

OMINOUS OR AUTONOMOUS? THE CASE FOR BANNING AUTONOMOUS WEAPONS SYSTEMS IN TARGETED KILLINGS

Amreen Gill*

Abstract

The U.N. recently released a report detailing the Libyan government's operation to hunt down militia fighters. What made this operation different from others, however, was the use of autonomous weapons systems (AWS). The U.N. described this as the world's first offensive AWS attack—the AWS was able to attack the militia fighters without requiring a human operator. This is concerning. AWS can be situated anywhere, use facial recognition software, and can compensate for human error. AWS can therefore select and target people or objects without human intervention. Legally and ethically, allowing AWS to develop without meaningful global regulation could be catastrophic. This Note, arguing that AWS should be banned in targeted killings, explores the history of targeted killings, current developments of AWS, different reform schemes proposed to regulate AWS, and a consensus-based approach in banning the use of AWS.

TABLE OF CONTENTS

I.	Introduction.....	456
II.	AI, Targeted Killings, and Unintended Consequences	458
	A. Legal Regulation of Targeted Killings and Drones	460
	1. International Law.....	460
	2. U.S. Law and Policy	462
	B. Automatic Weapons Systems and Artificial Intelligence	463
	1. Technical Developments	463
	2. U.S., China, and Russia's Development of AWS.....	465
III.	Current Models of Reform and Regulation.....	467
	A. Banning AWS.....	469
	1. General Arguments to Ban AWS	469

* J.D. Candidate, University of Illinois College of Law, 2023; B.A., Boston University, 2018. I would like to thank Professor Patrick Keenan for his invaluable guidance in creating this Note. I would also like to thank all JLTP Editors and Members for their contributions to this Note. Finally, I would like to thank my family and friends for their unconditional love and support.

2.	Current Efforts to Ban AWS	471
B.	Regulating AWS.....	473
1.	General Regulation Arguments	473
2.	Human in the Loop Approach	473
C.	Leaving AWS Unregulated	474
IV.	Recommendation	477
A.	Comparing AWS to Nuclear Weapons.....	477
B.	Proposed Methodology for an AWS Ban	478
C.	Ramifications of Using AWS in Targeted Killings	480
V.	Conclusion	481

I. INTRODUCTION

Initially unbelievable, the recent targeted killing of Iran’s top nuclear scientist sent shockwaves throughout Iran and beyond.¹ Israeli forces debuted a weapon operated via satellite and equipped with high shooting capabilities and multiple cameras.² What made this weapon different, however, was the use of artificial intelligence (AI).³ In comparison to drones, this AI-controlled weapon can be situated anywhere, uses facial recognition software, and partially compensates for human error.⁴ This is in stark contrast to the current method of conducting most targeted killings.⁵ Drones are noticeable and have slower response times than these AI-equipped weapons.⁶ Bombs, which were used prior to drones, required highly complex plans with the threat of capture before the targeted killing could even occur.⁷ In-person targeted killings threaten the lives of the people carrying out the attacks.⁸ In this situation, the ease with which Israel carried out this killing, and the lack of preparation on Iran’s part is telling.

States have not prepared for the emergence of AI-assisted targeted killings.⁹ Diplomacy has not kept pace with the technological innovations of AI,

1. Ronen Bergman & Farnaz Fassihi, *The Scientist and the A.I.-Assisted, Remote-Control Killing Machine*, N.Y. TIMES (Oct. 26, 2021), <https://www.nytimes.com/2021/09/18/world/middleeast/iran-nuclear-fakhrizadeh-assassination-israel.html> [perma.cc/A65Q-3FEU].

2. *Id.*

3. *Id.*

4. *Id.* (“[U]nlike a drone, the robotic machine gun draws no attention in the sky, where a drone could be shot down, and can be situated anywhere, qualities likely to reshape the worlds of security and espionage.”).

5. AMITAI ETZIONI, HAPPINESS IS THE WRONG METRIC 256 (Michael Boylan et al. eds., 2018).

6. See Adam Satariano et al., *Killer Robots Aren’t Science Fiction. A Push to Ban Them Is Growing.*, N.Y. TIMES (Dec. 17, 2021), <https://www.nytimes.com/2021/12/17/world/robot-drone-ban.html> [<https://perma.cc/C3C6-5DBN>] (“The drones the United States has used extensively in Afghanistan, Iraq and elsewhere are not considered robots because they are operated remotely by people, who choose targets and decide whether to shoot. . . . To war planners, [autonomous weapons systems] offer the promise of keeping soldiers out of harm’s way, and making faster decisions than a person would . . .”).

7. See Mark Selden, *A Forgotten Holocaust: US Bombing Strategy, the Destruction of Japanese Cities & the American Way of War from World War II to Iraq*, 5 ASIA-PAC. J., May 2, 2007, at 4–6 (discussing the multifaceted strategy that went into the United States’ bombing of Europe and Japan during World War Two).

8. ETZIONI, *supra* note 5, at 253 (“Autonomous weapons systems reduce casualties by removing human soldiers from dangerous missions.”).

9. See *Problems with Autonomous Weapons*, CAMPAIGN TO STOP KILLER ROBOTS, <https://www.stopkillerrobots.org/stop-killer-robots/facts-about-autonomous-weapons> [perma.cc/AL3G-UCS7]

and because of this, states are able to develop and test weapons equipped with AI with few repercussions.¹⁰ Without regulation, these semi-autonomous weapons will develop into autonomous weapons systems (AWS), which will result in the weapons' increased autonomy and control.¹¹ AWS are "system(s) that, once activated, can select and target people or objects without human intervention."¹² Colloquially, fully autonomous weapons are sometimes referred to as "killer robots."¹³ Precursors to these weapons are being developed globally.¹⁴ Recently, the United Nations (U.N.) released a report describing the world's first AWS attack.¹⁵ The Libyan government released AWS to hunt down enemy militia fighters; the Libyan government's weapon was "programmed to attack targets without requiring data connectivity between the operator and the munition"¹⁶ In essence, the AWS was able to attack the militia fighters without meaningful human control.¹⁷

This Note focuses on offensive AWS, which pose a threat to existing international law. Weapons used solely for defensive purposes are equipped with autonomous capabilities and are in use today.¹⁸ These defensive systems typically operate in a narrowly defined way and have a predetermined deployment, so there are not substantial concerns about the legality of these systems.¹⁹ However, there are significant doubts that fully autonomous offensive weapons would be able to meet international humanitarian law (IHL) standards.²⁰ The U.N. Human Rights Committee affirmed these doubts, stating "the development of autonomous weapons systems lacking in human compassion and judgment raises difficult legal and ethical questions concerning

(last visited Oct. 5, 2022) ("The use of [killer robots], with no specific limits on how they function or how they are used, shows that the need for new law is urgent.").

10. *See id.* (discussing how large military powers are using political tensions as a reason to invest in the development of AWS, leading to a destabilizing arms race).

11. *See id.* ("Autonomous systems are becoming more complex. Forms of artificial intelligence and machine learning can present barriers to understanding and predictability.").

12. DEP'T OF DEFENSE, DIRECTIVE NUMBER 3000.09, 13 (2012), https://irp.fas.org/doddir/dod/d3000_09.pdf [perma.cc/2JTF-LWHU].

13. *Killer Robots*, HUM. RTS. WATCH, <https://www.hrw.org/topic/arms/killer-robots> [perma.cc/RJW8-K9NR] (last visited Oct. 5, 2022).

14. *See id.* ("Precursors to these weapons, such as armed drones, are being developed and deployed by nations including China, Israel, South Korea, Russia, the United Kingdom and the United States.").

15. Maria Cramer, *A.I. Drone May Have Acted on Its Own in Attacking Fighters*, *U.N. Says*, N.Y. TIMES (June 4, 2021), <https://www.nytimes.com/2021/06/03/world/africa/libya-drone.html> [perma.cc/72SL-E2FT] ("A United Nations report suggested that a drone, used against militia fighters in Libya's civil war, may have selected a target autonomously.").

16. *Id.*

17. *Id.* ("Loitering munitions show how human control and judgment in life-and-death decisions is eroding, potentially to an unacceptable point").

18. *See* Christof Heyns (Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions), *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions*, 9, U.N. Doc. A/HRC/23/47 (Apr. 9, 2013) [hereinafter *Extrajudicial Executions Report*] ("The US Counter Rocket, Artillery and Mortar (C-RAM) system can automatically destroy incoming artillery, rockets and mortar rounds.").

19. ROBIN GEISS, FRIEDRICH EBERT STIFTUNG, *THE INTERNATIONAL-LAW DIMENSION OF AUTONOMOUS WEAPONS SYSTEMS* 8 (2015).

20. HUM. RTS. WATCH, *supra* note 13 ("There are serious doubts that fully autonomous weapons would be capable of meeting international humanitarian law standards, including the rules of distinction, proportionality, and military necessity, while they would threaten the fundamental right to life and principle of human dignity.").

the right to life, including questions relating to legal responsibility for their use.”²¹ In other words, AWS being developed without meaningful global regulation could be catastrophic.²²

In response, this Note argues targeted killings using AWS should be differentiated from targeted killings using drone strikes and should, instead, be treated like nuclear weapons. Thus, AWS should be banned in targeted killings. By banning AWS in targeted killings, states retain control over weapons systems, prevent civilian casualties, and avoid a destabilizing arms race.²³ Part II of this Note will discuss the history of targeted killings, justifications, and unintended consequences resulting from targeted killings. Part II will also discuss the current development of AWS and how states are developing AWS at different rates. Part III will discuss different reform schemes and methods of regulation for AWS. Finally, Part IV recommends banning the use of AWS in targeted killings. Part IV recommends that states use a consensus-based approach in ratifying a treaty that would ultimately ban the use of AWS. This approach would be similar to the approach used in ratifying the Arms Trade Treaty and the Treaty on the Prohibition of Nuclear Weapons.²⁴

II. AI, TARGETED KILLINGS, AND UNINTENDED CONSEQUENCES

The U.N. defines targeted killings as “premediated acts of lethal force employed by states in times of peace or during armed conflict to eliminate specific individuals outside their custody.”²⁵ Although many countries employ targeted killings, the U.S.’s extensive use of drone strikes in targeted killings has brought attention to the overall use of targeted killings.²⁶ This Note focuses on the U.S.’s targeted killing program because of its role in redefining the role of preemptive strikes and advancing technological innovations through drones.²⁷ The U.S. has also made a concerted effort to change international norms to garner support for its frequent use of targeted killings.²⁸ It is worth noting,

21. Stuart Casey-Maslen, *Regulating Autonomous Weapons Systems*, TODA PEACE INST. (July 5, 2021), <https://toda.org/global-outlook/global-outlook/2021/regulating-autonomous-weapons-systems.html> [perma.cc/84EU-CNQE].

22. See CAMPAIGN TO STOP KILLER ROBOTS, *supra* note 9 (claiming that the proliferation of autonomous weapons systems may lower the threshold for war and foster a destabilizing arms race).

23. *Id.*

24. Frank Sauer, *Stepping Back from the Brink: Why Multilateral Regulation of Autonomy in Weapons Systems is Difficult, yet Imperative and Feasible*, 102 INT’L REV. RED CROSS 235, 244 (2020) (arguing that a ban on autonomous weapons systems could take a similar form to the Arms Trade Treaty and Treaty on the Prohibition of Nuclear Weapons).

