# ACCOUNTABILITY AND DECISION MAKING IN AUTONOMOUS WARFARE: WHO IS RESPONSIBLE?

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*Abstract*

*Who is the enemy? How can you distinguish between the civilians and the noncivilians? The same people who come and work in the bases at daytime, they just want to shoot and kill you at nighttime. So how can you distinguish between the two? The good or the bad? All of them looked the same.*[1]

*This Article addresses the use of autonomous weapons systems ("AWS"). This Article only concerns itself with AWS used for offensive purposes. That is distinct from defensive weapons systems, including Israel's Iron Dome*[2] *and U.S. missile defense systems.*[3] *Similarly, this Article does not address use of AWS for purposes of neutralizing Improvised Explosive Devices ("IED") or evacuating a wounded soldier.*

*The use of AWS potentially minimizes risks to soldiers—at least in the short term. It suggests sleek technology. The dead are a hazy visual on a screen. It is antiseptic, as neither the smell of burning flesh nor the sound of agony can be heard by those programming the AWS or those sitting behind a screen observing the effects of a "hit." Autonomous warfare has also been positively portrayed in Hollywood movies; technological sophistication inherently possesses an undeniable "cool" factor that is engaging, engrossing, and compelling. However, the positive lens with which it is viewed through Hollywood is a limited glimpse of its role.*

*Weapons created for the purpose of autonomously determining when the nation-state can kill a human being raises profoundly important questions regarding humanity, ethics, and defense. While the use of force*

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[1] MICHAEL BILTON & KEVIN SIM, FOUR HOURS IN MY LAI 74 (1992).

[2] *See Israel Defense Forces: Iron Dome Missile Defense System*, JEWISH VIRTUAL LIBR., http://www.jewishvirtuallibrary.org/jsource/Peace/IronDome.html [https://perma.cc/5YAP-44BG].

[3] *See U.S. Missile Defense Programs at a Glance*, ARMS CONTROL ASS'N (Aug. 17, 2016), https://www.armscontrol.org/factsheets/usmissiledefense [https://perma.cc/VDE5-58DN].

*by the nation-state is regulated, whether by international law or rules of engagement, the introduction of AWS challenges the notion of whether—and at what point—proposed decision making should be removed from human control and judgment.*

## INTRODUCTION

The use of AWS is an issue of great and pressing significance. While for some it is but a figment of their imagination, reality suggests otherwise: "Most technical experts . . . assume that it is only a matter of time before such systems are operational. The US Department of Defense has drawn up an official plan to develop and bring into service autonomous systems increasingly up to 2038."[4]

There is, then, great urgency in this discussion. The question, in its starkest form, is whether "kill" decisions should be made by man or machine. The decision is distinct from the implementation. The question is whether nation-states should adopt weapons systems whereby "human life would be devalued if life and death decisions were ceded to a machine."[5]

My primary objections to AWS are two-fold: (i) accountability and (ii) removing humans from use of force decision making. These two concerns were addressed in an Open Letter signed by 1,000 leading Artificial Intelligence and Robotics Researchers. The concerns articulated below reflect my profound discomfort with AWS:

> Autonomous weapons select and engage targets without human intervention. They might include, for example, armed quadcopters that can search for and eliminate people meeting certain pre-defined criteria, but do not include cruise missiles or remotely piloted drones for which humans make all targeting decisions. Artificial Intelligence (AI) technology has reached a point where the deployment of such systems is — practically if not legally — feasible within years, not decades, and the stakes are high: autonomous weapons have been described as the third revolution in warfare, after gunpowder and nuclear arms.
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> Many arguments have been made for and against autonomous weapons, for example that replacing human soldiers by machines is good by reducing casualties for the owner but bad by thereby lowering the threshold for going to battle. The key question for humanity today is whether to start a global AI arms race or to prevent it from starting.

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[4] ROBIN GEISS, THE INTERNATIONAL-LAW DIMENSON OF AUTONOMOUS WEAPONS SYSTEMS 4 (2015) http://library.fes.de/pdf-files/id/ipa/11673.pdf [https://perma.cc/C29G-DHK9]; Chris Cole, *BAE Systems Pushing Ahead with Autonomous Drone Targeting*, DRONE WARS UK (Nov. 6, 2016), https://dronewars.net/2016/06/11/bae-systems-pushing-ahead-with-autonomous-drone-targeting/ [https://perma.cc/6MEU-3FMN].

[5] GEISS, *supra* note 4.

> If any major military power pushes ahead with AI weapon development, a global arms race is virtually inevitable, and the endpoint of this technological trajectory is obvious: autonomous weapons will become the Kalashnikovs of tomorrow. Unlike nuclear weapons, they require no costly or hard-to-obtain raw materials, so they will become ubiquitous and cheap for all significant military powers to mass-produce.
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> It will only be a matter of time until they appear on the black market and in the hands of terrorists, dictators wishing to better control their populace, warlords wishing to perpetrate ethnic cleansing, etc. Autonomous weapons are ideal for tasks such as assassinations, destabilizing nations, subduing populations and selectively killing a particular ethnic group. We therefore believe that a military AI arms race would not be beneficial for humanity. There are many ways in which AI can make battlefields safer for humans, especially civilians, without creating new tools for killing people.[6]

This Article reflects my own personal experience while serving in the Israel Defense Forces Judge Advocate General Corps.

Examining future application of AWS requires distinguishing from present-day Drone Warfare ("DW"). The two, while arguably similar, have significant differences. They are not to be confused: AWS reflects minimizing human decision making; DW is predicated on human decision making.

While the primary, current use of DW is by nation-states engaged in operational counterterrorism, it can be similarly applied in traditional war between nation-states. One does not come at the expense of the other; one does not negate the other. This Article assumes AWS can be used in both.

To address these issues, this Article is divided into five sections. First, I give an overview of autonomous warfare systems and drone warfare. Second, I discuss international law and decision making. Third, I review the current implementation of legal standards in practice. Fourth, I recommend solutions for ensuring compliance. Finally, I conclude.

