# Nuclear LAWs Neg

## Discussions CP

### 1NC—Core

#### States should—

#### Organize and cooperate in intergovernmental organizations to discuss the effects of and review the state of nuclear LAWs on international security.

#### Develop confidence-building measures to incentivize peace and disarm as outlined in Boulain et al.

#### Establish multilateral deliberation bodies to help policy makers leverage expert foresight and comply with the recommendations of the bodies..

#### Announce that the use of nuclear LAWs not controlled by humans violates international humanitarian law, and that this is a settled matter of customary international law

#### Announce that this action is taken pursuant to opinio juris (the belief that the action is taken pursuant to a legal obligation) and that non-compliant states are in violation of international law

#### Fully comply, not using lethal autonomous weapons in a manner inconsistent with these proclamations.

#### The affs treaty solves nothing—tech advances mean that negotiation and deliberation takes too long. Meaningful discussions and soft law are critical to real change—that also boosts UN credibility and allows for disarm.

[Vincent Boulanin et al (2019), Senior researcher at SIPRI, where his work focuses on the challenges posed by the advances of autonomy in weapon systems and the military applications of AI, “THE IMPACT OF ARTIFICIAL INTELLIGENCE ON STRATEGIC STABILITY AND NUCLEAR RISK,” Stockholm International Peace Research Institute, Euro-Atlantic Perspectives, Vol 1, May 2019, https://www.sipri.org/sites/default/files/2019-05/sipri1905-ai-strategic-stability-nuclear-risk.pdf]//CHS PK

The only way to eliminate the risks posed by nuclear weapons is to eliminate nuclear weapons. However, the pursuit of a world free of nuclear weapons will require a spectrum of responses, including those needed to reduce the dangers posed by this nexus of nuclear weapons and technology. Some of these can be found in existing mechanisms, but some may require new approaches. Bring together coalitions of non-traditional partners to explore the risks Given the current levels of uncertainty, a first step could be to develop a better understanding of the risks. Doing so requires bringing together coalitions of non-traditional partners, from states and their militaries via intergovernmental organizations to civil society, academia and industry. The last of these—industry— is increasingly necessary as it includes the progenitors of much of the relevant technology. In this context, the UN, with its universal convening power, can play a significant role in providing the required platform to facilitate conversations and knowledge sharing. Such non-traditional partners should also contribute to selected multilateral forums in an expert capacity. The Conference on Disarmament has shown how civil society, technical subject matter experts, industry and the research community can be incorporated into informal discussions, but this initiative needs to be boosted and replicated, including in the First Committee of the UN General Assembly, which addresses international security and disarmament issues. Incorporating practitioners into the multilateral system (e.g. in genuine expert bodies) will add an element of impartial technical expertise to deliberations on these matters. Exchange, interaction and cross-education are needed for effective policy development. Such interaction would also provide opportunities to improve communication, establish a common vocabulary, build bridges, avoid redundancies, bust silos, boost reactivity and proactivity, and identify potential impacts of emerging technology with enough time to develop considered responses. However, corporations, start-ups and universities working on emerging technologies do not need to wait for invitations to government- or UN-endorsed symposia. Include technology-based risks as part of nuclear risk-reduction efforts The current deteriorating security environment has given rise to growing support for urgent nuclear risk-reduction measures. The inclusion of technology-based risks must be a part of any deliberations. This should include the review process of the NPT, the cornerstone of the nuclear non-proliferation and disarmament regime, where discussions around threats, risks and opportunities are already taking place.16 The NPT states parties should consider how to include measures to mitigate these new risks in any outcome of the 2020 NPT Review Conference. Likewise, those bodies established to deal with the peace and security implications of emerging technologies, such as relevant UN groups of governmental experts, could consider this nexus. Ideally, these various conversations would lead initially to the development of near-term politically binding confidence-building measures (e.g. enhanced transparency on how technologies are being incorporated into military and security doctrines) and agreements not to interfere with command-and-control structures or test or deploy destabilizing new capabilities. Treaties have traditionally ruled the security domain, but they are at risk of becoming outpaced by technological change. Advances in science and technology, especially those with disruptive potential, will not wait for the long lead times needed for multilateral negotiations and ratifications. Soft law and self-regulation for responsible innovation When it comes to keeping ahead of technology, ‘soft’ law or self-regulating standards-based approaches might be valuable. These could include the development of codes of conduct or principles applicable to the development of new and potentially destabilizing technologies. Perhaps most importantly, they should include a better understanding of the issue of foresight—that is, the ability to consider plausible ways in which a technology, system or feature might be used, not just how it was meant to be or should be used. Responsible innovation needs to be matched by forward-looking remediation. Measures to disseminate and share knowledge and to build strong, diverse and interdisciplinary communities of practice to cross-pollinate insights and experiences will help ensure that innovation is guided by risk assessment from the start. Another near-term step should be to use the research community to examine the potentially beneficial impacts of technology on international peace and security. The creation of technical advisory bodies in multilateral deliberation bodies and international organizations, for example, would help policymakers to better leverage expertise and understand the benefits of new technologies (such as the Scientific Advisory Board of the Organisation for the Prohibition of Chemical Weapons and the various groups of scientific experts convened during negotiation of the 1996 Comprehensive Nuclear-Test-Ban Treaty). In the same way that these innovations can increase the quality and precision of weapons, so too can they enhance the set of tools available to facilitate their elimination.

### --1NC—Deterrence Add On

#### Ambiguities are the result of mixed messages now --- shoring up our declaratory policy is enough to solve that while maintaining deterrence

--Current NSP is too general “will retaliate with a variety of measures” – need to make it specific

--Specificity creates clear redlines and costs to action – otherwise, opponents take action they assume is below the line which is textbook miscalc

--declaratory policy clears that up – makes war impossible

Lewis, 13 – Senior fellow and Program Director at the Center for Strategic and International Studies

James A. Lewis, “Reconsidering Deterrence for Space and Cyberspace,” in Anti-satellite Weapons, Deterrence and Sino-American Space Relations, September 2013. <https://apps.dtic.mil/dtic/tr/fulltext/u2/a587431.pdf>

Declaratory policy is the best tool for shaping opponent perception of risk and credible threats. The declaratory statements of nuclear deterrence were robust, delivered by the president or the secretaries of defense or state. At their core they linked specific and immensely damaging responses to specific opponent actions. They explicitly laid out US capabilities to inflict unacceptable destruction. Observable programs and expenditures underpinned US statements. These explicit statements did not prevent opponent testing of the limits of deterrence, particularly at the periphery of vital interests, nor did they deter actions that fell below the threshold of the use of force, but they provided a degree of clarity that made it easier for opponents to calculate risk and redlines.

General statements delivered in national strategies without presidential or cabinet secretary-level reinforcement do not have the same effect. National strategies tend to be vague purposely and are not associated clearly with consequences. Ambiguity in deterrent threats, often held up as strategically artful, actually may encourage opponent miscalculation and lead to greater risk taking. Take, for example, the Obama administration’s declaratory policy for space, issued in 2010:

The United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent with the inherent right of selfdefense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.13

It is unlikely that the threat to “employ a variety of measures” strikes fear into the hearts of opponents. Imprecision is defended as necessary since giving opponents explicit redlines would tell them what they could do with impunity. This ignores the likely conclusion that opponents, judging from their actions, had already deduced an implicit redline: that in peacetime, Washington will do nothing against actions that fall below the threshold of the use of force. While Washington believes that imprecision reinforces freedom of action, opponents may judge that the generality of US declaratory policy reflects a deeper indecision as to how Washington will respond to malicious actions against satellites.

Declaratory policies for cyberspace are similarly imprecise. The first general declaration had weight as it was delivered in a groundbreaking speech by President Barack Obama in May 2009.14 In this speech, the President said that cyberspace would be treated as a ‘strategic national asset” where the United States would “deter, prevent, detect and defend against attacks.” Although general, this was an important first step. It was followed, however, by an international strategy for cyberspace in May 2011 that stated:

When warranted, the United States will respond to hostile acts in cyberspace as we would to any other threat to our country. All states possess an inherent right to self-defense, and we recognize that certain hostile acts conducted through cyberspace could compel actions under the commitments we have with our military treaty partners. We reserve the right to use all necessary means – diplomatic, informational, military, and economic – as appropriate and consistent with applicable international law, in order to defend our Nation, our allies, our partners, and our interests. In so doing, we will exhaust all options before military force whenever we can; will carefully weigh the costs and risks of action against the costs of inaction; and will act in a way that reflects our values and strengthens our legitimacy, seeking broad international support whenever possible.15

The mass of caveats that open and close the declaratory statement – “when warranted,” “appropriate and consistent with international law,” “exhaust all other options before military force,” “carefully weigh the costs of action” – undercut its deterrent value. Most of these caveats are self-evident, they detract from the clarity of the statement and opponents could easily misinterpret or undervalue the implied threat.

### --1NC—UN Credibility Add On

#### Faith in UN intervention is declining and wrecks faith in i-law – the plan flips the script

Delcker 19 (Janosch Delcker, 2-12-2019. “How killer robots overran the UN” <https://www.politico.eu/article/killer-robots-overran-united-nations-lethal-autonomous-weapons-systems/>) DLuo

BERLIN — The killer robots are coming, and it won’t be the United Nations that’ll stop them. That’s the reluctant conclusion some activists are coming to, as an effort to ban “lethal autonomous weapons systems” under the U.N.’s Convention on Certain Conventional Weapons seems set to fall apart. “We’d still like to see the CCW succeed,” said Mary Wareham, the global coordinator of the [Campaign to Stop Killer Robots](https://www.stopkillerrobots.org/), an initiative representing 93 NGOs in 53 countries, which has gathered support from 28 governments for a ban. “But what happened … is forcing us, and I think others, to explore any other avenue — because the CCW is not going to produce.” The effort — which would have outlawed killer robots alongside blinding lasers and the use of napalm against civilians — has been unable to overcome resistance from military powers such as [Russia, the United States](https://www.politico.eu/article/killer-robots-us-russia-block-formal-talks-on-whether-to-ban/), South Korea, Israel and Australia. The last straw was a meeting in November, when Moscow insisted on limiting the amount of time during which the proposal could be discussed in 2019, said Frank Sauer, a political scientist at the Universität der Bundeswehr in Munich. "This was perceived as an outright affront by those representing the civil society,” Sauer said. Negotiations on a ban, which would require a consensus of all the signatories of the treaty, are expected to continue in two meetings this year. But few expect they will result in progress that could lead to a binding decision. “The talks are going to hobble on, but to us it showed that other avenues now need to be pursued,” Wareham said. Rise of the robots A failure of the talks would mean there will be no barriers to countries wishing to develop autonomous systems that can decide on their own when and whom to kill. Though the technology is still in its infancy, militaries and manufacturers are working to develop and test weapons that could one day be deployed to fight on their own. Russia is [testing](https://www.popularmechanics.com/military/weapons/a21602657/russias-tank-drone-performed-poorly-in-syria/) autonomous tanks on the battlefields of Syria, the U.S. has [released swarms of drones](https://www.politico.eu/article/attack-killer-robots-autonomous-weapons-drones/) into the California sky, the U.K. [wants to use drone squadrons](https://www.gov.uk/government/speeches/defence-in-global-britain) in combat by the end of this year, and China is [building unmanned submarines](https://www.scmp.com/news/china/society/article/2156361/china-developing-unmanned-ai-submarines-launch-new-era-sea-power) that would be capable of carrying out kamikaze attacks on enemy vessels. Weapons with a certain degree of autonomy are no new phenomenon; militaries have been working on them for several decades. At least 30 countries today use them, primarily to defend ships, airbases or ground vehicles against missile attacks. But although some of these systems could technically complete a mission entirely on their own, soldiers still supervise the operations in real-time and can intervene if things go wrong. Only in isolated cases have truly autonomous weapon systems been deployed on battlefields, said Paul Scharre, the author of “[Army of None](https://books.wwnorton.com/books/Army-of-None/),” a 2018 book that has become a standard reference text on the topic. Israel’s “IAI Harpy” drones, for example, which have been around since the 1990s, are designed to circle battlefields for hours before autonomously attacking an enemy’s radar. The use of similarly self-acting weapons could soon multiply, as artificial intelligence technology gallops ahead. Arms manufacturers have already begun developing autonomous systems that can be deployed in areas where adversaries seek to jam communications between the robots and their human controllers. Militaries will soon have to decide what rules they will code into the software that powers those systems: If communication breaks down, will the weapons be allowed to strike targets on their own without human approval? If an enemy shoots at them, will they be allowed to fire back? If the system launches an attack against civilians, who will be responsible for that decision? "Those are all very, very real questions that militaries will have to address within the next 10 to 15 years," Scharre said. First, do no ‘overall harm’ Concerns about autonomous systems have grown with the technology, egged on by activists like Wareham, who worry that robots will soon decide who lives and dies. Wareham’s “Campaign to Ban Killer Robots,” which was founded in 2012 by a dozen activists in a New York hotel, has produced [a post-apocalyptic video](https://www.stopkillerrobots.org/page/10/) in which two children, one of them holding a teddy bear, stand by a window and look out into a blood-red sky filled with swarming drones. Some of the group's members also endorsed [an open pledge](https://futureoflife.org/open-letter-autonomous-weapons/) spearheaded by another initiative, in which hundreds of scientists, CEOs and other celebrities spoke out for a ban. And some of its member organizations published [a legal analysis](https://www.politico.eu/?post_type=pro&p=948399) arguing that lethal autonomous weapons violate a century-old clause in international law that guarantees broad protection to individuals. The effort seems to be slowly bearing fruit. A 2019 [poll commissioned by the campaign](https://www.amnesty.org.uk/press-releases/killer-robots-new-global-poll-shows-growing-public-opposition-autonomous-weapons) and conducted by research company Ipsos suggested that opposition to the weapons rose from 56 to 61 percent over the past two years. The campaign has caught the attention of politicians and business leaders as well. In September, German Foreign Minister Heiko Maas [told other countries](https://new-york-un.diplo.de/un-de/20180928-maas-general-assembly/2142290) at the U.N.'s General Assembly to "please support, both here in New York and in Geneva, our initiative to ban fully autonomous weapons, before it is too late." And last summer, Google decided not to renew its contact for the U.S. government's Project Maven program, which uses some of Google's AI technology to analyze drone footage. At the same time, Google [pledged](https://ai.google/principles) not to use its AI for technologies "that cause or are likely to cause overall harm." Alternative avenues Where the activists haven’t been able to get traction, however, is in the legal arena. As the effort to push through a ban falters in the Convention on Certain Conventional Weapons, Wareham and others have looked for other avenues with which to restrict the use of autonomous systems. One possibility would be to go back to the U.N. and ask the General Assembly to vote for a ban — a move that would likely have the backing of U.N. Secretary-General António Guterres, who has publicly [urged](https://www.reuters.com/article/us-portugal-websummit-un/u-n-s-guterres-urges-ban-on-autonomous-weapons-idUSKCN1NA2HG) countries to outlaw the weapons. A second possibility the activists are exploring would be to work outside of the U.N. framework. While this would require only a simple majority of votes in the assembly, there’s little reason to believe it would have much effect. Similar efforts led to the 2017 Treaty on the Prohibition of Nuclear Weapons, which in theory bans nuclear weapons but in practice does not have a single nuclear power among its signatories. A second possibility the activists are exploring would be to work outside of the U.N. framework, using the 1997 Ottawa Treaty that banned anti-personal mines as a model. There too, however, the treaty is most notable for who has declined to adopt it. Neither Russia, the U.S. nor China are among the signatories. If history is anything to go by, those efforts are unlikely to have much bite. There have been a few notable weapons bans, most notably the 1997 Chemical Weapons Convention. But there have been far more times — dating back to the 1st millennium BC when leaders tried to ban barbed or poisoned arrows — when attempts to introduce prohibitions have failed. Between World War I and World War II, debate raged between military powers over whether countries should be allowed to engage in unrestricted submarine warfare, a fairly new technology at the time. When, in December 1941, a Japanese bomber attacked Pearl Harbor, it took the U.S. little more than four hours to issue an order to all its ship and submarine commanders, telling them to “execute against Japan unrestricted air and submarine warfare.” “My suspicion is that initially there will be some cautioning,” said Scharre, the author of “Army of None.” “But when the strategic environment changes in a significant way, or countries feel major pressure to intervene in a certain direction, they can change their approach very, very quickly.” “If the goal is to sign a piece of paper, it’s possible to find a handful of countries that will sign a document that says ‘We don't want lethal autonomous weapon systems,’” he added. “But the impact of those countries saying that is probably very minimal in shaping how the technology goes forward."

#### Strong UN credibility spills over – solves nuke war and warming

Dyer 4 (Gwynne, Ph.D. in War Studies @ University of London + Board of Governors @ Canada’s Royal Military College, “The End of War”, Toronto Star, 12/30, lexis)

The "firebreak" against nuclear weapons use that we began building after Hiroshima and Nagasaki has held for well over half a century now. But the proliferation of nuclear weapons to new powers is a major challenge to the stability of the system. So are the coming crises, mostly environmental in origin, which will hit some countries much harder than others, and may drive some to desperation. Add in the huge impending shifts in the great-power system as China and India grow to rival the United States in GDP over the next 30 or 40 years and it will be hard to keep things from spinning out of control. With good luck and good management, we may be able to ride out the next half-century without the first-magnitude catastrophe of a global nuclear war, but the potential certainly exists for a major die-back of human population. We cannot command the good luck, but good management is something we can choose to provide. It depends, above all, on preserving and extending the multilateral system that we have been building since the end of World War II. The rising powers must be absorbed into a system that emphasizes co-operation and makes room for them, rather than one that deals in confrontation and raw military power. If they are obliged to play the traditional great-power game of winners and losers, then history will repeat itself and everybody loses. Our hopes for mitigating the severity of the coming environmental crises also depend on early and concerted global action of a sort that can only happen in a basically co-operative international system. When the great powers are locked into a military confrontation, there is simply not enough spare attention, let alone enough trust, to make deals on those issues, so the highest priority at the moment is to keep the multilateral approach alive and avoid a drift back into alliance systems and arms races. And there is no point in dreaming that we can leap straight into some never-land of universal brotherhood; we will have to confront these challenges and solve the problem of war within the context of the existing state system. The solution to the state of international anarchy that compels every state to arm itself for war was so obvious that it arose almost spontaneously in 1918. The wars by which independent states had always settled their quarrels in the past had grown so monstrously destructive that some alternative system had to be devised, and that could only be a pooling of sovereignty, at least in matters concerning war and peace, by all the states of the world. So the victors of World War I promptly created the League of Nations. But the solution was as difficult in practice as it was simple in concept. Every member of the League of Nations understood that if the organization somehow acquired the ability to act in a concerted and effective fashion, it could end up being used against them, so no major government was willing to give the League of Nations any real power. Instead, they got World War II, and that war was so bad - by the end the first nuclear weapons had been used on cities - that the victors made a second attempt in 1945 to create an international organization that really could prevent war. They literally changed international law and made war illegal, but they were well aware that all of that history and all those reflexes were not going to vanish overnight. It would be depressing to catalogue the many failures of the United Nations, but it would also be misleading. The implication would be that this was an enterprise that should have succeeded from the start, and has failed irrevocably. On the contrary; it was bound to be a relative failure at the outset. It was always going to be very hard to persuade sovereign governments to surrender power to an untried world authority which might then make decisions that went against their particular interests. In the words of the traditional Irish directions to a lost traveller: "If that's where you want to get to, sir, I wouldn't start from here." But here is where we must start from, for it is states that run the world. The present international system, based on heavily armed and jealously independent states, often exaggerates the conflicts between the multitude of human communities in the world, but it does reflect an underlying reality: We cannot all get all we want, and some method must exist to decide who gets what. That is why neighbouring states have lived in a perpetual state of potential war, just as neighbouring hunter-gatherer bands did 20,000 years ago. If we now must abandon war as a method of settling our disputes and devise an alternative, it only can be done with the full co-operation of the world's governments. That means it certainly will be a monumentally difficult and lengthy task: Mistrust reigns everywhere and no nation will allow even the least of its interests to be decided upon by a collection of foreigners. Even the majority of states that are more or less satisfied with their borders and their status in the world would face huge internal opposition from nationalist elements to any transfer of sovereignty to the United Nations. The U.N. as presently constituted is certainly no place for idealists, but they would feel even more uncomfortable in a United Nations that actually worked as was originally intended. It is an association of poachers turned game-keepers, not an assembly of saints, and it would not make its decisions according to some impartial standard of justice. There is no impartial concept of justice to which all of mankind would subscribe and, in any case, it is not "mankind" that makes decisions at the United Nations, but governments with their own national interests to protect. To envision how a functioning world authority might reach its decisions, at least in its first century or so, begin with the arrogant promotion of self-interest by the great powers that would continue to dominate U.N. decision-making and add in the crass expediency masquerading as principle that characterizes the shifting coalitions among the lesser powers in the present General Assembly: It would be an intensely political process. The decisions it produced would be kept within reasonable bounds only by the need never to act in a way so damaging to the interest of any major member or group of members that it forced them into total defiance, and so destroyed the fundamental consensus that keeps war at bay. There is nothing shocking about this. National politics in every country operates with the same combination: a little bit of principle, a lot of power, and a final constraint on the ruthless exercise of that power based mainly on the need to preserve the essential consensus on which the nation is founded and to avoid civil war. In an international organization whose members represent such radically different traditions, interests, and levels of development, the proportion of principle to power is bound to be even lower. It's a pity that there is no practical alternative to the United Nations, but there isn't. If the abolition of great-power war and the establishment of international law is truly a hundred-year project, then we are running a bit behind schedule but we have made substanial progress. We have not had World War III, and that is thanks at least in part to the United Nations, which gave the great powers an excuse to back off from several of their most dangerous confrontations without losing face. No great power has fought another since 1945, and the wars that have broken out between middle-sized powers from time to time - Arab-Israeli wars and Indo-Pakistani wars, mostly - seldom lasted more than a month, because the U.N.'s offers of ceasefires and peacekeeping troops offered a quick way out for the losing side.

### 2NR—Competition

#### It competes. Normal means is an international treaty. Absent specification, default to normal means evidence---it’s most predictable. Bonnie Docherty 16. Senior researcher in the Arms Division of Human Rights Watch and senior clinical instructor at the Harvard Law School International Human Rights Clinic (IHRC), “Making the Case: The Dangers of Killer Robots and the Need for a Preemptive Ban,” Human Rights Watch. December 9, 2016. https://www.hrw.org/report/2016/12/09/making-case/dangers-killer-robots-and-need-preemptive-ban#\_ftn135

In December 2016, states parties to the Convention on Conventional Weapons (CCW) will convene in Geneva for the treaty’s Fifth Review Conference and decide on future measures to address “lethal autonomous weapons systems” (LAWS), their term for these weapons. Spurred to act by the efforts of the Campaign to Stop Killer Robots, CCW states have held three informal meetings of experts on LAWS since 2014. At the Review Conference, states parties should agree to establish a Group of Governmental Experts. The formation of this formal body would compel states to move beyond talk and create the expectation of an outcome. That outcome should be a legally binding prohibition on fully autonomous weapons.  To build support for a ban, this report responds to critics who have defended the developing technology and challenged the call for a preemptive prohibition. The report identifies 16 of the critics’ key contentions and provides a detailed rebuttal of each. It draws on extensive research into the arguments on all sides. In particular, it examines academic publications, diplomatic statements, public surveys, UN reports, and international law

## Deterrence DA

### 1NC—Core

#### Deterrence is being preserved by nuclear autonomous systems—the aff leaves nuclear weapons vulnerable to a disarming first strike which causes further proliferation and independently turns case.

[Michael C. Horowitz et al, Paul Scharre, Alexander Velez-Green (2019), Michael C. Horowitz is Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC, “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence,” Cornell University, December 2019]//CHS PK

Nuclear weapons are arguably the single most significant weapon system invented in modern history, meaning uncertainty about the viability of nuclear deterrence in the 21st century constitutes one of the most important security risks facing the world.2 This uncertainty is both a product and source of increased tensions in nuclear dyads worldwide. The proliferation of conventional military technologies, such as hypersonic weapons, could further undermine deterrence by potentially undermining traditional modes of escalation management, and as a consequence, nuclear stability. 3 The impact of autonomous systems and artificial intelligence (AI) for nuclear stability remains understudied, however.4 In early 2017, Klaus Schwab of the World Economic Forum argued that the world is on the cusp of a Fourth Industrial Revolution, wherein several technologies – but most prominently AI – could reshape global affairs.5 Many defense experts around the world share Schwab’s recognition of the potentially transformative effects of AI.6 The most prominent statements about the impact of AI on warfare, however, tend to be extreme. Elon Musk, for instance, has vocally contended that AI run amok could risk World War III.7 This overheated rhetoric masks the way that advances in automation, autonomous systems, and AI may actually influence warfare, especially in the vital areas of nuclear deterrence and warfighting. The intersection of nuclear stability and artificial intelligence thus raises critical issues for the study of international politics. operations could increase reliability, reduce the risk of accidents, and buy more time for decision-makers in a crisis. Automation can help ensure that information is quickly processed, national leaders’ desires are swiftly and efficiently conveyed, and launch orders are faithfully executed. On the other hand, poor applications of automation could render nuclear early warning or command-and-control (C2) systems more opaque to users, leading to human-machine interaction failures. Human users could fall victim to automation bias, for example, surrendering their judgment to the system in a crisis. Automation is often brittle and lacks the flexibility humans have to react to events in their broader context. The states most likely to be willing to tolerate these risks for the perceived capability gains would be those that have significant concerns about the viability of their second strike deterrents. Thus, the more a country fears that, in a world without using autonomous systems, its ability to retaliate to a nuclear strike would be at risk, the more attractive autonomous systems may appear. Uninhabited nuclear delivery platforms could undermine nuclear surety, as they could be hacked or slip out of control, potentially leading to accidental or inadvertent escalation. Automated systems could end up reducing decision-maker flexibility by narrowing options, hampering attempts to manage escalation. These dynamics suggest that autonomous systems could influence the potential for nuclear escalation in three ways. First, while many aspects of the nuclear enterprise are already automated in many countries, from early warning and command and control to missile targeting, as autonomous systems improve, states may elect to automate new portions of the early warning and C2 processes to improve both performance and security. From a security standpoint, for instance, increased automation in nuclear early warning may allow operators to identify threats more rapidly in a complex environment. Likewise, automation may help to ensure the dissemination of launch orders in a timely manner in a degraded communications environment. States may also automate – or threaten to automate – nuclear launch procedures in the belief that doing so would provide them with a coercive advantage over adversaries. Second, as military robotics advance, nuclear powers could deploy uninhabited nuclear delivery platforms for a variety of reasons. For instance, a state might deploy nuclear-armed long endurance uninhabited aerial vehicles (UAVs) in the belief that doing so would provide additional nuclear signaling or strike options. They might also look to uninhabited nuclear delivery platforms to bolster their secure second-strike capabilities. Nuclear delivery vehicles – such as torpedoes – capable of autonomously countering enemy defenses or selecting targets might be seen to do likewise. Alternatively, a government might choose to automate its nuclear forces so that a small number of trusted agents can maintain control. This might could be especially attractive for a nuclear-armed regime that fears a coup or other forms of interference by its nation’s military elite. Third, the increased automation of conventional military systems might influence nuclear stability in direct and indirect ways.16 It may enable – or more likely yet, be seen to enable – improved counterforce operations by technologically-advanced states. The ineffectiveness of counterforce operations – and hence the survivability of second-strike deterrents – presently hinges in large part on the difficulty of finding and tracking adversary nuclear launch platforms (mobile missiles or submarines) long enough for ordnance to be delivered. Machine learning algorithms and other applications of artificial intelligence could, in principle, improve states’ abilities to collect and sift through large amounts of data in order to locate and track such targets, though it is important to recognize limitations to any developments given the real-time requirements for a disarming strike. Likewise, military autonomy could enable the deployment of conventional autonomous systems designed to shadow and/or attack nuclear-armed submarines. Furthermore, if automation gives (or is perceived to give) one side in a competitive dyad a significant conventional military advantage, the weaker side may feel compelled to rely more heavily on nuclear weapons for deterrence and warfighting.

#### The aff’s focus on nuclear LAWs ignores the world of autonomous conventional tech that shreds MAD. Autonomous nuclear weapons are critical to act as a reciprocal deterrent—otherwise risks a nuclear first strike.

[Vincent Boulanin et al (2019), Senior researcher at SIPRI, where his work focuses on the challenges posed by the advances of autonomy in weapon systems and the military applications of AI, “THE IMPACT OF ARTIFICIAL INTELLIGENCE ON STRATEGIC STABILITY AND NUCLEAR RISK,” Stockholm International Peace Research Institute, Euro-Atlantic Perspectives, Vol 1, May 2019, https://www.sipri.org/sites/default/files/2019-05/sipri1905-ai-strategic-stability-nuclear-risk.pdf]//CHS PK

In the short term, the major destabilizing impact of AI on nuclear deterrence is in the combination of autonomy and the fusion of all kind of sensors that will make or appear to make the survival of second-strike capabilities less likely and hence reduce strategic stability. Mutually assured destruction (MAD) relies on the assumption that the potential attacker has no incentive to launch a nuclear strike if the defender can guarantee a retaliatory strike. It was not until the development of nuclear-powered ballistic missile submarines (SSBNs) that nuclear deterrence became stable.16 Indeed, before submarines were equipped with nuclear missiles, a theoretical situation could be imagined where a potential adversary would launch a pre-emptive attack against all nuclear bombers and nuclear silos of its opponent and thus annihilate the opponent’s retaliatory nuclear capabilities before launching its own nuclear attack. With the introduction of submarines equipped with nuclear missiles, deterrence became stable as it was impossible to wipe out all of the opponent’s SSBNs as the location of each is known only to the commander of the boat. This might dramatically change with progress in capacities for AI-enabled tracking and targeting of adversaries’ nuclear weapons.17 The sacrosanct assumption that SSBNs are immune to a pre-emptive strike could disappear due to the contributions of AI to intelligence, surveillance and reconnaissance (ISR) systems and the ability of offensive unmanned underwater vehicles (UUVs) to chase SSBNs.18 However, the technology is not yet mature. It is worth mentioning that this assumption had already been challenged by the rise of cyber vulnerabilities in missile launchers. Indeed, a 2017 study demonstrated that the British Trident system of SSBNs was not immune to hacking.19 The ability of AI to make predictions based on the fusion of disparate sources of information that enable it to find and target missiles stored in silos and on aircraft, submarines or trucks is growing. This ‘could enable the development of strategically destabilizing threats to the survivability’ of missile launchers and especially of mobile intercontinental ballistic missile (ICBM) launchers— the cornerstone of nuclear deterrence.20 With such capabilities, the threat of retaliation could be ruled out, and thus invite a first strike—a very destabilizing prospect indeed.