25. Jonathan Masters, *Targeted Killings*, COUNCIL ON FOREIGN RELS., <https://www.cfr.org/backgroundunder/targeted-killings> [perma.cc/GFP5-KDJF] (May 23, 2013, 8:00 AM).

26. *Targeted Killing*, LAWFARE, <https://www.lawfareblog.com/targeted-killing> [perma.cc/5923-7UJ4] (last visited Oct. 2, 2022).

27. See JEFFREY S. LANTIS, ARMS AND INFLUENCE: U.S. TECHNOLOGY INNOVATIONS AND THE EVOLUTION OF INTERNATIONAL SECURITY NORMS 106–16 (2016) (describing how the United States was opposed to targeted killings for much of the nineteenth and twentieth centuries, culminating in President’s Ford executive order prohibiting U.S. involvement in political assassination plots, until the War on Terror began and also highlighting how the country has contributed to the development of drone technology).

28. See *id.* at 118 (“Thus, it appears that American technology innovations coupled with pre-vailing balances of power and a confluence of great-power interests allowed the United States to push the international

however, that over ten countries have also conducted drone strikes for the purposes of targeted killings.²⁹ Additionally, many other countries, including India, China, and Saudi Arabia, maintain armed drones in their arsenals.³⁰

Proponents of targeted killings argue that drone strikes disrupt terrorist operations.³¹ Drone strikes have led to fewer civilian deaths for the states conducting the targeted killings.³² President Obama claimed that drone strikes in targeted killings have been a highly effective tool in the War on Terror.³³ Military operations with the same purpose would include boots-on-the-ground assaults and large-scale air strikes.³⁴ President Obama claimed that the decreasing reliance on military operations and the increasing use of drone strikes has led to minimal collateral damage and fewer civilian deaths.³⁵ Nongovernmental organizations (NGOs) challenge these assertions; their civilian death count far exceeds the Obama administration's numbers.³⁶ Additionally, proponents argue that drone strikes more effectively dismantle terrorist leadership.³⁷ Examples include the killings of Osama bin Laden's chief aide and al-Qaeda's ideological leader through drone strikes.³⁸ Proponents also argue drone strikes reduce risk to U.S. citizens because of drone operators' ability to remotely target terrorists.³⁹

Critics of targeted killings, however, charge that drone strikes are ineffective, illegal, and immoral.⁴⁰ Drone strikes have generated worldwide

community to broaden the understanding of 'imminence' of threat as well as acceptable actions to target the threat.").

29. *Who Has What: Countries That Have Conducted Drone Strikes*, NEW AM., <https://www.newamerica.org/international-security/reports/world-drones/who-has-what-countries-that-have-conducted-drone-strikes> [perma.cc/CJV9-BK4P].

30. *Id.*

31. Harry van der Linden, *Drone Warfare and Just War Theory*, in *DRONES AND TARGETED KILLING: LEGAL, MORAL, AND GEOPOLITICAL ISSUES* 169, 169 (Marjorie Cohn ed., 2015).

32. Mathew Simkovits, *Drone Strikes, Pro*, COMMON READER: J. ESSAY (June 16, 2017), <https://commonreader.wustl.edu/drone-strikes-pro> [perma.cc/FKF7-8R4K] ("One side claims drone strikes are key to combatting terrorist organizations with minimal civilian casualties and loss of American life.").

33. *Id.* ("President Obama released the first official government report on drone strikes, which claimed they are a highly effective tool in the War on Terror.").

34. *Id.*

35. Jo Becker & Scott Shane, *Secret 'Kill List' Proves a Test of Obama's Principles and Will*, N.Y. TIMES (May 29, 2012), <https://www.nytimes.com/2012/05/29/world/obamas-leadership-in-war-on-al-qaeda.html> [perma.cc/JA3F-CB5B] ("By withdrawing from Iraq and preparing to withdraw from Afghanistan, Mr. Obama has refocused the fight on Al Qaeda and hugely reduced the death toll both of American soldiers and Muslim civilians.").

36. Press Release, Human Rights Clinic at Columbia Law School, *Drone Strike Casualty Estimates Likely Understated* (Oct. 2012) <https://web.law.columbia.edu/sites/default/files/microsites/human-rights-institute/CountingDroneDeathsPresserFINAL.pdf> [perma.cc/5HLF-VG9V] ("[W]ith drone strikes, we're seeing the labels 'militant' or 'terrorist' used to describe people killed, despite the limited information and on-the-ground reporting.").

37. Becker & Shane, *supra* note 35.

38. Matthew Lee et al., *Biden: Killing of al-Qaida Leader Is Long-Sought 'Justice'*, AP NEWS (Aug. 2, 2022), <https://apnews.com/article/ayman-al-zawahri-al-qaeda-terrorism-biden-36e5f10256c9bc9972b252849eda91f2> [perma.cc/MTA9-WPTF] (reporting on the U.S. drone strike that killed 9/11 plotter Ayman al-Zawahri).

39. van der Linden, *supra* note 31, at 169.

40. See *Stopping Killer Robots: Country Positions on Banning Fully Autonomous Weapons and Retaining Human Control*, HUM. RTS. WATCH (Aug. 10, 2020), <https://www.hrw.org/report/2020/08/10/stopping-killer-robots/country-positions-banning-fully-autonomous-weapons-and> [https://perma.cc/4SP6-JW9M] ("Weapons

condemnation and disrupt diplomatic negotiations.⁴¹ Moreover, drone strikes encourage civilians, in areas impacted by drone strikes, to sympathize and join these terrorist organizations.⁴² For example, Israel's refusal to abandon its targeted killing program has disrupted efforts to broker a ceasefire with Palestine.⁴³ Drone strikes also lead to retaliatory attacks when they target popular leaders or accidentally strike a large group of civilians.⁴⁴

Additionally, if other states begin adopting targeted killing programs, the U.S. will not have practical or moral grounds for opposing the programs.⁴⁵ This could lead to more states adopting the program.⁴⁶ Given the resources the U.S. has poured into its intelligence program to aid its targeted killing program, targeted killing operations are often rooted in faulty or inadequate intelligence.⁴⁷ This is due to the difficulties in discovering terrorists' identities and exact locations.⁴⁸ In these situations, faulty intelligence often leads to civilian casualties or wrongful deaths.⁴⁹

A. *Legal Regulation of Targeted Killings and Drones*

1. *International Law*

IHL is a branch of international law that seeks to impose restrictions on the devastation and suffering caused by armed conflict.⁵⁰ IHL was designed to protect civilians from combat and soldiers from unnecessary suffering.⁵¹ It was also designed to allow the continuation of military operations but with new

systems that select and engage targets without meaningful human control are unacceptable and need to be prevented. . . . Retaining meaningful human control over the use of force is an ethical imperative, a legal necessity, and a moral obligation.”); *see also* van der Linden, *supra* note 31, at 169 (“My main aim here is to argue that drone warfare poses moral problems and risks of such nature and magnitude that we should support an international ban on weaponized drones.”).

41. Jim Michaels, *Global Opposition to U.S. Drone Strikes Grows*, USA TODAY (July 14, 2014, 3:31 PM) <https://www.usatoday.com/story/news/world/2014/07/14/pew-global-drones-snowden-nsa/12628661> [<https://perma.cc/U9QE-CR6N>].

42. JAMES IGOE WALSH, *THE EFFECTIVENESS OF DRONE STRIKES IN COUNTERINSURGENCY AND COUNTERTERRORISM CAMPAIGNS* 32 (2013).

43. Masters, *supra* note 25.

44. *Id.*

45. Linda Robinson, *The Downside of Drones*, RAND BLOG (Nov. 1, 2013), <https://www.rand.org/blog/2013/11/the-downside-of-drones.html> [perma.cc/8TJY-VYBY] (“The chief legal drawback to drone use is not international law, per se, but rather the threat of copycats that the U.S. government will have little practical or moral grounds for opposing.”).

46. *Id.*

47. *Id.* (“[E]very U.S. special ops task force around the world today routinely sets up a ‘fusion cell’ to meld their own . . . intelligence with that of U.S. and resident intelligence service feeds”).

48. *Id.* (“[I]t is extremely hard to discover the identity and pinpoint the location of terrorists, single adversaries or networks embedded in a population.”).

49. *Id.*

50. Markus Wagner, *The Dehumanization of International Humanitarian Law: Legal, Ethical, and Political Implications of Autonomous Weapon Systems*, 47 VAND. J. TRANSNAT'L L. 1371, 1384 (2014).

51. *Id.*

rules.⁵² IHL is made up of a set of rules that can be broken down into general principles like distinction, military necessity, proportionality, and humanity.⁵³

The principle of distinction is important when talking of AWS and targeted killings.⁵⁴ The principle provides that parties in an armed conflict must “at all times distinguish between the civilian population and combatants” and accordingly shall direct their operations only against military objectives.⁵⁵ In other words, distinction prohibits indiscriminate attacks and the use of indiscriminate methods of warfare.⁵⁶

Military necessity is often used as a defense by armed parties in conflict.⁵⁷ Necessity permits methods that are necessary to accomplish a “legitimate military purpose” as long as the method is not otherwise prohibited by IHL.⁵⁸ For example, in an armed conflict, a soldier cannot be convicted of murder if it is under the auspices of normal armed conflict norms.⁵⁹ Within armed conflicts, the only legitimate military purpose is to weaken the opposing force’s military capabilities.⁶⁰

Proportionality prohibits operations expected to cause incidental death or injury to civilians which are excessive compared to the military advantage anticipated.⁶¹ Proportionality also includes incidental damage to civilian objects and property.⁶² The objective of proportionality is to bar disproportionate means of gaining military advantages.⁶³

Humanity runs counter to the principle of military necessity.⁶⁴ It strictly prohibits the infliction of suffering, injury, or destruction that might be necessary to achieve the legitimate purpose of a conflict.⁶⁵ The Martens Clause is a subset within the principle of humanity and clarifies that actions not explicitly barred by IHL are not automatically permissible.⁶⁶ Humanity must be the first priority when acting in an armed conflict.⁶⁷

52. *Id.*

53. *Fundamental Principles of Law*, ICRC (last visited Oct. 5, 2022), <https://casebook.icrc.org/glossary/fundamental-principles-ihl> [perma.cc/2L6V-727B].

54. Kenneth Anderson et al., *Adapting the Law of Armed Conflict to Autonomous Weapons Systems*, 90 INT’L L. STUD. 386, 401 (2014).

55. *Id.* at 401 n.40.

56. *Id.* at 401.

57. *Military Necessity*, ICRC (last visited Oct. 5, 2022), <https://casebook.icrc.org/glossary/military-necessity> [perma.cc/Q96N-Z82R].

58. *Id.*

59. JONATHAN CROWE & KYLIE WESTON-SCHUEBER, *PRINCIPLES OF INTERNATIONAL HUMANITARIAN LAW* 145 (2013).

60. *Id.*

61. Anderson et al., *supra* note 54, at 402.

62. *Id.* at 391.