## I. AUTONOMOUS WARFARE SYSTEMS AND DRONE WARFARE: AN OVERVIEW

"Autonomous warfare" does not have a universal, much less unanimous, definition. The fact that there are so many definitions is indicative of the uncertainty surrounding this developing means of warfare. One definition of an "autonomous

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[6] *Autonomous Weapons: An Open Letter from AI & Robotics Researchers*, FUTURE OF LIFE INST. (July 28, 2015), http://futureoflife.org/open-letter-autonomous-weapons [https://perma.cc/6MEU-3FMN].

system" is "a machine, whether hardware or software, that, once activated, performs some task or function on its own."[7]

Another definition states that a truly autonomous system "must be capable of independently interpreting higher-level intent and direction then analysing its physical and operational context in order to make decisions and act independent of further human influence."[8]

The definition used in this Article defines AWS as weapons systems that identify and attack without any direct human control.[9] This definition crystalizes the essence of autonomous warfare; the lack of direct human control is the basis for the deep skepticism expressed in this Article.

The seeming benefits of AWS are understandable and largely self-explanatory. The concerns—perhaps hesitation—that I seek to convey in this Article focus on minimizing human involvement in the decision to attack with the intent to kill another human being. That is relevant to both forms of the use of force, traditional warfare, and operational counterterrorism.

My experience in operational counterterrorism reflects heavy reliance on checklists. The essence of checklists is human analysis of distinct decision points reflecting both tactical and strategic considerations. Nuance is at the core of the decision-making process. Sensitivity to an extraordinarily wide range of decision points demands standards of accountability for consequences arising from an attack.

While the commander's decision should incorporate as much information as possible from as many sources as possible, reflecting multiple vectors and variables, the real-time decision whether to engage an individual must rest in the commander's hands. President Harry S. Truman's classic phrase "the buck stops here" is the ultimate manifestation of command. A weapons system devoid of human decision making must raise serious—and legitimate—doubts regarding its legality and morality.

According to the Human Rights Watch report "Losing Humanity: The Case Against Killer Robots":

> [R]obots are essentially machines that have the power to sense and act based on how they are programmed. They all possess some degree of autonomy, which means the ability of a machine to operate without human

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[7] Paul Scharre & Michael C. Horowitz, An Introduction to Autonomy in Weapon Systems 5 (Feb. 13, 2015) (working paper), https://www.cnas.org/publications/reports/an-introduction-to-autonomy-in-weapon-systems [https://perma.cc/PC7N-S6B3].

[8] Jim Bledon, *Lethal Autonomous Weapons Systems: Humanity's Best Hope?*, LEADING EDGE: AIRPOWER IN THEORY & PRAC. (Sept. 1, 2015), https://leadingedgeairpower.com/2015/09/01/lethal-autonomous-weapons-systems-humanitys-best-hope/ [https://perma.cc/F5XT-BXR3].

[9] *See Autonomous Weapons Systems – Q & A*, INT'L COMM. OF THE RED CROSS (Nov. 12, 2014), https://www.icrc.org/en/document/autonomous-weapon-systems-challenge-human-control-over-use-force [https://perma.cc/7LVZ-H4WG] (stating that "[a]utonomous weapon systems . . . independently search for, identify and attack targets without human intervention").

> supervision. The exact level of autonomy can vary greatly. Robotic weapons, which are unmanned, are often divided into three categories based on the amount of human involvement in their actions:
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> - **Human-*in*-the Loop Weapons:** Robots that can select targets and deliver force only with a human command;
> - **Human-*on*-the-Loop Weapons:** Robots that can select targets and deliver force under the oversight of a human operator who can override the robots' actions; and
> - **Human-*out-of*-the Loop Weapons:** Robots that are capable of selecting targets and delivering force without any human input or interaction.[10]

My primary concern is the "out of the loop" paradigm; however, I wish to raise a voice of concern regarding both "in the loop" and "on the loop." The concern reflects the troubling reality regarding the speed of technological advancement and development. Breaking the paradigms "in," "on," and "out" into their distinct variables highlights the necessity of focusing on five particular terms: humans, AWS, robots, target selection, and force delivery. The concept of "speed" is essential to this discussion because the narrowing of the deliberation window, between decision to implementation, is a prime component of AWS.

There is great danger in this, particularly when human decision making is removed from the process. Human decision making reflects consideration, deliberation, reflection, and doubt;[11] the ultimate manifestation of AWS is machine selection-force delivery devoid of human involvement. The sensitivity, nuance, and ability to reconsider a decision reflects daily human conduct. That is of particular importance and relevance when the decision at hand is whether to kill another human being. The following highlights the complexity of the decision-making process and the requirement that accountability be an integral part of the process.

In 1992, Abbas Moussaka, leader of Hizbollah at the time, and his wife and children were killed by missiles fired from an Israeli helicopter while driving a car in Lebanon.[12]

According to news reports, the Israel Defense Forces ("IDF") had identified Moussaka as a legitimate target. However, when the decision was made to

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[10] HUMAN RIGHTS WATCH & INT'L HUMAN RIGHTS CLINIC, HARVARD LAW SCH., LOSING HUMANITY: THE CASE AGAINST KILLER ROBOTS 2 (2012), https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots https://www.hrw.org/report/2015/04/09/mind-gap/lack-accountability-killer-robots [https://perma.cc/2YK5-3G4S]; Geoffrey S. Corn, Autonomous Weapon Systems: Managing the Inevitability of "Taking the Man Out of the Loop" 21 (unpublished manuscript), https://www.law.upenn.edu/live/files/3894-corn-understanding-the-loop-regulating-the-next [https://perma.cc/L68H-G4VQ].

[11] For a fascinating, important and in-depth discussion of this issue, see DANIEL KAHNEMAN, THINKING, FAST AND SLOW (2011).