#### Credible deterrence is crucial to prevent a slew of hotspots from escalating to nuclear great power war.

[Todd Royal (2017), Managing Partner for Energy Development, Oil and Gas, and Renewables for Ascendance Strategies, a global threat assessment and political consulting firm that is based in Los Angeles, California, “Deterrence Works and We Need to Get It Back”, Geopolitical Monitor, January 17 2017, [https://www.geopoliticalmonitor.com/deterrence-works-and-we-need-to-get-it-back/]//CHS](https://www.geopoliticalmonitor.com/deterrence-works-and-we-need-to-get-it-back/%5d//CHS) PK

During the Cold War and World War II (WW II), the world was safe because of deterrence. A balance of power existed between aligned nations cloaked in vibrant, robust militaries ready to defend their countries. The enemies of peaceful nations knew the costs, as President John F. Kennedy echoed that sentiment during his famous inaugural address about defending freedom and defeating foes. Those days are now gone, however, they can be revived again using deterrence that keeps worldwide war at bay. We are living in treacherous times, and war could break out anywhere on the seven continents across the world. Our current predicaments are beginning to make the early 1930s look pale in comparison to what is happening today, because deterrence has been allowed to linger and stall since the collapse of the Soviet Union. Collectively, we seem to have thought that history has stopped since the East and West German divide came down; but instead, we are witnessing a sharp upticks in wars, constant belligerence from the Middle East, the South China Sea dispute, and Mexico’s unending drug war. New threats are doing away with the resources to cope with refugee problems, the spread of terrorism, but most importantly the embrace of negative constructivism to resolve conflict. Foreign Affairs magazine describe ten hotspots for 2017, or flashpoints globally that if not dealt with swiftly and even harshly could lead to war. Interestingly enough, Foreign Affairs didn’t mention China, North Korea, Russia or Iran. It can be argued that North Korea claiming they can fire an ICBM anytime and outgoing Secretary Kerry saying, “the U.S. may need more forceful ways of dealing with North Korea,” is a hotter spot than Ukraine. Deterrence is the best answer for dealing with those nations. The type of deterrence at the forefront of the Cold War, which had far-reaching geopolitical implications, otherwise the future is cloaked in profoundly destabilizing actions by those four nations. Gambling with the four above-mentioned nations without proper deterrence won’t work, but if done forcefully, then the other ten described foreign policy unknowns can be solved. If not, then jittery states from Europe to East Asia will begin to parse out safe real estate for their citizens if someone doesn’t step up. Historically that has been the United States (U.S.) since World War II. The U.S. structured a system based upon mutually agreed upon principles between major powers to keep World War III at bay. Certainly that order has been was in flux recently, and disagreements rage about how this new discombobulating order began. There isn’t a correct answer. Moreover, add in the Rwanda genocide, the Yugoslavia breakup, and leaving Iraq after a brutal, tentative victory was achieved, and still there aren’t answers, which is the problem. But this cooperative, championed order, leading to unprecedented prosperity and peace, is suffering its share of dire crisis unless deterrence is restored. And Washington’s and NATO’s retrenchment is only leading to what will eventually see Japan, South Korea, and the Sunni coalition led by the Saudis join the nuclear club. Let’s also not forget about India and Pakistan, who play a daily nuclear cat and mouse game in Kashmir. If Kashmir explodes, then does the U.S. intervene? China has an interest, and believes they can overtake India quickly. If China commits troops would other countries in the region follow suit? Another dangerous tightrope situation without a net while the basics of geopolitics continue forward wondering who will do the heavy lifting to sustain the international system. Furthermore, will it be U.S. hard power or European soft power that restores deterrence? The perceived threats that the Iran nuclear deal were supposed to buffer haven’t kept the Islamic Republic from buying uranium and keeping oil prices low by taking advantage of OPEC’s weakness to boost their market share. The Russians have seen fit to meddle in U.S., European, and former Soviet satellite elections at will while still threatening Ukraine. If Ukraine goes back to the Russians and out of NATO’s orbit then Europe will have to grow NATO and American troop presence more than it has in recent years. The echoes of Russian aggression will have returned to Cold War levels, but it’s the correct move for deterrence to work, moving troops into Poland and Norway. The world wants peace, and this is a perfect example of military moves bolstering deterrence without a single shot being fired. The European structure is being shaken as never before, and while some see a messy Brexit, that’s not what the facts say. Recently it was reported Britain has the number one growing advanced economy in the world. Yet what happens if Germany, the Netherlands and France leave the EU based upon these facts? Can the world afford to lose the European voice, its large economy, and its reliance upon soft power? Will Europe become splintered and fractured at best, and at worst, allow regional historical rivalries to return, sparking conflicts that could make the proxy wars taking place in Syria, Iraq and Yemen seem tame. The balance Europe brings can’t afford to be lost. Here’s why the international system needs robust deterrence without war. Terrorism is the pretense of a common enemy, but that model can’t sustain itself. It is an illusion for nations to endlessly fight without a tactic to define a strategy. World War II was decisive, because there was a common, definable enemy that allowed for tactics and strategy leading to victory. Today’s terrorism fight has none of those modalities in place. Thriving on chaos will not lead to building blocks for a stable future. This type of tactical bargaining has no long-term strategy or common values within their policies. Maybe a Turkish-Russian rapprochement holds promise, but historical enmity more than likely will win over long-term solutions being offered in Syria through this false promise. Considering Beijing’s war-like posture towards East Asia, the incoming Trump administration, Africa, and Latin America – what the world needs is overwhelming deterrence when dealing with China. Chaos can be managed, but only through deterrence. Realpolitik and deal-making isn’t a guide to stable long-term solutions. Economic sanctions were crippling Iran until they were removed, and can work again if world powers have the vision to do what is necessary. That is a great example of soft power deterrence backed by hard power. Yet deals, like fluid relationships, can be broken, and our world is now made up of diverse states with globalized, vested interests. It can’t be stated enough that someone has to step up and keep the order with military-powered deterrence or with crippling economic sanctions to pull these nonstate actors and proxies off the world stage. Many would say no single power could have singularity when it comes to controlling major powers or events. Manipulation can take place in the case of Libya when NATO, led somewhat by the U.S., bombed them into a fractured society. But real deterrence with military hard power had brought Gadhafi to his senses. He was working with the Americans, Europeans, and democratized Asian countries to denounce his nuclear program and terrorism. That only came about because he saw what happened to Saddam Hussein. That was lethal deterrence in force, and not a sanitized environment that brought Gadhafi to his senses.

## CP

#### CP Text: LAWs ought to be regulated with

* **NFU polices**
* **Lowered alert statuses**
* **Information sharing programs**
* **Bilateral talks on nuclear risk reduction**

#### Nuclear systems are a double edged sword – can increase miscalc or bolster deterrence.

Horowitz et al. 19 – (Michael C. Horowitz Prof of Polisci and Associate Director of Perry World House “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence” December 19, https://arxiv.org/pdf/1912.05291.pdf)

The potential for advances in information-age technologies to undermine nuclear deterrence and influence the potential for nuclear escalation represents a critical question for international politics. One challenge is that uncertainty about the trajectory of technologies such as autonomous systems and artificial intelligence (AI) makes assessments difficult. This paper evaluates the relative impact of autonomous systems and artificial intelligence in three areas: nuclear command and control, nuclear delivery platforms and vehicles, and conventional applications of autonomous systems with consequences for nuclear stability. We argue that countries may be more likely to use risky forms of autonomy when they fear that their secondstrike capabilities will be undermined. Additionally, the potential deployment of uninhabited, autonomous nuclear delivery platforms and vehicles could raise the prospect for accidents and miscalculation. Conventional military applications of autonomous systems could simultaneously influence nuclear force postures and first-strike stability in previously unanticipated ways. In particular, the need to fight at machine speed and the cognitive risk introduced by automation bias could increase the risk of unintended escalation. Finally, used properly, there should be many applications of more autonomous systems in nuclear operations that can increase reliability, reduce the risk of accidents, and buy more time for decision-makers in a crisis.

#### **Current policies solve for LAWs.**

Boulanin 18 – (Dr Vincent Boulanin is a senior researcher at the Stockholm International Peace Research Institute “AI and Global Governance: AI and Nuclear Weapons – Promise and Perils of AI for Nuclear Stability” United Nations University Centre for Policy Research, December 7, 2018 https://cpr.unu.edu/ai-global-governance-ai-and-nuclear-weapons-promise-and-perils-of-ai-for-nuclear-stability.html)

The risks posed by the convergence of AI and nuclear weapon technology are not necessarily new. Some of them have been known about for years. This means that solutions to address them may already exist. There might be no need to reinvent the wheel. ‘No first use’ policies, a commitment to lower the alert status of nuclear arsenals, as well as more openness about nuclear modernization plans and information-sharing via different dialogue tracks are measures that could clearly help to start mitigating the destabilizing potential of nuclear-related AI applications. It is essential that nuclear-armed states take note of the importance of this issue as part of the bilateral and multilateral talks on nuclear risk reduction.

#### **LAWs can reduce miscalc or increase escalation.**

Boulanin 18 – (Dr Vincent Boulanin is a senior researcher at the Stockholm International Peace Research Institute “AI and Global Governance: AI and Nuclear Weapons – Promise and Perils of AI for Nuclear Stability” United Nations University Centre for Policy Research, December 7, 2018 https://cpr.unu.edu/ai-global-governance-ai-and-nuclear-weapons-promise-and-perils-of-ai-for-nuclear-stability.html)

If recent advances in AI are unlikely to completely undermine the foundation of nuclear strategy, they could, without a doubt, have both a positive and negative impact on strategic stability.

On the one hand, recent advances of machine learning and autonomous could enhance stability as they provide nuclear weapon states with better information and better decision-making tools for time-critical situations, which would reduce the risk of miscalculation and accidental escalation. Moreover, they could generate new possibilities for the arms control community to monitor nuclear weapon-related developments and conduct verification operations.

On the other, the adoption – or even suspected adoption – of new AI capabilities by one or several nuclear-armed states could incentivize other states (be they nuclear-armed or not) to respond with destabilizing measures that could increase the likelihood of a nuclear conflict. This could include entering into an arms race, doubling down on the modernization of nuclear arsenals, renouncing a [‘no first use’ policy](https://www.cfr.org/backgrounder/no-first-use-and-nuclear-weapons), increasing alert statuses, or further automating nuclear launch policies. Historical events like the [1983 Petrov incident](https://www.bbc.com/news/world-europe-24280831) (where the Soviet early warning systems wrongly detected a US nuclear attack) have also shown that AI technology could be the cause of an accidental or inadvertent escalation into a nuclear conflict.

#### **Horowitz thinks Nuc LAWs are low risk – conventional LAWs worse.**

Field 19 – (Matt Field is an associate editor at the Bulletin of the Atomic Scientists “As the US, China, and Russia build new nuclear weapons systems, how will AI be built in?” Bulletin of the Atomic Scientists, December 20, 2019)

Horowitz believes that incorporating artificial intelligence in nuclear weapons systems themselves poses mostly low probability risks. In fact, what concerns him most is how AI in non-nuclear military systems could affect nuclear weapons’ policies.  “The risk I worry most about is how conventional military applications of AI, by increasing the speed of war, could place pressure on the early warning and launch doctrines of nuclear weapons states that fear decapitation in conventional war,” Horowitz told the Bulletin.

Or, as the report puts it, AI-induced time pressure could lead to a chain of decision-making that, in the worst cases, could result in a country launching a pre-emptive nuclear attack. “Fear of losing quickly could create incentives for more rapid escalation to the nuclear level.”

## Turkey PIC

## 1NC—Turkey PIC

### 1NC—Turkey Prolif/Coup

#### CP: All States except the United States of America should ban lethal autonomous weapons designed to target or launch nuclear weapons.

#### The United States of America should ban all lethal autonomous weapons designed to target or launch nuclear weapons except for the B-61 nuclear bombs stored in the Republic of Turkey.

#### The United States of America should fully automate the B-61 nuclear bombs stored in the Republic of Turkey, removing all human decision in its launch.

#### The PIC prevents malicious interference by governmental officials and from military coups.

**Horowitz et. Al 19** [Michael C. Horowitz, Political Science Professor, Director of Perry World House, and Richard Perry Professor at the University of Pennsylvania. Author of *The Diffusion of Military Power: Causes and Consequences for International Politics,* Paul Scharre, and Alexander Velez-Green, <https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf>, “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence] JJ

Second, as military robotics advance, nuclear powers could deploy uninhabited nuclear delivery platforms for a variety of reasons. For instance, a state might deploy nuclear-armed longendurance uninhabited aerial vehicles (UAVs) in the belief that doing so would provide additional nuclear signaling or strike options. They might also look to uninhabited nuclear delivery platforms to bolster their secure second-strike capabilities. Nuclear delivery vehicles – such as torpedoes – capable of autonomously countering enemy defenses or selecting targets might be seen to do likewise. Alternatively, a government might choose to automate its nuclear forces so that a small number of trusted agents can maintain control. This might could be especially attractive for a nuclear-armed regime that fears a coup or other forms of interference by its nation’s military elite.

#### Nukes in Turkey are inherently unstable—risks of militant coups and Erdogan proliferation.

**Roblin 19** [Sebastien Roblin, Master’s Degree in Conflict Resolution from Georgetown University and served as a university instructor for the Peace Corps in China, writes about the technical and human aspects of international security, conflict, history, and aviation, with over 500 articles and counting published on subjects ranging from modern Chinese jet fighters to Russian World War II films and human, <https://www.nbcnews.com/think/opinion/turkey-fired-u-s-special-forces-syria-it-s-absurd-ncna1068361>, “Turkey fired on U.S. special forces in Syria. It’s absurd that it still has U.S. nukes] JJ

Despite years of spiraling relations with Turkey, the United States has myopically continued to [store an estimated 50 nuclear bombs](https://www.cnn.com/2019/10/16/politics/trump-us-nuclear-weapons-turkey/index.html) in the country. Even now, after [Turkey launched a devastating offensive](https://www.nbcnews.com/politics/donald-trump/trump-says-turkey-s-incursion-syria-not-our-problem-calls-n1067391) on Oct. 9 against America’s Kurdish allies in Syria, disrupting the Pentagon’s war against ISIS and [reportedly firing on U.S. troops](https://www.militarytimes.com/2019/10/13/us-troops-believe-turkey-deliberately-fired-artillery-at-an-american-commando-outpost-in-syria/) that hadn’t yet withdrawn, they’re still there.

Remarkably, according to The New York Times, the State and Energy Departments are merely reviewing contingency plans at this point to [remove the nukes from Turkey](https://www.nytimes.com/2019/10/14/world/middleeast/trump-turkey-syria.html). While the recent developments in Syria represent a [new nadir in U.S.-Turkey relations](https://www.nbcnews.com/politics/politics-news/pence-set-make-ceasefire-case-erdogan-after-release-tough-guy-n1067976), the risks of storing them there have long been obvious — notably when [their security was put at risk](https://www.nytimes.com/roomfordebate/2016/07/20/should-the-us-pull-its-nuclear-weapons-from-turkey) in 2016 during an attempted coup.

The weapons in question are[B61 tactical nukes](https://www.thedrive.com/the-war-zone/19263/get-to-know-americas-long-serving-b61-family-of-nuclear-bombs), old-school gravity bombs designed to be dropped from short-range fighter jets onto military bases and battlefield troop concentrations. They are stored in underground vaults on Turkey’s Incirlik Air Base in the southern Turkish city of Adana. As such, they could be seized by a hostile Turkey or attacked by other actors in an increasingly unstable region. They should be removed ASAP.

The presence of the B61s in Turkey stems from a Cold War policy under which the United States[transferred nuclear weapons](https://www.nytimes.com/roomfordebate/2016/07/20/should-the-us-pull-its-nuclear-weapons-from-turkey) to NATO allies Belgium, Germany, Italy, the Netherlands and Turkey. The move showed collective responsibility and solidarity in NATO nuclear deterrence against the Soviet Union. It also conveyed the political message that these countries didn't need to developed their own nukes. The United States could always give these countries’ air forces access to the weapons if necessary.

Today, the U.S. still maintains between 150 and 200 B61s in Europe, which can be deployed by specially modified Tornado and[F-16 Falcon jet fighters](https://nationalinterest.org/blog/buzz/meet-f-16-fighting-falcon-old-fighter-jet-keeps-killing-73676). In the future,[F-35 stealth fighters will carry](https://nationalinterest.org/blog/buzz/fact-americas-f-35-stealth-fighter-could-deliver-nuclear-weapons-84906) an upgraded, guided version of the B61 instead.

But Turkey no longer has any F-16s and pilots[certified to deliver nuclear weapons](https://www.thedrive.com/the-war-zone/30305/top-senator-and-trump-ally-pushes-for-arms-embargo-on-turkey-after-syria-invasion-begins). Nor are any of the U.S. jets based at Incirlik modified for that job. So it’s extremely unlikely that the bombs in Incirlik would make any material difference to guaranteeing Turkish or American security. After all, as long as Turkey remains in NATO, nuclear weapons based elsewhere in Europe would still be at hand to deter against attacks on Turkey by other countries.

Turkey would have gotten F-35s, except it was kicked out of the program earlier this year because of its[purchase of Russian air-defense weapons](https://www.defensenews.com/air/2019/07/17/turkey-officially-kicked-out-of-f-35-program/) that violated U.S. sanctions on Moscow and [posed a security vulnerability](https://nationalinterest.org/blog/buzz/americas-big-fear-turkey-mixing-f-35s-and-russias-s-400-air-defense-system-25152) to those same stealth jets. That in itself tells much of the story: An ally once so close it was due to receive and [build parts for F-35s full of sensitive technology](https://nationalinterest.org/blog/buzz/how-will-america-replace-844-f-35-parts-turkey-makes-66496) loses its access to the advanced jets because it is no longer deemed reliable and trustworthy.

Lacking even aircraft at hand capable of dropping them, the nukes at Incirlik are therefore purely symbolic — a supposed testament to the strength of the U.S.-Turkish relationship. And for years, Washington has been more preoccupied with the symbolic implications of withdrawing the nukes rather than the security risks posed by keeping them in Turkey.

The Times story refers to a senior official worryingly suggesting that other U.S. officials are cowed by fears of displeasing Turkey’s increasingly authoritarian President Recep Tayyip Erdogan, saying the B61 bombs were now essentially Erdogan’s hostages because to remove them would be to essentially terminate the Turkish-American alliance.

Recent comments by Erdogan have caused some to fear he may be motivated to [seize the nukes in Incirlik](https://ahvalnews.com/nuclear-weapons/turkey-could-steal-us-nuclear-weapons-incirlik-analyst). In September, Erdogan[stated](https://www.reuters.com/article/us-turkey-nuclear-erdogan/erdogan-says-its-unacceptable-that-turkey-cant-have-nuclear-weapons-idUSKCN1VP2QN) in a speech that Turkey should have its own nukes, making the demonstrably false claim that “there’s no developed nation in the world that doesn’t have them.”

While the 700-pound B61s are considered small “tactical” nuclear weapons, that needs to be put in context; the bombs in Turkey are designed so their explosive “yield” can be adjusted to between one-fifitieth and 11 times the effect of the bomb dropped on Hiroshima in World War II.

To be fair, one shouldn’t exaggerate the risks of a James Bond-style nuclear heist. Though the base’s extensive security measures might only delay the Turkish military if it was intent on seizing the nukes, the bombs use[Permissive Action Links](https://www.cs.columbia.edu/~smb/nsam-160/pal.html), meaning their fuse can only be activated using a code transmitted by the [U.S. president or his designated second-in-command](https://www.nonproliferation.org/wp-content/uploads/2019/02/Finger-on-the-Nuclear-Button.pdf). Furthermore, the B61s are designed so that U.S. technicians at the base can[rapidly sabotage them](https://www.thedrive.com/the-war-zone/4873/leaving-nuclear-weapons-in-turkey-is-just-poor-strategy) by overheating their thermal batteries.

This means that even if the B61s were somehow seized or stolen, they would require extensive modification to convert into usable weapons, though the materials inside them could be used in [a dirty bomb](https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-dirty-bombs.html) — designed to contaminate a large area with radiation.

On the other hand, the danger doesn’t end there. The nukes could be attacked by anti-American militants —the [base is only 70 miles away from Turkish-Syrian border](https://www.timesofisrael.com/us-says-turkey-to-invade-northern-syria-sparking-fears-over-kurds/) — resulting in loss of life even if the bombs aren’t captured. Worse, the nukes could effectively be used as bargaining chips to advance Turkish interests at the expense of America’s.

#### Turkey proliferation is not only likely, it makes Middle Eastern proliferation and instability inevitable.

**Vicente** [Aderito Vicente, “The imminent risk of nuclear proliferation in the Middle East,” PhD researcher in Department and of Political and Social Sciences at the European University Institute. Doctoral grant financed by the Portuguese Foundation of Science and Technology, holds a B.A. in political science, and a M.A. with distinction in international relations from the Universidade Nova de Lisboa, <https://euideas.eui.eu/2019/11/12/the-imminent-risk-of-nuclear-proliferation-in-the-middle-east/>] JJ

At the same time, while Turkey is not known to possess nuclear, chemical, or biological weapons, Mr. Erdogan has designed a programme even more advanced than that of Saudi Arabia. Turkey as an independent nuclear weapon state poses risks both for the Middle East and for the Euro-Atlantic region. Turkey would be the first NATO member to break out of the NPT treaty.

Worrisome proliferation scenarios

If the JCPOA falls apart and is not replaced with a new agreement, Iran might move to acquire nuclear weapons. That would encourage Israel to abandon its amimut policy and declare itself a nuclear weapon state, thereby pushing other regional rivals like Saudi Arabia and UAE to acquire their own nuclear weapons. Other Middle Eastern countries would likely follow suit.

The same result is likely if Turkey acquires nuclear weapons. Furthermore, a continued Turkish invasion might incite Syria to reactivate its primitive nuclear weapons programme, perhaps with the help of its ally Russia, to deter Ankara from taking more Syrian territory. An additional worry is that terrorists operating in Syria could obtain these nuclear materials to create a dirty bomb or an improvised nuclear device, as they did with chemical weapons.

It’s time for talks, it’s time for action.

Given the current security environment, it is very unlikely that the end goal of freeing the Middle East of all WMD and their delivery vehicles will be achieved.

The role of regional threat perceptions in both Israel’s nuclear weapon and Iran’s missile policies, as well as Turkey’s current appetite for nuclear weapons, demand that the disarmament and non-proliferation dialogue is followed by immediate, concrete actions to address the issues facing the region. Only then may we hope to avoid escalating nuclear armament in the Middle East.

## Terrorism DA

#### Nuclear weapons are loose right now—the threat of theft from terrorists is high

Wajeeh 16 (Muhammad Wajeeh is a Research Associate at Department of Development Studies, COMSATS Institute of Information Technology, Abbottabad, “Nuclear Terrorism: A Potential Threat to World's Peace and Security”, Journal of Security and Strategic Analyses, Vol. 2 Iss. 2, pg. 139, Winter 2016) //EG

Lastly, there is a growing concern that terrorists can steal fissile material from a civilian or military facility or purchase it from the nuclear black market to develop an improvised nuclear device.⁹ “Theft of weapon‐grade nuclear materials would be more serious than that of material requiring substantial additional processing. If a particular stock is poorly safeguarded, diversion of material might not be detected before it had already been fabricated”.¹⁰ This scenario is considered as the second easiest route which terrorists might seek because of the availability of fissile material all over the world in various civilian and military nuclear facilities most of which have vulnerable security and protection. Moreover, terrorist organizations can get the expert services to probably build a gun‐type, in case of availability of highly enriched uranium, which has a relatively easier design causing the scenario of nuclear terrorism salient.¹¹

#### LAWs are key to securing nuclear arsenals

Boulanin 19 (Dr Vincent Boulanin is a Senior Researcher at SIPRI. He joined SIPRI in 2014, where he works on issues related to the production, use and control of emerging military and security technologies, notably autonomous weapon systems and cyber-security technologies. He received his PhD in Political Science from École des Hautes en Sciences Sociales in Paris in October 2014, “THE IMPACT OF ARTIFICIAL INTELLIGENCE ON STRATEGIC STABILITY AND NUCLEAR RISK”, Sipri, Volume 1: Euro-Atlantic Perspectives, pg. 55-56, May 2019) //EG

Nuclear-armed states could combine the advances in machine learning and autonomy to automate the protection of their nuclear forces against physical attacks by terrorist groups or special forces. Autonomous robots—whether land, aerial or maritime—trained by machine learning are well suited for dull surveillance missions. Machine learning gives robots advanced detection capabilities while autonomy guarantees that they can keep a sharp and unblinking eye on the perimeters under protection. These systems could also be armed. Armed automated surveillance systems have, in fact, already been developed for border and perimeter protection. The most frequently discussed system is the robotic sentry weapon Super aEgis II, produced by the South Korean company DoDaam. The Super aEgis II is a gun turret equipped with sensors and an ATR system that can automatically detect, track and (potentially) attack targets—the system is designed to operate under human control, but it includes a ‘fully autonomous’ mode.36

#### Nuclear terrorism causes extinction

Linderman et al 19 (Mark Linderman is the preparedness coordinator for the Wayne County Health Department where he has served for over 18 years, Dr. Irwin Redlener directs the National Center for Disaster Preparedness (NCDP) at the Earth Institute of Columbia University. He is a professor of Health Policy and Management at Columbia’s Mailman School of Public Health and a Professor of Pediatrics at the College of Physicians and Surgeons, Dave Jones is a 24-year veteran of the U.S. Army and retired Army Chemical Officer, having taught nuclear, biological, and chemical warfare defense to military personnel all over the world, 4/8/19, "Freedom From Fallout: Is Nuclear War Still an Imminent Threat?," RECOIL OFFGRID, <https://www.offgridweb.com/survival/freedom-from-fallout-is-nuclear-war-still-an-imminent-threat/>) //EG

Do you think a nuclear attack would most likely come in the form of a terrorist attack or from another nuclear superpower?

IR: Originally after WWII, it was an existential battle between the Soviet Union and the United States. The nuclear club has expanded since then, and now we have other countries equipped with nuclear weapons, and even more so, nuclear arsenals. The problem now is that terrorist organizations, such as ISIS, have the capability of buying or stealing nuclear devices and launching them as an act of terrorism. There are also a couple of rogue nations, such as North Korea, who do not have a nuclear arsenal, but are developing a nuclear capability. Since they are somewhat of an unstable and fragile country, nothing is really off of the table with them. I would not be surprised if, at some point, they would want to use those capabilities as an act of hostility toward another country.

AV: A terrorist attack or rogue nation releasing a dirty bomb device would probably be more likely than an all-out nuclear attack from one of the world’s superpowers. It would cause more damage, psychologically, which is what these groups want. The thing to remember is that it is very difficult for terrorists to sneak the radioactive material into a country first to build the bomb, unless you seize it locally. In America, your nuclear establishments are very well protected. There are sensors in place in the United States that detect radioactive material anywhere you go, so you couldn’t go very far without being detected.

DJ: ISIS is still a concern. They are highly organized and highly capable. They’re on the run, but not decimated, so ISIS is still a threat. Hezbollah is also a threat, but they would probably attack Israel with a nuclear weapon before they would focus on us, and that would probably drop us into WWIII. It’s important to understand that any nuclear attack in the world would trigger a massive military response. A lot of people would die in the initial attack, as well as all from the indirect consequences of the attack, such as disease, starvation, and social breakdown, all of which would factor in. We’re going to feel it one way or another. If there’s a nuclear attack anywhere in the world, our whole life will change here in the United States.

## Case Hit—recuttings

### 1NC—Top Level

#### Not a SINGLE one of their cards claim that any country will fully delegate its nuclear weapons to Artificial Intelligence. Field 19 says “nuclear weapons will include greater levels of automation,” “more automation will creep its way into nuclear operations. That is COMPLETELY distinct from letting no humans make any decision at all.