63. *Accord id.* at 402 (“Proportionality requires that the reasonably anticipated military advantage of an operation be weighed against the reasonably anticipated civilian harms.”).

64. HOWARD M. HENSEL, *THE LEGITIMATE USE OF MILITARY FORCE* 150 (2016).

65. *Id.*

66. *Id.* at 144 (emphasizing that the Martens Clause is one of the foundational ideas of IHL).

67. *Id.*

2. U.S. Law and Policy

The U.S. has justified its targeted killing program through both domestic law and international law.⁶⁸ Within domestic law, the U.S. utilizes the Authorization for the Use of Military Force (“AUMF”).⁶⁹ Congress, post-9/11, authorized war against enemy combatants who were involved in the 9/11 attacks.⁷⁰ Because the U.S. is still engaged in military operations against the aforementioned enemy combatants, AUMF still applies to the U.S.’s use of drone strikes in targeted killings.⁷¹

The U.S. also justifies targeted killings through the Due Process Clause in the U.S. Constitution.⁷² The Supreme Court has frequently held that the Due Process Clause mandates procedural safeguards, which include weighing private interests versus government interests.⁷³ The Obama administration has argued that in the face of an imminent threat where capture is not feasible, the Constitution does not require the president to delay action.⁷⁴ This would create a higher level of risk that the U.S. government’s efforts would fail.⁷⁵ Additionally, the Obama administration reiterated that while the Constitution’s guarantee of due process is “ironclad,” the Constitution does not require judicial approval before the Executive branch uses force against a member of a foreign terrorist organization.⁷⁶ This is the case even in situations where the individual is a U.S. citizen.⁷⁷

On the international level, there are two relevant principles to consider: *jus ad bellum* and *jus in bello*.⁷⁸ *Jus ad bellum* governs the decision of whether to use force and *jus in bello* governs how warfare is conducted once the decision to use force has been enacted.⁷⁹ On the *jus ad bellum* side, the U.S. argues that

68. *Legality of U.S. Government’s Targeted Killing Program under Domestic Law*, LAWFARE, <https://www.lawfareblog.com/legality-us-governments-targeted-killing-program-under-domestic-law> [perma.cc/F3GB-QR7F] (last visited Oct. 5, 2022).

69. *Id.*

70. *Id.*

71. Kate Martin, *Are U.S. Drone Strikes Legal?: A Guide to the Relevant Legal Questions*, CTR. FOR AM. PROGRESS (Apr. 1, 2016), <https://www.americanprogress.org/issues/security/reports/2016/04/01/134494/are-u-s-drone-strikes-legal> [perma.cc/G8QR-JNVX].

72. LAWFARE BLOG, *supra* note 68.

73. Eric Holder, Att’y Gen., Speech at Northwestern University School of Law (March 5, 2012), <https://www.justice.gov/opa/speech/attorney-general-eric-holder-speaks-northwestern-university-school-law> [perma.cc/U5ZS-GW8Z] (“The Supreme Court has made clear that the Due Process Clause does not impose one-size-fits-all requirements, but instead mandates procedural safeguards that depend on specific circumstances.”).

74. *Id.* (“Where national security operations are at stake, due process takes into account the realities of combat.”).

75. *Id.* (“Such a requirement would create an unacceptably high risk that our efforts would fail, and that Americans would be killed.”).

76. *See also id.* (“Some have argued that the President is required to get permission from a federal court before taking action against a United States citizen who is a senior operational leader of al Qaeda or associated forces. This is simply not accurate. ‘Due process’ and ‘judicial process’ are not one and the same, particularly when it comes to national security. The Constitution guarantees due process, not judicial process.”).

77. *Id.*

78. *Legality of Targeted Killing Program Under International Law*, LAWFARE, <https://www.lawfareblog.com/legality-targeted-killing-program-under-international-law> [perma.cc/3NZG-6TX5] (last visited Oct. 5, 2022).

79. *Id.*

it is engaging in a valid non-international armed conflict (“NIAC”) with terrorist forces, which then allows the U.S. to engage in targeted killings.⁸⁰ Moreover, under Article 51 of the U.N. Charter, each state has the right to self-defense.⁸¹ Thus, through this means, U.S. has rationalized its use of targeted killings in a post 9/11 world.⁸²

In terms of *jus in bello*, the U.S. distinguishes between illegal assassinations and the targeting of lawful combatants.⁸³ Lawful combatants are a direct threat to the U.S. Consequently, the U.S. argues that IHL applies.⁸⁴ Because the U.S. is targeting lawful combatants, under international law, targeted killings are lawful.⁸⁵ The U.S. has articulated its stance on targeted killings where other countries have not.⁸⁶ As a result, there is significant controversy as to whether the U.S.’s actions are actually lawful under IHL.⁸⁷

B. *Automatic Weapons Systems and Artificial Intelligence*

1. *Technical Developments*

While drone strikes have been the weapon of choice in targeted killings, states are now developing AI capabilities in other existing weapons.⁸⁸ Artificial intelligence is defined as “any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.”⁸⁹ The incorporation of AI software and learning algorithms into commercial hardware have resulted in semi-autonomous weapons, which are in use today.⁹⁰ Semi-autonomous weapons engage specific targets or categories of targets that a human operator ultimately selects.⁹¹ In its current iteration, semi-autonomous weapons are poised for rapid proliferation because of lower costs

80. *Id.*

81. Q&A: *US Targeted Killings and International Law*, HUM. RTS. WATCH (Dec. 19, 2011, 12:00 AM), <https://www.hrw.org/news/2011/12/19/q-us-targeted-killings-and-international-law> [https://perma.cc/UK7U-M9QU].

82. *Id.*

83. *See id.* (discussing the U.S.’s position that the killing of Anwar al-Awlaki in Yemen was justified because he was a lawful combatant and an al Qaeda “leader of external operations”).

84. *Id.*

85. LAWFARE, *supra* note 78.

86. Jameel Jaffer, *How the US Justifies Drone Strikes: Targeted Killing, Secrecy and the Law*, GUARDIAN (Nov. 15, 2016, 7:30 AM), <https://www.theguardian.com/us-news/2016/nov/15/targeted-killing-secrecy-drone-memos-excerpt> [https://perma.cc/B5W4-UK7G].

87. *Id.*

88. *Lethal Autonomous Weapons Systems*, FUTURE OF LIFE INST., <https://futureoflife.org/lethal-autonomous-weapons-systems> [https://perma.cc/T832-CGJ5] (last visited Oct. 5, 2022).

89. Stephanie Mae Pedron & Jose de Arimateia da Cruz, *The Future of Wars: Artificial Intelligence (AI) and Lethal Autonomous Weapon Systems (LAWS)*, 2 INT’L J. SEC. STUDS. 1, 4 (2020).

90. Justin Haner & Denise Garcia, *The Artificial Intelligence Arms Race: Trends and World Leaders in Autonomous Weapons Development*, 10 GLOB. POL’Y 331, 332 (2019).

91. Michael N. Schmitt & Jeffrey Thurnher, “*Out of the Loop*”: *Autonomous Weapon Systems and the Law of Armed Conflict*, 4 HARV. NAT’L SEC. J. 231, 235 (2013).

of production and Moore's Law, an observation stating that computer processing doubles every two years.⁹²

With continued investment, it is likely that semi-autonomous weapons will lead to the creation of AWS.⁹³ Already, advances in technology enable weapons systems to select and attack targets autonomously by using sensor processing.⁹⁴ While there is not a universally shared definition of AWS, the basic premise of AWS is they can "independently select and attack targets, i.e. with autonomy in the 'critical functions' of acquiring, tracking, selecting and attacking targets."⁹⁵ Autonomy would include the ability to react to a changing set of circumstances.⁹⁶

Part of the difficulty in defining AWS is that states can choose a broad or narrow definition depending on their desired objective.⁹⁷ A narrow definition of AWS excludes today's weapons.⁹⁸ A narrow definition emphasizes that AWS will have a greater degree of autonomy and will be "capable of understanding higher level intent and direction."⁹⁹ A broader definition, however, could include current weapons and encompasses a wider range of weaponry.¹⁰⁰ A broader definition of AWS would also run counter to arguments made by organizations seeking to preemptively ban AWS.¹⁰¹ Attempts to regulate or ban weapons would be difficult if the weapons were being used today without controversy.¹⁰² A broader definition would also detract from larger concerns around AWS, namely potential human rights abuses and emerging AWS capabilities.¹⁰³

AWS can be grouped into three different categories: a human in the loop system, a human on the loop weapon, and a human out of the loop weapon.¹⁰⁴ A human in the loop system is one in which a human directs the AWS to select a target and attack.¹⁰⁵ In contrast, a human on the loop weapon is where the AWS can select and attack targets without human intervention.¹⁰⁶ Lastly, a human out

92. Dave Vellante & David Floyer, *A New Era of Innovation: Moore's Law is Not Dead and AI is Ready to Explode*, SILICON ANGLE (Apr. 10, 2021, 11:56 AM), <https://siliconangle.com/2021/04/10/new-era-innovation-moores-law-not-dead-ai-ready-explode> [<https://perma.cc/DU8M-8SZV>]; Haner & Garcia, *supra* note 90, at 331.

93. FUTURE OF LIFE INST., *supra* note 88.

94. KELLEY M. SAYLER, CONG. RSCH. SERV., IF11150, *DEFENSE PRIMER: U.S. POLICY ON LETHAL AUTONOMOUS WEAPON SYSTEMS I* (2022).

95. Gregory P. Noone & Diana C. Noone, *The Debate Over Autonomous Weapons Systems*, 47 CASE W. RESRV. J. INT'L L. 25, 27 (2015).

96. Wagner, *supra* note 50, at 1383.

97. Michael C. Horowitz, *Why Words Matter: The Real World Consequences of Defining Autonomous Weapons Systems*, 30 TEMP. INT'L. & COMPAR. L. J. 85, 87-90 (2016).

98. *Id.* at 89.

99. *Id.* at 90.

100. *Id.* at 91.

101. *Id.* at 92.

102. *Id.*

103. *See id.* (stating the incorporation of current weapons distracts from conversations about the essence of the concerns raised about AWS).

104. Roni A. Elias, *Facing the Brave New World of Killer Robots: Adapting the Development of Autonomous Weapon Systems into the Framework of the International Law of War*, 21 TRINITY L. REV. 70, 73 (2016).

105. *Id.*

106. *Id.*

of the loop weapon is a system in which the AWS can attach without any human interface.¹⁰⁷

Regardless of the category, with AWS, an algorithm would make the decision on whether to shoot.¹⁰⁸ The algorithm would likely have a fixed list of targets and fire only if it is highly confident in the target's identity.¹⁰⁹ Confidence could come from prior video footage.¹¹⁰ AWS could also predict whether a human would be likely to tell it to fire.¹¹¹ Predictive abilities combined with facial and object recognition would be essential in the creation of AWS.¹¹²

Although a human operator could retain the ability to take control of the system, AWS would be entirely capable of self-operation.¹¹³ This would shift the way states, especially the U.S., think about decision making.¹¹⁴ The Department of Defense views AWS through a lens of human-robot interaction.¹¹⁵ In other words, the Department views autonomy as a collaborative effort between "commanders, soldiers, and computers."¹¹⁶ Sharing decision making power with computers is a fundamental shift away from previous policies and leaves open questions concerning accountability.¹¹⁷

2. *U.S., China, and Russia's Development of AWS*

The U.S., China, and Russia are leading the development of AWS capabilities currently.¹¹⁸ This is significant given the dominant role that each state plays in international relations.¹¹⁹ Sometimes called a "great power competition," the relationship between the U.S., China, and Russia could be described as competitive and turbulent.¹²⁰ Given this established dynamic, these states developing AWS capabilities could have severe consequences.¹²¹

107. *Id.*

108. Kelsey Piper, *Death by Algorithm: The Age of Killer Robots is Closer than You Think*, VOX (June 21, 2019, 8:20 AM), <https://www.vox.com/2019/6/21/18691459/killer-robots-lethal-autonomous-weapons-ai-war> [https://perma.cc/CF8B-FUZV].