[12] Mitchell Prothero, *Hisbollah Positions Nasrallah's Successor*, THE NATIONAL (Oct. 23, 2008), http://www.thenational.ae/news/world/middle-east/hizbollah-positions-nasrallahs-successor [https://perma.cc/W6WZ-PNHM].

implement the planned attack, it was realized that his children were traveling with him. The question was whether to continue with the planned attack. The decision was made, in accordance with a limited operational window of opportunity and given the threat he posed, to strike Moussaka regardless. The decision was the subject of public discussion in Israel. What is important for the purpose of this Article is that the decision to go forth—regardless of the known collateral damage—was made by senior military commanders who fully understood its ramifications and consequences. There was the possibility, in accordance with their decision-making process, to cancel the operation. That is distinct from the "out of the loop" paradigm, devoid of reversibility of decisions made and accountability for their consequences.

Similarly, the issue of accountability is of great importance. It goes without saying that all decisions have ramifications. In the military context, commanders and soldiers whose decisions result in misdeed—from the mundane to the grave—are subject to disciplinary sanctions and court martials. Commanders may suffer career-ending consequences.

That is the essence of consequential decision making; a system devoid of accountability is in direct contrast to the profession of arms. There is a direct relationship between decision making and accountability. "Kill/not kill" decisions authorized by the nation-state where standards of accountability are neither inherent nor integral is akin to authorizing the new Wild West.

In the "in" paradigm, human command is necessary for target selection and force delivery. In the "on" model, AWS can target and deliver, but humans can override an AWS's action. And in the "out" model, AWS can target and deliver without any any available recourse for human operators.

Presently, there appears to be a transition from an "in" to an "on" paradigm, with the "out" process reflecting the trajectory of autonomous warfare research. Given this direction of research and resources, it can be presumed with a reasonable degree of certainty that future autonomous warfare developments will pursue adoption and implementation of the "out" paradigm.

The legitimacy of a military action by the nation-state demands that accountability be integral to its undertaking. This is particularly apt when the intention is to kill a human being. The decision to do so must not be casually undertaken. Accordingly, developing clear accountability standards and criteria is essential. The loop categories are relevant because they articulate the limits of autonomous warfare. Needless to say, accountability incorporates clear standards of legality and morality.

The discussion of limits is directly related to the evolution of autonomous warfare, the construction of AWS, the programming of autonomous weapons, and the extent to which commanders will control the implementation of AWS, either in traditional warfare or operational counterterrorism. Limits to the use of force are relevant both to present application of autonomous warfare and the future implementation of autonomous systems. The importance of limits cannot be sufficiently emphasized.

Predicated on my experience, all three paradigms cause me concern—primarily because I am not convinced of the articulation and application of limits with respect

to the definition of imminence, the definition of legitimate target, and the application of force. These three uncertainties are of extraordinary importance in a paradigm where human decision making and command accountability are minimized.

A minimization of human decision making and accountability is the inevitable result of the transition from the "in" to the "out" paradigm. The combination of both minimizations—if not eviscerations—has profoundly significant consequences regarding the limits of application. Rearticulated, the "out" model suggests that limits on imminence, targets, and power will be cast asunder.

There is a very real probability that the attempt to calculate and quantify the imminence, targets, and power, will create a nonhuman vector of decision making capable of calculating significantly amoral judgments. The ramifications are extraordinarily disturbing, posing significant questions regarding the nature of future military engagement. Analysis of the three categories highlights the requirement to question the legitimacy, legality, and morality of autonomous warfare.

Robert O. Work and Shawn Brimley wrote: "For some types of target sets in relatively uncluttered environments, it is already possible to build systems that can identify, target and engage enemy forces, although current DOD guidelines direct that a human be in the loop for offensive lethal force decisions."[13]

If autonomous warfare accomplishes the following three goals, then opposition to its increased use is, seemingly, illogical and counter-intuitive: (i) minimal loss of life to soldiers, (ii) minimal collateral damage, and (iii) enhanced accuracy regarding the specifically identified target.

All three goals, individually and collectively, are laudable, legitimate, and defensible. What national security decision maker would not favor enhanced use of AWS if these are the results? What politician would not tout their effectiveness and laud their success to a national public? What public would discourage enhanced use if autonomous warfare ensures that the "bad guys" get killed and the "good guys" are safe?

If drones are increasingly the weapons of choice in contemporary counterterrorism, then, according to its advocates, AWS are the future weapons of choice. However, caveats are important since establishing boundaries is essential to ensuring legitimacy. In February 2013, a Department of Justice White Paper entitled "Lawfulness of a Lethal Operation Directed Against a U.S. Citizen Who Is a Senior Operational Leader of Al-Qa'ida or An Associated Force"[14] was leaked to the press. The White Paper is the clearest articulation of the Obama Administration's Drone Policy.

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[13] ROBERT O. WORK & SHAWN BRIMLEY, 20YY: PREPARING FOR WAR IN THE ROBOTIC AGE 24 (2014).

[14] U.S. DEP'T OF JUSTICE, LAWFULNESS OF A LETHAL OPERATION DIRECTED AGAINST A U.S. CITIZEN WHO IS A SENIOR OPERATIONAL LEADER OF AL-QA'IDA OR AN ASSOCIATED FORCE 1 (2013) [hereinafter DOJ White Paper], http://msnbcmedia.msn.com/i/msnbc/sections/news/020413_DOJ_White_Paper.pdf [https://perma.cc/JW8E-CR2Y].

