their ev is terrible.

#### The Koffler card says that Moscow is posturing with space weapons and thinks that it can win an all-out space war – banning mining or even private appropriation writ large would do nothing to stop that because they see it as a war with the Pentagon.

#### No 1ar spin because their authors are way too definitive that this war is inevitable and it’s just a question of the Pentagon developing a better strategy to win it. And even the most generous reading of their advantage is missing an internal link. Taichman is mistagged and just says that the US is privately appropriating space but nothing about that appropriation hurting relations, so there’s no way the aff solves. And at best, it's not reverse casual - there's no way that banning asteroid mining would solve US-relations

Mallick and Rajagopalan just say that Russia might start mining but it doesn’t say that it would cause escalation

Taichman says that Russia and China are already forming an alliance, which means that its non uq