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.* ("In the past few years, the state of AI has grown by leaps and bounds. Facial recognition has gotten vastly more accurate, as has object recognition, two skills that would likely be essential for lethal autonomous weapons.")

113. LAWFARE, *supra* note 68.

114. Nathan Leys, *Autonomous Weapons Systems and International Crises*, 12 STRATEGIC STUD. Q. 48, 53 (2018).

115. *Id.* at 49.

116. *Id.* (emphasizing that political leaders will make decisions at the "grand strategic" level but will receive most of their military intelligence from lower-level commanders who will be most impacted by human-robot interaction).

117. *Id.*

118. KELLEY M. SAYLER, CONG. RSCH. SERV., R45178, ARTIFICIAL INTELLIGENCE AND NATIONAL SECURITY 20 (2020).

119. Vu Le Thai Hoang & Huy Nguyen, *The Modern China-Russia-US Triangle: Why We Can't Expect a Stable "Two vs One" Dynamic This Time Around*, DIPLOMAT (June 4, 2021), <https://thediplomat.com/2021/06/the-modern-china-russia-us-triangle/> [https://perma.cc/WEH6-XH9Z].

120. *Id.*

121. SAYLER, *supra* note 118, at 21–26.

The U.S. is investing heavily in the military application of AI.¹²² The Department of Defense is planning to spend \$874 million on AI-related technologies.¹²³ The Department of Defense is also aiming to increase the number of AI-related projects by 50 percent during the next few years.¹²⁴ The U.S. is also investing in developing air, land, and sea-based AWS.¹²⁵ The U.S. intelligence community has also emphasized the importance of AI in intelligence gathering and analysis.¹²⁶ Current AI projects include using natural language processing and computer vision to analyze content quickly to identify suspected misinformation.¹²⁷ Regarding AWS, U.S. military officials want to keep a human in the loop, but they have stated that advancements in AI may eliminate the need for a human in the loop.¹²⁸ The U.S. has refused to preemptively ban AWS, stating that without a definition, it would be difficult to ban a weapon.¹²⁹

China is actively pursuing AI-enabled systems and autonomous capabilities in its military modernization.¹³⁰ The Chinese government has created AI software capable of surpassing human levels of language recognition.¹³¹ In its current arsenal, China has a growing number of robotic and unmanned systems including advanced missiles with precision guidance.¹³² Various departments in the Chinese apparatus are concentrating on AI-enabled technologies in different formats—from the Chinese Navy, Army, Air Force, and Rocket Force.¹³³ It is unclear, however, whether China intends to have a human in the loop or whether they are developing fully AWS.¹³⁴

Finally, Russia, although lagging behind the U.S. and China, has focused on creating semi-autonomous vehicles and autonomous vehicles.¹³⁵ The Russian military has emphasized that it will focus on AI with regards to information management for decision-making and autonomy.¹³⁶ The Russian military's strategy centers on "information dominance on the battlefield."¹³⁷ Russia is also developing AI software for remote sensing and electronic warfare.¹³⁸ The

122. *Id.* at 6.

123. Bryan Walsh, *How AI is Rising up the Ranks of the Military*, AXIOS (Oct. 23, 2021), <https://www.axios.com/2021/10/23/ai-future-united-states-military> [https://perma.cc/8G48-9YLR].

124. *Id.*

125. SAYLER, *supra* note 118, at 12–13.

126. Walsh, *supra* note 123.

127. *Id.*

128. HUM. RTS. WATCH, *supra* note 81.

129. ELSA B. KANIA, BROOKINGS INST., "AI WEAPONS" IN CHINA'S MILITARY INNOVATION 2 (2020), https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_ai_weapons_kania_v2.pdf [perma.cc/6VMS-FWNR].

130. *Id.*

131. SAYLER, *supra* note 118, at 21.

132. *Id.* at 22.

133. *Id.* at 21 (stating China is the U.S.'s closest competitor in the international AI market).

134. *Id.*

135. *Id.* at 25. (emphasizing that Russia is aiming to increase its military AI applications with the goal of robotizing 30 percent of its military equipment by 2025).

136. JEFFREY EDMONDS ET AL., CNA, ARTIFICIAL INTELLIGENCE AND AUTONOMY IN RUSSIA 80 (2021), https://www.cna.org/CNA_files/centers/CNA/sppp/rsp/russia-ai/Russia-Artificial-Intelligence-Autonomy-Putin-Military.pdf [https://perma.cc/9VA8-VM5R].

137. *Id.* at 82.

138. See SAYLER, *supra* note 118, at 25 (discussing that Russia has made use of AI primarily for domestic propaganda and surveillance as well as for information operations against the U.S.).

Russian military, for the most part, has taken the view that an operator needs to stay in the loop to avoid unintended consequences from using AWS.¹³⁹ However, Russia's AWS program is still in its early stages, so it is uncertain which position Russia will ultimately take.¹⁴⁰ With states rapidly developing AI capabilities to create AWS,¹⁴¹ it is unclear how other states will respond to the use of AWS in targeted killings.

III. CURRENT MODELS OF REFORM AND REGULATION

The implications of allowing states to use AWS in targeted killings without repercussions could be catastrophic.¹⁴² Beyond the legalities behind AWS, the legalities behind targeted killings must also be considered.¹⁴³ Although the U.S. and Israel have relied on their interpretation of IHL as the legal basis of targeted killings, there is little global consensus.¹⁴⁴ Targeted killing operations may have been an effective means of achieving short-term goals, but the long-term ramifications are undetermined.¹⁴⁵ Increasing amounts of civilian casualties have led to widespread condemnation for targeted killing programs, including several rebukes to the U.S. government from the UN.¹⁴⁶

Further, the morality of targeted killing programs is unclear, given the amount of "collateral damage."¹⁴⁷ Recently, the head of the U.S.'s Central Command admitted that an aid worker and his family were mistakenly killed in Afghanistan during a targeted killing operation.¹⁴⁸ The White House conceded that the strike was a "tragic mistake."¹⁴⁹ This was after the U.S. government placed temporary limits on counterterrorism drone strikes outside conventional battlefield zones.¹⁵⁰ Now, both the military and the C.I.A. must obtain permission from the White House to conduct targeted killings outside of battlefield zones.¹⁵¹

139. See Haner & Garcia, *supra* note 90, at 334 (explaining that Russia's investments in AI are insufficient to sustain even a majority autonomous or semi-autonomous military).

140. See *id.* (stating that even by 2030, Russia aims to have only thirty percent of their combat power to be semi or fully autonomous).

141. PAUL SCHARRE, *ARMY OF NONE: AUTONOMOUS WEAPONS AND THE FUTURE OF WAR* 201 (2018).

142. *Autonomous Weapons: An Open Letter from AI & Robotics Researchers*, FUTURE OF LIFE INST. (July 28, 2015), <https://futureoflife.org/open-letter-autonomous-weapons> [<https://perma.cc/64T8-FQYL>].

143. Sascha-Dominik Bachmann, *Targeted Killings: Contemporary Challenges, Risks and Opportunities*, 18 J. CONFLICT SEC. L. 259, 263 (2013).

144. *Id.*

145. *Id.*

146. Danny Steed, *Is There a Future for Targeted Killing?*, 2 INFINITY J. 17, 19 (2011).

147. *Id.*

148. Andrea J. Prasow, *When Targeted Killings Become 'Tragic Mistakes,'* PROGRESSIVE MAG. (Sept. 30, 2021, 10:18 AM), <https://progressive.org/op-eds/killings-become-tragic-mistakes-prasow-210930> [<https://perma.cc/XMW3-P9DH>].

149. *Id.*

150. Charlie Savage & Eric Schmitt, *Biden Secretly Limits Counterterrorism Drone Strikes Away from War Zones*, N.Y. TIMES (Mar. 3, 2021), <https://www.nytimes.com/2021/03/03/us/politics/biden-drones.html> [<https://perma.cc/5E6F-VJT9>].

151. *Id.*

The U.S. was forced to concede mistakes were made due to widespread condemnation and the increasing documentation of civilian casualties.¹⁵² However, after the Pentagon released a summary of its review from this operation, it was clear that it was not going to hold any personnel responsible.¹⁵³ Moreover, the Biden administration, in response to this failed operation being leaked, is still pushing ahead with prosecuting whistleblowers.¹⁵⁴ Although making a few changes, the Biden administration has made it clear that it will continue the tradition of targeted killings.¹⁵⁵

In January 2022, declassified surveillance footage was released which provided additional details about the drone strike in Afghanistan.¹⁵⁶ Following, Democrats began urging President Biden to overhaul his administration's counterterrorism strategy.¹⁵⁷ In a letter to President Biden, both senators and members of the House wrote the drone strike in Afghanistan was, "emblematic of this systemic failure that has persisted across decades and administrations."¹⁵⁸ Separate investigations also concluded that U.S. drone strikes launched against the Islamic State were "marked by flawed intelligence, confirmation bias and scant accountability."¹⁵⁹ These findings have altered the U.S.'s longstanding commitment to conducting targeted killings using drone strikes in the Middle East.¹⁶⁰ The Biden administration imposed temporary limits on counterterrorism drone strikes in 2021 and are reviewing the use of drone strikes.¹⁶¹

The nature of counterterrorism operations are shifting as well.¹⁶² The original leaders of al-Qaeda and the Taliban are mostly gone, and with them, the organizations' previous focus.¹⁶³ The ideology espoused by both groups has spread to Africa and is growing there.¹⁶⁴ Western states, since 9/11, have largely adhered to a preexisting framework which emphasizes leadership targeting.¹⁶⁵

152. W.J. Hennigan, 'A Tragic Mistake.' *Botched Drone Strike in Afghanistan Raises Concerns Over Biden's Counterterrorism Strategy*, TIME (Sept. 17, 2021, 9:03 PM), <https://time.com/6099377/afghanistan-drone-strike-counterterrorism> [<https://perma.cc/8VMT-KZG2>].

153. Jeremy Scahill, *U.S. Absolves Drone Killers and Persecutes Whistleblowers*, INTERCEPT (Nov. 4, 2021, 6:03 PM), <https://theintercept.com/2021/11/04/drone-attack-kabul-pentagon-report-whistleblowers> [<https://perma.cc/W57Z-J4ZU>].