### 1NC—AT Field

#### 1] Infinite alt causes--Field 19 talks about the risks of automation in general. Here’s all the on-the loop weapons they don’t ban. Their Field 19 Evidence \*Rancho reads in blue\*

Researchers in the United States and elsewhere are paying a lot of attention to the prospect that in the coming years new nuclear weapons—and the infrastructure built to operate them—will include greater levels of artificial intelligence and automation. Earlier this month, three prominent US defense experts published a comprehensive analysis of how automation is already involved in nuclear command and control systems and of what could go wrong if countries implement even riskier forms of it. The working paper “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence” by the team of Michael Horowitz, Paul Scharre, and Alexander Velez-Green comes on the heels of other scholarly takes on the impact artificial intelligence (AI) will have on strategies around using nuclear weapons. All this research reflects the fact that militaries around the world are incorporating more artificial intelligence into non-nuclear weaponry—and that several countries are overhauling their nuclear weapons programs. “We wanted to better understand both the potentially stabilizing and destabilizing effects of automation on nuclear stability,” Scharre, a senior fellow at the Center for a New American Security, told the Bulletin. “In particular, as we see nations modernize their nuclear arsenals, there is both a risk and an opportunity in how they use automation in their nuclear operations.” The report notes that nuclear weapons systems already include some automated functionality: For example, warning systems automatically alert nuclear weapons operators of an attack. After the Cold War, Russian missiles were programmed to automatically retarget themselves to hit US targets if they were launched without a flight plan. For its part, the United States at one point designed its entire missile arsenal so that it could be retargeted in seconds from its peacetime default of flying into the ocean. Even these forms of automation are risky as an accidental launch could “spark a nuclear war,” the report says. But some countries, the report warns, might resort to riskier types of automation. Those risks could come from a variety of different sources. Countries could develop unmanned vehicles carrying nuclear weapons; with no one on board and responsible for deploying a nuclear weapon, the systems could be hacked or otherwise “slip out of control,” the authors say. In fact, the report notes, Russia is already reportedly developing an autonomous nuclear torpedo. Horowitz, a University of Pennsylvania political science professor, told the Bulletin that the weapon, called Poseidon or Status-6, could be the start of a trend, though it’s not yet clear how or if AI will be included. “While so much about it is uncertain, Russia’s willingness to explore the notion of a long-duration, underwater, uninhabited nuclear delivery vehicle in Status-6 shows that fear of conventional or nuclear inferiority could create some incentives to pursue greater autonomy,” Horowitz said. Countries might also build more artificial intelligence into the so-called early warning systems that indicate whether a nuclear attack is underway, or insert more powerful AI into the strategic decision support systems they use to keep tabs on other militaries and nuclear forces. Even simple forms of automation in such systems have, in the past, exacerbated nuclear tensions. The report cites a famous 1983 incident where a Soviet officer, Lt. Col. Stanislav Petrov, had to disregard automated audible and visual warnings that US nuclear missiles were inbound. Fortunately, Petrov chose not to trust what his systems were telling him and defied the powerful cognitive phenomenon known as automation bias. Another problematic form of early automation was the Soviet strategic decision support system known as VYRAN. It was a computer program in place to warn Soviet leaders when the United States had achieved a level of military superiority that required Moscow to launch a nuclear attack. But Soviet intelligence agents were inputting information that often confirmed their pre-existing beliefs about US intentions. “This feedback loop amplified and intensified those perceived threats, rather than providing Soviet leaders with a clearer understanding of US intentions,” the report notes. There is evidence that countries including Russia and China are placing more emphasis on developing these sorts of so-called computational models for analyzing threats. Despite all these drawbacks, however, the report’s authors believe there could be reasons to implement more AI and automation into nuclear weapons systems. They note how artificial intelligence systems could process more data and allow officials in charge of nuclear weapons greater situational awareness. Automation could also be useful in communicating commands in “highly contested electromagnetic environments,” as the report dryly puts it—perhaps, say, during a war. But, the report says, “many of these ways that autonomous systems could increase the resiliency and accuracy of [nuclear command and control systems] are speculative.” The countries most likely to take on the risks of incorporating greater levels of artificial intelligence and automation in their nuclear weapons systems are the ones that are less certain of their ability to retaliate after an attack on their nuclear arsenal. As the report notes, that’s because the consequences of missing signs of an actual incoming attack—a false negative–would be relatively lower in more confident countries. Horowitz believes that incorporating artificial intelligence in nuclear weapons systems themselves poses mostly low probability risks. In fact, what concerns him most is how AI in non-nuclear military systems could affect nuclear weapons’ policies. “The risk I worry most about is how conventional military applications of AI, by increasing the speed of war, could place pressure on the early warning and launch doctrines of nuclear weapons states that fear decapitation in conventional war,” Horowitz told the Bulletin. Or, as the report puts it, AI-induced time pressure could lead to a chain of decision-making that, in the worst cases, could result in a country launching a pre-emptive nuclear attack. “Fear of losing quickly could create incentives for more rapid escalation to the nuclear level.” The report predicts that there’s a pretty strong likelihood that more automation will “creep its way” into nuclear operations over time—especially as nations modernize their nuclear forces. The United States has already embarked on a multi-decade, trillion-dollar-plus plan to upgrade its nuclear forces; Russia and China are similarly modernizing theirs. “What is interesting, though, is that both the United States and Russia—and the Soviet Union before that—have had elements of automation in their nuclear operations, early warning, command-and-control, and delivery systems for decades,” Scharre said. “So it is an issue worthy of deeper exploration.” Maybe that’s even a bit of an understatement.

#### 2] They’re going to say plan text in a vacuum that creates. These are weapons that or we meet to T-Autonomous. Here’s all the additional alt causes launch automatically and early warning, which is distinct from autonomous. Their Field 19 Evidence \*Rancho reads in blue\*

[Matt, associate editor.] “As the US, China, and Russia build new nuclear weapons systems, how will AI be b”uilt in?” Bulletin of the Atomic Scientists. December 20, 2019. <https://thebulletin.org/2019/12/as-the-us-china-and-russia-build-new-nuclear-weapons-systems-how-will-ai-be-built-in/>

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The United States has already embarked on a multi-decade, trillion-dollar-plus plan to upgrade its nuclear forces; Russia and China are similarly modernizing theirs. “What is interesting, though, is that both the United States and Russia—and the Soviet Union before that—have had elements of automation in their nuclear operations, early warning, command-and-control, and delivery systems for decades,” Scharre said. “So it is an issue worthy of deeper exploration.” Maybe that’s even a bit of an understatement.

### 1NC—AT Murray

#### ] 1AC Murray says “this type of nuclear planning [should] not make its way back into thinking”—nothing about whether any country is intent on developing a deadhand.

#### ] Even if they win it’s going to happen, more alt causes! Perimeter wasn’t autonomous. Larson 20

Caleb. Writer for the National Interest, “If America Launched a Nuclear War Against Russia, Moscow's 'Dead Hand' Would Have Struck Back,” National Interest. July 4, 2020, https://news.yahoo.com/america-launched-nuclear-war-against-020000801.html

“It was designed to lie semi-dormant until **switched on by a high official in a crisis**. Then it would begin monitoring a network of seismic, radiation, and air pressure sensors for signs of nuclear explosions.” If the information Dead Hand collected indicated a nuclear strike against the Soviet Union may have occurred, it would initiate a verification procedure. “Before launching any retaliatory strike, the system had to check off four if/then propositions: If it was turned on, then it would try to determine that a nuclear weapon had hit Soviet soil. If it seemed that one had, the system would check to see if any communication links to the war room of the Soviet General Staff remained. If they did, and if some amount of time—likely ranging from 15 minutes to an hour—passed without further indications of attack, the machine would assume officials were still living who could order the counterattack and shut down. But if the line to the General Staff went dead, then Perimeter would infer that apocalypse had arrived.” Once this nightmare scenario had been established, command missiles stored in hardened, nuclear-blast resistant silos would be launched all over the Soviet Union, transmitting launch sequences to whatever missiles had survived, and authorizing whoever happened to be in the silos to initiate launch and bring about nuclear armageddon. Even if the Soviet Union’s top military commanders, politicians, leaders, cities, and capital—you name it—were smoldering piles of ash, the Soviet Union could guarantee a retaliation. **Active** There is widespread disagreement over **just how autonomous Dead Hand actually was**. There is also disagreement over Dead Hand’s existence today, though Russian officials have confirmed that Dead Hand did exist in the past, and that a similar fail-deadly system is still in existence. Though the Soviet-era Dead Hand does not play the outsized role in Russian nuclear strategy that it used to, here’s to hoping it is not on such a sensitive hair-trigger as during the Cold War.

#### ] It’s also on-the loop—more alt causes!

Murray 18, Lori Esposito [adjunct senior fellow at the Council on Foreign Relations, held the national security chair at the U.S. Naval Academy, president of the Committee for Economic Development of The Conference Board]. “Pairing AI and nukes will lead to our autonomous Doomsday.” Defense News. November 13, 2018. <https://www.defensenews.com/opinion/commentary/2018/11/13/pairing-ai-and-nukes-will-lead-to-our-autonomous-doomsday/> mvp

But perhaps one of the most stunning revelations of the post-Cold War period relevant to today’s AI revolution is detailed by David Hoffman in his revelatory 2009 book “The Dead Hand.” In the early 1980s, the Soviet Union actually considered deploying a fully automated retaliation to a U.S. nuclear strike, a Doomsday machine, where a computer alone would issue the command for a retaliatory nuclear strike if the Kremlin leadership had been killed in a first-strike nuclear attack from the U.S.

Eventually the Soviets deployed a modified, nearly automatic system where a small group of lower-ranking duty officers deep underground would make that decision, relying on data that the Kremlin leadership had been wiped out in a U.S. nuclear strike.

The plan was not meant to deter a U.S. strike by assuring the U.S. that if they attacked first, even with a limited strike against the Soviet leadership, that there would be a guaranteed nuclear response. The Soviets kept the plan secret from the United States. It was meant to ensure an all out, nearly automatic nuclear response, which would have existential consequences.

As AI develops and confidence in machine learning increases, the U.S. needs to be leading the effort diplomatically by reinvigorating strategic stability talks with both China and Russia, which should include this issue and ensure that this type of nuclear planning does not make its way back into the thinking of our nuclear adversaries or our own, whether secretly or as a form of deterrence.

While concerns have been raised in Congress about having the decision to use nuclear weapons solely in the hands of the commander in chief, an even more ominous, impending threat is having that command and control in the hands of AI.

The potential application for this developing, powerful technology in increasing stability and the effectiveness of arms control in areas such as early warning, predictive decision-making by bad actors, tracking and stopping the spread of nuclear weapons, and empowering verification for further reductions is as yet unknown.

Potential stabilizing applications need to be a defense-funding priority and also a private sector/university funding priority, similar to the public-private efforts that underpinned and propelled the nuclear arms control and strategic stability process during the Cold War.

But the destabilizing potential needs to be addressed early and jointly among the nuclear powers — and here, U.S. leadership is indispensable.

AI is projected to rapidly and disruptively change the world within a very short time frame — on the economic side perhaps even eliminating 40 percent of U.S. jobs in as short as 10-15 years. Yet, leading AI experts agree that machine learning should enhance — not replace — human decision-making. This must be a central tenet of nuclear command and control.

#### ] No shot the US does anything automated---this is sci-fi nonsense.

Sydney J. **Freedberg Jr. 19**. Writer for Breaking Defense, quoting Lt. Gen. Jack Shanahan, “[No AI For Nuclear Command & Control: JAIC’s Shanahan,” Breaking Defense, September 25, 2019, https://breakingdefense.com/2019/09/no-ai-for-nuclear-command-control-jaics-shanahan/](file:///C:\Users\JJJ\Dropbox\Jan.Feb%202021\02%20Individual%20Files\Jonathan\No%20AI%20For%20Nuclear%20Command%20&%20Control:%20JAIC’s%20Shanahan,)

GEORGETOWN UNIVERSITY: “You will find no stronger proponent of integration of AI capabilities writ large into the Department of Defense,” [Lt. Gen. Jack Shanahan](https://breakingdefense.com/2019/08/joint-ai-chief-start-with-50-solutions-get-better-asap/) said here, “but there is one area where I pause, and it has to do with [nuclear command and control](https://breakingdefense.com/2017/04/new-nuclear-c2-should-be-distributed-multi-domain-stratcom-deputy/).”

In movies like *WarGames* and *Terminator*, nuclear launch controls are the first thing fictional generals hand over to AI. In real life, the director of the Pentagon’s Joint Artificial Intelligence Center says, that’s the last thing he would integrate AI with. The military is beginning a massive multi-billion dollar modernization of its aging system for Nuclear Command, Control, & Communications (NC3), much of which dates to the Cold War. But the Joint Artificial Intelligence Center is not involved with it.

A recent article on the iconoclastic website *War on the Rocks* argued “America Needs A ‘Dead Hand’,” a reference to the Soviet system designed to automatically order a nuclear launch if the human leadership was wiped out. “I read that,” Shanahan told the [Kalaris Intelligence Conference](https://kalaris.org/about-1) here this afternoon. “My immediate answer is ‘No. We do not.’”

Instead, the JAIC is very deliberately starting with relatively low-risk, non-lethal projects — [predicting breakdowns in helicopter engines](https://breakingdefense.com/2019/02/fix-it-before-it-breaks-socom-jaic-pioneer-predictive-maintenance-ai/) and mapping natural disasters — before moving on to combat-related functions such as intelligence analysis and targeting next year. On the Pentagon’s timeline, [AI will be coming to command posts](https://breakingdefense.com/2018/11/artificial-intelligence-key-to-commanding-future-army-ltg-wesley/) before it is [embedded in actual weapons](https://breakingdefense.com/2019/06/army-to-test-robotic-gun-bruce-jette/), and even then the final decision to use lethal force will always remain in human hands.

#### ] We’ll just use AI to enhance decisionmaking---we won’t delegate final decisions.

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Shanahan does see a role for AI in applying lethal force once that human decision is made. “I’m not going to go straight to ‘lethal autonomous weapons systems,'” he said, “but I do want to say we will use artificial intelligence in our weapons systems to give us a competitive advantage. It’s to save lives and help deter war from happening in the first place.”

#### ] No incentive for US, China, or Russia to automate---they have secure second strike

Matt **Field 19**. Their Own Author associate editor at the *Bulletin of the Atomic Scientists*. “As the US, China, and Russia build new nuclear weapons systems, how will AI be built in?” Bulletin of the Atomic Scientists, December 20, 2019, https://thebulletin.org/2019/12/as-the-us-china-and-russia-build-new-nuclear-weapons-systems-how-will-ai-be-built-in/

The countries most likely to take on the risks of incorporating greater levels of artificial intelligence and automation in their nuclear weapons systems are the ones that are less certain of their ability to retaliate after an attack on their nuclear arsenal. As the report notes, that’s because the consequences of missing signs of an actual incoming attack—a false negative–would be relatively lower in more confident countries.

#### ] We’ll keep humans in the loop---their dystopian predictions are wrong.

Sydney J. **Freedberg Jr. 19**. Writer for Breaking Defense, quoting Lt. Gen. Jack Shanahan, “[No AI For Nuclear Command & Control: JAIC’s Shanahan,” Breaking Defense, September 25, 2019, https://breakingdefense.com/2019/09/no-ai-for-nuclear-command-control-jaics-shanahan/](file:///C:\Users\JJJ\Dropbox\Jan.Feb%202021\02%20Individual%20Files\Jonathan\No%20AI%20For%20Nuclear%20Command%20&%20Control:%20JAIC’s%20Shanahan,)

Can we use artificial intelligence to make better decisions, to make more informed judgments about what might be happening, to reduce the potential for civilian casualties or collateral damage?” Shanahan said. “I’m an optimist. I believe you can. It will not *eliminate* it, never. It’s war; bad things are going to happen.”

While Shanahan has no illusions about AI enabling some kind of cleanly surgical future conflict, he doesn’t expect a robo-dystopia, either.

“The hype is a little dangerous, because it’s uninformed most of the time, and sometimes it’s a Hollywood-driven killer robots/Terminator/SkyNet worst case scenario,” he said. “I don’t see that worst case scenario any time in my immediate future.”

“I’m very comfortable saying our approach — even though it is emerging technology, even though it unfolds very quickly before our eyes — it will still be done in a deliberate and rigorous way so we know what we get when we field it,” Shanahan said.

“As the JAIC director, I’m focused on really getting to the fielding,” he said, moving AI out of the lab into the real world — but one step at a time. “We’re always going to start with limited narrow use cases. Say, can we take some AI capability and put it in a small quadcopter drone that will make it easier to clear out a cave, [and] really prove that it works before we ever get it to a [large] scale production.”

### 1NC—AT Klare 20

#### ] Nc3 is not autonomous. It automates a decision already made by humans---distinct from LAWs.

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Air Force missileers — the human beings who would carry out any nuclear launch.

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The standard term in the Pentagon now for human involvement with AI and weapons now is “human on the loop,” a shift from human IN the loop. That reflects greater stress on the advisory function of humans with AI and a recognition that domains like cyber require almost instantaneous responses that can’t wait for a human.

Hawkish skeptics say slowing down to ask human permission could cripple US robots against their less-restrained Russian or Chinese counterparts. [Dovish skeptics](https://breakingdefense.com/2019/03/fear-loathing-in-ai-how-the-army-triggered-fears-of-killer-robots/) say this kind of human control would be too easily bypassed.

Shanahan does see a role for AI in applying lethal force once that human decision is made. “I’m not going to go straight to ‘lethal autonomous weapons systems,'” he said, “but I do want to say we will use artificial intelligence in our weapons systems… to give us a competitive advantage. It’s to save lives and help deter war from happening in the first place.”

#### ] More alt causes! Their evidence talks about humans in or ON -the-loop being susceptible to spoofing due to automation bias which the plan doesn’t ban. Their Klare 20 \*Rancho reads in blue\*

There are many reasons to be wary of increasing the automation of nuclear command and control, especially when it comes to computer-assisted decision-making. Many of these technologies are still in their infancy and prone to malfunctions that cannot easily be anticipated. Algorithms that have developed through machine learning, a technique whereby computers are fed vast amounts of raw data and are “trained” to detect certain patterns, can become very good at certain tasks, such as facial recognition, but often contain built-in biases conveyed through the training data. These systems also are prone to unexplainable malfunctions and can be fooled, or “spoofed,” by skilled professionals. No matter how much is spent on cybersecurity, moreover, NC3 systems will always be vulnerable to hacking by sophisticated adversaries.16 AI-enabled systems also lack an ability to assess intent or context. For example, does a sudden enemy troop redeployment indicate an imminent enemy attack or just the normal rotation of forces? Human analysts can use their sense of the current political moment to help shape their assessment of such a situation, but machines lack that ability and may tend to assume the worst. This aspect of human judgment arose in a famous Cold War incident. In September 1983, at a time of heightened tensions between the superpowers, a Soviet nuclear watch officer, Lieutenant Colonel Stanislav Petrov, received an electronic warning of a U.S. missile attack on Soviet territory. Unsure of the accuracy of the warning, he waited before informing his superiors of the strike and eventually told them he believed it was a computer error, as proved to be the case, thus averting a possible nuclear exchange. Machines are not capable of such doubts or hesitations.17 Another problem is the lack of real world data for use in training NC3 algorithms. Other than the two bombs dropped on Japan at the end of World War II, there has never been an actual nuclear war and therefore no genuine combat examples for use in devising reality-based attack responses. War games and simulations can be substituted for this purpose, but none of these can accurately predict how leaders will actually behave in a future nuclear showdown. Therefore, decision-support programs devised by these algorithms can never be fully trusted. “Automated decision-support systems … are only as good as the data they rely on. Building an automated decision-support tool to provide early warning of a preemptive nuclear attack is an inherently challenging problem because there is zero actual data of what would constitute reliable indicators of an imminent preemptive nuclear attack.”18 An equal danger is what analysts call “automation bias,” or the tendency for stressed-out decision-makers to trust the information and advice supplied by advanced computers rather than their own considered judgment. For example, a U.S. president, when informed of sensor data indicating an enemy nuclear attack and under pressure to make an immediate decision, might choose to accept the computer’s advice to initiate a retaliatory strike rather than consider possible alternatives, such as with Petrov’s courageous Cold War action. Given that AI data systems can be expected to gain ever more analytical capacity over the coming decades, “it is likely that humans making command decisions will treat the AI system’s suggestions as on a par with or better than those of human advisers,” a 2018 RAND study noted. “This potentially unjustified trust presents new risks that must be considered.”19 Compounding all these risks is the likelihood that China, Russia, and the United States will all install automated NC3 systems but without informing each other of the nature and status of these systems. Under these circumstances, it is possible to imagine a “flash war,” roughly akin to a “flash crash” on Wall Street, that is triggered by the interaction of competing corporate investment algorithms. In such a scenario, the data assessment systems of each country could misinterpret signs of adversary moves and conclude an attack is imminent, leading other computers to order preparatory moves for a retaliatory strike, in turn prompting the similar moves on the other side, until both commence a rapid escalatory cycle ending in nuclear catastrophe.20

### 1NC—AT 1st Johnson 19

#### ] More alt causes! 1AC Johnson talks about AI in general being susceptible to spoofing—Their Johnson card \*Read in blue\*

Advances in AI could also exacerbate this cybersecurity challenge by enabling improvements to the cyber offence. Machine learning and AI by automating advanced persistent threat (APT) operations might dramatically reduce the extensive manpower resources and high levels of technical skill required to execute APT operations (or ‘hunting for weaknesses’), especially against hardened nuclear targets.26 The machine speed of AI-augmented cyber tools could enable a low-skilled and capital-restricted attacker to exploit a narrow window of opportunity to penetrate an adversary’s cyber-defences or use APT tools to find new vulnerabilities. For example, when docked for maintenance air-gapped nuclear-powered submarines, considered secure when submerged, could become increasingly vulnerable to a new generation of low-cost – possibly black-market – and highly automated APT cyberattacks.

An attacker could also apply AI machine learning techniques to target autonomous dual-use early-warning and other operating systems (e.g. C3I, ISR, early-warning and robotic control networks) with ‘weaponized software’ such as hacking, subverting, spoofing or tricking, causing unpredictable and potentially undetectable errors, malfunctions and behavioural manipulation to weapons systems – or ‘data-poisoning’. 27 Furthermore, as the linkages between digital and physical systems (or the ‘Internet of Things’) expand, the potential for to an adversary to use cyberattacks in both kinetic and nonkinetic attacks will increase. A significant risk variable in the operation of autonomous systems is the time that passes between a system failure (i.e. performing in a manner other than how the human operator intended) and the time it takes for a human operator to take corrective action. If the system failure is the result of a deliberate act, this time frame will be compressed (Johnson 2019a).

Even if nuclear early-warning systems might eventually detect the subversion, heightened levels of uncertainty and tension caused by an alert may impel the respective militaries to put their nuclear weapons on high alert status. This skewed assessment by states in the context of nuclear weapons, which are ready to launch nuclear weapons at a moment’s notice, would likely precipitate worst-case scenario thinking that may spark an inadvertent escalation (Talmadge 2017).28 During a crisis, the inability of a state to determine an attacker’s intent may lead an actor to conclude that an attack (threatened or actual) was intended to undermine its nuclear deterrent.29 For example, an AIenabled third party generated ‘deepfake’ (audio and video manipulation), coupled with data-poisoning cyberattacks, could spark an escalatory crisis between two (or more) nuclear states (Fitzpatrick 2019).30

#### ] They’ll say humans can override regular autonomous weapons but their evidence says time frame is much too compressed for this to happen—spoofing is inevitable. Their Johnson ev.

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#### ] More alt causes! Our definition above takes out C31, ISR, early-warning, AND robotic control networks. Their Johnson 19 evidence

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### 1NC—2nd Johnson 19 card

#### u] Johnson 19 is about autonomy in general, which includes humans on-the loop. Their Johnson 19 card \*Rancho reads in blue\*

On the other hand, autonomy itself might increase a military’s vulnerability to cyberattacks, which rely on stealth, deception and stratagem. For example, an adversary could use malware to take control, manipulate or fool the behaviour and pattern recognition systems of autonomous systems, such as DoD’s Project Maven. Offensive attacks such as this would be relatively easy to execute, but very difficult to detect, attribute or effectively counter (Shachtman 2011).20 This problem set is compounded by the lack of an agreed framework or understanding of what constitutes escalatory behaviour (or ‘firebreaks’) in cyberspace. Thus, a cyber operation intended as a signal (i.e. for coercive diplomacy) could go undetected by the target, or worse, misinterpreted as an offensive attack. Even if information relating to an operation of this kind is accurately identified in a timely manner, the motives behind them could remain ambiguous, or misperceived. According to Robert Jervis, ‘it is likely that the country that is the object of the attack would assume that any effect was the intended one’ (Jervis 2016).

#### ] One more alt cause! Project Maven is on-the loop—plan doesn’t get rid of it. Atherton 18 [Kelsey D. Atherton, Defense technology journalist, <https://www.c4isrnet.com/it-networks/2018/07/27/targeting-the-future-of-the-dods-controversial-project-maven-initiative/>, “Targetting the Future of the DoD’s Controversial Project Maven Initiative] JJ

Project Maven, as envisioned, was about building a tool that could process drone footage quickly and in a useful way. Work specifically tied this task to the Defeat-ISIS campaign. Drones are intelligence, surveillance and reconnaissance platforms first and foremost. The nblinking eyes of Reapers, Global Hawks and Gray Eagles record hours and hours of footage every mission, imagery that takes a long time for human analysts to scan for salient details. While human analysts process footage, the ground situation is likely changing, so even the most labor-intensive approach to analyzing drone video delivers delayed results.

In July 2017, Marine Corps Col. Drew Cukor, the chief of the Algorithmic Warfare Cross-Function Team, presented on artificial intelligence and Project Maven at a defense conference. Cukor noted, “AI will not be selecting a target [in combat] … any time soon. What AI will do is complement the human operator.”

As Cukor outlined, the algorithm would allow human analysts to process two or three times as much data within the same timeframe. To get there, though, the algorithm to detect weapons and other objects has to be built and trained. This training is at the heart of neural networks and deep learning, where the computer program can see an unfamiliar object and classify it based on its resemblance to other, more familiar objects. Cukor said that before deploying to battle “you’ve got to have your data ready and you’ve got to prepare and you need the computational infrastructure for training.”

#### ] Their evidence indicates humans can’t correct spoofing. Their Johnson 19 card \*Rancho reads in blue\*

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### 1NC—Third Johnson Card

#### ] Another Alt Cause! Non-Nuclear CnCs get spoofed. Their Johnson 20 card. \*Rancho Reads In Blue\*

At a strategic level of conflict, AI applications designed to enhance cybersecurity for nuclear forces could simultaneously make cyber-dependent nuclear weapon systems (i.e. communications, data processing or early-warning sensors) more vulnerable to cyberattacks. It is now thought possible that a cyberattack (i.e. spoofing, hacking, manipulation and digital jamming) could infiltrate a nuclear weapons system, threaten the integrity of its communications, and ultimately (and possibly unbeknown to its target) gain control of its (nuclear and non-nuclear) command and control systems.24 AI technology has not yet evolved to a point where it would allow nuclear-armed states to credibly threaten the survivability of each other’s nuclear second-strike capability. Thus, the development trajectory of AI (and its enabling technologies) means its impact on nuclear security will likely be theoretical and speculative for the foreseeable future.

Because of the intense time pressures that would likely loom large with the decision to use nuclear weapons – especially where a state maintains a launch-on-warning posture – AI-enhanced cyberattacks against nuclear systems would be almost impossible to detect and the warning signals difficult to authenticate, let alone attribute, within the short timeframe for initiating a nuclear strike. According to open sources, operators at the North American Aerospace Defence Command (NORAD) have less than three minutes to assess and confirm initial indications from early-warning systems of an incoming attack. This compressed decision-making time frame could put political leaders under intense pressure to make a decision to escalate during a crisis, with incomplete (and possibly false) information of a situation. Ironically, new technologies designed to enhance information (i.e. modernised nuclear C3I systems augmented by 5G networks, machine learning, big-data analytics and quantum computing) can also undermine clear and reliable information flow and communication, critical for effective deterrence (Gartzke and Lindsay 2019).25

#### ] Their card says AI development is speculative—reject their uniqueness claims. Their Johnson 20 card \*Rancho Reads in Blue\*

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#### ] Another alt cause!—Johnson indicates that any AI cyberattacks can spoof/force HUMAN-initiated nuclear strikes from NORAD which plan doesn’t get rid of. Their Johnson 20 card \*Rancho Reads in blue\*

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### 1NC--AT Hartig and Vanhoose 19

#### ] This explicitly contradicts their Klare 20 evidence which indicates that humans are susceptible to automation-bias.

#### ] Hartig merely says some commanders might have difficulty trusting but if we win many generals fall to automation bias, that’s enough to place sufficient defense on their ILs.

## Case cards

### 1NC – People Worse/AT: Kill Switch

#### People make irrational decisions---any disad to nuclear LAWs applies more to the Aff.

Michal **Onderco &** Madeline **Zutt 21**. \*Associate Professor of International Relations at Erasmus University Rotterdam. \*\*Research associate at Erasmus University Rotterdam in the Netherlands where she works on emerging technologies and nuclear disarmament. “Will Humans And/Or Machines Save Us From Nuclear Doomsday,” *Geopolitics & Global Order,* January 6, 2021, https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday

Behavioural research has shed light on the limits of human judgment and rationality.[[15]](https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday#footnote15_ic05b4k) Arguments that humans should be the only ones in the loop assume that all humans are risk-averse and so will do anything to avoid a crisis. While AI proponents – such as those arguing for a ‘dead-hand’ system – might be guilty of having blind faith in AI, sceptics do the same with human judgment.

Neither one in isolation is sufficient. Ample research has shown that humans (let alone leaders) are not always risk-averse.[[16]](https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday#footnote16_fqlkqri) For instance, behavioural theories have stressed that how individuals perceive uncertainty will affect their risk preferences. This can help explain why some people may not always be risk-averse when faced with potentially bad outcomes; in fact, some individuals may actually become risk-seeking in an effort to receive a better outcome.