Widely criticized,[15] the White Paper states the following:

> [T]he United States would be able to use lethal force against a U.S. citizen, who is located outside the United States and is an operational leader continually planning attacks against U.S. persons and interests, in at least the following circumstances: (1) where an informed, high-level official of the U.S. government has determined that the targeted individual poses an imminent threat of violent attack against the United States; (2) where a capture operation would be infeasible—and where those conducting the operation continue to monitor whether capture becomes feasible; and (3) where such an operation would be conducted consistent with applicable law of war principles.[16]

The concern with the White Paper regarding autonomous warfare focuses on two critical terms, imminence and legitimate target. According to the White Paper, imminence pertaining to a legitimate target is defined as follows:

> [T]he condition that an operational leader present an 'imminent' threat of violent attack against the United States does not require the United States to have clear evidence that a specific attack on U.S. persons and interests will take place in the immediate future.[17]

How both terms are defined and applied in real time—when operational decision making is fraught with danger and tension—is of critical importance. The Obama Administration's definitions are of great concern because they enable a drone policy devoid of strict limits and narrow criteria. Possible application of that model to AWS raises grave concern.

The Obama Administration's policy has been the subject of much scrutiny and criticism.[18] Nevertheless, the decisions are made by humans, whether located in a

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[15] Michael T. Geary & Ryan Mihalyak, *US Presidential Authority and Domestic Drone Missile Strikes*, 8 HOMELAND SECURITY REV. 237, 237 (2014); David Kaye, *International Law Issues in the Department of Justice White Paper on Targeted Killing*, 17 AM. SOC'Y OF INT'L L., Feb.15, 2013, at 4, https://www.asil.org/sites/default/files/insight130215.pdf [https://perma.cc/VV3E-6RW9]; Claire Pritchard, *Finger on the Joystick: A Drone Expert Weighs in on American Policy*, CHI. POL'Y REV. (Mar. 8, 2013), http://chicagopolicyreview.org/2013/03/08/finger-on-the-joystick-a-drone-expert-on-americas-controversial-policy/ [https://perma.cc/CR8D-4CLF].

[16] DOJ White Paper, *supra* note 14, at 6.

[17] *Id.* at 7.

[18] Marie Aronsson, *Remote Law-Making? American Drone Strikes and the Development of* Jus Ad Bellum, 1 J. ON USE FORCE & INT'L L. 273, 273–98 (2014); William Funk, *Deadly Drones, Due Process, and the Fourth Amendment*, 22 WM. & MARY BILL RTS. J. 311, 334–36 (2013); Amos N. Guiora, *Targeted Killing: When Proportionality Gets All Out of Proportion*, 45 CASE W. RES. J. INT'L L. 235, 255–57 (2012); Trevor McCrisken, *Obama's Drone War*, 55 SURVIVAL: GLOBAL POLITICS AND STRATEGY 97, 104 (2013); Jake

U.S. military installation in Nevada or overseas. Those making the decisions are, literally, operating the much discussed "joy stick" whilst significantly removed from the actual battlefield or killing zone.

Nevertheless, the "kill/not kill" decision is not made by machine. Much literature has addressed how involvement in DW impacts operators;[19] similarly, research has also focused on how DW impacts communities whose members have been targeted by drones.[20]

The drone discussion is of particular relevance in examining autonomous warfare for the following reason: Criticism of drone policy focuses on the broad articulation of the legitimate target and imminence while implemented by humans. Autonomous warfare, on the other hand, seeks to remove humans from the decision-making loop while applying broad standards devoid of human intervention and control.

On July 1, 2016 the Obama Administration released statistics regarding U.S. drone policy. The assessment below by the New York Times reflects the very concern this paper seeks to emphasize—the "normalization" of drone attacks combined with terms that beg precise definition, much less consistent implementation with clear standards of accountability. If that is the case with drones

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William Rylatt, *An Evaluation of the U.S. Policy of "Targeted Killing" Under International Law: The Case of Anwar Al-Aulaqi (Part I)*, 44 CAL. W. INT'L L.J. 39, 52 (2014); Amitai Etzioni, *The Great Drone Debate*, MILITARY REV., Apr. 1, 2013, http://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20130430_art004.pdf [https://perma.cc/RR2A-ESLK]; Jane Mayer, *Torture and Obama's Drone Program*, NEW YORKER, Feb. 15, 2013, http://www.sennhs.org/ourpages/auto/2015/5/19/65556542/Torture%20and%20Obama_s%20Drone%20Program%20by%20Jane%20Mayer_2_15_2013.pdf [https://perma.cc/JWN2-UELH].

[19] James Dao, *Drone Pilots Are Found to Get Stress Disorders as Much as Those in Combat Do*, N.Y. TIMES (Feb. 22, 2013), http://www.nytimes.com/2013/02/23/us/drone-pilots-found-to-get-stress-disorders-much-as-those-in-combat-do.html [https://perma.cc/UZ22-VTX7]; Rebecca Hawkes, *Post-Traumatic Stress Disorder Is Higher in Drone Operators*, TELEGRAPH (May 30, 2015), http://www.telegraph.co.uk/culture/hay-festival/11639746/Post-traumatic-stress-disorder-is-higher-in-drone-operators.html [https://perma.cc/2ADT-FQ2X]; Denise Chow, *Drone Wars: Pilots Reveal Debilitating Stress Beyond Virtual Battlefield*, LIVE SCIENCE (Nov. 5, 2013) http://www.livescience.com/40959-military-drone-war-psychology.html [https://perma.cc/L4TU-ML6C]; Dan Gettinger, *Burdens of War: PTSD and Drone Crews*, CTR. FOR STUDY DRONE BARD C. (Apr. 21, 2014), http://dronecenter.bard.edu/burdens-war-crews-drone-aircraft/ [https://perma.cc/7BVT-JJT4].