154. *Id.*

155. *Id.*

156. Catie Edmondson, *Calling Civilian Casualties a 'Failure,' Democrats Urge Biden to Do Better*, N.Y. TIMES (Jan. 20, 2022), <https://www.nytimes.com/2022/01/20/us/politics/democrats-biden-civilian-casualties.html> [<https://perma.cc/2Y72-D2SC>].

157. *Id.*

158. Letter from Sen. Elizabeth Warren et al., to President Joe Biden (Jan. 20, 2022), <https://www.warren.senate.gov/imo/media/doc/2022.01.20%20Letter%20to%20Biden%20re%20drone%20targeting1.pdf> [<https://perma.cc/3PSP-QU54>].

159. Edmondson, *supra* note 156.

160. *Id.*

161. Jeremy Scahill, *The Mysterious Case of Joe Biden and the Future of Drone Wars*, THE INTERCEPT (Dec. 15, 2021, 12:59 PM), <https://theintercept.com/2021/12/15/drone-strikes-joe-biden-pentagon-kabul> [<https://perma.cc/C2E2-9FRF>].

162. Savage & Schmitt, *supra* note 150.

163. Bruce Hoffman, *How Has the Terrorism Threat Changed Twenty Years After 9/11?*, COUNCIL ON FOREIGN RELS. (Aug. 12, 2021, 2:09 PM), <https://www.cfr.org/in-brief/how-has-terrorism-threat-changed-twenty-years-after-911> [<https://perma.cc/5XFH-W47Y>].

164. *Id.*

165. Michael Carl Haas & Sophie-Charlotte Fischer, *The Evolution of Targeted Killing Practices: Autonomous Weapons, Future Conflict, and the International Order*, 38 CONTEMP. SEC. POL'Y 281, 285 (2017).

Leadership targeting is most often accomplished through targeted killings.¹⁶⁶ With Western states developing AWS, it is likely that Western states will use AWS in targeted killings for both state and nonstate actors.¹⁶⁷ Ultimately, this will lead to a “significant increase in the scope and incidence of targeted killings in the international system.”¹⁶⁸ Without a ban or significant regulations in place, it will be left to individual states to decide how to implement AWS in their targeted killing programs.¹⁶⁹ Furthering the use of targeted killings through AWS would set a dangerous precedent.¹⁷⁰

A. *Banning AWS*

1. *General Arguments to Ban AWS*

The first revolution of warfare was gunpower, the second was nuclear weapons, and now, AWS have been described as the third revolution in warfare.¹⁷¹ AWS could fundamentally change how conflicts are fought and how civilians experience conflicts.¹⁷² Leaving AWS unregulated could have devastating ramifications.¹⁷³ The development of AI technology has already become competitive, with suggestions that the AI arms race is reminiscent of the Cold War nuclear arms race.¹⁷⁴ Due to a lack of communication, states are rapidly developing AWS assuming other states are developing AWS at faster rates.¹⁷⁵ This is significant as the race “turns into [a] self-fulfilling prophecy . . . you enter this spiral where each one assumes the other has an advantage. . . . You can end up in a situation where you’re already fighting, when neither party originally wanted to.”¹⁷⁶ Moreover, because weapons equipped with AI do not require costly or rare materials, they can be easily mass-produced.¹⁷⁷ Dictators, proponents of ethnic cleansing, warlords, or states at war could obtain these weapons to inflict serious damage.¹⁷⁸

166. *Id.* at 290.

167. *See id.* at 282, 291 (“Both future conventional and hybrid conflict scenarios may see the use of targeted killings for purposes including enhanced conventional deterrence, micro-targeting of enemy leadership personnel, intimidation of enemy leaders and populations, attempts at conflict limitation and escalation control, and deniability of semi-covert air operations.”).

168. *Id.* at 300.

169. *Id.*

170. *Id.* at 299.

171. Kai-Fu Lee, *The Third Revolution in Warfare*, ATLANTIC (Sept. 11, 2021), <https://www.theatlantic.com/technology/archive/2021/09/i-weapons-are-third-revolution-warfare/620013> [<https://perma.cc/64S8-KYDF>].

172. *Id.*

173. Mark Sullivan, *The U.S. is Alarming Close to an Autonomous Weapons Arms Race*, FAST CO. (May 27, 2021), <https://www.fastcompany.com/90640573/autonomous-weapons-war> [<https://perma.cc/7VTR-KGEN>].

174. *Id.*

175. *Id.* (“There’s an AI arms race where I’m worried about your development of this technology and you’re worried about my development of this technology, and neither of us communicates that we’re aware of the limitations,” said Chris Meserole, director of research and policy for the Artificial Intelligence and Emerging Technology Initiative at the Brookings Institution.”).

176. *See id.* (stating that mutual paranoia will be worse in the case of an arms race involving AWS).

177. *Id.*

178. *Id.*

Additionally, full autonomy in war may undermine democratic peace.¹⁷⁹ Kant's theory of democratic peace rests upon the thought that the public will not support unnecessary wars if they are forced to fight in them.¹⁸⁰ It has been suggested that AWS seems like a "silver bullet" for decisionmakers.¹⁸¹ A "silver bullet" refers to a seemingly magical solution to a difficult problem; in this case the "silver bullet" would be AWS and the problem would be warfare.¹⁸² By relying on AWS to decrease chances of warfare, however, governments may end becoming more war-prone.¹⁸³ If warfare is handled by fewer soldiers due to a reliance on AWS, there is a greater incentive for states to engage in warfare as the public is less likely to sway against the decision.¹⁸⁴

Also, AI, for the foreseeable future, cannot deduce the intentions of human beings and cannot read behavioral subtleties.¹⁸⁵ These nuances make weapons using AI, like AWS, susceptible to errors—which means the wrong person may be killed.¹⁸⁶ AI systems are also vulnerable to hacking and computer malfunctions.¹⁸⁷ These variables could result in an increased number of deaths, destruction, and extended periods of war.¹⁸⁸

Finally, without public oversight and accountability, there are few limitations on lethal AI systems.¹⁸⁹ Being that humans create AI systems, these systems are vulnerable to the same gender and racial biases as their human creators.¹⁹⁰ Data-based programs have been shown to reproduce existing inequalities.¹⁹¹ This has raised concerns that machine algorithms may amplify existing humanitarian violations.¹⁹² Facial recognition systems may lead to AWS targeting civilian men instead of a female combatant because of existing gender norms.¹⁹³ Additionally, biased data sets misrecognize women of color at higher rates; this means that AWS may not recognize a woman of color as a

179. Jürgen Altmann & Frank Sauer, *Autonomous Weapon Systems and Strategic Stability*, 59 SURVIVAL: GLOB. POL. & STRATEGY 117, 118, 130 (2017).

180. Frank Sauer & Niklas Schörmig, *Killer Drones: The "Silver Bullet" of Democratic Warfare?*, 43 SEC. DIALOGUE 363, 366 (2012).

181. *Id.* at 370.

182. *Id.* at 371.

183. *Id.* at 365.

184. Press Release, Rob van der Meulen & Thomas McCall, Gartner Says Nearly Half of CIOs are Planning to Deploy Artificial Intelligence (Feb. 13, 2018), <https://www.gartner.com/en/newsroom/press-releases/2018-02-13-gartner-says-nearly-half-of-cios-are-planning-to-deploy-artificial-intelligence> [<https://perma.cc/F79W-L4MR>].

185. *Don't Let Robots Pull the Trigger*, SCI. AM. (Mar. 1, 2019), <https://www.scientificamerican.com/article/dont-let-robots-pull-the-trigger> [<https://perma.cc/BPX3-352A>].

186. *Id.*

187. van der Meulen & McCall, *supra* note 184.

188. SCI. AM., *supra* note 185.

189. *Id.*

190. *Id.*

191. Katherine Chandler, *AI is Often Biased: Will UN Member States Acknowledge This in Discussions of Autonomous Weapon Systems?*, IPI GLOB. OBSERVATORY (Sept. 20, 2021), <https://theglobalobservatory.org/2021/09/ai-is-often-biased-will-un-member-states-acknowledge-this-in-discussions-of-autonomous-weapon-systems> [<https://perma.cc/MJV3-KAUF>].

192. *Id.* ("[E]xisting data sets and algorithms skew toward white males, meaning that women of color, for example, are significantly less likely to be intelligible to machine learning programs trained to recognize images and voices.")

193. *Id.* (citing a 2016 study that concluded that AI programs unevenly predicts recidivism among genders, which makes women appear to be a higher risk than they are).

human being when targeting a specific location.¹⁹⁴ This could lead to wrongful death.¹⁹⁵

2. *Current Efforts to Ban AWS*

Currently, there is little consensus on how to proceed regulating AWS globally.¹⁹⁶ Twenty-eight states, including China, have advocated for a ban on weapons using artificial intelligence.¹⁹⁷ These states differ on whether this ban includes the development of AWS or the use of AWS in military operations.¹⁹⁸ In response, the U.S. and Russia, both members of the Security Council, have blocked any measures to form legally binding agreements on AWS.¹⁹⁹

In 2019, U.N. member countries of the Convention of Conventional Weapons (CCW) could not agree on how to regulate LAWS and agreed to reconvene at a later date.²⁰⁰ In 2021, the first autonomous drone attack occurred in Libya.²⁰¹ This propelled parties to the CCW to meet again and discuss potential new rules.²⁰² Parties to the CCW, however, included states investing heavily in AWS.²⁰³ Because of their interest in developing AWS, these states blocked a majority from voting on the establishment of legally binding rules on machine-operated weapons.²⁰⁴

Originally, parties to the CCW established a panel of experts to assess the dangers posed by AWS.²⁰⁵ The experts decided that limitations would have to be imposed to restrict the amount of overall destruction caused by AWS.²⁰⁶ The experts proposed a ban on the development and deployment of AWS.²⁰⁷ This ban would be introduced through a new CCW protocol.²⁰⁸ This has precedent; blinding lasers and restrictions on mines and booby traps were banned through new CCW protocols.²⁰⁹ This would be the most efficient way to ensure principles of IHL are not violated in armed conflict.²¹⁰ Most parties to the CCW have

194. *Id.*

195. *Id.*

196. Alexandra Brzozowski, *No Progress in UN Talks on Regulating Lethal Autonomous Weapons*, EURACTIV (Dec. 10, 2019), <https://www.euractiv.com/section/global-europe/news/no-progress-in-un-talks-on-regulating-lethal-autonomous-weapons> [https://perma.cc/4N5S-JV29].

197. *Id.*

198. *Id.*

199. Sauer, *supra* note 24, at 243.

200. *Id.* at 236.

201. *UN Talks Fail to Open Negotiations on 'Killer Robots'*, AL JAZEERA (Dec. 18, 2021), <https://www.aljazeera.com/news/2021/12/18/un-talks-fail-to-open-negotiations-on-killer-robots> [https://perma.cc/MYL2-TXLK].

202. *Id.*

203. *Id.*

204. *Accord id.* (“Sources following the talks told Reuters news agency that Russia, India, and the United States were among the countries that pushed back against a new LAWS treaty.”).

205. See Michael T. Klare, *Autonomous Weapons Systems and the Laws of War*, ARMS CONTROL ASS’N (Mar. 2019), <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war> [https://perma.cc/ZPC7-DZB7] (stating that the panel of experts included governmental experts).