These outcomes are not only psychologically conditioned, but also results of long socialisation processes. As Assistant Professor of Political Science Erik Lin-Greenberg argued in his recent paper, there is great variation among leaders in different countries when it comes to how accepting they are of AI in their militaries.[[17]](https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday#footnote17_p87xoxz)

While Lin-Greenberg draws a lesson that this creates a problem for the functioning of alliances (something we do not dispute), this unwillingness highlights that there are other factors – for example cultural and normative – that influence risk acceptance. Psychologists and sociologists have long recognised that risk acceptance (or avoidance) has an important cultural aspect.[[18]](https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday#footnote18_gf05sf1) And embedding nuclear decisions within complex organisations seems not to completely remove these problems.[[19]](https://spectator.clingendael.org/en/publication/will-humans-andor-machines-save-us-nuclear-doomsday#footnote19_42nw2s5)

In short, the critique of the implementation of AI in nuclear decision-making rests on a rather uncritical view of human judgment and its relationship with risk. You only need to imagine a world leader boasting about the size of their nuclear button to understand that not everyone is equally risk-averse.

#### Human oversight doesn’t solve – they will mess up, dogmatically follow computer programs, or misunderstand

Michael C. Horowitz 19. Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC. "A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence." https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf

There are many models for coping with these risks. One model is to eschew automation entirely, which forgoes its potential benefits. Another model is to retain humans either “in the loop” of automation, requiring positive human input, or “on the loop,” overseeing the system in a supervisory capacity. Human-machine teaming is no panacea for these risks. Even if automated systems have little “autonomy” and humans remain in control, the human users could fall victim to automation bias, leading them to cede judgment to the machine. Appropriately determining when to intervene is not sufficient to ensure safe operation. Human users may lack the ability to effectively intervene and take control if their skills have atrophied due to relying on automation or if they do not sufficiently understand the automation.39 Properly

#### Humans are worse.

Patrick Tucker 20. Technology editor for Defense One. “Artificial Intelligence Outperforms Human Intel Analysts In a Key Area.” https://www.defenseone.com/technology/2020/04/artificial-intelligence-outperforms-human-intel-analysts-one-key-area/165022/

In the 1983 movie WarGames, the world is brought to the edge of nuclear destruction when a military computer using artificial intelligence interprets false data as an imminent Soviet missile strike. Its human overseers in the Defense Department, unsure whether the data is real, can’t convince the AI that it may be wrong. A recent finding from the Defense Intelligence Agency, or DIA, suggests that in a real situation where humans and AI were looking at enemy activity, those positions would be reversed. Artificial intelligence can actually be more cautious than humans about its conclusions in situations when data is limited. While the results are preliminary, they offer an important glimpse into how humans and AI will complement one another in critical national security fields. DIA analyzes activity from militaries around the globe. Terry Busch, the technical director for the agency’s Machine-Assisted Analytic Rapid-Repository System, or MARS, on Monday joined a Defense One viewcast to discuss the agency’s efforts to incorporate AI into analysis and decision-making. Earlier this year, Busch's team set up a test between a human and AI. The first part was simple enough: use available data to determine whether a particular ship was in U.S. waters. “Four analysts came up with four methodologies; and the machine came up with two different methodologies and that was cool. They all agreed that this particular ship was in the United States,” he said. So far, so good. Humans and machines using available data can reach similar conclusions. The second phase of the experiment tested something different: conviction. Would humans and machines be equally certain in their conclusions if less data were available? The experimenters severed the connection to the Automatic Identification System, or AIS, which tracks ships worldwide. “It’s pretty easy to find something if you have the AIS feed, because that’s going to tell you exactly where a ship is located in the world. If we took that away, how does that change confidence and do the machine and the humans get to the same end state?” In theory, with less data, the human analyst should be less certain in their conclusions, like the characters in WarGames. After all, humans understand nuance and can conceptualize a wide variety of outcomes. The researchers found the opposite. “Once we began to take away sources, everyone was left with the same source material — which was numerous reports, generally social media, open source kinds of things, or references to the ship being in the United States — so everyone had access to the same data. The difference was that the machine, and those responsible for doing the machine learning, took far less risk — in confidence — than the humans did,” he said. “The machine actually does a better job of lowering its confidence than the humans do….There’s a little bit of humor in that because the machine still thinks they’re pretty right.” The experiment provides a snapshot of how humans and AI will team for important analytical tasks. But it also reveals how human judgement has limits when pride is involved. Humans, particularly experts in specific fields, have a tendency to overestimate their ability to correctly infer outcomes when given limited data. Nobel-prize winning economist and psychologist Daniel Kahneman has written on the subject extensively. Kahneman describes this tendency as the “inside view.” He cites the experience of a group of Israeli educators assigned to write a new textbook for the Ministry of Education. They anticipated that it would take them a fraction of the amount of time they knew it would take another similar team. They couldn’t explain why they were overconfident; they just were. Overconfidence is human and a particular trait among highly functioning expert humans, one that machines don’t necessarily share.

### 1NC – Alt Causes

#### Other systems too

Michael **Horowitz 19**. Professor of Political Science, University of Pennsylvania, “When speed kills: Lethal autonomous weapon systems, deterrence, and stability,” *Journal of Strategic Studies,* 2019, https://www.tandfonline.com/doi/abs/10.1080/01402390.2019.1621174

Now, there is nothing necessarily unique about the weapons being autonomous in this scenario – fast weapon systems that can threaten command and control systems can place pressure on strategic stability in general. For example, precisely because hypersonic missiles could hit overthe-horizon targets in a fraction of the time it would take existing ballistic or cruise missiles, many analysts believe they would undermine strategic stability.67 For this situation to come about, autonomous tracking systems that could attack would have to be credible, already observed by the target, and something the target would not have the ability to defend themselves from. The uncertainty about survivability that LAWS would create in this situation could be mitigated by defensive systems, in theory.

### 1NC – AT: Cyber

#### **Nuclear LAWS enhance cyber defense.**

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Automation could also be used to enhance defenses – physical or cyber – against attacks on nuclear early warning, command-and-control, delivery, and support systems, thereby enhancing deterrence and fortifying stability. It could also be used to bolster the resilience of vulnerable NC2 networks. For instance, long-endurance uninhabited aircraft that act as pseudo-satellites (“pseudo-lites”) to create an airborne communications network could increase NC2 resilience by providing additional redundant communications pathways in the event of satellite disruption. Automation could even enable autonomously self-healing networks – in physical or cyberspace – in response to jamming or kinetic attacks against command-and-control nodes, thereby sustaining situational awareness and command and control and enhancing deterrence.

#### AI makes nukes less hackable

James **Johnson &** Eleanor **Krabill 20.** James Johnson is a Postdoctoral Research Fellow at the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies (MIIS), Monterey. His latest book project is entitled, Artificial Intelligence & the Future of Warfare: USA, China, and Strategic Stability. Eleanor Krabill is a Master of Arts in Nonproliferation and Terrorism candidate at Middlebury Institute of International Studies (MIIS), Monterey. “AI, Cyberspace, and Nuclear Weapons” *War on the Rocks* <https://warontherocks.com/2020/01/ai-cyberspace-and-nuclear-weapons/> January 31, 2020

AI could actually improve nuclear security**.** Several U.S. national security officials believe that AI, used as a force multiplier for both defensive and offensive cyber weapons, will have a transformative impact on cyber security. Recent advances in machine learning have **significantly contributed** to resolving several technical bottlenecks in several fields of **AI**, which make **significant qualitative improvements** to a wide range of autonomous weapon systems.

Taken together, **machine learning** and **autonomy** **could transform nuclear security** in a [multitude of ways](https://www.tandfonline.com/doi/full/10.1080/14751798.2019.1600800), with both positive and negative implications for cyber security and [strategic stability](https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE296/RAND_PE296.pdf).

On the one hand, AI might reduce a military’s vulnerability to cyber attacks. **AI cyber-defense tools** (or “counter-AI”), **designed** to recognize changes to patterns of behavior in a network, detect anomalies and software code vulnerabilities, and apply machine learning techniques, such as “deep learning,” **to** identify deviations **from normal network activity**, **could form** a more robust defense against cyber intrusions. For example, **if certain code fragments mimic existing malware structures, machine leaning algorithms might be used to locate** vital evidence **to ascertain** the identity of **an attacker.**

With this goal in mind, the Defense Department’s Defense Innovation Unit is [prototyping](https://hub.packtpub.com/the-u-s-dod-wants-to-dominate-russia-and-china-in-artificial-intelligence-last-week-gave-us-a-glimpse-into-that-vision/) an application that leverages AI to decipher high-level strategic questions, map probabilistic chains of events, and develop alternative strategies. This could make Defense Department systems more resilient to AI-augmented cyber attacks and configure and fix errors faster than humans.

### Top Level

#### AI is comparatively more reliable relative to humans for NC3

Sankaran 19 Jaganath Sankaran [Jaganath Sankaran is an assistant professor in the Lyndon B. Johnson School of Public Affairs at The University of Texas, Austin. He works on problems that lie at the intersection of international security and science & technology], 4-25-2019, "A Different Use for Artificial Intelligence in Nuclear Weapons Command and Control," War on the Rocks, <https://warontherocks.com/2019/04/a-different-use-for-artificial-intelligence-in-nuclear-weapons-command-and-control/> AG

Decision-makers who stand guard at the various levels of the nuclear weapons chain of command face two different forms of stress. The first form of stress is information overload, shortage of time, and chaos in the moment of a crisis. The second is more general, emerging from moral tradeoffs and the fear of causing loss of life on an immense scale. AI and big data analysis techniques have already been applied to address the first kind of stress. The current U.S. nuclear early warning system employs a “dual phenomenology” mechanism designed to ensure speed in detecting a threat and in streamlining information involved in the decision-making process. The early warning system employs advanced satellites and radars to confirm and track an enemy missile almost immediately after launch. In an actual nuclear attack, the various military and political personnel in the chain of command would be informed progressively as the threat is analyzed, until finally the president is notified. This structure substantially reduces information overload and chaos for decision-makers in a crisis.

However, as Richard Garwin writes, the system also reduces the role of the decision-maker “simply to endorse the claim of the sensors and the communication systems that a massive raid is indeed in progress.” While the advanced technologies and data processing techniques used in the early warning system reduces the occurrence of false alerts, it does not completely eliminate the chances of one occurring. In order to address decision-makers’ fear of inadvertently starting a nuclear war, future applications of AI to nuclear command and control should aspire to create an algorithm that could argue in the face of overwhelming fear of an impending attack that a nuclear launch isn’t happening. Such an algorithm could verify the authenticity of an alert from other diverse perspectives, in addition to a purely technological analysis. Incorporating this element into the nuclear warning process could help to address the second form of stress, reassuring decision-makers that they are sanctioning a valid and justified course of action.

In the world of nuclear command and control, the pursuit of speed and analysis of big data is old news. In the early 1950s, before the advent of nuclear intercontinental ballistic missiles (ICBMs), the United States began developing the SAGE supercomputer. SAGE, which was built at approximately three times the cost of the Manhattan Project, was the quintessential big data processing machine. It used the fastest and most expensive computers at the time – the Whirlwind II (AN/FSQ-7) IBM mainframe computers – at each of 24 command centers to receive, sort, and process data from the many radars and sensors dedicated to identifying incoming Soviet bombers. The SAGE supercomputer then coordinated U.S. and Canadian aircraft and missiles to intercept those bombers. Its goal was to supplement “the fallible, comparatively slow-reacting mind and hand of man” in anticipating and defending against a nuclear bomber campaign.

The proliferation of ICBMs in the 1960s, however, made the SAGE command centers “extraordinarily vulnerable.” The U.S. Air Force concluded that Soviet ICBMs could destroy “the SAGE system long before the first of their bombers crossed the Arctic Circle.” In 1966, speaking at a congressional hearing, Secretary of Defense Robert McNamara argued that “the elaborate defenses which we erected during the 1960s no longer retain their original importance. Today with no defense against the major threat, Soviet ICBMs, our anti-bomber defense alone would contribute very little…” The SAGE command centers were shut down.

These advances in nuclear command and control still do not directly address the second form of stress, one that emerges from the fear of a nuclear war and the accompanying moral tradeoffs. How can AI mitigate this problem? History reminds us that technological sophistication cannot be relied upon to avert accidental nuclear confrontations. Rather, these confrontations have been prevented by individuals who, despite having state-of-the-art technology at their disposal, proffered alternate explanations for a nuclear warning alert. Operating under the most demanding conditions, they insisted on a “gut feeling” that evidence of an impending nuclear war alert was misleading. They chose to disregard established protocol, fearing that a wrong choice would lead to accidental nuclear war.

Consider for example a declassified President’s Foreign Intelligence Advisory Board report investigating the decision by Leonard Perroots, a U.S. Air Force lieutenant general, not to respond to incoming nuclear alerts. The incident occurred in 1983 when NATO was conducting a large simulated nuclear war exercise code-named Able Archer. The report notes that Perroots’ “recommendation, made in ignorance, not to raise US readiness in response” was “a fortuitous, if ill-informed, decision given the changed political environment at the time.” The report also states:

the military officers in charge of the Able Archer exercise minimized this risk by doing nothing in the face of evidence that parts of the Soviet armed forces were moving to an unusual level of [nuclear] alert. But these officers acted correctly out of instinct, not informed guidance.

Perroots later complained in 1989, just before retiring as head of the U.S. Defense Intelligence Agency, “that the U.S. intelligence community did not give adequate credence to the possibility that the United States and Soviet Union came unacceptably close to [accidental] nuclear war.”

In the same year, Stanislav Petrov, a commanding officer involved in Soviet nuclear operations, also dismissed a nuclear alert from his country’s early warning system. In the face of data and analysis that confirmed an incoming American missile salvo, Petrov decided the system was wrong. Petrov later said, “that day the satellites told us with the highest degree of certainty these rockets were on the way.” Still, he decided to report the warning as a false alert. His decision was informed by fears that he “didn’t want to be the one responsible for starting a third world war.” Later recalling the incident, he said: “I had a funny feeling in my gut. I didn’t want to make a mistake. I made a decision, and that was it. When people start a war, they don’t start it with only five missiles.” Both, Perroots and Petrov feared the moral consequences of a nuclear war, particularly one initiated accidentally. They distrusted the data and challenged protocol.

#### AI backed NC3 is a key deterrent for the US – removing it goes nuclear and turns case

Lowther 19 Adam Lowther [Adam Lowther is a research professor and director of the Center for Academic and Professional Journals at the Air Force Research Institute (AFRI) at Maxwell Air Force Base in Alabama.], 8-16-2019, "America Needs a “Dead Hand”," War on the Rocks, <https://warontherocks.com/2019/08/america-needs-a-dead-hand/> AG

Technologies such as hypersonic weapons, stealthy nuclear-armed cruise missiles, and weaponized artificial intelligence mean America’s legacy NC3 system may be too slow for the president to make a considered decision and transmit orders. The challenges of attack-time compression present a destabilizing risk to America’s deterrence strategy. Any potential for failure in the detection or assessment of an attack, or any reduction of decision and response time, is inherently dangerous and destabilizing.

If the ultimate purpose of the NC3 system is to ensure America’s senior leadership has the information and time needed to command and control nuclear forces, then the penultimate purpose of a reliable NC3 system is to reinforce the desired deterrent effect. To maintain the deterrent value of America’s strategic forces, the United States may need to develop something that might seem unfathomable — an automated strategic response system based on artificial intelligence.

Admittedly, such a suggestion will generate comparisons to Dr. Strangelove’s doomsday machine, War Games’ War Operation Plan Response, and the Terminator’s Skynet, but the prophetic imagery of these science fiction films is quickly becoming reality. A rational look at the NC3 modernization problem finds that it is compounded by technical threats that are likely to impact strategic forces. Time compression has placed America’s senior leadership in a situation where the existing NC3 system may not act rapidly enough. Thus, it may be necessary to develop a system based on artificial intelligence, with predetermined response decisions, that detects, decides, and directs strategic forces with such speed that the attack-time compression challenge does not place the United States in an impossible position.

#### Recent factors and nuclear modernization create necessity for AI in NC3 systems

Lowther 19 Adam Lowther [Adam Lowther is a research professor and director of the Center for Academic and Professional Journals at the Air Force Research Institute (AFRI) at Maxwell Air Force Base in Alabama.], 8-16-2019, "America Needs a “Dead Hand”," War on the Rocks, <https://warontherocks.com/2019/08/america-needs-a-dead-hand/> AG

The compression of detection and decision time is not a new phenomenon. In the 1950s, Soviet bombers would take hours to reach the United States. With the advent of the missile age, that time was compressed to about 30 minutes for a land-based intercontinental ballistic missile and about 15 minutes for a submarine-launched ballistic missile. These technologies fostered the development of both space-based and underwater detection and communication, as well as advanced over-the-horizon radar. Despite this attack-time compression, U.S. officials remained confident that America’s senior leaders could act in sufficient time. The United States believed the Soviets would be deterred by its ability to do so.

However, over the past decade Russia has vigorously modernized its nuclear arsenal, with a particular emphasis on developing capabilities that are difficult to detect because of their shapes, their materials, and the flight patterns they will take to U.S. targets. Examples of the systems include the Kaliber-M and Kh-102 cruise missiles, Poseidon Ocean Multipurpose System Status-6 unmanned underwater vehicle, and the Avangard Objekt 4202 hypersonic weapon, which all have the potential to negate the United States’ NC3 system before it can respond. This compression of time is at the heart of the problem. The United States has always expected to have enough time to detect, decide, and direct. Time to act can no longer be taken for granted, nor can it be assumed that the Russians or Chinese, for that matter, will act tactically or strategically in the manner expected by the United States. In fact, policymakers should expect adversaries to act unpredictably. Neither the American intelligence community nor Beltway intellectuals predicted the Russian invasion of Crimea, among other recent Russian acts of aggression. The Russians, to their credit, are adept at surprising the United States on a regular basis.

These new technologies are shrinking America’s senior-leader decision time to such a narrow window that it may soon be impossible to effectively detect, decide, and direct nuclear force in time. In the wake of a nuclear attack, confusion and paralysis by information and misinformation could occur when the NC3 system is in a degraded state. Understanding the new technologies that are reshaping strategic deterrence is instructive.

Two types of nuclear-armed hypersonic weapons have emerged: hypersonic glide vehicles and hypersonic cruise missiles. Rich Moore, RAND Corporation senior engineer, notes, “Hypersonic cruise missiles are powered all the way to their targets using an advanced propulsion system called a SCRAMJET. These are very, very, fast. You may have six minutes from the time it’s launched until the time it strikes.” Hypersonic cruise missiles can fly at speeds of Mach 5 and at altitudes up to 100,000 feet.

Hypersonic glide vehicles are launched from an intercontinental ballistic missile and then glide through the atmosphere using aerodynamic forces to maintain stability, flying at speeds near Mach 20. Unlike ballistic missiles, glide vehicles can maneuver around defenses and to avoid detection if necessary, disguising their intended target until the last few seconds of flight — a necessary capability as nations seek to develop ever better defenses against hypersonic weapons. Richard Speier, also of RAND Corporation, states:

We don’t currently have effective defenses against hypersonic weapons because of the way they fly. They’re maneuverable and fly at an altitude our current defense systems are not designed to operate; our whole defensive system is based on the assumption that you’re going to intercept a ballistic object.

In addition to the hypersonic cruise missile threat, there is the proliferation of offensively postured, nuclear-armed, low-observable cruise missiles. Whereas the hypersonic cruise missile threat is looming because adversary systems are still in the developmental stage, low-observable cruise missiles are here and the Russians understand how to employ these weapons on flight paths that are hard to track, which makes them hard to target. According to the 2019 Missile Defense Review, “Russia and China are developing advanced cruise missiles and hypersonic missile capabilities that can travel at exceptional speeds with unpredictable flight paths that challenge our existing defensive systems.” And finally, Russia has threatened nuclear first use strikes against U.S. allies and partners. Land-attack cruise missiles can be launched from any platform, including aircraft, ships, submarines, or ground-based launchers.

Land-attack cruise missiles are a challenge for today’s detection and air defense systems. Cruise missiles can fly at low altitudes, use terrain features, and fly circuitous routes to a target, avoiding radar detection, interception, or target identification. Improved defensive capabilities and flight paths have made low-observable or land-attack cruise missiles (LACMs) even less visible. They can also be launched in a salvo to approach a target simultaneously from different directions.

According to the National Air and Space Intelligence Center:

The Club-K cruise missile “container launcher” weapon system, produced and marketed by a Russian firm, looks like a standard shipping container. The company claims the system can launch cruise missiles from cargo ships, trains, or commercial trucks. Beginning in fall 2015, Russia fired LACMs from surface ships, submarines, and aircraft in support of ongoing military operations in Syria.

The analysis went on to add, “The cruise missile threat to US forces is increasing. The majority of LACMs are subsonic, but supersonic and hypersonic missile will be deployed in the future. LACMs also have increased survivability by minimizing radar signature and/or the use of chaff and decoys.” The newest generation of these missiles poses a real threat, specifically to the U.S. NC3 system, and they may be used as precursor attack weapons to disable or destroy critical nodes within that system.

#### The aff is non unique – the DOD has begun implementing restrictions against fully autonomous weapons

1AC Klare 19 – We read green[Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association. This is the second in the “Arms Control Tomorrow” series, in which he considers disruptive emerging technologies and their implications for war-fighting and arms control. This installment provides an assessment of autonomous weapons systems development and prospects, the dangers they pose, and possible strategies for their control. "Autonomous Weapons Systems and the Laws of War." <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war>] AG

Arms racing behavior is a perennial concern for the great powers, because efforts by competing states to gain a technological advantage over their rivals, or to avoid falling behind, often lead to excessive and destabilizing arms buildups. A race in autonomy poses a particular danger because the consequences of investing machines with increased intelligence and decision-making authority are largely unknown and could prove catastrophic. In their haste to match the presumed progress of likely adversaries, states might field robotic weapons with considerable autonomy well before their abilities and limitations have been fully determined, resulting in unintended fatalities or uncontrolled escalation.

Supposedly, those risks would be minimized by maintaining some degree of human control over all such machines, but the race to field increasingly capable robotic weapons could result in ever-diminishing oversight. “Despite [the Defense Department’s] insistence that a ‘man in the loop’ capability will always be part of RAS systems,” the CRS noted in 2018, “it is possible if not likely, that the U.S. military could feel compelled to develop…fully autonomous weapon systems in response to comparable enemy ground systems or other advanced threat systems that make any sort of ‘man in the loop’ role impractical.”8

Assessing the Risks

Given the likelihood that China, Russia, the United States, and other nations will deploy increasingly autonomous robotic weapons in the years ahead, policymakers must identify and weigh the potential risks of such deployments. These include not only the potential for accident and unintended escalation, as would be the case with any new weapons that are unleashed on the battlefield, but also a wide array of moral, ethical, and legal concerns arising from the diminishing role of humans in life-and-death decision-making.

The potential dangers associated with the deployment of AI-empowered robotic weapons begin with the fact that much of the technology involved is new and untested under the conditions of actual combat, where unpredictable outcomes are the norm. For example, it is one thing to test self-driving cars under controlled conditions with human oversight; it is another to let such vehicles loose on busy highways. If that self-driving vehicle is covered with armor, equipped with a gun, and released on a modern battlefield, algorithms can never anticipate all the hazards and mutations of combat, no matter how well “trained” the algorithms governing the vehicle’s actions may be. In war, accidents and mishaps, some potentially catastrophic, are almost inevitable.

Extensive testing of AI image-classification algorithms has shown that such systems can easily be fooled by slight deviations from standardized representations—in one experiment, a turtle was repeatedly identified as

a rifle9—and are vulnerable to trickery, or “spoofing,” as well as hacking by adversaries.

Former Navy Secretary Richard Danzig, who has studied the dangers of employing untested technologies on the battlefield, has been particularly outspoken in cautioning against the premature deployment of AI-empowered weaponry. “Unfortunately, the uncertainties surrounding the use and interaction of new military technologies are not subject to confident calculation or control,” he wrote in 2018.10

This danger is all the more acute because, on the current path, autonomous weapons systems will be accorded ever-greater authority to make decisions on the use of lethal force in battle. Although U.S. authorities insist that human operators will always be involved when life-and-death decisions are made by armed robots, the trajectory of technology is leading to an ever-diminishing human role in that capacity, heading eventually to a time when humans are uninvolved entirely. This could occur as a deliberate decision, such as when a drone is set free to attack targets fitting a specified appearance (“adult male armed with gun”), or as a conditional matter, as when drones are commanded to fire at their discretion if they lose contact with human controllers. A human operator is somehow involved, by launching the drones on those missions, but no human is ordering the specific lethal attack.

Maintaining Ethical Norms

This poses obvious challenges because virtually all human ethical and religious systems view the taking of a human life, whether in warfare or not, as a supremely moral act requiring some valid justification. Humans, however imperfect, are expected to abide by this principle, and most societies punish those who fail to do so. Faced with the horrors of war, humans have sought to limit the conduct of belligerents in wartime, aiming to prevent cruel and excessive violence. Beginning with the Hague Convention of 1898 and in subsequent agreements forged in Geneva after World War I, international jurists have devised a range of rules, collectively, the laws of war, proscribing certain behaviors in armed conflict, such as the use of poisonous gas. Following World War II and revelations of the Holocaust, diplomats adopted additional protocols to the Hague and Geneva conventions intended to better define the obligations of belligerents in sparing civilians from the ravages of war, measures generally known as international humanitarian law. So long as humans remain in control of weapons, in theory they can be held accountable under the laws of war and international humanitarian law for any violations committed when using those devices. What happens when a machine makes the decision to take a life and questions arise over the legitimacy of that action? Who is accountable for any crimes found to occur, and how can a chain of responsibility be determined?

These questions arise with particular significance regarding two key aspects of international humanitarian law, the requirement for distinction and proportionality in the use of force against hostile groups interspersed with civilian communities. Distinction requires warring parties to discriminate between military and civilian objects and personnel during the course of combat and spare the latter from harm to the greatest extent possible. Proportionality requires militaries to apply no more force than needed to achieve the intended objective, while sparing civilian personnel and property from unnecessary collateral damage.11

These principles pose a particular challenge to fully autonomous weapons systems because they require a capacity to make fine distinctions in the heat of battle. It may be relatively easy in a large tank-on-tank battle, for example, to distinguish military from civilian vehicles; but in many recent conflicts, enemy combatants have armed ordinary pickup trucks and covered them with a tarpaulins, making them almost indistinguishable from civilian vehicles. Perhaps a hardened veteran could spot the difference, but an intelligent robot? Unlikely. Similarly, how does one gauge proportionality when attempting to attack enemy snipers firing from civilian-occupied tenement buildings? For robots, this could prove an insurmountable challenge.

Advocates and critics of autonomous weaponry disagree over whether such systems can be equipped with algorithms sufficiently adept to distinguish between targets to satisfy the laws of war. “Humans possess the unique capacity to identify with other human beings and are thus equipped to understand the nuances of unforeseen behavior in ways that machines, which must be programmed in advance, simply cannot,” analysts from Human Rights Watch (HRW) and the International Human Rights Clinic of Harvard Law School wrote in 2016.12

Another danger arises from the speed with which automated systems operate, along with plans for deploying autonomous weapons systems in coordinated groups, or swarms. The Pentagon envisions a time when large numbers of drone ships and aircraft are released to search for enemy missile-launching submarines and other critical assets, including mobile ballistic missile launchers. At present, U.S. adversaries rely on those missile systems to serve as an invulnerable second-strike deterrent to a U.S. disarming first strike. Should Russia or China ever perceive that swarming U.S. drones threaten the survival of their second-strike systems, those countries could feel pressured to launch their missiles when such swarms are detected, lest they lose their missiles to a feared U.S. first strike.

Strategies for Control

Since it first became evident that strides in AI would permit the deployment of increasingly autonomous weapons systems and that the major powers were seeking to exploit those breakthroughs for military advantage, analysts in the arms control and human rights communities, joined by sympathetic diplomats and others, have sought to devise strategies for regulating such systems or banning them entirely.

As part of that effort, parties to the Convention on Certain Conventional Weapons (CCW), a 1980 treaty that restricts or prohibits the use of particular types of weapons that are deemed to cause unnecessary suffering to combatants or to harm civilians indiscriminately, established a group of governmental experts to assess the dangers posed by fully autonomous weapons systems and to consider possible control mechanisms. Some governments also have sought to address these questions independently, while elements of civil society have entered the fray.

Out of this process, some clear strategies for limiting these systems have emerged. The first and most unequivocal would be the adoption under the CCW of a legally binding international ban on the development, deployment, or use of fully autonomous weapons systems. Such a ban could come in the form a new CCW protocol, a tool used to address weapon types not envisioned in the original treaty, as has happened with a 1995 ban on blinding laser weapons and a 1996 measure restricting the use of mines, booby traps, and other such devices.13 Two dozen states, backed by civil society groups such as the Campaign to Stop Killer Robots, have called for negotiating an additional CCW protocol banning fully autonomous weapons systems altogether.

Proponents of such a measure say it is the only way to avoid inevitable violations of international humanitarian law and that a total ban would help prevent the unintended escalation of conflict. Opponents argue that autonomous weapons systems can be made intelligent enough to overcome concerns regarding international humanitarian law, so no barriers should be placed on their continued development. As deliberations by CCW member states are governed by consensus, a few states with advanced robotic projects, notably Russia, the United Kingdom, and the United States, have so far blocked consideration of such a protocol.