[20] *See* CTR. FOR CIVILIANS IN CONFLICT & HUMAN RIGHTS CLINIC AT COLUM. LAW SCH., THE CIVILIAN IMPACT OF DRONES 19–27 (2012); Conor Friedersdorf, *'Every Person Is Afraid of the Drones': The Strikes' Effect on Life in Pakistan*, ATLANTIC (Sept. 25, 2012), http://www.theatlantic.com/international/archive/2012/09/every-person-is-afraid-of-the-drones-the-strikes-effect-on-life-in-pakistan/262814/ [https://perma.cc/5EP6-QEMC]; Chris Woods, *'Drones Causing Mass Trauma Among Civilians,' Major Study Finds*, BUREAU INVESTIGATIVE JOURNALISM (Sept. 25, 2012), https://www.thebureauinvestigates.com/2012/09/25/drones-causing-mass-trauma-among-civilians-major-study-finds/ [https://perma.cc/R9SC-3PE4].

operated by human beings—whether U.S. military personnel or C.I.A. agents—then concern regarding AWS is significantly amplified.

> The disclosure about civilian deaths and the executive order, the subject of months of bureaucratic deliberations, carried broader significance. Issued about seven months before Mr. Obama leaves office, the order further institutionalized and normalized airstrikes outside conventional war zones as a routine part of 21st-century national security policy.[21]

The admittedly long quote below from the White House Fact Sheet is of great relevance to this Article. Rhetoric and language aside—whether convincing is an open question—the document articulates how the U.S. drone policy is implemented and its consequences. Whether the purpose of the Fact Sheet was to impress upon critics that standards exist and are applied or to mollify concerned voices regarding limited civilian deaths is a matter of interpretation.

What stands out for our purposes is the terminology—semantics of warfare—regarding legitimate targets. In other words, who is targetable and what are the criteria for determining whether *that person* is *now a legitimate target based on standards of certainty*?

Flourishing language aside, that decision point is extraordinarily nuanced and subject to a remarkable number of vectors. As troubling as the document is regarding standards of accountability, relevant terminology, and civilian deaths, concern is magnified when recognizing that AWS suggest an inherently murky model will be devoid of human control and oversight.

The relevant section of the Fact Sheet states as follows:

> In May 2013, President Obama issued Presidential Policy Guidance (PPG) that, among other things, set forth policy standards for U.S. direct action outside the United States and outside areas of active hostilities. These policy standards generally include that the United States will use lethal force only against a target that poses a 'continuing, imminent threat to U.S. persons,' and that direct action will be taken only if there is 'near certainty' that the terrorist target is present and 'near certainty' that non-combatants will not be killed or injured. As the President has said, the 'near certainty' standard is the 'highest standard we can set.'

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[21] Charlie Savage & Scott Shane, *U.S. Reveals Death Toll from Airstrikes Outside War Zones,* N.Y. TIMES (July 1, 2016), http://www.nytimes.com/2016/07/02/world/us-reveals-death-toll-from-airstrikes-outside-of-war-zones.html [https://perma.cc/34JY-WDJ3]; *see also* Scott Shane, *Drone Strike Statistics Answer Few Questions, and Raise Many,* N.Y. TIMES (July 3, 2016), http://www.nytimes.com/2016/07/04/world/middleeast/drone-strike-statistics-answer-few-questions-and-raise-many.html?emc=edit_th_20160704&nl=todaysheadlines&nlid=59850316&_r=1 [https://perma.cc/R77R-3X2M] (questioning the value of statistics to evaluate the effectiveness of drone strikes).

> Thus, unlike terrorist organizations, which deliberately target civilians and violate the law of armed conflict, the United States takes great care to adhere to the law of armed conflict and, in many circumstances, applies policy standards that offer protections for civilians that exceed the requirements of the law of armed conflict. Moreover, even when the United States is not operating under the PPG—for example, when the United States is taking action in 'areas of active hostilities,' such as it is today in Afghanistan, Iraq, and Syria, or when the United States is acting quickly to defend U.S. or partner forces from attack—the United States goes to extraordinary lengths to minimize the risk of civilian casualties.
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> In particular, in dealing with enemy forces that do not wear uniforms or carry their arms openly, the United States goes to great lengths to apply the fundamental law of armed conflict principle of distinction, which, among other things, requires that attacks be directed only against military objectives and not against civilians and civilian objects. The United States considers all available information about a potential target's current and historical activities to inform an assessment of whether the individual is a lawful target. For example, an individual may be targetable if the individual is formally or functionally a member of an armed group against which we are engaged in an armed conflict. As Administration officials have stated publicly, to determine if an individual is a member of an armed group, we may look to, among other things: the extent to which the individual performs functions for the benefit of the group that are analogous to those traditionally performed by members of a country's armed forces; whether that person is carrying out or giving orders to others within the group; or whether that person has undertaken certain acts that reliably connote meaningful integration into the group.
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> Before a strike against a terrorist target is considered in any theater, U.S. Government personnel review all available information to determine whether any of the individuals at the location of the potential strike is a non-combatant. A body of standards, methods, techniques, and computer modeling, supported by weapons testing data and combat observations, informs the analysis as to whether those not specifically targeted would likely be injured or killed in a strike.[22]

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[22] *See* OFFICE OF THE PRESS SECRETARY, THE WHITE HOUSE, FACT SHEET: EXECUTIVE ORDER ON THE US POLICY ON PRE & POST-STRIKE MEASURES TO ADDRESS CIVILIAN CASUALTIES IN THE US OPERATIONS INVOLVING THE USE OF FORCE & THE DNI RELEASE OF AGGREGATE DATA ON STRIKE OUTSIDE AREA OF ACTIVE HOSTILITIES (July 1, 2016), https://www.whitehouse.gov/the-press-office/2016/07/01/fact-sheet-executive-order-us-policy-pre-post-strike-measures-address [https://perma.cc/37XK-5GSP].

An autonomous warfare regime not subject to limits, criteria, and accountability is, perhaps, tactically enticing. Strategically, however, it is unviable and unacceptable whether in a court of law or the court of public opinion. I do not share the enthusiasm of those who articulate benefits accruing from an autonomous warfare paradigm predicated on autonomous systems. I should note my hesitation is not predicated on disfavor with the use of power nor does my discomfort reflect not recognizing the legitimacy of targeting individuals who pose an imminent unjust threat to innocent individuals.