206. *Id.*

207. *Id.* (emphasizing that the ban was the “first and most unequivocal” suggestion coming out of the CCW conference).

208. *Id.*

209. *Id.*

210. *Id.*

reiterated that “IHL requires human control, involvement or judgment over weapons and the use of force.”²¹¹ Both the U.S. and Russia, however, have consistently blocked measures considering such a protocol, so it would be difficult to pass through.²¹²

The U.S. delegation’s rationale for blocking the measures is that AWS could potentially provide a humanitarian benefit.²¹³ The Russian delegation, in agreement with the U.S., stated that AWS could “ensure the increased accuracy of weapon guidance on military targets, while contributing to lower rate of unintentional strikes against civilians and civilian targets.”²¹⁴ Russia also argues there is not legal precedent for a preemptive international ban on an entire class of weapons.²¹⁵ China’s position differs from both the U.S. and Russia; China supports a ban on the use, but not on the development, of AWS.²¹⁶ China defines AWS as “indiscriminate, lethal systems that do not have any human oversight and cannot be terminated.”²¹⁷ Such a weapon would not comply with IHL, and thus would be illegal—this is understood as the rationale behind China’s decision to support the ban.²¹⁸

The Campaign to Stop Killer Robots is a coalition of NGOs that have lobbied for a ban on AWS.²¹⁹ The Campaign’s proposed ban would be limited to offensive weaponry.²²⁰ In other words, the ban would not extend to antimissile and other defensive systems that automatically fire in response to an incoming attack.²²¹ Because of the current impasse within the CCW, the Campaign has begun lobbying certain nations to agree to a ban outside the CCW.²²² This tactic was used in prohibiting land mines and cluster munitions in the 1990s.²²³ States coming together, outside the CCW, to preemptively ban AWS for offensive purposes may help stabilize the technology and keep AWS out of warfare.²²⁴

211. *Areas of Alignment: Common Visions for a Killer Robots Treaty*, HUM. RTS. WATCH (Aug. 2, 2021, 12:01 PM), <https://www.hrw.org/news/2021/08/02/areas-alignment> [<https://perma.cc/3N97-6QZT>].

212. *Id.*

213. KELLEY M. SAYLER, CONG. RSCH. SERV., IF11294, INTERNATIONAL DISCUSSIONS CONCERNING LETHAL AUTONOMOUS WEAPON SYSTEMS 2 (2021) (stating that humanitarian benefits may include less collateral damage and civilian casualties).

214. *Id.*

215. *Id.*

216. *See id.* (“China is the only country that defines LAWS in this manner, and analysts note that such a weapon would be unable to comply with IHL and therefore would be inherently illegal.”).

217. *Id.*

218. *See generally id.* (“Some analysts have argued that China is maintaining ‘strategic ambiguity’ about its position on LAWS.”).

219. SCI. AMERICAN, *supra* note 185.

220. *Id.*

221. *Id.*

222. *See generally id.* (“Because of opposition from the U.S., Russia and a few others, the discussions have not advanced to the stage of drafting formal language for a ban.”).

223. *Id.* (stating that this tactic may be successful in stigmatizing the technology and help keep killer robots out of military arsenals).

224. *Id.*

B. *Regulating AWS*

1. *General Regulation Arguments*

Another strategy proposed is to regulate fully autonomous weapons.²²⁵ Because human operators make the decision to launch fully autonomous weapons, standards can be proposed relating to accountability and permissible usages of fully autonomous weapons.²²⁶ Advocates reason that a treaty, domestic statutes, nonbinding resolutions, or codes of conduct may be more helpful than a complete ban.²²⁷ Further, proponents of AWS argue that states are more likely to comply with regulations than a complete ban.²²⁸ They also argue that AWS will be able to respect IHL and would resolve compliance issues.²²⁹ In this context, the action would be a commander launching the AWS, and so the argument follows that it is easier to define permissible conduct here than in other weapons systems.²³⁰ However, regulating AWS would be difficult given its current stage of development.²³¹ Defining AWS has been difficult to standardize; additionally, because AWS are in early development, it would be difficult to create meaningful regulations that were not either too narrow or too broad.²³² Solutions and regulation is difficult to predict as it is impossible to predict where the technology is heading.²³³

2. *Human in the Loop Approach*

Finally, there is a human in the loop approach.²³⁴ It ensures that the final decision to kill would be made with human consent.²³⁵ This would limit civilian casualties and ensure there is a person to hold accountable for deaths or destruction.²³⁶ Proponents of this approach liken autonomous weapons to automated systems in nonmilitary contexts, like autonomous planes and automated procedures in medical surgeries.²³⁷ In these arenas, the use of automated systems is encouraged.²³⁸ However, the human in the loop in AWS is different than the surgeon on the loop in the case of automated medical

225. John Lewis, *The Case for Regulating Fully Autonomous Weapons*, 124 YALE L.J. 1309, 1314 (2015).

226. *Id.* at 1324.

227. Alejandro Chehtman, *New Technologies Symposium: Autonomous Weapons Systems— Why Keeping a 'Human on the Loop' is Not Enough*, OPINIO JURIS (Aug. 5, 2019), <http://opiniojuris.org/2019/05/08/new-technologies-symposium-autonomous-weapons-systems-why-keeping-a-human-on-the-loop-is-not-enough> [<https://perma.cc/44H2-R3V4>].

228. MICHAEL A. GUETLEIN, LETHAL AUTONOMOUS WEAPONS — ETHICAL AND DOCTRINAL IMPLICATION 21 (2005), <https://apps.dtic.mil/sti/pdfs/ADA464896.pdf> [perma.cc/A7ND-MMM9].

229. *Id.* at 10–11.

230. *Id.* at 7.

231. Brzozowski, *supra* note 196.

232. *Id.* (“EU lawmakers are currently looking for ways on how to impose certain limits and standards with work towards a common definition steering towards the creation of norms, even in the absence of binding legal instruments.”).

233. *Id.*

234. Lee, *supra* note 171.

235. *Id.*

236. *Id.*

237. Chehtman, *supra* note 227.

238. *Id.*

surgeries.²³⁹ Algorithms could work in automated medical surgeries because algorithms are able to process large amounts of data.²⁴⁰ This may be helpful in a nonmilitary context; even then, however, surgeons may need to make evaluative assessments.²⁴¹

With AWS in particular, AI is moving from algorithms toward neural networks, which are deep learning algorithms.²⁴² This means the process is even less transparent than before.²⁴³ Neural network systems learn as they interact with new environments, so that the systems can explore new environments, evaluate them, and learn to move around in them.²⁴⁴ It is thereby almost impossible for users of these systems to understand what the basis was behind a particular decision.²⁴⁵ Thus, if a human in the loop is unable to understand the decision that an automated weapon makes, the human is more prone to error.²⁴⁶

Additionally, AWS are designed to be quick and precise; having a human in the loop would take away the benefits of using AWS and essentially make it into a drone.²⁴⁷ The U.S. has acknowledged this, stating that “‘human judgment over the use of force’ does not require manual human ‘control’ of the weapon system,” but rather “broader human involvement” is used in choosing the weapon and the location of the target.²⁴⁸

C. Leaving AWS Unregulated

Among the largest justifications for leaving AWS unregulated is the argument that AWS will perform warfighting functions more effectively than humans.²⁴⁹ In performing warfighting functions better, AWS could theoretically reduce collateral damage in combat.²⁵⁰ If AWS could minimize the number of lives lost, AWS would have longer endurance than the average soldier and immunity to certain types of weaponry.²⁵¹ These weapons, however, have significant risks that may outweigh the potential benefits.²⁵² Because of the advanced technology used in creating AWS, “full awareness of the risks from

239. *Id.* (emphasizing that a human in the loop would be different within the context of AWS due to AI’s lack of transparency. Algorithms are not public and process data in way that are “beyond the reach of a human brain.”).

240. *Id.*

241. *See id.* (distinguishing between “highly automated” processes and “autonomous” weapons systems).

242. *Id.*; PHILIP FELDMAN ET AL., INTEGRATING ARTIFICIAL INTELLIGENCE INTO WEAPONS SYSTEMS, ARXIV § I (May 10, 2019), <https://arxiv.org/pdf/1905.03899.pdf> [perma.cc/P4LA-LC27].

243. Feldman et al., *supra* note 242, at § III.

244. Michael Skirpan, *How Do Neural Networks Learn?*, KDNUGETS (Dec. 2015), <https://www.kdnuggets.com/2015/12/how-do-neural-networks-learn.html> [perma.cc/22PJ-Q5BU].

245. Chehtman, *supra* note 227.

246. *Id.*

247. *See id.* (explaining how delays cause by the speed difference between a human and AWS could cost human lives).

248. SAYLER, *supra* note 94, at 1.

249. Christopher P. Toscano, “*Friend of Humans*”: An Argument for Developing Autonomous Weapons Systems, 8 J. NAT’L SEC. L. POL’Y, May 8, 2014, at 1, 51–52.

250. *Id.*

251. Kelly Cass, *Autonomous Weapons and Accountability: Seeking Solutions in the Law of War*, 48 LOY. L.A. L. REV. 1017, 1027–30 (2015).

252. *Id.*

autonomous robots may be impossible.²⁵³ In other words, AWS programmers could not, with certainty, predict how AWS will behave during combat.²⁵⁴ This is partly due to AWS' emergent behaviors which are "behaviors not programmed but arising out of sheer complexity."²⁵⁵ While human combatants can make errors, AWS pose a special risk because of their broad capabilities and ability to cause largescale destruction.²⁵⁶

Proponents also argue that AWS would be capable of complying with IHL.²⁵⁷ The technology behind AWS could provide increased granularity in targeted killings, so AWS would potentially comply with the principle of distinction.²⁵⁸ Roboticists have floated different ideas to ensure that AWS would comply with principles fundamental to IHL.²⁵⁹ A popular idea includes developing strong AI to mimic human thought so that AWS can distinguish between civilians and combatants.²⁶⁰ Even so, however, combat requires split-second decisions based on understanding intent.²⁶¹ AWS would be placed in situations where the difference between civilian and combatant is nuanced.²⁶² Seeing the difference would require human comprehension, something that would be impossible for AWS.²⁶³

AWS would also lack emotions, notably compassion, which can provide an important check on killing civilians.²⁶⁴ These weapons systems would likely run counter to the Martens Clause, which states belligerents in armed conflict must behave within "the laws of humanity and dictates of public conscience."²⁶⁵ Thus, weapons that do not fall into the scope of IHL, like AWS, also violate the Martens Clause.²⁶⁶

Finally, advocates utilize historical comparisons in making the case to leave AWS unregulated.²⁶⁷ For example, the creation of the hot air balloon led

253. *Id.* at 1029.

254. *Id.*

255. *Id.*

256. See *Killer Robots: Military Powers Stymie Ban*, HUM. RTS. WATCH (Dec. 20, 2021, 7:01 PM), <https://www.hrw.org/news/2021/12/19/killer-robots-military-powers-stymie-ban> [https://perma.cc/HMR4-9QUS] (discussing efforts to draft an autonomous weapons treaty).