Another proposal, advanced by representatives of France and Germany at the experts’ meetings, is the adoption of a political declaration affirming the principle of human control over weapons of war accompanied by a nonbinding code of conduct. Such a measure, possibly in the form of a UN General Assembly resolution, would require human responsibility over fully autonomous weapons systems at all times to ensure compliance with the laws of war and international humanitarian law and would entail certain assurances to this end. The code could establish accountability for states committing any misdeeds with fully autonomous weapons systems in battle and require that these weapons retain human oversight to disable the device if it malfunctions. States could be required to subject proposed robotic systems to predeployment testing, in a thoroughly transparent fashion, to ensure they were compliant with these constraints.14

Those who favor a legally binding ban under the CCW claim this alternative would fail to halt the arms race in fully autonomous weapons systems and would allow some states to field weapons with dangerous and unpredictable capabilities. Others say a total ban may not be achievable and argue that a nonbinding measure of this sort is the best option available.

Yet another approach gaining attention is a concentrated focus on the ethical dimensions of fielding fully autonomous weapons systems. This outlook holds that international law and common standards of ethical practice ordain that only humans possess the moral capacity to justify taking another human’s life and that machines can never be vested with that power. Proponents of this approach point to the Martens clause of the Hague Convention of 1899, also inscribed in Additional Protocol I of the Geneva Conventions, stating that even when not covered by other laws and treaties, civilians and combatants “remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of human conscience.” Opponents of fully autonomous weapons systems claim that such weapons, by removing humans from life-and-death decision-making, are inherently contradicting principles of humanity and dictates of human conscience and so should be banned. Reflecting awareness of this issue, the Defense Department has reportedly begun to develop a set of guiding principles for the “safe, ethical, and responsible use” of AI and autonomous weapons systems by the military services.

Today, very few truly autonomous robotic weapons are in active combat use, but many countries are developing and testing a wide range of machines possessing high degrees of autonomy. Nations are determined to field these weapons quickly, lest their competitors outpace them in an arms race in autonomy. Diplomats and policymakers must seize this moment before fully autonomous weapons systems become widely deployed to weigh the advantages of a total ban and consider other measures to ensure they will never be used to commit unlawful acts or trigger catastrophic escalation.

### AT: Perimeter Rollout

#### Non uq – perimeter requires human control and will exist post plan

Reiner 19 Philip Reiner [Philip J. Reiner is the Executive Director of Technology for Global Security, a non-profit network based in the Bay Area focused on solving international security challenges with a technological nexus.], 11-4-2019, "The Real Value of Artificial Intelligence in Nuclear Command and Control," War on the Rocks, <https://warontherocks.com/2019/11/the-real-value-of-artificial-intelligence-in-nuclear-command-and-control/> AG

Various types of AI have long been integrated into American and Russian NC3. During the Cold War, both countries incorporated what was then accepted as cutting-edge AI tools to enable automation into their detection and early warning systems of systems. In addition, both embarked on research that aimed to integrate greater levels of sophisticated AI-enabled automation into their systems.

In Russia, the result was the Perimetr project, “an automatic system of signal rockets used to beam radio messages to launch nuclear missiles if other means of communication were knocked out.” The dead hand system was not as ominous as it sounds. Humans were to be fully involved, no matter what. The dead hand system, most likely utilized within the Perimetr project, simply used a machine to combine Soviet command and control changes and present these changes to the human that was ultimately in charge of the nuclear button. Washington took a similar approach. Its Emergency Rocket Communications system was similar to Perimetr, but “it was never combined into a system analogous to the dead hand out of fear of accidents.”

### AT: Cyberwar

#### No cyberwar – recent policy ensures cyber resiliency – prefer our ev on recency

Dumbacher and Stoutland 20 Erin Dumbacher [Erin D. Dumbacher is a senior program officer for the Scientific and Technical Affairs program.], Page Stoutland PhD, November 2020 “US Nuclear Weapons Modernization” NTI, <https://media.nti.org/documents/NTI_Modernization2020_FNL-web.pdf> AG

Requirements for cybersecurity practices lagged behind some weapons system development, and today, assessments are not yet a permanent, institutionalized part of the acquisitions process.129 At least four of the 46 nuclear modernization programs reviewed in this study do not describe explicit, unique cybersecurity protocols in public documents; instead, they rely on department-wide cybersecurity resources for weapons systems. The National Institute of Standards and Technology, in its update to the Department of Defense Risk Management Framework, advises that test and evaluation processes for information system security occur prior to awarding development contracts.130

Program management offices (PMOs) often have experience and training in warfighting, readiness, and hardware development rather than software and cybersecurity. They face difficult problems that require risk-based calculations with imperfect, evolving information.131 A recent study on management challenges for nuclear modernization in the Air Force raised the prospect that leaders send signals to decision-makers and program managers that certain requests, such as those for more resources or workforce expertise, are off limits. Managers’ fears of being “laughed out of the room” could hold back constructive feedback in the Air Force’s nuclear modernization work, according to a RAND report.132

Congress has an important oversight role to play, with help from the expertise of the GAO, the Congressional Budget Office, and the Congressional Research Service, among others. The GAO’s program Evaluation already warns of cybersecurity risks to nuclear development programs. The 2020 bipartisan Cyberspace Solarium Commission report, as one example, outlined necessary cybersecurity actions for the nuclear command and control system.133 The Senate version of the fiscal year 2021 National Defense Authorization Act, passed in June 2020, includes recommendations from the commission directing the secretary of defense to ensure “cyber resiliency of nuclear command and control system.” 134 (The NDAA for FY 2021 has yet to become law.) Congressional oversight of the design and development of the new and replacement systems is expanding. In addition, interviewees described internal controls from the Office of the Secretary of Defense as limited.

### Subs

#### 1] Their evidence is highly speculative posing a hypothetical situation in which maybe a country attacks another country’s nuclear subs which leads to a preemptive strike – there is no warrant for why use or lose pressures are actually created

#### 2] Alt causes – this ev has little to do with LAWs, especially NC3 in that it just says that hunting nuke subs is bad – that’s non uq and happens anyways

### Cyber Retaliation/Arms Racing

#### 1] Alt causes – their ev is about all AI powered weapons, not specifically NC3. Means that they can’t solve back for their own impacts because other forms of LAWs like drone swarms and sentries would still trigger arms racing and cyber retaliation

### Circumvention

#### Circumvention is inevitable due to no

Kane and Mayhew 20 (Angela Kane is a senior fellow at the Vienna Center for Disarmament and Non-Proliferation and vice president of the International Institute for Peace, Noah Mayhew is a research associate at the Vienna Center for Disarmament and Non-Proliferation, 7-14-2020, "The Future of Nuclear Arms Control: Time to Change Course," PassBlue, <https://www.passblue.com/2020/07/14/the-future-of-nuclear-arms-control-time-to-change-course/>) //EG

There are no internationally accepted rules or regulations for any of these technologies. Modernization is taking place despite a clear intent to increase the deadliness of these weapons amid widespread condemnation. There are efforts in the United Nations to define the rules for cyberspace and LAWS, but they have been so far unsuccessful in creating a framework that the major nuclear powers can all agree on. This is largely, again, because the issues are no longer high priorities for the countries commanding the largest nuclear arsenals.

Moreover, multilateral discussions on these issues under UN frameworks are most often conducted as open-ended working groups (OEWGs) and groups of governmental experts (GGEs). However, both of these groups are often as politicized as any other discussion. For example, in the cybercontext, the US backs a group of governmental experts, while Russia backs the former type.

The choice of group in which to conduct negotiations can be politically strategic. While GGEs are consensus-based, limited-membership groups, OEWGs may be joined by any interested UN member state. Choosing one type over another can help the backers of that group better control the outcome. Furthermore, as the two groups run concurrently and are both criticized by opposing governments, there is little reason to expect results from these processes.

### AT: Miscalc/Accidents

#### LAWs reduce the risk of accidents and fix human errors and mistakes that occur in the middle of war

Del Re 17 [Amanda Del Re, Major in the US Army, Paper Advisor: Tim Schultz, Associate Dean of Academics for Electives and Research at the US Naval War College, PhD in the History of Technology from Duke University.] “Lethal Autonomous Weapons: Take the Human Out of the Loop.” US Naval War College, pgs 9-11. June 16, 2017. <https://apps.dtic.mil/sti/pdfs/AD1041804.pdf> BSPK

II – Humans are Inferior to Robots

Humans are high-maintenance, flawed, and deal poorly with the horrific effects of war. Robots can be far more proficient at warfare. Humans after all, are human. They make mistakes often and emotion clouds their judgment. Humans require a great deal of maintenance to be at peak performance. Humans fall prey to the horrors of war, often resulting in atrocities and long-term physical and psychological damage. Human troops are expensive and, in the long run, more expensive than robots. Robots are unemotional, cheaper, and not susceptible to committing an atrocity for self-preservation or revenge. This chapter examines why humans are inferior warriors and why robots may be superior and more ethical combatants.

The stresses of combat affect judgment. Consider a few personal accounts of dealing with combat stress. James R. McDonough, a Platoon Leader in Vietnam, describes his uncontrollable emotions after surviving his first firefight: “My emotions were breaking through the fatigue that had numbed them, and my mood shifted dramatically from one extreme to another.”2 McDonough is describing the effects of shock after trauma. He initially felt detached or “numbed,” and in the aftermath of battle his erratic emotions are irrepressible. Napoleon had described that the most dangerous point in battle is immediately after victory because that is when the soldier is most vulnerable to counterattack.3 Although Napoleon did not realize it at the time, he was describing “parasympathetic backlash” which occurs immediately after the attack “has halted and the soldier briefly believes himself to be safe.”4 During this parasympathetic backlash, a soldier becomes “physiologically and psychologically incapacitated” or, in McDonough’s case, “numbed.”5 Karl Marlantes, also a Platoon Leader in Vietnam, echoes this theory when he describes his experience in war as “the predominant feeling when you win in battle, is numbed exhaustion.”6 Critics of autonomous weapons state that humans possess judgment, something that a robot never could. However, the concept of the parasympathetic backlash undermines reliance on human judgment since humans may be unable to control their basic functions and emotions during and even some duration after the trauma of battle.

Kurt Vonnegut describes his experience as a POW during the bombing of Dresden: “I saw the destruction of Dresden. I saw the city before and then came out of an air-raid shelter and saw it afterward, and certainly one response was laughter. God knows, that’s the soul seeking some relief … Humor is an almost physiological response to fear.”7 Vonnegut remembers that his body had a physiological and uncontrollable reaction to the stress he endured during the Dresden bombing. While laughter may not detrimentally affect decision making, he still loses control of his reactions which has the possibility of clouding judgment. Vonnegut’s reaction was a symptom of a stunned, numbed psyche.

Humans are high-maintenance. In a normal 24-hour period, they require eight hours of sleep, approximately 2000 calories of nutritious food, one hour of fitness-oriented physical activity, and the human brain needs periodic breaks throughout the waking hours.8 These requirements are not easily obtained in a combat environment due to the physiological effects of stress. Walter Bradford Cannon coined the body’s method of coping with stress the “fight-or- flight” response.9 The fight-or-flight response “is a set of physiological changes initiated by the sympathetic nervous system to mobilize body systems in response to stress.”10 These changes involve increased heart rate and blood pressure and blood glucose levels, all physiological factors that can affect thought and judgment and, arguably, undermine the ability of human combatants to meet the martial effectiveness and ethical standards demanded in modern warfare.

The human body, like a robot, is a complex system of systems. Yet unlike their robot counterparts, human shortcomings are magnified in combat when physiological and cognitive systems are stressed. Robots’ have no sympathetic nervous system susceptible to rapid changes in heart rate, blood pressure, and blood glucose levels during combat. Unencumbered by a sympathetic nervous system, robots are not susceptible to the “parasympathetic backlash;” they will not be “numbed” or “stunned” after battle. Rather, robots will remain consistent and calm during and after all combat engagements. Moreover, the heat of battle will not disrupt a robot’s decision-making abilities, but it will disrupt a human’s which could lead to errors in judgment and ethical mistakes.

#### LAWs are better for stopping miscalc – human error is all too common under stressful conditions

Umbrello et al. 19 [Steven Umbrello, Institute for Ethics and Emerging Technologies, Angelo F. De Bellis, University of Edinburgh, Phil Torres, Project for Future Human Flourishing.] “The Future of War: The Ethical Potential of Leaving War to Lethal Autonomous Weapons.” AI & Society. January 24, 2019. <https://www.researchgate.net/publication/330621132_The_Future_of_War_Could_Lethal_Autonomous_Weapons_Make_Conflict_More_Ethical> BSPK

3. The Argument for LAW Development

3.1 Human flaws and foibles

Yet, we would argue, positions are predicated on an unfounded fear that taking control away from humans will enable robotic weaponry to demolish current, human-involved warfare practices. Extrapolating techno-development trends into the future, it is reasonable to expect future robotic weapons to acquire the capacity to reliably and accurately differentiate between combatants and noncombatants such (Egeland 2016; Sharkey 2012); this could even occur in the near future (see Guizzo 2016). Indeed, Ronald Arkin (2008) anticipates such technologies—in particular, recognition software—to not only be developed but surpass human performance capabilities (see also Egeland 2016; O’Meara 2011). As he writes, “we must protect the innocent non-combatants in the battlespace far better than we currently do. Technology can, must, and should be used toward that end.” Like Nadeau, Arkin believes that moral LAWs would act in an ethically superior way to humans in war, saying that:

The commonplace occurrence of slaughtering civilians in conflict over millennia gives rise to my pessimism in reforming human behaviour yet provides optimism for robots being able to exceed human moral performance in similar circumstances (Arkin 2015)

One must also take into account the consequences of humans personally engaging in warfare. Historical records, including those of concurrent military engagements, recount numerous acts of barbarism as a result of the harsh conditions that combatants are exposed to (Arkin 2015). In fact, Lin et al. (2008) discuss how one of the most attractive prospects of LAWs is their inability to be affected by emotions on the battlefield (Lin, Bekey, and Abney 2008). It is the emotional distress that often causes combatants to mistreat the enemy and commit war crimes. Hence, the introduction of LAWs that are unaffected by such emotional stress serves as an incentive for continued development (Klincewicz 2015).[[1]](#footnote-1)

Secondly, the emotional and physical pressures that human combatants must endure during wartime has performance costs. The fatigue of a long and drawn-out battle affects the ability of individual soldiers to perform optimally, and thus affects the accuracy of their shots (Nibbeling et al. 2014; Burke et al. 2007). LAWs are naturally unaffected by similar physical pitfalls and can always--as long as the physical infrastructure is designed optimally from the start--permit the LAWs to continually perform accurately and as expected.

The ability for LAWs to engage in unwavering, precise combat also resolves some ethical issues that arise from human-waged war. In light of the fact that LAWs don’t possess emotions to guide their behaviours or personal stakes that affect their combat approaches, LAWs will always perform duties accurately under even the most physically--or to a human, emotionally--stressful conditions, thus enabling them to, at least more often than not, kill in a more humane manner. LAWs can be programmed to only engage targets in manners deemed most ethical based on the dynamics of war at the time of combat: the changing environment, the weapons being used by both the aggressor and the defender, and the characteristics of the target (human, robot, or physical structure).

Already, computerized weapons platforms can engage targets far more accurately than any human counterpart can (United States Navy 2017; Geibel 1997; Shachtman 2007; Katz and Lappin 2012). Strong arguments can be levied that LAWs outfitted with such weapons platforms could engage in otherwise normal wartime duties but in a means that is far more accurate and thus ethical[[2]](#footnote-2) as a consequence of LAWs’ technological superiority.

Part of this ethical prowess exhibited by LAWs, is not only because they never tire, but because they are impervious to the psychological shortcomings of humans. Though a contentious topic, several high-profile cognitive psychologists suggest that humans fabricate reasons for their actions after committing them (Nadeau 2006; Davidson 1982). Thus, it is human to be irrational, to make unreasoned decisions toward an action that is then validated after carrying through. Such is not the nature of a robot. As mentioned, LAWs don’t have any particular affinity to or personal interests in surviving battle; they don’t have any drive to exhibit particular harshness against enemies of a certain culture; and they don’t, outside of their goals, worry about winning the war and heading back home after using any unsavory methods to do so. What they do mind is their particular set of rules, their value-laden code that dictates how they are to conduct themselves in an ethical manner during combat.

In sum, the two above arguments (1) the lack of an agreed-upon universal moral framework coupled with (2) the emotional and psychological impacts of war on humans and the consequent tragedies and irrational behaviors that follow, provide a strong case for the development and utilization of an emotionally uncompromisable artificial moral combatant--a moral LAW.

Up until this point, this paper has presented arguments against and for the development of LAWs. The remainder of this paper will argue that 1) only moral LAWs should be used in warfare and 2) all other non-moral LAWs should be prohibited.

#### Autonomous systems are faster and can quickly parse through large amounts of data – they reduce miscalc and prevent surprise attacks

Horowitz et al. 19 [Michael C. Horowitz is Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC.] “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence.” Pg 30. December 2019. <https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf> BSPK

It is also possible, however, that autonomous systems could help countries buy time in ways that make nuclear escalation less likely. The United States and its competitors already deploy expansive sensor networks, stretching from outer space to cyberspace. But the amount of data produced by these sensing arrays threatens to overwhelm human operators today. The emergence of highly-automated data processors could change that, allowing national decision-makers to make far better sense of the cluttered battlespace. In fact, the first use of “AI” technology at the U.S. Department of Defense was for automated information processing to help monitor fullmotion video drone feeds through Project Maven.131 Greater awareness and understanding of an adversary’s actions could reduce the risk of miscalculation. Leaders would be able to replace uncertainty – and a fear of the worst – with near real-time information on an adversary’s forces. Greater visibility could reassure leaders that a surprise attack was not underway, and the knowledge of this visibility would reduce incentives for a surprise attack. More advanced automation and autonomous systems could also help to improve the security, efficiency, and resiliency of military communications and command-and-control systems, which are subject to increased disruption in the cyber, electromagnetic, and physical domains. This greater resilience could reduce the vulnerability of nuclear communications and command-and-control systems to disruption.

#### Retaining human supervision only messes up the autonomous system – it leads to automation bias that solely follows the machine’s instructions

Horowitz et al. 19 [Michael C. Horowitz is Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC.] “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence.” Pgs 9-10. December 2019. <https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf> BSPK

Risk, Reliability, and Safety

There are many models for coping with these risks. One model is to eschew automation entirely, which forgoes its potential benefits. Another model is to retain humans either “in the loop” of automation, requiring positive human input, or “on the loop,” overseeing the system in a supervisory capacity. Human-machine teaming is no panacea for these risks. Even if automated systems have little “autonomy” and humans remain in control, the human users could fall victim to automation bias, leading them to cede judgment to the machine. Appropriately determining when to intervene is not sufficient to ensure safe operation. Human users may lack the ability to effectively intervene and take control if their skills have atrophied due to relying on automation or if they do not sufficiently understand the automation.39 Properly integrating humans and machines into effective and reliable joint cognitive systems that harness the advantages of each requires proper design, testing, training, leadership, and culture, which is not straightforward to achieve.40

Reliability and predictability are significant factors in determining whether automation is a net positive or negative in high-risk applications. Constructing reliable joint cognitive systems may be especially difficult for military organizations. Research suggests that organizations’ ability to accurately assess risks and deploy reliable systems depends as much, if not more, on bureaucratic and organizational factors as on technical ones.41 It is not sufficient for safe and reliable operation to be technically possible. Militaries must also be willing to pay the cost – in time, money, and operational effectiveness – of investing in safety. These are challenges for any highrisk applications of automation, but nuclear operations pose certain unique challenges. The potentially cataclysmic consequences of nuclear war makes it difficult to estimate how safe is safe enough.

### AT: Arms Racing

#### Nuke arms race inevitable from disparity in conventional forces, appealing to domestic anxiety, and other factors

Portzer 20 (Joshua M. M. Portzer, 7-1-2020, "Kanyon’s Reach: Rethinking the Nuclear Triad in the Autonomous Age," U.S. Naval Institute, <https://www.usni.org/magazines/proceedings/2020/july/kanyons-reach-rethinking-nuclear-triad-autonomous-age>) //EG

Regarding signaling to allies such as NATO—that point cuts both ways. How do U.S. allies view its restraint in the face of such radical weapon developments? Inaction could easily breed skepticism of U.S. commitment.32 Second, many developments in Russian nuclear weaponry come as a reaction to U.S. conventional force superiority—not strategic developments.33 Again, the Russians have developed 11 tactical nuclear weapons to the United States’ one. Many advancements happened without U.S. provocation. Therefore, the United States has little to lose in answering Russia’s most recent strategic nuclear weapons.

Third, consider this Cold War–era idea—the essence of a nuclear arms race is no different than in any other “to and fro” in arms development between two countries: politics.34 There are multiple reasons a nation may develop new weapons, whether to appease a political base or in response to anxiety, pressure from domestic defense industries, international posturing, etc.35 This is signaling on the part of the aggressor country. The United States does this when it sends aircraft carriers toward a belligerent country. Nuclear weapons certainly have dire consequences if they are used, but signaling threat through developing them need not be so different than deploying carriers.

#### There is no arms race – low spending levels and normal activity from militaries prove there isn’t a rush to develop fully autonomous weapons

Perry and Scharre 20 [Lucas Perry, Project Coordinator for the Future of Life Institute, Paul Scharre, Senior Fellow and Director of the Technology and National Security Program at the Center for a New American Security.] “[AI Alignment Podcast: On Lethal Autonomous Weapons with Paul Scharre](https://futureoflife.org/2020/03/16/on-lethal-autonomous-weapons-with-paul-scharre/).” The Future of Life Institute. March 16, 2020. <https://futureoflife.org/2020/03/16/on-lethal-autonomous-weapons-with-paul-scharre/?cn-reloaded=1> BSPK

Lucas Perry: Right. And so an adjacent issue that I’d like to explore now is how a potential arms race can have interplay with issues around accidental escalation of conflict. So is there already an arms race brewing for autonomous weapons? If so, why and what could potentially be done to deescalate such a situation?

Paul Scharre: If there’s an arms race, it’s a very strange one because no one is building the weapons. We see militaries advancing in robotics and autonomy, but we don’t really see sort of this rush to build autonomous weapons. I struggle to point to any programs that I’m aware of in militaries around the globe that are clearly oriented to build fully autonomous weapons. I think there are lots of places where much like these incremental advancements of autonomy in cars, you can see more autonomous features in military vehicles and drones and robotic systems and missiles. They’re adding more autonomy. And one might be violently concerned about where that’s going. But it’s just simply not the case that militaries have declared their intention. We’re going to build autonomous weapons, and here they are, and here’s our program to build them. I would struggle to use the term arms race. It could happen, maybe worth a starting line of an arms race. But I don’t think we’re in one today by any means.

It’s worth also asking, when we say arms race, what do we mean and why do we care? This is again, one of these terms, it’s often thrown around. You’ll hear about this, the concept of autonomous weapons or AI, people say we shouldn’t have an arms race. Okay. Why? Why is an arms race a bad thing? Militaries normally invest in new technologies to improve their national defense. That’s a normal activity. So if you say arms race, what do you mean by that? Is it beyond normal activity? And why would that be problematic? In the political science world, the specific definitions vary, but generally, an arms race is viewed as an increase in defense spending overall, or in a particular technology area above normal levels of modernizing militaries. Now, usually, this is problematic for a couple of reasons. One could be that it ends up just in a massive national expenditure, like during the case of the Cold War, nuclear weapons, that doesn’t really yield any military value or increase anyone’s defense or security, it just ends up net flushing a lot of money down the drain. That’s money that could be spent elsewhere for pre K education or healthcare or something else that might be societally beneficial instead of building all of these weapons. So that’s one concern.

Another one might be that we end up in a world that the large number of these weapons or the type of their weapons makes it worse off. Are we really better off in a world where there are 10s of thousands of nuclear weapons on hair-trigger versus a few thousand weapons or a few hundred weapons? Well, if we ever have zero, all things being equal, probably fewer nuclear weapons is better than more of them. So that’s another kind of concern whether in terms of violence and destructiveness of war, if a war breakout or the likelihood of war and the stability of war. This is an A in an area where certainly we’re not in any way from a spending standpoint, in an arms race for autonomous weapons or AI today, when you look at actual expenditures, they’re a small fraction of what militaries are spending on, if you look at, say AI or autonomous features at large.

And again for autonomous weapons, there really aren’t at least openly declared programs to say go build a fully autonomous weapon today. But even if that were the case, why is that bad? Why would a world where militaries are racing to build lots of atomic weapons be a bad thing? I think it would be a bad thing, but I think it’s also worth just answering that question, because it’s not obvious to everyone. This is something that’s often missing in a lot of these debates and dialogues about autonomous weapons, people may not share some of the underlying assumptions. It’s better to bring out these assumptions and explain, I think this would be bad for these reasons, because maybe it’s not intuitive to other people that they don’t share those reasons and articulating them could increase understanding.

#### The international humanitarian laws of war still restrict the development of dangerous and unpredictable autonomous weapons

Perry and Scharre 20 [Lucas Perry, Project Coordinator for the Future of Life Institute, Paul Scharre, Senior Fellow and Director of the Technology and National Security Program at the Center for a New American Security.] “[AI Alignment Podcast: On Lethal Autonomous Weapons with Paul Scharre](https://futureoflife.org/2020/03/16/on-lethal-autonomous-weapons-with-paul-scharre/).” The Future of Life Institute. March 16, 2020. <https://futureoflife.org/2020/03/16/on-lethal-autonomous-weapons-with-paul-scharre/?cn-reloaded=1> BSPK

Lucas Perry: All right. So we’re developing autonomy in systems and there’s concern about how this autonomy will be deployed in context where lethal force or force may be used. So the question then arises and is sort of the question at the heart of lethal autonomous weapons: Where is it that we will draw a line between acceptable and unacceptable uses of artificial intelligence in autonomous weapons or in the military, or in civilian policing? So I’m curious to know how you think about where to draw those lines or that line in particular, and how you would suggest to any possible regulators who might be listening, how to think about and construct lines of acceptable and unacceptable uses of AI.

Paul Scharre: That’s a great question. So I think let’s take a step back first and sort of talk about, what would be the kinds of things that would make uses acceptable or unacceptable. Let’s just talk about the military context just to kind of bound the problem for a second. So in the military context, you have a couple reasons for drawing lines, if you will. One is legal issues, legal concerns. We have a legal framework to think about right and wrong in war. It’s called the laws of war or international humanitarian law. And it lays out a set of parameters for what is acceptable and what… And so that’s one of the places where there has been consensus internationally, among countries that come together at the United Nations through the Convention on Certain Conventional Weapons, the CCW, the process, we’ve had conversations going on about autonomous weapons.

One of the points of consensus among nations is that existing international humanitarian law or the laws of war would apply to autonomous weapons. And that any uses of autonomy in weapons, those weapons have to be used in a manner that complies with the laws of war. Now, that may sound trivial, but it’s a pretty significant point of agreement and it’s one that places some bounds on things that you can or cannot do. So, for example, one of the baseline principles of the laws of war is the principle of distinction. Military forces cannot intentionally target civilians. They can only intentionally target other military forces. And so any use of force these people to comply with this distinction, so right off the bat, that’s a very important and significant one when it comes to autonomous weapons. So if you have to use a weapon that could not be used in a way to comply with this principle of distinction, it would be illegal under the laws war and you wouldn’t be able to build it.

And there are other principles as well, principles about proportionality, and ensuring that any collateral damage that affects civilians or civilian infrastructure is not disproportionate to the military necessity of the target that is being attacked. There are principles about avoiding unnecessary suffering of combatants. Respecting anyone who’s rendered out of combat or the appropriate term is “hors de combat,” who surrendered have been incapacitated and not targeting them. So these are like very significant rules that any weapon system, autonomous weapon or not, has to comply with. And any use of any weapon has to comply with, any use of force. And so that is something that constrains considerably what nations are permitted to do in a lawful fashion. Now do people break the laws of war? Well, sure, that happens. We’re seeing that happen in Syria today, Bashar al-Assad is murdering civilians, there are examples of Rogue actors and non state terrorist groups and others that don’t care about respecting the laws of war. But those are very significant bounds.

### AT: Escalation

#### Nuclear LAWs improve deterrence and second-strike capabilities which reduces escalation

Horowitz et al. 19 [Michael C. Horowitz is Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC.] “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence.” Pgs 20-21. December 2019. <https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf> BSPK

A Boon to Escalation Management?

Uninhabited nuclear launch platforms may be seen to offer some strategic benefits to nuclear-armed states. Nuclear-armed UAVs, for instance, could be kept aloft for far longer than is possible with human pilots, decreasing fear of a disarming first strike. B-2 bomber pilots, for instance, have flown a maximum of 40-hour missions.88 By contrast, refuelable UAVs could stay aloft for several days, limited only by engine lubricants and other reliability factors. Uninhabited aircraft have already conducted 80-hour flights.89 The maximum endurance record for a refuelable aircraft is 64 days. 90

The ability to keep nuclear bombers in the air for longer periods of time might offer policymakers new tools for managing escalation. Long-endurance nuclear-armed UAVs could provide policymakers with additional options for nuclear signaling, since they could be kept on-station longer than would otherwise be possible. Likewise, if they are sufficiently survivable against adversary countermeasures, nuclear-armed UAVs might improve a state’s ability to deliver nuclear weapons in a timely manner since they could be kept aloft closer to potential targets longer than their manned counterparts. For some less powerful nuclear-armed states, UAVs may also be seen as a lower-cost, longer-range alternative to human-inhabited nuclear bombers. Lower-cost systems are unlikely to be as survivable as their more expensive counterparts, however, thus limiting their utility.