My concern is quite the opposite: a reflection of decisions in which I have been involved has led to a deeply ingrained belief that the decision to kill another human being cannot be "fobbed" off to machines, no matter how sophisticated and impressive. My belief rests on a values system that places exclusive responsibility for the decision to kill another human being on a human being.

To create an alternative system where that momentous, irreversible decision is made and implemented by a machine is the height of abdication of responsibility by decision makers. It is problematic from both an ethical and practical standpoint. Ethical because the essence of command is decision making reflecting accountability; practical because the "go/no go" decision point requires human sensitivity to the consequences of a mistaken decision.

Professor Ronald C. Arkin, a roboticist from Georgia Tech, has written:

> [T]he pressure of an increasing battlefield tempo is forcing autonomy further and further towards the point of robots making that final, lethal decision. The time available to make the decision to shoot or not to shoot is becoming too short for remote humans to make intelligent, informed decisions in many situations that arise in modern warfare. As that time dwindles, robots will likely be given more authority to make lethal decisions on their own.[23]

Intentionally or unintentionally, Arkin has articulated the dangers posed by autonomous warfare. The suggestion that "robots will likely be given more authority to make lethal decisions on their own" greatly unsettles me. The question is the extent to which human decision making will be minimized.

Professor Arkin has written:

> It is my contention that robots can be built that do not exhibit fear, anger, frustration, or revenge, and that ultimately (and the key word here is ultimately) behave in a more humane manner than even human beings in these harsh circumstances and severe duress. People have not evolved to function in these conditions, but robots can be engineered to function well in them.[24]

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[23] Ronald C. Arkin, *Ethical Robots in Warfare*, IEEE TECH. & SOC'Y MAG., Spring 2009, at 30.

[24] *Id.* at 31.

That premise holds much promise and optimism regarding robotic, or autonomous, warfare. The question at hand is whether application of a nation-state's decision to implement a killing policy should be subject to human decision making premised on principles of accountability or be driven by autonomous weapons systems devoid of human input or interaction.[25]

## II. INTERNATIONAL LAW AND DECISION MAKING

The lack of clearly defined terms raises important concerns. Experience suggests that wiggle room, the inevitable consequence of amorphousness, results in significant violations of international law.[26] In particular, a lack of clarity regarding imminent threat and legitimate target suggests a national security paradigm minimizing protections of individual rights and protections. The concept of balance, which I believe is essential to a national security policy predicated on the rule of law, is dependent on state agents' respect for the individual while engaged in aggressive operational counterterrorism.

Balancing is an oft-used expression; I am of the opinion that individual rights must be balanced with national security obligations. The two are equally legitimate—one does not have preference over the other. The challenge for operational decision makers is how to respect both while protecting innocent civilians. That is enormously complicated, requiring sensitivity, recognition of nuance, and the maturity to "hold fire" when the risk of collateral damage is unreasonably high.

A decision-making model not predicated on these standards reflects a paradigm devoid of balance. At its core, operational counterterrorism reflects decision making intended to protect innocent civilians. This is in accordance with the nation-state's primary obligation to protect its civilian population.

However, that does not imply a carte blanche authority to engage any individual or group suspected of posing a threat to national security, whether broadly or narrowly defined. The state's critical burden is ascertaining the threat's imminence. Doing so requires assessing and applying international law principles of proportionality, necessity, collateral damage, and alternatives.

The legal foundation for operational counterterrorism is application of self-defense principles as articulated in Article 51 of the U.N. Charter. This is "application by analogy." The U.N. Charter was established in order to regulate interaction amongst nation-states, rather than between nation-states and nonstate

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[25] Michael C. Horowitz & Paul Scharre, Meaningful Human Control in Weapon Systems: A Primer 7–10 (Mar. 2015) (working paper), https://www.cnas.org/publications/reports/meaningful-human-control-in-weapon-systems-a-primer [https://perma.cc/KJ5M-8TY7].

[26] Peter Margulies, *Making Autonomous Weapons Accountable: Command Responsibility for Computer-Guided Lethal Force in Armed Conflicts*, *in* RESEARCH HANDBOOK ON REMOTE WARFARE (Jens David Ohlin ed., 2016).

actors. Nevertheless, the principles are applicable to nation-states conducting conflict in accordance with, and subject to, standards of lawful self-defense.

Self-defense is not unlimited—its legality depends on its application. Unrestrained self-defense conducted devoid of standards, limits, and criteria would run afoul of international law. That is the case regardless whether the nation-state is in conflict with another nation-state or with nonstate actors.

According to the United Nations Charter, Article 51: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security."[27]

Regarding self-defense which reflects the confluence between operational counterterrorism, decision making, and accountability I have previously written: "[U]nder what circumstances and subject to what conditions can a commander order a military unit to preemptively attack an identified enemy. The critical variable in this discussion is how 'identified' the enemy has to be. Perhaps the question can best be phrased as 'how certain is certain?'"[28]

The policy and legal discussions must provide the commander and decision maker with concrete responses to these questions. Otherwise, not only will the enemy continue to be unseen, but the guidelines will be unseen as well. That combination—in the context of operational counterterrorism—is unworkable.

> A 'who, what, when' analysis of preemptive self-defense will enable the commander and decisionmaker to better understand who the enemy is. This analysis inherently presupposes that the nation-state may act; it does not, however, suggest that the nation-state may always act. The proposed model explicitly involves limits—after all, the essence of the rule of law paradigm is an inherent limit on state power. In the self-defense debate, the critical questions are *what* are those restraints, *when* can the nation-state act, against *what* target, and *who* is the enemy.[29]

My experience in targeted killing highlights the requirement for articulated criteria and a rigorous decision-making process. My decisions were based on application of a checklist that sought—under time sensitive circumstances—to minimize error and ensure that the person identified by the intelligence community was indeed "that" person.