257. Shane R. Reeves & William J. Johnson, *Autonomous Weapons: Are You Sure These Are Killer Robots? Can We Talk About It?*, ARMY LAW. 25, 26–27 (Apr. 2014).

258. *Id.*

259. See *Losing Humanity: The Case Against Killer Robots*, HUM. RTS. WATCH (Nov. 19, 2012), <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots> [https://perma.cc/GYT8-8J2G] ("To comply with international humanitarian law, fully autonomous weapons would need human qualities that they inherently lack.").

260. *Contra id.* ("To comply with international humanitarian law, fully autonomous weapons would need human qualities that they inherently lack," including "distinguishing between a fearful civilian and a threatening enemy combatant"); *id.* (stating that in any context, "robots with complete autonomy would be incapable of meeting international humanitarian law standards.").

261. *Id.*

262. *Id.*

263. Extrajudicial Executions Report, *supra* note 18, at 10.

264. *Id.*

265. HENSEL, *supra* note 64, at 136.

266. *Id.*

267. See *e.g.*, Reeves & Johnson, *supra* note 257, at 27–28 (laying out the history of several aerial bombardment weapons, and how efforts to ban them failed).

to the creation of aerial bombardment and resulted in the latter's ban.²⁶⁸ After the ban expired, aerial bombardments were heavily used, particularly in World War II.²⁶⁹ Later attempts to regulate and ban aerial bombardments failed, but the technology of air warfare assisted with the creation of smart bombs.²⁷⁰ Advocates argue, "misguided attempt[s] to ban aerial bombardment retarded the development of the more discriminative technology," and if that technology had developed, there would have been less casualties during World War II.²⁷¹ In the case of AWS, however, the circumstances are different.²⁷² Activists propose banning weapons that "by their nature select and engage targets without meaningful human control."²⁷³ Here, the objective is banning systems that would produce unpredictable results due to the lack of human control.²⁷⁴

Banning weapons due to a lack of meaningful human control has precedent.²⁷⁵ The Mine Ban Treaty was formed to ban antipersonnel mines, which are designed to be exploded by the presence of a human being.²⁷⁶ These mines endangered civilians and violated IHL's principle of distinction.²⁷⁷ The Treaty does not, though, ban command-detonated mines as human operators ultimately make the decision to detonate.²⁷⁸ Similarly, for AWS, there are large concerns about control in a category of newly emerging weapons systems.²⁷⁹ Unlike the hot air balloon example, there is already significant support for maintaining human control in weapons systems.²⁸⁰ During the first CCW meeting addressing AWS, parties agreed on a guiding principle, "[h]uman-machine interaction . . . should ensure that the potential use of weapons systems based on emerging technologies in the area of lethal autonomous weapons systems is in compliance with applicable international law, in particular IHL."²⁸¹ This guiding principle has been reaffirmed in subsequent CCW meetings.²⁸²

268. *Id.* ("Many feared that aerial bombing from great heights would cause too much collateral damage. This fear was addressed during the Hague Conference in 1899. The current conversation on autonomous weapons mirrors that which occurred for aerial bombardment during the Hague Conference . . .").

269. *Id.* at 29–30.

270. *Id.*

271. *Id.*

272. See *New Weapons, Proven Precedent*, HUM. RTS. WATCH (Oct. 20, 2020), <https://www.hrw.org/report/2020/10/20/new-weapons-proven-precedent/elements-and-models-treaty-killer-robots> [<https://perma.cc/P78Y-7CVQ>] (describing how autonomous weapons are distinguished by their lack of human control).

273. *Id.*

274. *Id.*

275. *Id.*

276. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, Preamble, Sept. 18, 1997, 2056 U.N.T.S. 241.

277. *Id.*

278. HUM. RTS. WATCH, *supra* note 272.

279. Reeves & Johnson, *supra* note 257, at 25–26.

280. *Id.*; HUM. RTS. WATCH, *supra* note 272.

281. Ljupčo Gjorgjinski (Chairperson of Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems), *Convention on Prohibitions or Restrictions on the Uses of Certain Conventional Weapons Which May Be Deemed to be Excessively Injurious or to Have Indiscriminate Effects*, 13, U.N. Doc. CCW/GGE.1/2020/WP.7 (Apr. 19, 2021), https://documents.unoda.org/wp-content/uploads/2020/07/CCW_GGE1_2020_WP_7-ADVANCE.pdf [<https://perma.cc/5NNZ-MS8M>].

282. *Id.* at 14.

IV. RECOMMENDATION

Both the future of AWS and targeted killings are unclear.²⁸³ With regards to AWS, states are advancing their AI capabilities at differing rates.²⁸⁴ As a result, some countries will be better equipped to begin using AWS in targeted killings before others.²⁸⁵ Because AWS are still being developed at differing rates, the international law applicable to AWS is unclear.²⁸⁶ It is uncertain how AWS will be categorized.²⁸⁷

While it would be difficult to control the development of AWS within a particular state, AWS should be banned from targeted killings.²⁸⁸ AWS pose the risk of violating IHL principles, notably the principle of distinction.²⁸⁹ Targeted killings have consistently violated the principle of distinction.²⁹⁰ Expanding the use of targeted killings through AWS would increase the risk of “escalating crises at the behavioral level” and erode principles, such as distinction, that govern the use of violence globally.²⁹¹ Thus, AWS should be banned. A ban would most likely come about through a consensus-based approach, similar to the approach used in ratifying The Treaty on the Prohibition of Nuclear Weapons.²⁹²

A. Comparing AWS to Nuclear Weapons

AWS should not be compared to drones because they more closely resemble nuclear weapons.²⁹³ AI, critical to the development of AWS, played a large role of the development of nuclear weapons as well.²⁹⁴ Both the U.S. and the Soviet Union recognized the importance of AI in making nuclear weapons more efficient.²⁹⁵ Early applications of AI in nuclear weapons focused on automating threat detection and missile targeting.²⁹⁶ While the U.S. intended to

283. Haas & Fischer, *supra* note 165, at 296–97.

284. SAYLER, *supra* note 118, at 20–25.

285. Haas & Fischer, *supra* note 165, at 296–97.

286. *Id.*

287. *Id.* at 292–93.

288. *But see* Lewis, *supra* note 225, at 1310 (arguing that regulation, rather than an outright ban, would be more effective in ensuring fully autonomous weapons comply with international law).

289. Kenneth Anderson et al., *supra* note 54, at 402.

290. NILS MELZER, TARGETED KILLING IN INTERNATIONAL LAW 206 (2008).

291. Martin Senn & Jodok Troy, *The Transformation of Targeted Killing and International Order*, 38 CONTEMP. SEC. POL’Y 175, 183, 194 (2017).

292. *See Treaty on the Prohibition of Nuclear Weapons*, U.N. OFF. FOR DISARMAMENT AFFS., <https://www.un.org/disarmament/wmd/nuclear/tpnw> [<https://perma.cc/T5BB-XA65>] (discussing the participation and contribution of international organizations and civil society members in negotiating a legally binding instrument) (last visited Oct. 5, 2022).

293. *See* Vincent Boulanin, *AI & Global Governance: AI and Nuclear Weapons – Promise and Perils of AI for Nuclear Stability*, U.N. UNIV. CTR. FOR POL’Y RSCH. (Dec. 7, 2018), <https://cpr.unu.edu/publications/articles/ai-global-governance-ai-and-nuclear-weapons-promise-and-perils-of-ai-for-nuclear-stability.html> [<https://perma.cc/9KZM-66NU>] (comparing AWS to nuclear weapons).

294. *Id.* (“The connection between AI and nuclear weaponry is not new. In fact, AI has been part of the nuclear deterrence architecture for decades. As early as in the 1960s, the United States and the Soviet Union saw that the nascent field of AI could play a role in the development and maintenance of their retaliatory capability . . .”).

295. *Id.*

296. *Id.*

keep a human in the loop, the Soviet Union pursued the development of a fully-automated command system for nuclear weapons—the system would only be used in response to a decapitating attack on the Soviet Union’s nuclear command and control, however.²⁹⁷ The Soviet Union’s system for regulating its nuclear weapons highlights the risks posed by such a dangerous weapon.²⁹⁸ The Soviet Union understood that nuclear weapons used offensively could have widespread consequences and, as a result, only used the fully automated command system for defensive purposes.²⁹⁹

Decades later, recognizing potential consequences resulting from unchecked nuclear weapons, 122 states approved a ban on nuclear weapons and signed The Treaty on the Prohibition of Nuclear Weapons.³⁰⁰ This was instrumental in furthering the discussion of banning nuclear weapons.³⁰¹ In comparing nuclear weapons and AWS, it is important to note the potential ramifications of both weapons systems. Human rights specialists have noted that AWS “make the unsteady balances and fragmented safeguards of the nuclear world . . . more unsteady and more fragmented.”³⁰² The potential consequences resulting from a nuclear attack are more like the potential consequences resulting from a potential AWS attack.³⁰³

B. Proposed Methodology for an AWS Ban

The bans on landmines, cluster munitions, and nuclear weapons are the most powerful and comprehensive weapons bans today.³⁰⁴ The movement to ban these weapons gained traction through consortiums of less powerful states, assisted by NGOs.³⁰⁵ In achieving these bans, these states abandoned the CCW process and pushed for a stand-alone treaty instead.³⁰⁶ Stand-alone treaties were negotiated in less powerful states; this is significant because it allowed the

297. *Id.*

298. *See id.* (describing how the fully automated command and controls system for nuclear weapons was meant to be activated only in an exceptional case of a “decapitating” attack).

299. *Id.*

300. G.A. Res. 72/31 (July 7, 2017); Aria Bendix, *122 Nations Approve ‘Historic’ Treaty Banning Nuclear Weapons*, ATLANTIC (July 8, 2017), <https://www.theatlantic.com/news/archive/2017/07/122-nations-approve-historic-treaty-to-ban-nuclear-weapons/533046> [<https://perma.cc/YJ4K-RSQF>].

301. *See* Bendix, *supra* note 300 (describing how the agreement is a clear statement that the international community wants to move away from nuclear weapons).

302. James Dawes, *An Autonomous Robot May Have Already Killed People – Here’s How the Weapons Could be More Destabilizing than Nukes*, CONVERSATION (Sept. 29, 2021, 8:23 AM), <https://theconversation.com/an-autonomous-robot-may-have-already-killed-people-heres-how-the-weapons-could-be-more-destabilizing-than-nukes-168049> [<https://perma.cc/Z6U8-JZKS>].

303. *See* Toby Walsh, *Lethal Autonomous Weapons and World War III: It’s Not Too Late to Stop the Rise of ‘Killer Robots’*, CONVERSATION (Aug. 11, 2021, 10:12 PM), <https://theconversation.com/lethal-autonomous-weapons-and-world-war-iii-its-not-too-late-to-stop-the-rise-of-killer-robots-165822> [<https://perma.cc/L2NA-JEPL>] (discussing the similar threat to global security that nuclear weapons and autonomous weapons present).

304. Charli Carpenter, *A Better Path to a Treaty Banning ‘Killer Robots’ Has Just Been Cleared*, WORLD POL. REV. (Jan. 7, 2022), <https://www.worldpoliticsreview.com/articles/30232/a-better-path-to-a-treaty-banning-ai-weapons-killer-robots> [<https://perma.cc/TVE9-8JNT>].