#### LAWs decrease probability of escalation – buys time, gives accurate information, and protects command and communication

Boulanin 18 – (Dr Vincent Boulanin is a senior researcher at the Stockholm International Peace Research Institute “AI and Global Governance: AI and Nuclear Weapons – Promise and Perils of AI for Nuclear Stability” United Nations University Centre for Policy Research, December 7, 2018)

It is also possible, however, that autonomous systems could help countries buy time in ways that make nuclear escalation less likely. The United States and its competitors already deploy expansive sensor networks, stretching from outer space to cyberspace. But the amount of data produced by these sensing arrays threatens to overwhelm human operators today. The emergence of highly-automated data processors could change that, allowing national decision-makers to make far better sense of the cluttered battlespace. In fact, the first use of “AI” technology at the U.S. Department of Defense was for automated information processing to help monitor fullmotion video drone feeds through Project Maven.131 Greater awareness and understanding of an adversary’s actions could reduce the risk of miscalculation. Leaders would be able to replace uncertainty – and a fear of the worst – with near real-time information on an adversary’s forces. Greater visibility could reassure leaders that a surprise attack was not underway, and the knowledge of this visibility would reduce incentives for a surprise attack. More advanced automation and autonomous systems could also help to improve the security, efficiency, and resiliency of military communications and command-and-control systems, which are subject to increased disruption in the cyber, electromagnetic, and physical domains. This greater resilience could reduce the vulnerability of nuclear communications and command-and-control systems to disruption.

#### LAWs bolster nuclear deterrence – boosts early warning and replaces ICBMs.

Boulanin 18 – (Dr Vincent Boulanin is a senior researcher at the Stockholm International Peace Research Institute “AI and Global Governance: AI and Nuclear Weapons – Promise and Perils of AI for Nuclear Stability” United Nations University Centre for Policy Research, December 7, 2018 https://cpr.unu.edu/ai-global-governance-ai-and-nuclear-weapons-promise-and-perils-of-ai-for-nuclear-stability.html)

What might change with the current AI renaissance, which is seeing breakthroughs in the areas of machine learning and autonomous systems? Recent advances in AI could be leveraged in all aspects of the nuclear enterprise. Machine learning could boost the detection capabilities of extant early warning systems and improve the possibility for human analysts to do a cross-analysis of intelligence, surveillance, and reconnaissance (ISR) data. Machine learning could be used to enhance the protection of the command and control architecture against cyberattacks and improve the way resources, including human forces, are managed. Machine learning advances could boost the capabilities of non-nuclear means of deterrence: be it conventional (air defence systems), electronic (jamming) or cyber.

Autonomous systems could be used to conduct remote sensing operations in areas that were previously hardly accessible for manned and remotely-controlled systems, such as in the deep sea. Autonomous unmanned systems such as aerial drones or unmanned underwater vehicles could also be seen by nuclear weapon states as an alternative to intercontinental ballistic missiles (ICBMs) as well as manned bomber and submarines for nuclear weapon delivery. These would be recoverable (unlike missiles and torpedoes) and could be deployed in ultra-long loitering periods – days, months or even years. At least one nuclear-armed state is already considering that possibility: In 2015, Russia revealed that it was pursuing the development of a nuclear-armed unmanned submarine, called [Status-6](https://nationalinterest.org/blog/buzz/status-6-why-russias-100-megaton-nuclear-torpedo-truly-terrifying-33661).

#### Autonomous systems can help the military make predictions and give more time for decisions

Boulanin 19 (Dr Vincent Boulanin is a Senior Researcher at SIPRI. He joined SIPRI in 2014, where he works on issues related to the production, use and control of emerging military and security technologies, notably autonomous weapon systems and cyber-security technologies. He received his PhD in Political Science from École des Hautes en Sciences Sociales in Paris in October 2014, “THE IMPACT OF ARTIFICIAL INTELLIGENCE ON STRATEGIC STABILITY AND NUCLEAR RISK”, Sipri, Volume 1: Euro-Atlantic Perspectives, pg. 54-55, May 2019) //EG

Machine learning and autonomy hold major promise for early warning and ISR. The potential of machine learning is this area derives from three abilities.

1.  Making early-warning and ISR systems more capable. Machine learning can be used to give any type of ISR system more perceptual intelligence. One foreseeable development would be a mobile ISR platform (e.g. a surveillance drone) that could process data on-board and identify by itself not only signals or objects but also situations of interest such as unusual movement of troops. A number of ongoing experimental research projects aim to develop these types of capability for conventional weapons. A notable example is the Automated Image Understanding project of the US Office of Naval Research, which is intended to develop techniques to infer intentions and threats from surveillance imagery.3 These capabilities could be repurposed for nuclear-related ISR.

2. Searching and making sense of large sets of intelligence data. Machine learning can be used to find correlations in large and potentially heterogeneous sets of intelligence data. An early illustration is the US military’s Project Maven, also known as the Algorithmic Warfare Cross-Function Team, which aims to use machine learning to automatically analyse video surveillance footage gathered during counterinsurgency operations in Iraq, Afghanistan and elsewhere.4 The next step for the US military is to look for correlations in different types of data set.5 This type of capability is currently mainly pursued for counterterrorism purposes, but it is not hard to imagine that it could also be useful for nuclear-related earlywarning and ISR missions, as it would permit the military commander to have better situational awareness.

3.  Making predictions. Data-processing capability can be used to help the military command to predict developments related to nuclear weapons, including the possible production, commissioning, deployment and use of nuclear forces by adversaries.6 The cross-analysis of intelligence data using machine learning algorithms could help the military to identify more quickly and reliably if a nuclear attack is or could be under way.

In sum, machine learning could give the human military command better situational awareness and potentially more time to make decisions.

The primary value of autonomy and autonomous systems is that they could improve the remote-sensing capabilities of nuclear-armed states—be it for early-warning or nuclear ISR missions. The main advantages of autonomous systems compared to remotely controlled and manned systems are that they can achieve greater reach, persistence and mass: they can be safely deployed in such operational theatres as deep water or areas protected by anti-access/area-denial (A2/AD) systems; they can conduct extended mission over days or, in the case of underwater systems, even months; and they can potentially be deployed in great number as they can be relatively inexpensive.7

#### AI increases the speed and quality of info in nuclear systems, giving humans more time to deescalate situations

Spindel 20 (Jennifer Spindel is an Assistant Professor of Political Science, University of New Hampshire, 8-1-2020, "Artificial intelligence and nuclear weapons: Bringer of hope or harbinger of doom?," No Publication, <https://www.europeanleadershipnetwork.org/commentary/bringer-of-hope-or-harbinger-of-doom-artificial-intelligence-and-nuclear-weapons/>) //EG

Artificial intelligence could be a boon for drudgery type tasks such as data analysis. AI could monitor and interpret [geospatial](http://news.aag.org/2019/03/ai-and-gis-finally-delivering-on-the-promise/) or [sensor](https://www.c4isrnet.com/thought-leadership/2020/02/14/6-ways-ai-can-make-sense-of-sensor-data-in-2020/) data, and flag changes or anomalies for human review. Applied to the nuclear realm, this use of AI could be used to track reactors, inventories, and nuclear materials movement, among other things. Human experts would thus be free to spend more of their time investigating change, rather than looking at data of the status quo.

Incorporating artificial intelligence into early warning systems could create time efficiencies in nuclear crises. Similar to the boon for data analysis, AI could improve the speed and quality of information processing, giving decision-makers more time to react. Time is the commodity in a nuclear crisis, since nuclear-armed missiles can often reach their target in as little as [eight](https://www.nytimes.com/1983/05/29/us/nuclear-missiles-warning-system-and-the-question-of-when-to-fire.html) [minutes](https://warontherocks.com/2019/04/a-different-use-for-artificial-intelligence-in-nuclear-weapons-command-and-control/). Widening the window of decision could be key in deescalating a nuclear crisis.

### AT: Nuke Terror

#### The aff fails – the new technology is already widespread and non-state groups can access and use autonomous weaponry in the squo

Del Re 17 [Amanda Del Re, Major in the US Army, Paper Advisor: Tim Schultz, Associate Dean of Academics for Electives and Research at the US Naval War College, PhD in the History of Technology from Duke University.] “Lethal Autonomous Weapons: Take the Human Out of the Loop.” US Naval War College, pgs 30-33. June 16, 2017. <https://apps.dtic.mil/sti/pdfs/AD1041804.pdf> BSPK

Russia demonstrated that it is able and willing to use fully autonomous weapons. In 2013, Russia introduced its “mobile robot complex” developed by the Izhevsk Radio Plant. The “mobile robot complex” will protect Russia’s ballistic missile installations with a 12.7-millimeter heavy machine gun, speeds of up to 30mph, ten hours’ worth of battery life and a up to a week-long sleep mode.66 These robots are autonomous with the ability to “detect and destroy targets, without human involvement.”67 Russia’s Deputy Prime Minister, Dmitry Rogozin, discussed projects in development that “include a remote controlled android with driving and shooting skills” and a system capable of “delivering strikes on its own.”68 Rogozin also boasted that “someday soon, one Russian soldier will do the work that takes five or 10 soldiers today, which would be impossible without advanced robots.”69 Rogozin described employing both a humanon-the-loop and human-out-of-the-loop scenario which demonstrates that Russia does not have an issue with removing the human from the loop.

Israel has employed a fully autonomous weapon and has sold it to other nations in the Middle East. Israel Aerospace Industries’ (IAI) Harop is an upgraded version of the antiradiation drone, Harpy, with significant differences. The Harop can loiter longer than its predecessor and can find, identify, attack, and destroy targets autonomously. While the Harop is an “autonomous platform operation” Israel keeps a “man-in-the-loop for attack” for “avoiding collateral damage.”70 Just because Israel retains a man-in-the-loop before kinetic use does not mean that other countries will. In June 2015, IAI demonstrated Harop’s capabilities in a serious of tests for “anonymous foreign buyers.”71 In April 2016, the drone was spotted in the skies over Nagorno-Karabakh in the Caucasus and it allegedly targeted and attacked a bus full of Armenian volunteers killing seven of them. The Azerbaijani army claimed that it was responsible for the attack and that it was indeed using the Israeli Harop. 72 There is no available information regarding whether there was a human-in-the-loop during the time of the engagement. This example illustrates that the technology is available and other countries are willing to use it in warfare.

If other nations are already paving the way for the acceptable use of lethal autonomous weapons then rogue nations and non-state actors will likely not hesitate to use them. The probability of a non-state actor acquiring a LAW is not unrealistic. In October 2016, an IED drone employed by ISIS killed two Kurdish soldiers and injured two French Commandos.73 While the IED drone was not suspected of being autonomous, it illustrates that non-state actors have the capacity to acquire new lethal technologies as well as willingness to use them. If available, it is likely that non-state actors will employ lethal autonomous weapons on the battlefield without reluctance. Furthermore, rogue nations could potentially sell (or give) autonomous weapons to a non-state actor to see what the effects of the weapon are on the battlefield and what the international reaction is.

In conclusion, the lethal autonomous weapons arms race is in progress and the United States needs to stay ahead. History has shown that reluctance to employ existing controversial strategies and technologies has resulted in flawed execution and more casualties. On the contrary, waiting to decide to employ controversial strategies during conflict has resulted in some of warfare’s greatest atrocities. The United States needs to continue to develop, test and employ lethal autonomous weapons so that those difficult decisions are not made in a vacuum.

### AT: Spoofing

#### Autonomous nukes help with early warning systems and information transparency which stops spoofing during crises

Horowitz et al. 19 [Michael C. Horowitz is Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC.] “A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence.” Pg 14. December 2019. <https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf> BSPK

Opportunity for Improved Reliability?

These challenges with existing automation of nuclear command and control illustrate the way that automation can become a double-edged sword. Shortening the time and steps needed to launch nuclear weapons can help buy more time for decision-makers to weigh ambiguous information and make an informed judgment before acting. On the other hand, in the event of accidents or misuse, there may be fewer steps and consequently fewer safeguards in place.

A critical question is thus how militaries will employ advances in AI to influence their early warning and NC2 systems. There may be many places where militaries could employ new forms of autonomous systems to bolster the reliability and effectiveness of early warning and NC2. Human-machine teaming could help offset automation bias and thus enable the use of more autonomous systems. More advanced automation in nuclear early warning systems could allow greater situational awareness, reducing the risk of false alarms. It could also play a valuable role in helping human decision-makers process large amounts of information quickly. In this regard, automated data processing may play a critical role in helping human nuclear early warning operators to identify threats – and false cues – in an increasingly data-saturated and complex strategic environment. Increased automation in NC2 could also help to reduce the risk of accidents or unauthorized use. And an expanded role for automation in communications could help ensure that command-and-control signals reach their targets quickly and uncorrupted in highly contested electromagnetic environments.

### AT: Integration

#### The tech won’t be integrated for a long time

Boulanin 18 (Dr Vincent Boulanin is a Senior Researcher at the Stockholm International Peace Research Institute (SIPRI). He joined SIPRI in 2014, where he works on issues related to the production, use and control of emerging military and security technologies, notably autonomous weapon systems and cyber-security technologies, 12/07/18, "The Promise and Perils of Artificial Intelligence for Nuclear Stability," Our World: United Nations University, <https://ourworld.unu.edu/en/the-promise-and-perils-of-artificial-intelligence-for-nuclear-stability>) //EG

Will the adoption of such systems fundamentally transform the field of nuclear strategy? The answer is no, at least not in the near term, for three reasons.

First, these technologies reinforce rather than fundamentally alter the existing application of AI in nuclear force-related systems.

Second, the field of nuclear weapon technology is renowned for its conservativeness; it has been historically slow at integrating new technologies. The US military for instance allegedly still uses [8-inch floppy disks](https://www.cnbc.com/2016/05/25/us-military-uses-8-inch-floppy-disks-to-coordinate-nuclear-force-operations.html) to coordinate nuclear force operations. In that regard, machine learning and autonomous systems have some critical technical limitations that would make a rapid adoption unlikely in the near future.

Machine learning systems operate like black boxes, which makes them potentially unpredictable, while the reliability of advanced autonomous systems is also technically hard to establish. Nuclear-armed states would have to crack difficult testing issues associated with the design of these systems to be confident that they can be used in a predictable and reliable manner and be certified for use.

Third, the technology is not at the stage where it would allow nuclear-armed states to credibly threaten the survivability of each other’s nuclear second-strike capability. Some experts have argued that a large-scale deployment of autonomous unmanned systems for remote sensing could make the [continuous at-sea deterrence obsolete](http://www.basicint.org/publications/david-hambling/2016/inescapable-net-unmanned-systems-anti-submarine-warfare). In light of the current stage and development trajectory of AI technology and other key enabling technologies (such as sensor and power technology), this is bound to remain a very theoretical scenario for the foreseeable future.

### Nuc LAWs Good

#### Nuclear LAWs K2 deterrence

**Lowther & McGiffin 19** (Adam Lowther and Curtis McGiffin, 08/23/2019. Dr. Adam Lowther is Director of Research and Education at the Louisiana Tech Research Institute (LTRI) where he teaches deterrence strategy, NC3 History, and Integrated Tactical Warning and Attack Assessment in several nuclear command, control, and communication courses for the U.S. Air Force. Curtis McGiffin is Associate Dean, School of Strategic Force Studies, at the Air Force Institute of Technology and an adjunct professor for Missouri State University’s Department of Defense and Strategic Studies where he teaches strategic nuclear deterrence theory and NC3 education. “America Needs a Dead Hand.” *Maxwell Air Force Base: Air Force Institute of Technology,* <https://www.maxwell.af.mil/News/Commentaries/Display/Article/1942374/america-needs-a-dead-hand/>) LD 21

America’s nuclear command, control, and communications (NC3) system comprises many component systems that were designed and fielded during the Cold War — a period when nuclear missiles were set to launch from deep within Soviet territory, giving the United States sufficient time to react. That era is over. Today, **Russian and Chinese nuclear modernization is** rapidly **compressing the time** U.S. **leaders will have to detect a** **nuclear launch**, decide on a course of action, **and direct a response**. // Technologies such as hypersonic weapons, stealthy nuclear-armed cruise missiles, and weaponized artificial intelligence mean America’s legacy NC3 system may be too slow for the president to make a considered decision and transmit orders. The **challenges of attack-time compression present a destabilizing risk** to America’s deterrence strategy. Any potential for failure in the detection or assessment of an attack, or any reduction of decision and response time, is inherently dangerous and destabilizing. // If the ultimate purpose of the NC3 system is to ensure America’s senior leadership has the information and time needed to command and control nuclear forces, then the penultimate purpose of a reliable NC3 system is to reinforce the desired deterrent effect. **To maintain the deterrent value of** America’s **strategic forces, the U**nited **S**tates **may need** to develop something that might seem unfathomable — **an automated strategic response system** based on artificial intelligence. // Admittedly, such a suggestion will generate comparisons to Dr. Strangelove’s doomsday machine, War Games’ War Operation Plan Response, and the Terminator’s Skynet, but the prophetic imagery of these science fiction films is quickly becoming reality. A rational look at **the NC3** modernization problem finds that it **is compounded by technical threats** that are likely to impact strategic forces. Time compression has placed America’s senior leadership in a situation where the existing NC3 system may not act rapidly enough. Thus, it may be necessary to develop a system based on artificial intelligence, with predetermined response decisions, that detects, decides, and directs strategic forces with such speed that the attack-time compression challenge does not place the United States in an impossible position. // **Threats Are the Problem //** The compression of detection and decision time is not a new phenomenon. In the 1950s, Soviet bombers would take hours to reach the United States. With the advent of the missile age, that time was compressed to about 30 minutes for a land-based intercontinental ballistic missile and about 15 minutes for a submarine-launched ballistic missile. These technologies fostered the development of both space-based and underwater detection and communication, as well as advanced over-the-horizon radar. Despite this attack-time compression, U.S. officials remained confident that America’s senior leaders could act in sufficient time. The United States believed the Soviets would be deterred by its ability to do so. // However, over the past decade **Russia has vigorously modernized its** nuclear **arsenal, with** a particular **emphasis on** developing **capabilities that are difficult to detect** because of their shapes, their materials, and the flight patterns they will take to U.S. targets. Examples of the systems include the Kaliber-M and  Kh-102 cruise missiles, Poseidon Ocean Multipurpose System Status-6 unmanned underwater vehicle, and the Avangard Objekt 4202 hypersonic weapon, **which** all **have the potential to negate the** United States’ **NC3** system **before it can respond**. This compression of time is at the heart of the problem. The United States has always expected to have enough time to detect, decide, and direct. **Time** to act **can no longer be taken for granted**, nor can it be assumed that the Russians or Chinese, for that matter, will act tactically or strategically in the manner expected by the United States. In fact, **policymakers should expect adversaries to act unpredictably.** Neither the American intelligence community nor Beltway intellectuals predicted the Russian invasion of Crimea, among other recent Russian acts of aggression. The Russians, to their credit, are adept at surprising the United States on a regular basis.

**US vulnerable to nuclear threats now – developing nuclear LAWs solves**

**Lowther & McGiffin 19** (Adam Lowther and Curtis McGiffin, 08/23/2019. Dr. Adam Lowther is Director of Research and Education at the Louisiana Tech Research Institute (LTRI) where he teaches deterrence strategy, NC3 History, and Integrated Tactical Warning and Attack Assessment in several nuclear command, control, and communication courses for the U.S. Air Force. Curtis McGiffin is Associate Dean, School of Strategic Force Studies, at the Air Force Institute of Technology and an adjunct professor for Missouri State University’s Department of Defense and Strategic Studies where he teaches strategic nuclear deterrence theory and NC3 education. “America Needs a Dead Hand.” *Maxwell Air Force Base: Air Force Institute of Technology,* <https://www.maxwell.af.mil/News/Commentaries/Display/Article/1942374/america-needs-a-dead-hand/>) LD 21

There is a fourth option. **The U**nited **S**tates **could develop an NC3 system based on a**rtificial **i**ntelligence. Such an approach could overcome the attack-time compression challenge. // DARPA’s Knowledge-directed Artificial Intelligence Reasoning Over Schemas program is an example of how an American NC3 system based on artificial intelligence might function. Fusing the contextual and temporal events of a nuclear attack into an analytic-based artificial intelligence capability may ensure rapid comprehension and in turn generate associated and prompt actionable responses. The biggest challenge for such a system is its ability to learn and adapt. Unlike the game of Go, which the current world champion is a supercomputer, Alpha Go Zero, that learned through an iterative process, in nuclear conflict there is no iterative learning process. Thus, a fully empowered “general” artificial intelligence system that learns may be far more difficult to design than a “narrow” artificial intelligence system that engages in limited analysis and decision-making. Artificial intelligence is perhaps best poised to assist humans when it comes to the dimensions of detecting a nuclear attack and deciding which planned option best meets the criteria designed by programmers. Here, artificial intelligence may, to a small degree, mitigate the tyranny of attack-time compression and accelerate wartime decision-making. However, when a president may have, at most, six minutes to make a decision, time compression still poses a fundamental problem. // **A**rtificial **i**ntelligence is already being used for target identification, controlling autonomous platforms, pattern recognition, and a number of other wartime tasks. It **is capable of processing vast amounts of information** very **quickly** and assessing the pros and cons of alternative actions in a thoroughly unemotional manner. According to Vincent Boulanin: // "Recent **advances** in artificial intelligence **could be leveraged in all aspects of the nuclear enterprise**. Machine learning could boost the detection capabilities of extant early warning systems and improve the possibility for human analysts to do a cross-analysis of intelligence, surveillance, and reconnaissance (ISR) data. Machine learning could be used to enhance the protection of the command and control architecture against cyberattacks and improve the way resources, including human forces, are managed. Machine learning advances could boost the capabilities of non-nuclear means of deterrence: be it conventional (air defence systems), electronic (jamming) or cyber." // However, artificial intelligence is no panacea. Its failures are numerous. And the fact that there is profound concern by well-respected experts in the field that science fiction may become reality, because artificial intelligence designers cannot control their creation, should not be dismissed. For the United States, every option presents significant risk and uncertainty. Reality, however, is progressing to a point where the United States must address the challenge we outlined above. Russia and China are not constrained by the same moral dilemmas that keep Americans awake at night. Rather, they are focused on creating strategic advantage for their countries. // **Conclusion // Technology is reducing** the **minutes available to** American **senior leadership in a future nuclear attack**. The United States can no longer ignore this situation nor wish it away. Whether America builds an NC3 system based on artificial intelligence, pursues one of the other options presented, or takes another path is not our primary concern. The challenge, as we see it, is that neither the current modernization path nor the approach offered by nuclear minimalists adequately accounts for the effects of shrinking decision time. // While the psychology of deterrence has not changed, we believe that time **compression is changing** the **risk**-reward **calculation of our adversaries. Nuclear deterrence** creates stability and **depends on an adversary’s perception** that **it cannot destroy the U**nited **S**tates **with a surprise attack, prevent a** guaranteed **retaliatory strike, or prevent** the United States from effectively **commanding and controlling** its **nuclear forces**. **That perception begins with an assured ability to detect, decide, and direct a second strike**. **In this area**, the **balance is shifting away from the U**nited **S**tates.

# Nuke LAWs Good

## UQ CP

### 1NC

--The United States federal government should develop and publicly announce a lethal autonomous weapon system that has the ability to launch nuclear weapons autonomously

--All other states should [PLAN]

#### The counterplan creates a US Dead Hand---this bolsters deterrence by signaling resolve, while public notice solves misunderstandings.

Nicholas **Thompson 13**. Contributor, the New Yorker, “How Cold War Game Theory Can Resolve the Shutdown,” *The New Yorker,* October 7, 2013, https://www.newyorker.com/news/news-desk/how-cold-war-game-theory-can-resolve-the-shutdown

In late October, 1969, Richard Nixon and Henry Kissinger ordered a squadron of B-52 Stratofortresses, fully loaded with nuclear weapons, to race toward the Soviet Union’s border. For three days, they zagged along the edge of Soviet airspace, taunting Moscow. [The operation](http://www.wired.com/politics/security/magazine/16-03/ff_nuclearwar?currentPage=all), which remained secret for thirty-five years, was part of a deliberate White House strategy to convince the U.S.S.R. that Nixon and Kissinger were just a little mad. In many negotiations, the prevailing side is the one most willing to take the fatal step. A union gains leverage if it’s really willing to strike; management gains leverage if it might actually shut down the plant. If you’re playing chicken with another driver who you know has had a lot to drink—or who has torn off his steering wheel—you’ll likely swerve first. If the Soviets believed that Nixon and Kissinger were capable of unleashing Armageddon, perhaps they’d be more likely to concede in talks over, say, Berlin.

The power conferred by madness helps us understand the slightly smaller, but still very serious, game theory at work in Washington this week. Would either John Boehner or Barack Obama really let the nation go into default? Surely worldwide economic calamity is a worse outcome for everyone than compromise. But as we approach the deadline, both sides insist they won’t cave. In one sense, Obama has the stronger hand: he’s merely asking that Congress pay America’s bills and its debts. But Boehner has Ted Cruz in the background, reciting “Green Eggs and Ham.” Obama can say he’s willing to let the nation default to protect his goals, but he’s known for a certain sense, one that is both calm and sound, and it’s hard to believe him. Boehner, meanwhile, can point to [the suicide caucus](http://www.newyorker.com/online/blogs/comment/2013/09/meadows-boehner-defund-obamacare-suicide-caucus-geography.html) and truly make the case that he has people on his side who are willing to destroy the country’s credit if they don’t get their way.

The second Cold War lesson comes from the Cuban missile crisis. On Saturday, October 27, 1962, as we took the last steps toward a conflagration, John F. Kennedy proposed a deal to Nikita Khrushchev. If the Soviets withdrew their missiles, America would publicly promise not to invade Cuba—and privately promise to remove Jupiter missiles from Turkey. He didn’t want people to know about that latter concession: having bargained with the Communists would weaken him. Khrushchev agreed. The world survived.

Part of what made the Cuban-missile-crisis deal work is that the two sides could take advantage of an asymmetry. The Soviet leader cared about satisfying his hard-liners; the American cared about popular opinion. That’s how many deals happen: a team with lots of good pitching prospects trades one to a team with two first basemen. (Later, [savvy American negotiators](http://www.nickthompson.com/) tried to trade reductions in a missile-defense system they knew was deeply flawed for heavy reductions in Soviet offensive weapons.)

So what are the Jupiter missiles of the current negotiations? Unfortunately, there don’t seem to be any obvious asymmetries. (Nor is there much of a willingness to keep quiet, to help the other side look good.) But as Ryan Lizza, Evan Osnos, and James Surowiecki discuss in the [Political Scene](http://www.newyorker.com/online/blogs/newsdesk/2013/10/political-scene-assessing-the-government-shutdown.html) podcast this week, finding something to trade must be part of the endgame. What can the Democrats give up that the Republicans want? How can Obama negotiate while still maintaining that he kept his pledge not to? Would he be willing to talk if Boehner agreed to abolish the debt ceiling permanently?

Once this is over, there’s an even more important lesson in game theory to absorb from the Cold War: that of the [semi-doomsday machine](http://www.wired.com/politics/security/magazine/17-10/mf_deadhand?currentPage=all) that the Soviets built. This system, “Dead Hand,” gave Moscow the ability to take vengeance after a preëmptive American nuclear attack. During the buildup to a crisis, the Soviet leadership would turn it on. It would then check to determine, through seismic readings and other data, whether nuclear weapons had struck the country. If the data were bad, Dead Hand would try to communicate with central command. If it couldn’t, it would assume that America had attacked and all the leaders had died. In that case, it would transfer launch authority down several levels, to junior officers in a command bunker, who could then launch missiles in retaliation. The U.S.S.R. would always be able to strike back.

Dead Hand was chilling. What if there were a series of accidents? What if it were hacked? There was also something odd about what should have been the ultimate deterrent against an American strike: the Soviets never told us about it. As Dr. Strangelove hollers, “The whole point of the doomsday machine is lost if you keep it a secret!”

## Speed Turn

### 1NC

#### Emerging threats such as hypersonics crush decision times and render NC3 too slow---this necessitates automated launch. Otherwise, deterrence collapses.

Adam **Lowther** **&** Curtis **McGiffin** **19**. \*Dr. Adam Lowther is Director of Research and Education at the Louisiana Tech Research Institute (LTRI) where he teaches deterrence strategy, NC3 History, and Integrated Tactical Warning and Attack Assessment in several nuclear command, control, and communication courses for the U.S. Air Force. He served in several nuclear strategy and policy positions within the federal government and began his career in the U.S. Navy. \*\*Curtis McGiffin is Associate Dean, School of Strategic Force Studies, at the Air Force Institute of Technology and an adjunct professor for Missouri State University’s Department of Defense and Strategic Studies where he teaches strategic nuclear deterrence theory and NC3 education. He is a retired U.S. Air Force colonel with over 26 years of service, including 17 years serving within the nuclear enterprise. “America Needs a ‘Dead Hand’” War on the Rocks, August 16, 2019, https://warontherocks.com/2019/08/america-needs-a-dead-hand/

America’s nuclear command, control, and communications (NC3) system comprises many component systems that were designed and fielded during the Cold War — a period when nuclear missiles were set to launch from deep within Soviet territory, giving the United States sufficient time to react. That era is over. Today, Russian and Chinese nuclear modernization is rapidly compressing the time U.S. leaders will have to detect a nuclear launch, decide on a course of action, and direct a response.

Technologies such as [hypersonic weapons](https://www.cnbc.com/2018/03/21/hypersonic-weapons-what-they-are-and-why-us-cant-defend-against-them.html), stealthy [nuclear-armed cruise missiles](https://thediplomat.com/2019/01/report-russia-developing-4500-kilometer-kalibr-m-range-land-attack-cruise-missile/), and weaponized [artificial intelligence](https://crsreports.congress.gov/product/pdf/R/R45178) mean America’s legacy [NC3 system](http://docs.wixstatic.com/ugd/a2dd91_ed45cfd71de2457eba3bcce4d0657196.pdf) may be too slow for the president to make a considered decision and transmit orders. The challenges of attack-time compression present a destabilizing risk to America’s deterrence strategy. Any potential for failure in the detection or assessment of an attack, or any reduction of decision and response time, is inherently dangerous and destabilizing.