Checklists are guidelines: They provide important contours and boundaries for the decision maker. They do not, however, provide all the answers. The essence of decision making is real-time assessment, integrating numerous vector points of fluctuating importance. While checklists are essential, they do not serve as the final

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[27] U.N. Charter art. 51, ¶ 1.

[28] Amos N. Guiora, *Self-Defense - From the Wild West to 9/11: Who, What, When*, 41 CORNELL INT'L L.J. 631, 638 (2008) (citation omitted).

[29] *Id.*

determinant. The checklist is a critical tool but does not resolve the targeted killing dilemma.

That, however, is not intended to diminish their importance. It is to emphasize that there can be no effective substitute for the commander's decision making based on integration of all relevant information. Checklists are intended to facilitate threat analysis and to assess availability of operationally viable alternatives.

The intelligence community works tirelessly to gather and analyze information. For example, operators determine where best to conduct the attack, policy analysts weigh geopolitical consequences, lawyers assess whether the policy in general and as it pertains to a specific hit are conducted in accordance with international law, and "explainers" prepare statements and explanations in case an operation results in negative consequences.

All participants, efforts, and resources are focused on one thing—implementation of a decision to kill an individual. This is reflective of a goal-driven process. Success is binary: either the individual deemed a legitimate target is killed or not. Failure is more complicated: An attack that results in collateral damage, regardless of the actual number of innocent civilians killed, requires explanation, potentially results in retribution, and can lead to more far-reaching decisions. The essence of targeted killing is implementation of government policy to kill a legitimate target believed to pose an imminent threat to national security.

The legality and morality of the policy and its implementation requires a process in which the commander is the final decision maker. For that reason, process—with the ultimate decision by an accountable human being—is a requisite element of a targeted killing decision. This is significantly different from the "out of the loop" paradigm whereby the application is devoid of human decision making and accountability.

There is a significant difference between a human-based process and an AWS-based process. The former is predicated on individual assessment of innumerable real-time variables, where the latter reflects decision making predicated on computer modeling devoid of human involvement and accountability at the decision-making point.

Specificity is dependent on process; without developing and implementing a process-based targeted killing policy, it is nigh impossible to attack specific targets. Targeted killing decision making highlights process and the centrality of command responsibility and accountability. Legal justification for a targeted killing is predicated on a theory of preemptive self-defense. The consequences of the decision were clear to all parties involved in the decision-making process: If the decision maker determined that the individual posed an imminent threat to national security and nonlethal neutralization was not operationally feasible, then killing the individual was deemed legal.

The four charts below illustrate the complexity of targeted killing analysis. They are intended to highlight the disparate aspects of the decision-making process, thereby casting doubt on the viability of AWS. Rearticulated, the charts below capture the nuance, subtlety, and sensitivity required to analyze inherently subjective information.

In addition, the checklist was intended to ascertain that the threat posed was, indeed, imminent and alternatives to mitigating the threat were not operationally feasible. The checklist—and the dilemmas it highlights—reinforce the importance of a human being analyzing the distinct factors integral to a "kill/not kill" decision. It is an open question whether the significant number of *nuanced vectors and decision points* in a targeted killing paradigm can be sufficiently analyzed by an autonomous weapons system.

Checklists are effective and important with respect to "codifying" both the human thought process and decision making. The institutionalized, systematic approach to operational counterterrorism—facilitated by checklists—significantly contributes to enhancing a systemic process seeking to minimize error while ensuring final decisions are subject to human discretion and analysis.

This is significantly facilitated by command hierarchies, direct lines of responsibility, consequences for mistakes, and institutionalized "lessons learned." This is distinct from the AWS paradigm—regardless of the loop model applied—for it leaves the final decision making in human hands. That model is significantly enhanced by a systematic process.

The decision-making process is fraught with tension and anxiety—the margin for error is razor thin. "Hit" too early and standards of self-defense are violated; a "no" decision may enable the actor to go unscathed and result in the deaths of innocent civilians; "hitting" after the act may violate international law norms regarding revenge and retribution.

There are four distinct degrees of threats; operational decision making requires assessing each threat to determine which—if any—counterterrorism measure should be applied. The threat categories facilitate and determinine the degree of imminence and whether the identified or suspected threat poses an immediate danger. To act before the threat is viable would violate articulated standards of legitimate self-defense.

Determining the legitimacy of a targeted killing requires assessing when the threat becomes sufficiently viable to order the "hit." The four degrees are as follows:

**Table 1: Threat Degree Categories**

| | **Characteristics** |
|---|---|
| **Imminent threats** | Threats that will be acted upon shortly and about which a lot of detail is known. |
| **Foreseeable Threats** | Threats that will be carried out in the near future (with no specificity). These threats are slightly more remote than those that are imminent. |
| **Long-Range Threats** | Threats that may reach fruition at an unknown time. |
| **Uncertain Threats** | Threats that invoke general fears of insecurity. |

Assessing whether the intelligence information is actionable requires applying the four-part intelligence test below. Integral to that analysis is determining the reliability of the intelligence source.

**Table 2: Test for Intelligence Reliability**

| Test Prong | Definition/Use |
|---|---|
| ***Reliability*** | Past experiences show the source to be a dependable provider of correct information; requires discerning whether the information is useful and accurate; demands analysis by the case officer whether the source has a personal agenda/grudge with respect to the person identified/targeted. |
| ***Viability*** | Is it possible that an attack could occur in accordance with the source's information? i.e., the information provided by the source indicates a terrorist attack that could take place within the realm of the possible and feasible. |
| ***Relevance*** | The information has bearing on upcoming events; consider both the timeliness of the information and whether it is time sensitive imposing the need for an immediate counterterrorism measure. |
| ***Corroboration*** | Another source (who meets the reliability test above) confirms the information in whole or part. |

Commanders must also determine if the source is biased and reliable when determining whether the information is actionable. To do so, one should consider the following:

**Table 3: Test for Flaws in Information from Human Sources**

| **Source Bias and Reliability** |
|---|
| • What is the source's *background*, and how does that affect the information provided?<br>• Does the source have a *grudge/personal "score"* to settle based either on a past personal or family relationship with the person the information targets or identifies?<br>• What are the *risks* to the source if the targeted individual is targeted?<br>• What are the *risks* to the source if the intelligence is made public? |

In addition, the final chart illustrates the requisite analysis regarding the target.