305. *Id.*

306. *Id.*

smaller world powers to set the agenda.³⁰⁷ It also enabled the smaller world powers to set their own procedural rules, which helped with voting processes.³⁰⁸

The CCW would be a less effective means of passing a weapons ban as it operates by consensus.³⁰⁹ This means that states (like the U.S. or Russia) who want to develop AWS could veto or stall progress on talks.³¹⁰ Agreements that do come out of agreements like the CCW also tend to be weaker.³¹¹

If a treaty banning AWS were to pass, it is likely that major world actors would oppose the treaty.³¹² Ideally, compliance from these states would further legitimize the treaty.³¹³ Critics maintain a total ban may not be effective in changing state policies because there is an incentive to gain disproportionate advantages by ignoring such constraints.³¹⁴ With the Treaty on the Prohibition of Nuclear Weapons, major world actors with nuclear weapons rejected the treaty.³¹⁵ Noticeably, all of the permanent members of the U.N. Security Council did not sign the treaty.³¹⁶ In cases where major world actors did not sign weapons ban treaties, however, the actors ended up changing their behaviors to reflect the treaty.³¹⁷

Today though, the existence of the treaty has strengthened the “nuclear taboo.”³¹⁸ The U.N. Security Council, made up of the states that did not sign the treaty, signed a joint pledge to reduce the risk of a nuclear war occurring.³¹⁹ The members of the Security Council pledged to avoid the use of nuclear weapons and committed to stopping the spread of the weapons.³²⁰ The pledge stated, “a nuclear war cannot be won and must never be fought.”³²¹ In smaller world powers signing the Treaty on the Prohibition of Nuclear Weapons, they joined together to perhaps force larger world powers to take a stance on nuclear weapon disarmament.³²²

The Campaign to Stop Killer Robots has united more than a hundred NGOs based in various countries and thousands of experts.³²³ Some of these experts

307. *Id.*

308. *Id.*

309. Haas & Fischer, *supra* note 165, at 296; Elvira Rosert & Frank Sauer, *Prohibiting Autonomous Weapons: Put Human Dignity First*, 10 GLOB. POL’Y 370, 371 (2019).

310. Carpenter, *supra* note 304.

311. *Id.*

312. *See id.* (discussing that treaties have ultimately left out a significant number of states).

313. *See id.* (discussing desired compliance from other states).

314. Michael A. Newton, *Back to the Future: Reflections on the Advent of Autonomous Weapons Systems*, 47 CASE W. RESV. J. INT’L L. 5, 8–9 (2015).

315. Carpenter, *supra* note 304.

316. *Id.*

317. *Id.*

318. *Id.*

319. Julian Borger, *Five of World’s Most Powerful Nations Pledge to Avoid Nuclear War*, GUARDIAN (Jan. 3, 2022, 2:54 PM), <https://www.theguardian.com/world/2022/jan/03/five-nations-pledge-avoid-nuclear-war> [https://perma.cc/2AQ6-J77B].

320. *Id.*

321. *Id.*

322. *See* HUM. RTS. WATCH, *supra* note 273 (stating that the treaty highlights the suffering by victims and acknowledges the “ethical imperatives for nuclear disarmament”).

323. Nik Hynek & Anzhelika Solovyeva, *Operations of Power in Autonomous Weapon Systems: Ethical Conditions and Socio-Political Prospects*, 36 AI & SOC’Y 79, 79 (2021).

include notable businesspersons, Nobel Peace Prize laureates, and politicians.³²⁴ Although not formally associated with the Campaign, a number of governments, other large organizations (like the International Committee of the Red Cross and the Future of Life Institute), and well-known bureaucrats in the U.N. are active supporters of the Campaign's objectives.³²⁵

A treaty involving NGOs and smaller states could enumerate obligations that elaborate on states' responsibilities.³²⁶ The responsibilities would ensure that meaningful human control is maintained over both AWS and weapons systems that could be used without human control.³²⁷ A treaty like this has precedent.³²⁸ The Arms Trade Treaty lists out similar obligations for states participating.³²⁹ Taking from this example, drafters of the AWS treaty could draw from the Arms Trade Treaty for structure, and the precedent could be used to garner further political support for the AWS treaty.³³⁰

C. *Ramifications of Using AWS in Targeted Killings*

In targeted killings, AWS have far-reaching consequences.³³¹ Without meaningful human control, it will be difficult to hold officials accountable.³³² Algorithmic errors in AWS could lead to the accidental loss of life.³³³ Experts compare these errors to the metaphor of the runaway gun, in which a defective machine gun continues to fire after the trigger is pulled.³³⁴ The gun continues to fire until it runs out of ammunition or has a human operator rectify the situation.³³⁵ In a situation where a targeted killing is carried out by AWS, there would not be a human operator able to correct the problem.³³⁶

The potential ramifications of leaving AWS unregulated are unclear, but with technology rapidly developing, the law has to preempt potential human rights violations that could be caused by AWS.³³⁷ Targeted killings have consistently been criticized for human rights violations.³³⁸ Some of these criticisms include that targeted killings perpetuate civilian casualties, that there are no clear justifications for targeted killings to occur, and that there is a lack

324. *Id.* at 79, 85.

325. *Id.* at 80.

326. JENNIFER AMBROSE ET AL., *ADVOCACY IN CONFLICT: CRITICAL PERSPECTIVES ON TRANSNATIONAL ACTIVISM* 227 (Alex de Waal ed., 2015).

327. HUM. RTS. WATCH, *supra* note 272.

328. JENNIFER AMBROSE ET AL., *supra* note 326, at 228.

329. *Id.* at 233–34.

330. HUM. RTS. WATCH, *supra* note 273.

331. SAYLER, *supra* note 213, at 2.

332. Ingvild Bode & Hendrik Huelss, *Autonomous Weapons Systems and Changing Norms in International Relations*, 44 *REV. INT'L STUD.* 393, 403 (2018).

333. *Id.* at 403, 412.

334. James Dawes, *UN Fails to Agree on 'Killer Robot' Ban as Nations Pour Billions into Autonomous Weapons Research*, *CONVERSATION* (Dec. 20, 2021, 8:14 AM), <https://theconversation.com/un-fails-to-agree-on-killer-robot-ban-as-nations-pour-billions-into-autonomous-weapons-research-173616> [perma.cc/F392-ZB9W].

335. *Id.*

336. *Id.*

337. Haas & Fischer, *supra* note 165, at 299.

338. *Targeted Killing*, ACLU, <https://www.aclu.org/issues/national-security/targeted-killing> [perma.cc/7HUB-MT6Z] (last visited Oct. 6, 2022).

of oversight of these programs.³³⁹ AWS being used in targeted killings would exacerbate these issues.³⁴⁰

As the U.S. alters its targeted killings program, it is unclear where the program is headed.³⁴¹ Using AWS in targeted killings would combine two legally murky areas, making state conflict and eventual war more likely.³⁴² The use of AWS in targeted killings would also continue to increase the possibility of harm to civilians and unrelated parties.³⁴³ Given that AI technology is still developing, AWS are still subject to vulnerabilities which impact the overall effectiveness of the weapons.³⁴⁴ Moreover, using AWS in targeted killings would not only continue the practice of targeted killings in the U.S. but increase the practice of targeted killings throughout the world.³⁴⁵

AWS should be treated like landmines, cluster munitions, and nuclear weapons and should be banned from use.³⁴⁶ States recognized these weapons could have catastrophic ramifications if left unregulated and came together to ban them.³⁴⁷ Because AWS could have similarly devastating consequences, they should be banned from targeted killings.³⁴⁸

V. CONCLUSION

Using AWS in targeted killings would be disastrous.³⁴⁹ In addition to an arms race, the potential of AWS exacerbating warfare and mass civilian casualties are concerns shared by both specialists in the AI field and human rights field.³⁵⁰ With regard to the use of AWS in targeted killings, states can respond in different ways. States can ban AWS altogether from war and military operations.³⁵¹ They could also regulate AWS and ensure that a human operator is in the loop and makes the decision to kill.³⁵² However, this would be difficult given AWS' current iteration.³⁵³ A human operator making the decisions would cause significant lag time, thus nullifying the benefits of AWS.³⁵⁴

339. *Id.*

340. Haas & Fischer, *supra* note 165, at 284.

341. *Id.* at 301.

342. Michael Press, *Of Robots and Rules: Autonomous Weapons Systems in the Law of Armed Conflict*, 48 GEO. J. INT'L L. 1137, 1360 (2017).

343. Haas & Fischer, *supra* note 165, at 292.

344. van der Meulen & McCall, *supra* note 184.

345. Haas & Fischer, *supra* note 165, at 300.

346. G.A. Res. 72/31 (July 7, 2017).

347. *Id.*

348. HUM. RTS. WATCH, *supra* note 81.

349. FUTURE OF LIFE INST. *supra* note 142.

350. *Our Member Organisations, STOP KILLER ROBOTS*, <https://www.stopkillerrobots.org/a-global-push/member-organisations> [perma.cc/CHG5-445U] (last visited Oct. 6, 2022).

351. Mary Wareham, *Stopping Killer Robots*, HUM. RTS. WATCH (Aug. 10, 2020), <https://www.hrw.org/report/2020/08/10/stopping-killer-robots/country-positions-banning-fully-autonomous-weapons-and> [https://perma.cc/7YQY-LG8J].

352. *Id.*

353. Christian Alwardt & Niklas Schörnig, *A Necessary Step Back? Recovering the Security Perspective in the Debate on Lethal Autonomy*, 10 Z. FRIEDENS UND KONFLFORSCH. 295, 300 (2021) (Ger.).

354. *Id.*

This Note recommends that AWS be treated like nuclear weapons, as their ability to cause mass destruction most closely resembles nuclear weapons.³⁵⁵ Thirty-one countries have explicitly called for a ban on AWS, and there is a growing movement of scientists, human rights activists, and politicians that are calling for a complete ban on AWS as well.³⁵⁶ Most states agree with the proposals set forth by the Campaign to Stop Killer Robots, stating that “human control over the use of force and weapons systems should be preserved.”³⁵⁷

This Note also recommends implementing the ban through a consensus-based approach. As stated previously, the CCW is not the only arena to bring forward a binding ban.³⁵⁸ As with nuclear weapons, landmines, and cluster munitions, a coalition of small governments and nongovernmental organizations could work together to create a treaty banning the use of AWS.³⁵⁹ Although it is unlikely that major world powers would sign on, bans introduced in this manner have shifted conversations and have eventually resulted in world powers implicitly agreeing with the bans.³⁶⁰ In the context of targeted killings, banning AWS would ensure that these calamitous weapons do not cause unnecessary death or destruction.

355. *Killer Robots: Urgent Need to Fast-Track Talks*, HUM. RTS. WATCH (Aug. 2, 2021, 12:01 AM), <https://www.hrw.org/news/2021/08/02/killer-robots-urgent-need-fast-track-talks> [perma.cc/GZ9R-EM8C].

356. *Id.*

357. HUM. RTS. WATCH, *supra* note 211.

358. Brzozowski, *supra* note 196.

359. HUM. RTS. WATCH, *supra* note 211.

360. *Id.*