If the ultimate purpose of the NC3 system is to ensure America’s senior leadership has the information and time needed to command and control nuclear forces, then the penultimate purpose of a reliable NC3 system is to reinforce the desired deterrent effect. To maintain the deterrent value of America’s strategic forces, the United States may need to develop something that might seem unfathomable — an automated strategic response system based on artificial intelligence.

Admittedly, such a suggestion will generate comparisons to *Dr. Strangelove’s* doomsday machine, [*War Games’*](https://www.youtube.com/watch?v=iRsycWRQrc8) War Operation Plan Response, and the *Terminator’s* Skynet, but the prophetic imagery of these science fiction films is quickly becoming reality. A rational look at the NC3 modernization problem finds that it is compounded by technical threats that are likely to impact strategic forces. Time compression has placed America’s senior leadership in a situation where the existing NC3 system may not act rapidly enough. Thus, it may be necessary to develop a system based on artificial intelligence, with predetermined response decisions, that detects, decides, and directs strategic forces with such speed that the attack-time compression challenge does not place the United States in an impossible position.

#### That erodes first-strike stability and causes enemy preemption.

Adam **Lowther** **&** Curtis **McGiffin** **19**. \*Dr. Adam Lowther is Director of Research and Education at the Louisiana Tech Research Institute (LTRI) where he teaches deterrence strategy, NC3 History, and Integrated Tactical Warning and Attack Assessment in several nuclear command, control, and communication courses for the U.S. Air Force. He served in several nuclear strategy and policy positions within the federal government and began his career in the U.S. Navy. \*\*Curtis McGiffin is Associate Dean, School of Strategic Force Studies, at the Air Force Institute of Technology and an adjunct professor for Missouri State University’s Department of Defense and Strategic Studies where he teaches strategic nuclear deterrence theory and NC3 education. He is a retired U.S. Air Force colonel with over 26 years of service, including 17 years serving within the nuclear enterprise. “America Needs a ‘Dead Hand’” War on the Rocks, August 16, 2019, https://warontherocks.com/2019/08/america-needs-a-dead-hand/

While the psychology of deterrence has not changed, we believe that time compression is changing the risk-reward calculation of our adversaries. Nuclear deterrence creates stability and depends on an adversary’s perception that it cannot destroy the United States with a surprise attack, prevent a guaranteed retaliatory strike, or prevent the United States from effectively commanding and controlling its nuclear forces. That perception begins with an assured ability to detect, decide, and direct a second strike. In this area, the balance is shifting away from the United States.

### 2NR – Stability IL/AT: Defense

#### Compressed decision times make Nc3 non-operational, which incentivizes first-strikes AND makes miscalculation likely under the fog of war.

Adam **Lowther** **&** Curtis **McGiffin** **19**. \*Dr. Adam Lowther is Director of Research and Education at the Louisiana Tech Research Institute (LTRI) where he teaches deterrence strategy, NC3 History, and Integrated Tactical Warning and Attack Assessment in several nuclear command, control, and communication courses for the U.S. Air Force. He served in several nuclear strategy and policy positions within the federal government and began his career in the U.S. Navy. \*\*Curtis McGiffin is Associate Dean, School of Strategic Force Studies, at the Air Force Institute of Technology and an adjunct professor for Missouri State University’s Department of Defense and Strategic Studies where he teaches strategic nuclear deterrence theory and NC3 education. He is a retired U.S. Air Force colonel with over 26 years of service, including 17 years serving within the nuclear enterprise. “America Needs a ‘Dead Hand’” War on the Rocks, August 16, 2019, https://warontherocks.com/2019/08/america-needs-a-dead-hand/

Threats Are the Problem

The compression of detection and decision time is not a new phenomenon. In the 1950s, Soviet bombers would take [hours](https://www.northcom.mil/Portals/28/Paper%20No%2031%20A%20History%20of%20the%20Dew%20Line,%201946-1964%20Full%20Release.pdf?ver=2017-03-16-115749-817) to reach the United States. With the advent of the missile age, that time was compressed to about [30 minutes](https://www.stratcom.mil/Media/Speeches/Article/1771903/us-strategic-command-and-us-northern-command-sasc-testimony/) for a land-based intercontinental ballistic missile and about [15 minutes](https://crsreports.congress.gov/product/pdf/IF/IF10521) for a submarine-launched ballistic missile. These technologies fostered the development of both space-based and underwater detection and communication, as well as advanced over-the-horizon radar. Despite this attack-time compression, U.S. officials remained confident that America’s senior leaders could act in sufficient time. The United States believed the Soviets would be deterred by its ability to do so.

However, over the past decade Russia has vigorously modernized its nuclear arsenal, with a particular emphasis on developing capabilities that are difficult to detect because of their shapes, their materials, and the flight patterns they will take to U.S. targets. Examples of the systems include the [Kaliber-M](https://www.businessinsider.com/russias-developing-a-new-long-range-nuclear-cruise-missile-report-2019-1) and  [Kh-102](https://missilethreat.csis.org/missile/kh-101-kh-102/) cruise missiles, [Poseidon Ocean Multipurpose System Status-6](https://thediplomat.com/2016/12/russia-tests-nuclear-capable-underwater-drone/) unmanned underwater vehicle, and the [Avangard Objekt 4202](https://nationalinterest.org/blog/buzz/why-america-should-fear-russias-new-avangard-hypersonic-weapon-we-dont-have-any-defense) hypersonic weapon, which all have the potential to negate the United States’ NC3 system before it can respond. This compression of time is at the heart of the problem. The United States has always expected to have enough time to detect, decide, and direct. Time to act can no longer be taken for granted, nor can it be assumed that the Russians or Chinese, for that matter, will act tactically or strategically in the manner expected by the United States. In fact, policymakers should expect adversaries to act unpredictably. Neither the American intelligence community nor Beltway intellectuals predicted the Russian invasion of Crimea, among other recent Russian acts of aggression. The Russians, to their credit, are adept at surprising the United States on a regular basis.

These new technologies are shrinking America’s senior-leader decision time to such a narrow window that it may soon be impossible to effectively detect, decide, and direct nuclear force in time. In the wake of a nuclear attack, confusion and paralysis by information and misinformation could occur when the NC3 system is in a degraded state. Understanding the new technologies that are reshaping strategic deterrence is instructive.

### 2NR – AT: Automation Not Key

#### Automation is absolutely critical---Nc3 needs to respond in advance AND be able to make its own set of decisions in crisis without human intervention

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An Automated Solution

The use of automation in the NC3 system is not entirely new. In fact, beginning in the 1960s, the United States and the Soviet Union pursued the development of automated systems within the areas of threat detection, logistical planning, message traffic, and weapon-system guidance. Sometime in the late 1980s, the Soviet Union developed and deployed the Perimeter system, which, according to David [Hoffman’s book, *The Dead Hand*](https://www.amazon.com/Dead-Hand-Untold-Dangerous-Legacy/dp/0307387844), became “ultrafast and automated” once Soviet leadership gave the order — launching the remaining Soviet nuclear arsenal. The Perimeter system is believed to [remain in operation](https://www.businessinsider.com/russias-dead-hand-system-may-still-be-active-2014-9) today. In a recent interview, Colonel General Viktor Yesin, who commanded Russia’s Strategic Rocket Forces in the 1990s, [described](https://zvezdaweekly.ru/news/t/2018117102-0iaAI.html) Russia’s Perimeter system as both improved and functioning.

Early on, nuclear-armed states identified the possibilities of not only automation but also artificial intelligence and computer-based intelligent behavior for nuclear deterrence. However, they also saw the limitations of both. [SAGE](https://warontherocks.com/2019/04/a-different-use-for-artificial-intelligence-in-nuclear-weapons-command-and-control/), an early NC3 system fielded and abandoned by the United States, may be called an early effort to incorporate nascent artificial intelligence into what was — six decades ago — one of the most advanced systems in existence. Given the dramatic consequences that a system failure would have, U.S. leadership was reluctant to hand over higher-order assessments and launch decisions to systems based on artificial intelligence. A human had to remain “in the loop.” The Soviet Union was the only country that pursued the development of an automated command and control system for nuclear weapons. However, Perimeter was meant to be activated only in the exceptional case where the Soviet leadership feared its own [inability to command and control Soviet nuclear forces](https://nationalinterest.org/blog/buzz/russias-dead-hand-nuclear-doomsday-weapon-back-38492). From a Western point of view, this was very unlikely, particularly after the United States became aware of Perimeter’s existence and used its nuclear doctrine to signal to the Soviet Union that the Soviet leadership would not be directly targeted.

Today’s [nuclear command, control, and communications system](https://www.acq.osd.mil/ncbdp/nm/nmhb/index.htm) is a collection of activities, infrastructure, and people necessary to ensure the required connectivity and functions to safely and securely employ the nation’s nuclear arsenal. This system of systems, processes, and people must inevitably be capable of detecting launches anywhere in the world and have the ability to launch a nuclear strike against an adversary. The system must work in all hazards, under all stressors, and in a timely manner. In other words, an adversary must believe that the United States will detect a nuclear launch and answer with a devastating response, which should prevent an adversary from ever launching a first strike. This is the essence of American deterrence strategy.

The NC3 system currently works in the following way. In the pre-, [trans-, and post-attack environment](https://www.archives.gov/files/2011-016-doc01.pdf), continuous communications between decision makers and fielded units (NC3 connectivity) is essential for nuclear response deliberation, nuclear retaliation authorization, and nuclear war termination. The system requires a graceful degradation of connectivity in the aftermath of kinetic (blast) and non-kinetic (electromagnetic pulse and cyber) attack upon the architecture. In other words, in a pre-attack environment, the NC3 “thick line” includes the full range of communication systems upon which command and control rely. However, in a trans- or post-attack environment, the NC3 [“thin line”](https://www.gao.gov/assets/670/661752.pdf) will still provide decision makers the ability to communicate, but to a much degraded degree. This expectation of uninterrupted communication from the system is premised on assumptions about the pre- and post-attack environment that may no longer be accurate.

It is easily conceivable that attack-time compression will reorder this process: the president will decide ahead of time what response will take place for a given action and it will then be left to artificial intelligence to detect an attack, decide which response is appropriate (based on previously approved options), and direct an American response. Such a system would differ significantly from the Russian Perimeter system since it would be far more than an automated “dead man” switch — the system itself would determine the response based on its own assessment of the inbound threat.

### 2NR – AT: No Threat to Nc3

#### Hypersonics---they crush Nc3.

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Two types of nuclear-armed hypersonic weapons have emerged: hypersonic glide vehicles and hypersonic cruise missiles. Rich Moore, RAND Corporation senior engineer, [notes](https://www.cnbc.com/2018/03/21/hypersonic-weapons-what-they-are-and-why-us-cant-defend-against-them.html), “Hypersonic cruise missiles are powered all the way to their targets using an advanced propulsion system called a SCRAMJET. These are very, very, fast. You may have six minutes from the time it’s launched until the time it strikes.” Hypersonic cruise missiles can fly at speeds of Mach 5 and at altitudes up to 100,000 feet.

Hypersonic glide vehicles are launched from an intercontinental ballistic missile and then glide through the atmosphere using aerodynamic forces to maintain stability, flying at speeds near Mach 20. Unlike ballistic missiles, glide vehicles can maneuver around defenses and to avoid detection if necessary, disguising their intended target until the last few seconds of flight — a necessary capability as nations seek to develop ever better defenses against hypersonic weapons. Richard Speier, also of RAND Corporation, [states](https://www.cnbc.com/2018/03/21/hypersonic-weapons-what-they-are-and-why-us-cant-defend-against-them.html):

We don’t currently have effective defenses against hypersonic weapons because of the way they fly. They’re maneuverable and fly at an altitude our current defense systems are not designed to operate; our whole defensive system is based on the assumption that you’re going to intercept a ballistic object.

#### Cruise missiles too---insufficient detection time.

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In addition to the hypersonic cruise missile threat, there is the proliferation of offensively postured, nuclear-armed, [low-observable cruise missiles](https://www.rand.org/pubs/monograph_reports/MR187.html). Whereas the hypersonic cruise missile threat is looming because adversary systems are still in the developmental stage, low-observable cruise missiles are here and the Russians understand how to employ these weapons on flight paths that are hard to track, which makes them hard to target. According to the 2019[*Missile Defense Review*](https://media.defense.gov/2019/Jan/17/2002080666/-1/-1/1/2019-MISSILE-DEFENSE-REVIEW.PDF), “Russia and China are developing advanced cruise missiles and hypersonic missile capabilities that can travel at exceptional speeds with unpredictable flight paths that challenge our existing defensive systems.” And finally, Russia has threatened nuclear first use strikes against U.S. allies and partners. Land-attack cruise missiles can be launched from any platform, including aircraft, ships, submarines, or ground-based launchers.

Land-attack cruise missiles are a challenge for today’s detection and air defense systems. Cruise missiles can fly at low altitudes, use terrain features, and fly circuitous routes to a target, avoiding radar detection, interception, or target identification. Improved defensive capabilities and flight paths have made low-observable or land-attack cruise missiles (LACMs) even less visible. They can also be launched in a salvo to approach a target simultaneously from different directions.

According to the [National Air and Space Intelligence Center](https://www.nasic.af.mil/Portals/19/images/Fact%20Sheet%20Images/2017%20Ballistic%20and%20Cruise%20Missile%20Threat_Final_small.pdf?ver=2017-07-21-083234-343):

The Club-K cruise missile “container launcher” weapon system, produced and marketed by a Russian firm, looks like a standard shipping container. The company claims the system can launch cruise missiles from cargo ships, trains, or commercial trucks. Beginning in fall 2015, Russia fired LACMs from surface ships, submarines, and aircraft in support of ongoing military operations in Syria.

The analysis went on to add, “The cruise missile threat to US forces is increasing. The majority of LACMs are subsonic, but supersonic and hypersonic missile will be deployed in the future. LACMs also have increased survivability by minimizing radar signature and/or the use of chaff and decoys.” The newest generation of these missiles poses a real threat, specifically to the U.S. NC3 system, and they may be used as precursor attack weapons to disable or destroy critical nodes within that system.

## Crisis Bargaining Turn

### 1NC

#### Crisis bargaining in the nuclear age is brinksmanship. States win nuclear crises and secure geopolitical spoils by running risks and escalating late into crises.

Matthew **Kroenig 18**. Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress. 2018

They cannot, however, credibly threaten a nuclear exchange that would result in their own destruction. How then can states credibly threaten nuclear-armed adversaries? And what determines the outcomes of conflict in the nuclear era? Much of nuclear deterrence theory is a response to these questions.

Thomas Schelling proposed nuclear brinkmanship as an answer.20 According to Schelling, states cannot credibly threaten a nuclear attack, but they can make “a threat that leaves something to chance.”21 If nuclear war is not entirely in the collective control of the participants, but could result from accident or inadvertent escalation, then states can threaten to take steps that increase the risk of nuclear war. States can credibly threaten to engage in a process—the nuclear crisis—that could spiral out of control and result in catastrophe.22 As long as the benefit of winning the contested issue is potentially greater than each incremental increase in the risk of nuclear war, then threats to escalate nuclear crises are inherently credible.

In the nuclear era, therefore, states coerce adversaries by manipulating risk; political conflicts of interest become games of nuclear brinkmanship. States can escalate crisis situations, raising the risk of nuclear war in an effort to force a less-resolved opponent to submit. As the crisis progresses, the less resolved state will prefer to back down rather than risk nuclear exchange. The more resolved state, the state that is willing to run the greatest risk of nuclear war, prevails. In short, the nuclear revolution can be understood as a transformation of international politics from a competition in military capabilities to a “competition in risk taking.”23

Brinkmanship theorists do not claim, however, that states eagerly bid up the risk of nuclear war.24 Rather, they assume that leaders badly want to avoid nuclear war and face gut-wrenching decisions at each stage of a crisis. They can quit the crisis to ensure that they avoid nuclear war, but only at the cost of conceding an important geopolitical issue to their opponents.

Or, they can remain in the game a bit longer in an attempt to win, but only by increasing the risk that the crisis ends in a nuclear catastrophe.

#### Automation is key to effective crisis bargaining---it “tosses the steering wheel out” in the nuclear game of chicken.

Michael **Horowitz 19 summarizes**. Professor of Political Science, University of Pennsylvania, “When speed kills: Lethal autonomous weapon systems, deterrence, and stability,” *Journal of Strategic Studies,* 2019, https://www.tandfonline.com/doi/abs/10.1080/01402390.2019.1621174

\*\*\*Michael Horowitz does not endorse this argument. He is summarizing an argument he later refutes in the subsequent paragraphs.

This story provides an opportunity to think about how one particular application of artificial intelligence (AI) to militaries, lethal autonomous weapon systems (LAWS), could influence strategic stability and decisionmaking. Imagine the Cuban Missile Crisis with machine-autonomous US naval ships, able to operate independently after activation. The Kennedy Administration could have ordered the ships into the exact blockade configuration it wanted, and then given them orders to fire on any Soviet naval vessels that attempted to run the blockade. Deterrence theory might suggest that this would be effective. Deploying autonomous naval vessels programmed to fire on Soviet naval vessels that attempted to run the blockade would be similar to throwing out the steering wheel in a game of chicken. If the Soviet Union knew that the naval vessels were pre-programmed and could not be controlled any longer by the Kennedy Administration, it would be an extremely credible commitment, which perhaps could have persuaded the Soviet Union to back off earlier.

#### Nuclear superiority determines who wins nuclear crises---states with the nuclear advantage can signal effectively and escalate deeper into the crisis.

Matthew **Kroenig 18**. Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress. 2018

Conclusion

This chapter examined the outcomes of nuclear crises. I found that in order to explain the patterns of victory in crises involving nuclear-armed states, one must look to the nuclear balance between states. States that enjoy nuclear superiority over their opponents are over ten times more likely to prevail in nuclear crises. This finding holds, even after controlling for the conventional military balance of power and for selection into nuclear crises. The results were also robust to the exclusion of each individual crisis and each individual nuclear weapon state.

These findings provide strong support for the superiority-brinkmanship synthesis theory. According to the theory, crises are competitions in risk taking, but nuclear superior states are willing to run greater risks than their nuclear inferior opponents. Nuclear superiority increases the length of time that a state can remain in a nuclear crisis before the costs of escalation outweigh the costs of submission. A nuclear advantage thus allows states to push harder in a crisis, making them more likely to ultimately prevail. In contrast to previous debates that pitted the balance of resolve against nuclear superiority, I demonstrate that the two factors come together to form a coherent strategic logic. Nuclear superiority aids states in games of nuclear brinkmanship by increasing their levels of effective resolve.

#### That’s key to deterring Russian and Chinese aggression. US nuclear strategy solves deterrence, proliferation, damage limitation, and great-power conflict.

Matthew **Kroenig 18**. Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress. 2018

“This book explained the logic of American nuclear strategy and provided a novel, theoretical explanation for why military nuclear advantages matter. It did so by presenting a new theory of nuclear competition: the superiority-brinkmanship synthesis theory. From the nuclear strategy literature, the theory builds on the idea that a robust nuclear posture can limit damage to a state in the event of a nuclear exchange. From the nuclear deterrence literature, it borrows the idea that competitions among nuclear-armed states are games of nuclear brinkmanship. Combining these logics, the theory maintains that nuclear superior states are, on average, willing to run greater risks in these competitions in risk taking. Since they are less vulnerable to the costs of nuclear war, they are able to push harder in a crisis. For this reason, nuclear superior states are more likely to achieve their goals in international crises and less likely to be targeted with military challenges in the first place.

This logic applies universally to competitions among nuclear powers, but it is most applicable to understanding American nuclear strategy. Indeed, one of the puzzles raised by the central argument of the book is why all countries do not mimic the United States and seek a more robust nuclear force. To be sure, other countries, including Russia and Pakistan, have demonstrated interest in warfighting postures and military nuclear advantages. In the future, perhaps other states, including China, will seek a much larger nuclear arsenal. But, there are at least two reasons why the United States has been especially attuned to the benefits of strategic superiority. First, as the world’s largest and most innovative economy throughout the nuclear era, the United States has been better able than other states to afford military nuclear advantages, even over other great power rivals. As we saw in chapter 7, other nuclear powers, including Russia, have had a hard time over the years maintaining strategic parity with the United States. Second, and just as important, Washington places greater demands on its strategic forces than any other nation, and so it requires a much more capable force to fill these roles and missions. It does not merely seek to deter nuclear attack on itself, but it has provided political commitments to extend a nuclear umbrella over much of the free world. When extending deterrence to dozens of geographically distant states, the balance of resolve often favors local adversaries, so the United States has sought to counteract this stakes shortfall with a force overmatch.

The first part of the book provided systematic empirical evidence in support of the superiority brinkmanship synthesis theory. In chapter 2, a series of nuclear exchange calculations demonstrated that the nuclear balance of power matters for nuclear war outcomes. Alterations in the nuclear balance of power between the United States and its nuclear-armed adversaries (Russia, China, and North Korea) can mean the difference between whether hundreds of US cities and millions of American lives are saved or lost. This finding served a dual purpose. First, it provided the first empirical test of the theory against competing hypotheses. Limiting damage if deterrence fails is a goal of US nuclear strategy, and this chapter demonstrated that military nuclear advantages contribute to that important objective. Second, this chapter substantiated a key premise of the superiority-brinkmanship synthesis theory: the nuclear balance of power greatly shapes a state’s vulnerability to nuclear war.

Chapter 3 tested the superiority-brinkmanship synthesis theory in the domain of nuclear crises. The chapter provided a quantitative test of the relationship between the nuclear balance of power and nuclear crisis outcomes. Performing statistical analysis on a data set of nuclear crises from 1945 to 2001, the chapter showed that nuclear superior states are ten times more likely than their inferior competitors to achieve their goals in high-stakes crises.

Chapter 4 stuck with the theme of nuclear crises outcomes and performed in-depth case analyses to provide further support for the superiority-brinkmanship synthesis theory. Qualitative investigations into the Cuban Missile Crisis, the Sino-Soviet Border War, the 1973 Arab-Israeli War, and the Kargil Crisis provided evidence that policymakers pay attention to the nuclear balance of power and believe that it affects their strategic position; nuclear inferior states are less willing to escalate dangerous crises; and nuclear superior states more often achieve their basic crisis objectives. The chapter thus revealed the causal processes predicted by the theory in operation in the most important crises of the nuclear era.

In chapter 5, the book turned to deterrence and compellence and found additional empirical backing of the superiority-brinkmanship synthesis theory. Conducting quantitative analysis on all militarized compellent threats (MCTs) from 1945 to 2001, the chapter demonstrated that nuclear superior states are less likely to be targeted in MCTs. Indeed, according to the MCT data set, the chapter showed that nuclear superiority is undefeated in compellent threat episodes. Since 1945, nuclear-armed states have issued forty-nine threats and, remarkably, all forty-nine of these were against states with fewer nuclear weapons. This chapter showed, therefore, that nuclear superiority deters military threats. It also demonstrated, contrary to the claims of others, that nuclear superiority greatly matters for compellence.

AT: Deterrence High

#### The US can no longer achieve deterrence by mere quantitative edge---shifts in policy are key to shore up deterrence.

Andrew F. **Krepinevich 20**. PhD and Adjunct Senior Fellow at CNAS, “The Decline of Deterrence,” *Center for a New American Security,* September 14, 2020, https://www.cnas.org/publications/commentary/the-decline-of-deterrence

The Bottom Line

Deterrence is not as stable as believed, and is becoming less so.

Deterrence strategies are under assault on a number of fronts—geopolitical, military-technical, and geostrategic—and are even being challenged by advances in the cognitive and social sciences.

Time is not on our side. The new administration must move quickly to stem the erosion of deterrence strategies and restore their efficacy.

Introduction

Following the enormous human and material losses in two world wars, which ended with the use of nuclear weapons, it became clear that the next general war would produce no winners, only survivors. Thus deterrence became the foundation of U.S. defense strategy for avoiding general wars, both nuclear and conventional. Deterrence involves efforts to prevent a rival, or “target,” from pursuing a proscribed action. This is done by influencing the target’s calculation of the costs, benefits, and risks associated with engaging in the proscribed action. Deterrence works by convincing the target that it has an unacceptably low probability of achieving its goals (deterrence through denial), or that the costs incurred through pursuing the proscribed action will exceed any benefits derived (deterrence through punishment).

Although deterrence held during the Cold War, on several occasions the United States and Soviet Russia came perilously close to nuclear Armageddon. Russia’s military decline following communism’s collapse found America enjoying a period of military dominance that appeared to guarantee none of its rivals would risk a general war. With the return of intense geopolitical competition between the United States and the revisionist great powers, China and Russia, this happy state of affairs no longer obtains, if it ever did.

During the past decade, as the era of U.S. military dominance has faded, both the Obama and Trump administrations have addressed deterrence—a centerpiece of both national defense strategies—in only the most general terms. The unstated assumption has been that what worked during the Cold War and the two decades of U.S. military primacy that followed will ensure deterrence remains robust in the future. Yet the conditions under which military dissuasion must function are changing—and in nearly every case they are eroding its efficacy.

The conditions under which military dissuasion must function are changing—and in nearly every case they are eroding its efficacy.

With this in mind, the drafters of the next National Defense Strategy should undertake a fundamental assessment of how deterrence strategies must be adapted in order to succeed under new and very different geopolitical and military-technical circumstances that include growing military competition in relatively new warfare domains and advances in the cognitive sciences.

Geopolitical Transition

Today the United States confronts two revisionist great powers in China and Russia. Unlike the Cold War bipolar international system or the U.S.-dominated unipolar world that succeeded it, today’s world is increasingly multipolar, both politically and militarily. If nothing else, this increase in the number of rivals the United States seeks to deter provides more opportunities for deterrence to fail.

The shift toward a multipolar world is particularly pronounced with regard to nuclear weapons. Following the Cold War, America and Russia dramatically reduced their nuclear arsenals, lowering the “entry barrier” to states aspiring to become major players in the “Nuclear Club.” Thus far none have reached that status, but China, as well as new members India, North Korea, and Pakistan are all expanding and improving their arsenals.[1](https://www.cnas.org/publications/commentary/the-decline-of-deterrence#fn1) This portends problems for deterrence. For example, both the United States and Russia have long considered parity—a rough equivalence in nuclear capability—an essential feature in their arms control agreements to enhance deterrence by ensuring both sides could maintain the ability to inflict massive “assured destruction” after suffering a surprise first strike. Parity was possible in what was effectively a bipolar nuclear competition during the Cold War. It is not possible, however, for every power in a multipolar nuclear competition to enjoy parity with its rivals.

The shift toward a multipolar world is particularly pronounced with regard to nuclear weapons.

The increasingly dynamic geopolitical environment further complicates matters. The disposition of nuclear powers such as Pakistan, which risks falling into China’s orbit, is unclear. North Korea is seeking to create a nuclear arsenal whose size would have given Truman and Eisenhower pause. The potential for rapid shifts in geopolitical alignments, and the nuclear balance, could pose significant challenges for U.S. deterrence strategy.

## Shift Turn

### 1NC

#### In the face of eroding first-strike stability, the US will either pursue a Dead Hand or modernize.

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Options for Escaping the Dilemma

There are three primary options we see for escaping the dilemma presented. First, the United States can refocus its nuclear modernization effort to field a much more robust second-strike capability that allows the United States to absorb an unexpected first strike before deciding on a response. This option would pose a myriad of ethical and political challenges, including accepting the deaths of many Americans in the first strike, the possible decapitation of U.S. leadership, and the likely degradation of the United States’ nuclear arsenal and NC3 capability. However, a second-strike-focused nuclear deterrent could also deter an adversary from thinking that the threats discussed above provide an advantage sufficient to make a first strike worth the risk.

Refocusing the American nuclear modernization effort on improving the second-strike capability would require a rather radical change in the current modernization plan, which is already expected to cost [$494 billion](https://www.cbo.gov/system/files?file=2019-01/54914-NuclearForces.pdf) over the next decade. For example, rather than replacing the Minuteman III intercontinental ballistic missile with the [Ground Based Strategic Deterrent](http://www.northropgrumman.com/MediaResources/MediaKits/GBSD/default.aspx) in existing launch facilities (missile silos), the delivery vehicles would, for example, need to be road- and rail-mobile to make a successful first strike against the United States much more difficult. The Russians have already taken this step with their modernization program, which includes replacing aging [rail- and road-mobile systems](https://www.nextbigfuture.com/2014/12/russia-nuclear-modernization-with-icbms.html) and [missile silos](https://fas.org/blogs/security/2018/09/kozelsk-icbm-upgrade/), as well as a submarine [capability](https://www.cnbc.com/2018/09/21/russia-sub-fleet-capable-of-launching-hypersonics-will-be-ready-by-2024.html). In short, American modernization would necessarily shift to a focus on survivability and durability, with an expectation that the United States would absorb and respond to a nuclear first strike it did not see coming. There are, of course, other options available for achieving the required effect, all of which require a significant departure from the existing modernization and deployment plan.

Second, nuclear modernization could focus on improvements to pre-launch strategic warning, such as improved surveillance and reconnaissance, as part of a larger preemption strategy. This approach would also require instituting a damage prevention or limitation first-strike policy that allowed the president to launch a nuclear attack based on strategic warning. Such an approach would be controversial, but could deter an adversary from approaching the United States’ perceived red lines.

Refocusing on strategic warning, specifically all-source intelligence that provides indication that an adversary is preparing to attack the United States, would necessarily be accompanied by a policy of preemptive attack by the United States. In essence, once intelligence revealed that the United States was facing an imminent attack, “kill or be killed” would become the new motto of nuclear forces. Absent sufficient time to detect the launch of an adversary’s weapons, decide on a response, and then direct a retaliatory response, preemption may be the only viable policy for saving American lives. This approach to the use of nuclear weapons is antithetical to American values, but if the alternative is the destruction of American society, preemption may be the more acceptable option.

Third, nuclear modernization could focus on compressing the time available to an adversary to detect, decide, and direct. This would be done in an effort to force an adversary to back away from destabilizing actions and come to the negotiating table. Such a strategy is premised on the idea that mutual vulnerability makes the developing strategic environment untenable for both sides and leads to arms control agreements that are specifically designed to force adversaries to back away from fielding first-strike capabilities. The challenge with this approach is that if a single nuclear power (China, for example) refuses to participate, arms control becomes untenable and a race for first-strike dominance ensues.

The United States could impose attack-time compression on an adversary by fielding systems similar to the [ground-launched cruise missiles](https://www.usafpolice.org/glcm-program.html) or intermediate-range ballistic missiles near the adversary’s borders or coastlines. The fear of a surprise attack has the potential to be destabilizing, but can also achieve the desired effect. Thus, fielding the [long-range stand-off nuclear cruise missile](https://nationalinterest.org/feature/nuclear-air-launched-cruise-missiles-they-still-matter-14182) and placing it aboard ships and submarines, in addition to bombers, would also serve as a means of compressing time. This may not have been the purpose of these weapons during the Cold War, but this is no longer an era bound by Cold War rules, norms, or thinking. The strategy behind this focus would be to hold an adversary at similar risk to that facing the United States, driving an adversary to take less risk and potentially seek arms control agreements. In essence, this is how and why the 1987 Intermediate-Range Nuclear Forces treaty was formed.

Admittedly, each of the three options — robust second strike, preemption, and equivalent danger — has drawbacks. Given that U.S. adversaries are unlikely to end their modernization programs and redeploy inferior weapons, the difficult choices facing the United States are unlikely to improve. Rather, they will almost certainly get worse. For China and especially Russia, nuclear weapons are becoming increasingly important.

There is a fourth option. The United States could develop an NC3 system based on artificial intelligence. Such an approach could overcome the attack-time compression challenge.

#### The GBSD and LRSO are not locked in---Hicks will determine it based on the strategic context. That determines future ICBM build-ups.

Matthew **Kroenig 21**. Matthew Kroenig is deputy director of the Scowcroft Center for Strategy and Security at the Atlantic Council. He has worked on nuclear weapons issues for the Defense Department and is the author of “The Logic of American Nuclear Strategy.” “Pentagon Deputy Hicks should say ‘yes’ to nuclear modernization, ‘no’ to a ‘no first use’ policy,” DefenseNews, February 19, 2021, https://www.defensenews.com/opinion/commentary/2021/02/19/pentagon-deputy-hicks-should-say-yes-to-nuclear-modernization-no-to-a-no-first-use-policy/

On Feb. 9, the Senate confirmed Kathleen Hicks as the [deputy secretary of defense](https://www.c4isrnet.com/battlefield-tech/it-networks/2021/02/02/pentagon-no-2-pick-wants-metrics-to-judge-ai-progress/) after her testimony before the Senate Armed Services Committee on Feb. 2. Hicks may be the Pentagon’s most influential player on nuclear weapons issues during the Biden administration, and her confirmation hearings shed new light on the administration’s policies in this area.

She offered a stronger endorsement of nuclear modernization than her boss, Secretary of Defense Lloyd Austin. Her testimony raised new questions, however, about the Biden administration’s nuclear posture, including on a possible “no first use,” or NFU, doctrine. The Senate should seek answers to these important questions in future confirmation hearings with Biden national security officials.

Hicks’ views on nuclear modernization may be even more important than Austin’s. As a former board director for Raytheon, Austin is required by law to [recuse himself](https://insidedefense.com/insider/austin-extends-raytheon-recusal-four-years) from Raytheon-related matters for one year. Under questioning from Sen. Elizabeth Warren, however, Austin committed to recusing himself for the duration of his tenure as secretary of defense.

Furthermore, in response to written questions from SASC, Hicks confirmed that “[Austin] expressly indicated his intent to avoid both conflicts of interest and the appearance of any such conflict. This broadly scoped recusal will almost certainly prohibit Secretary Austin’s participation in programmatic discussions on such matters as the Ground Based Strategic Deterrent, Long Range Stand Off weapon, and other timely missile defense issues.”

As a result, Hicks will likely be the Pentagon’s primary decision-maker at the Pentagon on matters related to nuclear modernization.

During his confirmation hearing, Secretary Austin endorsed the nuclear triad of bombers, submarines and intercontinental ballistic missiles, but he was less committal on nuclear modernization. The current systems of the U.S. nuclear triad were built at the end of the Cold War and need to be updated. The Obama administration put in place a plan to modernize the triad, and those plans were continued by President Donald Trump. But Austin claimed that before continuing these modernization plans, he would first need to “get under the hood” and consult with U.S. Strategic Command.

Hicks, in contrast, was less ambiguous. When asked by Sen. Deb Fischer whether she supported modernizing the triad, Hicks said, “Yes,” adding that “the triad has been the bedrock of our deterrent.”

Hicks told Sen. Tom Cotton that nuclear modernization decisions should be driven “by strategy,” not cost, and emphasized her commitment “to a modernized, qualitatively effective deterrent.”

While Hicks’ support for nuclear modernization is encouraging for supporters of the U.S. nuclear deterrence mission, she did leave herself flexibility on the particulars of modernization. She noted that it was “difficult to assess exactly the timeline, margin and technical feasibility” of modernization.

This hesitation is concerning because delaying modernization would mean relying for longer on aging nuclear systems that have extended past their intended service lives.

#### GBSD cancellation solves arms racing.

Bruce **Blair 18**. Founder of Global Zero, Nuclear security expert, September 2018, “The End of Nuclear Warfighting: Moving to a Deterrence-Only Posture,” https://www.globalzero.org/wp-content/uploads/2018/09/ANPR-Final.pdf

The sponge argument also misses the key point that a vast warhead drawdown can be accomplished peacefully through arms control negotiations. It makes no sense to rationalize massive numbers of groundbursts on U.S. territory that spread lethal radioactive fallout across much of the country if the alternative is to cancel out each side’s warheads in an arms control deal. Even the unilateral elimination of the Minuteman/GBSD force could produce this effect. As a matter of targeting logic, the Russian **targeting rationale** for deploying more than 1,000 silo-busting warheads would **evaporate**. Scrapping 495 U.S. hard targets (450 silos plus 45 launch centers) would **pull the rug out from under Russian targeteers’main justification for deploying new land-based rockets** including the new Sarmat silo-based heavy rocket to be deployed with a suite of 10 to 15 maneuverable, “boost-glide” reentry vehicles in its nose cone. If the U.S. targets of this destabilizing first-strike missile and other Russian rockets armed with multiple warheads disappeared, Russia would have **excess weapons** and good reason to curb its heavy-missile production and deployment.

This curtailment would in turn shorten the U.S. list of Russian targets assigned to Minuteman/GBSD missiles. **A positive feedback loop could take hold.** Crises would become more stable if the **opposing “use or lose” forces shrank on both sides.**

**US-Russian arms racing causes nuclear war**

Jon **Wolfsthal 18**. Director of the Nuclear Crisis Group and Senior Advisor to Global Zero, former senior director for arms control and nonproliferation at the National Security Council, 1/17/18, “America and Russia May Find Themselves in a Nuclear Arms Race Once Again,” https://nationalinterest.org/feature/america-russia-may-find-themselves-nuclear-arms-race-once-24100?page=0%2C1

Threats to the survival of the INF Treaty **are only the tip of the iceberg**, however. Russia is now in the process of rebuilding much of the Soviet Union’s strategic nuclear arsenal, including mobile, intercontinental-range ballistic missiles and a new fleet of missile-armed submarines. The **U**nited **S**tates is in an early stage of a trillion-dollar plus modernization program of its own, including new submarine and land-based missiles and a new stealth bomber armed with a new stealthy, long-range cruise missile. The NPR endorses the Obama program of modernization, and even hints that this program may be increased even beyond the call for new submarine launched warheads and SLCMs.

This ongoing arms competition is fueling a new **dangerous dynamic** that could threaten the security of Russia and the United States in two important ways.

The first threat is that Russia and America may soon be **locked into** what analysts call **a cycle of “arms race instability.”** As each side deploys new systems, they both perceive the worst in the military capabilities and intentions of the other and each seeks, through additional deployments, to restore the overall balance. **The result is an action-reaction cycle** of new nuclear deployments. Exhibit A is that Russia’s pursuit of an illegal new ground-launched cruise missile is now driving the United States to consider a new SLCM in response. It was a similar dynamic from the 1960s through the 1980s that led the two sides to deploy tens of thousands of nuclear weapons, leaving them both vulnerable to the ever-present threats of nuclear use by accident or through miscalculation.

#### The LRSO incentivizes “limited nuclear wars,” which cause miscalc and escalate.

Kingston **Reif 16**. Director for disarmament and threat reduction policy, the Arms Control Association, “Examining the Flawed Rationale for a New Nuclear Air-Launched Cruise Missile,” *Arms Control Association,* June 12, 2016, https://www.armscontrol.org/Issue-Briefs/2016-06-12/Examining-the-Flawed-Rationale-for-a-New-Nuclear-Air-Launched-Cruise-Missile

Proponents argue that new air-launched cruise missiles would provide low-yield nuclear war-fighting options for responses to limited adversary attack, which is important for escalation control and maintaining a credible deterrent.

In reality, U.S. nuclear capabilities would remain highly credible and flexible even without a nuclear ALCM. The arsenal includes other weapons that can produce more “limited” effects, most notably the B61 gravity bomb. Moreover, intercontinental ballistic missile (ICBM) or submarine-launched ballistic missile (SLBM) warheads could be configured to produce limited effects at a lower cost than the LRSO and its warhead, if necessary.

Regardless, has the U.S. intelligence community produced an assessment showing that failing to replace the current ALCM would increase the risk of limited adversarial nuclear use? Under what scenario has the intelligence community concluded that an adversary might believe the United States would be self-deterred from using a higher-yield ICBM or SLBM in response to limited nuclear use?

More importantly, the notion that the use of nuclear weapons can be fine-tuned to carefully control a nuclear war is very dangerous thinking. It is highly unlikely that an adversary on the receiving end of a U.S. nuclear strike would (or could) distinguish between a large warhead and a small warhead. The fog of war is thick. The fog of nuclear war would be even thicker. Large or small, nuclear weapons are extremely blunt instruments, both in terms of their destructive power and the taboo associated with the fact they have not been used in 70 years.

### 2NR Links (Cut)

#### Game theory proves

Matthew **Kroenig 18**. Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress. 2018

“This section presents the superiority-brinkmanship synthesis theory.35 It begins by considering a standard game theoretic model of nuclear brinkmanship, in which the balance of stakes underlying a crisis determines its outcome.36 It then modifies the model to include nuclear superiority. By incorporating the nuclear balance into the model, it demonstrates that a nuclear advantage increases a state’s level of resolve, improving its prospects for victory in nuclear crises.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Imagine two states, State A and State B, edging toward a nuclear crisis. The game begins with State A deciding whether to escalate the crisis or back down. If State A submits, then the game is over; State A loses and State B wins. If, on the other hand, State A escalates, then play shifts to State B. State B now faces the same two options: escalate or ”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“submit. If State B concedes, then State B loses and State A wins. If State B escalates, then the game continues.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“States cannot escalate a dangerous nuclear crisis, however, without generating at least some risk of nuclear war. It is always possible that things will spin out of control, even if this is not the preferred outcome of either of the participants. At this stage in the game, therefore, an exogenous force (let us call it nature) imposes accidental nuclear war with some nonzero probability. If there is a nuclear war, then both states suffer the cost of nuclear disaster.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“If there is no nuclear war, then the game continues. Play shifts back to State A, which must again decide whether to submit or escalate. If State A escalates in this round it can do so only by generating an even greater risk of nuclear catastrophe. Since we are deeper into the crisis, the risk of nuclear exchange has also increased. If there is no disaster, then play shifts back to State B, who must now create an even greater risk of nuclear war if it wishes to escalate. Play continues in this way until one state submits or until there is a nuclear war.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“For each state, the game can end in one of three ways: the state can win, lose, or suffer a disaster. It is reasonably assumed that winning is preferable to losing, losing is preferable to nuclear disaster, and the status quo is preferable to either losing or disaster.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Since these are assumed to be rational states, they will continue to escalate the crisis as long as their expected payoff to doing so exceeds the expected payoff to submitting. The states’ expected payoff to submitting is equal to the cost of losing the crisis. Since the state is choosing to back down immediately there is no uncertainty about the outcome.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“The states’ expected payoff to escalating is less certain because it includes some chance of winning the crisis but also some chance of suffering a nuclear exchange. The expected utility of escalating therefore, is the state’s payoff to winning the crisis, weighted by the probability of avoiding disaster, ”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“plus the payoff of disaster weighted by the probability of suffering a disaster.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“In equilibrium, states will escalate until they are indifferent between escalation and submission. This point, the point at which the payoff to escalating is equal to the payoff to submitting, is defined as a state’s resolve. In other words, a state’s resolve is the maximum risk of disaster that a state is willing to run in order to win the crisis.37 A state’s resolve is defined, therefore, as a function of: the payoff to winning, the payoff to submitting, and the payoff to disaster.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“The more resolved state, which can be thought of as the state that is willing to tolerate the greatest risk of nuclear war, will win as long as the crisis does not end in disaster. The game is similar in form to an auction in which the winner is the player that bids the highest level of risk.38”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Of course, a nuclear crisis would never occur if states possessed complete information about the balance of resolve. The less resolved state would prefer to submit immediately rather than run any risk of nuclear war to participate in a game that it stands to lose. To spark a crisis, therefore, states must be uncertain about the balance of resolve. Crises result when each state has reason to believe that it might be more resolved than its opponent. Uncertainty about an opponent’s resolve could result from incomplete information about an opponent’s payoff to winning, its payoff to submitting, or its payoff to disaster. The outcomes of brinkmanship games with incomplete information, therefore, are a function of a state’s resolve, its beliefs about its opponent’s resolve, and its opponent’s beliefs about its resolve. More specifically, the more resolute a state is, the more resolute it is believed to be, and the less resolute it believes its adversary to be, the harder a state is willing to push a crisis.39”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“While less deterministic than in games with complete information, therefore, resolve still plays a critical role in games with incomplete information.40 All else being equal, more resolved states are willing to push harder in a crisis and are ”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“more likely to win than their less resolved counterparts.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

#### Uncertainty is the key element

Matthew **Kroenig 18**. Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress. 2018

“In the nuclear era, therefore, states coerce adversaries by manipulating risk; political conflicts of interest become games of nuclear brinkmanship. States can escalate crisis situations, raising the risk of nuclear war in an effort to force a less-resolved opponent to submit. As the crisis progresses, the less resolved state will prefer to back down rather than risk nuclear exchange. The more resolved state, the state that is willing to run the greatest risk of nuclear war, prevails. In short, the nuclear revolution can be understood as a transformation of ”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“international politics from a competition in military capabilities to a “competition in risk taking.”23”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Brinkmanship theorists do not claim, however, that states eagerly bid up the risk of nuclear war.24 Rather, they assume that leaders badly want to avoid nuclear war and face gut-wrenching decisions at each stage of a crisis. They can quit the crisis to ensure that they avoid nuclear war, but only at the cost of conceding an important geopolitical issue to their opponents.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Or, they can remain in the game a bit longer in an attempt to win, but only by increasing the risk that the crisis ends in a nuclear catastrophe.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“Uncertainty plays an important role in brinkmanship theory.25 If all states possessed complete information about their own resolve and the resolve of their opponents, nuclear crises would never occur. The less resolved state would simply concede the contested issue rather than enter a nuclear crisis that it has no prospect of winning. Brinkmanship theory assumes, therefore, that states possess incomplete information about their adversary’s ”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

“level of resolve; their adversary’s beliefs about their resolve; their beliefs about their adversary’s resolve; and/or, in some cases, perhaps even their own resolve. Nuclear crises are in part instruments, therefore, for revealing information about the balance of resolve.”

Excerpt From: Matthew Kroenig. “The Logic of American Nuclear Strategy.” Apple Books.

## Miscalc Turn

### 1NC Turn - Preemption

#### Buying time in crisis through Dead Hand reduces use or lose pressures.

John **Borrie 19**. “Cold war lessons for automation in nuclear weapon systems” in *The Impact of Artificial Intelligence on Strategic Stability and Nuclear Risk,* Volume 1, May 2019, <https://www.sipri.org/sites/default/files/2019-05/sipri1905-ai-strategic-stability-nuclear-risk.pdf>

The USSR apparently believed the system would add to stability because it meant that its leaders would not have to launch prematurely under pressure in a crisis situation. Since it guaranteed nuclear retaliation, they could afford to switch on the system and wait. In retrospect, the Dead Hand system resembles the Soviet doomsday machine in the classic 1964 film Dr. Strangelove. 32 As in the film, the USSR did not tell the USA about the system—even though it might have had a deterrent effect.33 Meanwhile, although the USA also had a Perimetrlike Emergency Rocket Communications System, it was never combined into a system analogous to Dead Hand out of fear of accidents that might lead to nuclear catastrophe.34

#### It reduces the ability for war hawks to start preemptive wars.

Nicholas **Thompson 13**. Contributor, the New Yorker, “How Cold War Game Theory Can Resolve the Shutdown,” *The New Yorker,* October 7, 2013, https://www.newyorker.com/news/news-desk/how-cold-war-game-theory-can-resolve-the-shutdown

But, actually, the whole point of a doomsday system isn’t lost if you keep it secret. Dead Hand, as two former Soviet military officials [explained to me](http://www.wired.com/politics/security/magazine/17-10/mf_deadhand?currentPage=all) several years ago, when I was working on a book about [the Cold War](http://www.amazon.com/Hawk-Dove-George-Kennan-History/dp/B005B1B1W4?ots=1&slotNum=0&imprToken=d0bc06e1-ab47-5343-247&tag=thneyo0f-20&linkCode=w50), wasn’t a deterrent against the United States. It was a way to sedate Soviet hard-liners, thus buying time. If America looked like it might attack, the Soviets had a bit longer to wait. A rogue commander might also hold off just a bit longer before taking out a nuclear-armed Stratofortress. The idea was “to cool down all these hotheads and extremists,” Alexander Zheleznyakov, one of the former officials, told me. “No matter what was going to happen, there still would be revenge. Those who attack us will be punished.”

### 1NC Turn – Human Bias

#### Leaving nuclear control with humans is disastrous – structural quirks of psychology makes deterrence impossible

Iain King 19. Defence Counsellor at the British Embassy in Washington D.C. "What Do Cognitive Biases Mean for Deterrence?" RealClearDefense, 12 Feb. 2019, www.realcleardefense.com/articles/2019/02/12/what\_do\_cognitive\_biases\_mean\_for\_deterrence\_114182.html.

Humans make poor decisions—not just sometimes, but systematically—and new insights into these cognitive biases have implications for deterrence. To illustrate just how important these can be, consider the curious case of Abraham Wald, a respected Columbia academic who, in 1943, was selected by the U.S. War Department for an important task.[1] The United States Army Air Forces were losing too many bombers over Europe to anti-aircraft fire and were considering adding armour plating to the aircraft, but the extra metal made the aircraft heavier, reducing performance and bomb loads. So, armouring the whole plane was impossible. Where could extra armour be placed effectively? Abraham Wald and his study of aircraft armor (Slideshare) Wald researched where the bombers frequently suffered the most damage. After an extensive survey of the squadrons returning to base, Wald discovered most of the damage was to the wings and fuselage, whereas the engines and cockpits seemed to be hit much less. Initially, the War Department assumed the armour plating should protect the wings and fuselage, but Wald explained how they were completely wrong. Armour placement was needed where there was no damage since bombers hit there never returned home to be studied. On Wald’s advice, the armour plating was duly placed around the cockpit and engines. Wald demonstrated that the War Department was making a common mistake now known as survivorship bias.[2] By looking at a skewed sample—in this case, only those bombers surviving enemy fire—the War Department’s logic went awry. Survivorship bias is one of many deep-rooted and systematic flaws in the way humans process information. One might think people take in all the available information and make the best decisions; in fact, however, we tend not to. We make bad decisions for many reasons. For one, thinking takes time and effort, and so we often go for heuristic short-cuts.[3] For another, like pack animals, we follow the herd.[4] Furthermore, we regularly misunderstand the world in systematic ways. We have deep-rooted attachments to what we already own, even when we can have something better.[5] These traits have helped us to adapt and stay alive, and we have inherited them from our ancestors who survived because of them.[6] There are at least fifty of these proven quirks that warp our decision making.[7] One of these is confirmation bias, where we tend to underrate new information that challenges what we already believe. There is also optimism bias, which makes us overestimate our chances of getting away with something.[8] Next to these we have normalcy bias, where we refuse to plan for a disaster that has never occurred.[9] Then there is reactance, a phenomenon is which we do the opposite of what someone wants us to do just to defy a perceived constraint on our freedom of choice.[10] These biases can influence life in many ways, from who we marry to bad budgeting choices. But some of the most profound impacts are on deterrence. Promoted Content Mgid To understand the effect of these systematic mistakes on how we deter unwelcome behaviour, consider one of the oldest forms of deterrence, the threat of jail time to discourage theft. In a rationale calculation, a substantial prison sentence should be enough to deter almost anyone from stealing, but cognitive biases mean this is not necessarily so. Reactance spurs rebellious criminals to steal simply because stealing is outlawed. The normalcy effect makes the ruinous impact of a prison sentence just too hard to contemplate, so it does not factor properly in the criminal mind. Criminals who plan a clever theft and escape tune out ways they might be caught because of confirmation bias. Criminals who know successful thieves and none of the many others who are caught and locked up will suffer from survivorship bias if they calculate their own chances of getting away with crime. And some will suffer from and optimism bias if they just guess. So, every day punishments are in place that should deter every right-thinking individual in the world, but people still try their luck. Every prisoner is proof deterrence can and does fail. These biases affect us all—not just criminals—and they affect us much more than we realise. Almost all of us suffer from a bias blind spot: the proven tendency for people to recognise biases in others more readily than in themselves.[11] Thomas Schelling (EconLib) Proof that cognitive biases are real means several of the assumptions underpinning traditional deterrence theory are wrong. Academics like Thomas Schelling, who led U.S. thinking on nuclear deterrence in the 1950s and 1960s and who was a contemporary of Abraham Wald, simply applied a standard hypothesis from economics at the time: that people knew how to behave in their own best interests.[12] People might make mistakes, went the theory, but they’d soon learn how to correct their behaviour because they would benefit from doing so. Only in the 1970s, with the so-called third wave of deterrence theory, was psychology understood in enough detail to begin to grasp how people make systematic errors.[13] Kremlinology, the study of key figures in the Soviet system and how they behave and interact, became a key part of the West’s approach to nuclear deterrence. People, not weapons, became the central focus of Western defence. The science of cognitive bias has advanced considerably since then. We now know people consistently behave in ways that go against their best interests in almost every field.[14] Indeed, in the last decade many governments have set up so-called nudge units, playing on these behavioural quirks to achieve policy goals, from increasing pension contributions to enforcing traffic laws.[15] In military matters, even though the stakes are usually much higher, cognitive errors are still rife. Indeed, history is packed with examples of wars that might have been deterred were it not for strong cognitive biases affecting decision makers. Consider Argentina in 1982, which might not have invaded the Falkland Islands if it had a less distorted view of the United Kingdom’s resolve and capacity to respond. Or consider France in 1870, where military groupthink tipped Napoleon III into a disastrous war with Prussia. And Europe in the summer of 1914 was a cauldron of cognitive biases, as countries—Austria-Hungary, Serbia, Russia, Germany, France, and Britain—made a succession of poor judgments about the deterrence posture of rivals, rivals who, in turn, provided misleading signals themselves, ultimately leading to a catastrophe that spread around the world.[16] Mgid Signals Of Lung Cancer Learn More→ According to one study, the weaker power initiates conflict in some 33% of observations, suggesting military might fails to deter as much as a third of the time.[17] Perhaps the attackers suffered from restraint bias—the tendency for people and groups to underestimate how easily they succumb to temptation? Perhaps groupthink infected the highest levels of combatants’ government and armed forces? Perhaps the parties to conflict missed important signals from an enemy because confirmation bias meant they were not looking for them? Whatever the reason, chances are cognitive biases were involved. These tragic examples of conventional wars contrast with a much better record in nuclear matters where deterrence has, so far, been entirely successful. Nuclear conflict has been deterred for more than seven decades, partly because cognitive bias has been almost entirely squeezed out of it. This suggests the calculus governing our nuclear deterrent, and the strategic weapons of those who may oppose us, is as protected from human shortcomings as it can be, thus keeping the world safe. We still need to watch for normalcy bias, though. No nuclear weapons have been used in war since 1945, but it is folly to presume that will always be the case.

### 1NC Turn – Survivability

#### Autonomous nukes enhance survivability

Vincent **Boulanin 19**. “The Future of Machine Learning and Autonomy in Nuclear Weapon Systems,” in *The Impact of Artificial Intelligence on Strategic Stability and Nuclear Risk,* Volume 1, May 2019, <https://www.sipri.org/sites/default/files/2019-05/sipri1905-ai-strategic-stability-nuclear-risk.pdf>

Advances in machine learning and autonomy are likely to have an impact on nuclear weapon delivery in different ways.

In the case of machine learning, the impact is likely to result primarily in a qualitative improvement in the delivery systems. Machine learning could be used to make nuclear delivery systems capable of navigating to their target more autonomously and precisely (with less reliance on humans setting navigation and guidance parameters). A number of countries are currently exploring the use of machine learning to develop control systems for hypersonic vehicles, which, because of their high velocity, cannot be operated manually.16 It could also make them more resilient to countermeasures such as jamming or spoofing.

In the case of autonomy, systems such as UAVs, and in particular unmanned combat aerial vehicles (UCAVs), and unmanned underwater vehicles  (UUVs) could have a more transformative impact than machine learning since they provide an alternative to manned bombers and manned submarines as well as intercontinental ballistic missiles (ICBMs). Their comparative advantages include their extended endurance and their recoverability.17

Unmanned vehicles—whether remotely controlled or autonomous—can conduct much longer missions than their manned counterparts. This is particularly notable for unmanned aircraft, which can stay in flight for several days, particularly if in-flight refuelling or the use of solar power is possible. The endurance record for an unmanned aircraft of 26 days was set by a solar-powered UAV from Airbus in 2018.18 Increased endurance also means greater reach: an unmanned platform can cover a much larger area and, in the case of an underwater system, reach greater depths than a manned vehicle. The extended endurance of unmanned platforms potentially increases their ability to survive countermeasures. A UUV, for instance, would rarely, if ever, have to return to port, which would make it harder to find and track. Combined, these benefits could, arguably, decrease policymakers’ fear of a nuclear decapitation.19

The recoverability of UAVs and UUVs also sets them apart from missiles and torpedoes and offers policymakers new tools for managing escalation in a crisis or conflict. The decision to launch an unmanned system on patrol is not equivalent to the decision to launch a one-way device such as a nuclear ICBM or torpedo (although some such systems may be aborted after launch). Recoverability gives decision makers greater flexibility in that they would have more time to make a decision and, potentially, to recall the system.

#### That allows effective signaling, spurs de-escalation, and reduces preemptive pressures.

Michael C. Horowitz 19. Professor of Political Science and Associate Director of Perry World House at the University of Pennsylvania. Paul Scharre is Senior Fellow and Director, Technology and National Security Program at the Center for a New American Security. Alexander Velez-Green is a defense analyst based in Washington, DC. "A Stable Nuclear Future? The Impact of Autonomous Systems and Artificial Intelligence." https://arxiv.org/ftp/arxiv/papers/1912/1912.05291.pdf

Uninhabited nuclear launch platforms may be seen to offer some strategic benefits to nuclear armed states. Nuclear-armed UAVs, for instance, could be kept aloft for far longer than is possible with human pilots, decreasing fear of a disarming first strike. B-2 bomber pilots, for instance, have flown a maximum of 40-hour missions.88 By contrast, refuelable UAVs could stay aloft for several days, limited only by engine lubricants and other reliability factors. Uninhabited aircraft have already conducted 80-hour flights.89 The maximum endurance record for a refuelable aircraft is 64 days. 90

The ability to keep nuclear bombers in the air for longer periods of time might offer policymakers new tools for managing escalation. Long-endurance nuclear-armed UAVs could provide policymakers with additional options for nuclear signaling, since they could be kept onstation longer than would otherwise be possible. Likewise, if they are sufficiently survivable against adversary countermeasures, nuclear-armed UAVs might improve a state’s ability to deliver nuclear weapons in a timely manner since they could be kept aloft closer to potential targets longer than their manned counterparts. For some less powerful nuclear-armed states, UAVs may also be seen as a lower-cost, longer-range alternative to human-inhabited nuclear bombers. Lower-cost systems are unlikely to be as survivable as their more expensive counterparts, however, thus limiting their utility.

1. Michal Klincewicz (2015) provides a uniquely thorough account of the psychological differentiation between autonomous weapons systems and humans. [↑](#footnote-ref-1)
2. ‘Ethical’ in this context, and throughout the paper should be used in a pragmatic way, such that an ethical LAW is one that functions in accordance with the LoW and RoE. As the paper argues, abiding by these guidelines provide an initial step that can ameliorate unnecessary violence. [↑](#footnote-ref-2)