**Table 4: Test to Determine Whether Target is Legitimate**

| **Target** |
| --- |
| • What is the person's role in the terrorist organization?<br>• What insight can the source provide regarding "impact"?<br>• What are the *risks/cost-benefits* if the targeted killing is delayed?<br>• Does it justify immediate action? *Or* is the information insufficient to justify a targeted killing but significant enough to justify other measures, including detention (subject to operational considerations)? |

Effective and lawful operational counterterrorism depends on the ability to determine that a particular individual poses a threat. That is the essence of self-defense, regardless of how it may be defined. Whether a potential is a threat in fact requires an analysis of an extensive number and fluctuating degree of factors.

## III. IMPLEMENTATION OF LEGAL STANDARDS IN PRACTICE

International law imposes on commanders the obligation to conduct operational counterterrorism subject to the four questions below:[30]

1. Is the proposed action one of military necessity?
2. Is the proposed action proportional to the threat posed?
3. Are there no other viable alternatives to the proposed action?
4. Does the proposed action limit the amount of collateral damage?

According to the Caroline Doctrine, self-defense is limited to situations where the "necessity of self-defence [is] instant, overwhelming, leaving no choice of means, and no moment for deliberation,"[31] and any action taken must be proportional "since the act justified by the necessity of self-defence, must be limited by that necessity, and kept clearly within it."[32] One of the most important limits on the exercise of state power is that a potential attack be defined as imminent.

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[30] *See* Marco Sassoli, *Legitimate Targets of Attacks Under International Humanitarian Law*, HARVARD PROGRAM ON HUMANITARIAN POLICY AND CONFLICT RESEARCH, INT'L HUMANITARIAN L. RES. INITIATIVE (Jan. 27–29, 2003), http://www.hpcrresearch.org/sites/default/files/publications/Session1.pdf [https://perma.cc/4VPW-4J3K]; Michael N. Schmitt, *Military Necessity and Humanity in International Humanitarian Law: Preserving the Delicate Balance*, 50 VA. J. INT'L L. 795, 804 (2010); *Military Necessity*, INT'L COMMITTEE RED CROSS, https://www.icrc.org/casebook/doc/glossary/military-necessity-glossary.htm [https://perma.cc/LL97-U4HZ]; *Customary IHL, Practice Relating to Rule 14. Proportionality in Attack*, INT'L COMMITTEE RED CROSS, https://www.icrc.org/customary-ihl/eng/docs/v2_cha_chapter4_rule14 [https://perma.cc/7LVZ-H4WG].

[31] Letter from Daniel Webster, U.S. Sec'y of State, to Lord Ashburton, British Special Minister (July 27, 1842), http://avalon.law.yale.edu/19th_century/br-1842d.asp#web1 [https://perma.cc/XK5G-9LDQ].

[32] *Id.*

Counterterrorism rooted in the rule of law must be particularly sensitive to limits and standards. The former reflects appropriate use of state power, while the latter reflects measures and means that can be applied to achievable lawful means. In order to appreciate the danger inherent to a system devoid of accountability, it is necessary to engage in discussion regarding a system predicated on accountability.[33]

The chart below examines four distinct incidents, highlighting the consequences faced by those responsible for the decisions that resulted in collateral damage. Those consequences are the essence of accountability necessarily at the core of human decision making. While some have called for greater punishment for those responsible, the chart reflects that decision making resulting in the unwarranted loss of innocent life has consequences.

[33] *See Decisions of the IDF Military Advocate General Regarding Exceptional Incidents that Occurred During Operation 'Protective Edge' – Update No. 2*, IDF MILITARY ADVOCATE GENERAL'S CORPS (Dec. 7, 2014), http://www.mag.idf.il/261-6958-en/Patzar.aspx [https://perma.cc/82WZ-F7PB] (explaining allegations of misconduct, and the process for investigating that misconduct, and the results of investigations); *Decisions of the IDF Military Advocate General Regarding Exceptional Incidents During Operation 'Protective Edge' – Update No. 3*, IDF MILITARY ADVOCATE GENERAL'S CORPS (March 22, 2015), http://www.mag.idf.il/163-7183-en/Patzar.aspx [https://perma.cc/7HPZ-WCLL]; *Decisions of the IDF Military Advocate General Regarding Exceptional Incidents that Allegedly Occurred During Operation 'Protective Edge' – Update No. 4*, IDF MILITARY ADVOCATE GENERAL'S CORPS (June 11, 2015), http://www.law.idf.il/163-7353-en/Patzar.aspx [https://perma.cc/N3QU-N2JS]; *Mossad Hit Team's Big Mistake: 40 Years Ago, Wrong Man Killed in Norway – New Reflections,* SPIES AGAINST ARMAGEDDON (July 1, 2013), http://israelspy.com/mossad-hit-teams-big-mistake-40-years-ago-wrong-man-killed-in-norway-new-reflections/ [https://perma.cc/DQ4G-VZ98].

| Party | Date & Incident | Details | Outcome |
|---|---|---|---|
| Israeli Defense Force (IDF) | July 8 – August 26, 2014 Operation "Protective Edge" | During the suspension of the Gaza ceasefire, the IDF conducted numerous military operations in the West Bank and Gaza Strip. The MAG (Military Advocate General) assesses all claims filed with the office for war crime and criminal liability and strives to investigate every incident fully.<br><br>Hundreds of claims are investigated and, among those, a very small percentile are ever recommended for prosecutorial consideration. | Allegations range vastly across the criminal spectrum – from looting to improper killings of civilians – and seldom do they result in convictions. The MAG's procedural protections and investigatory methods are largely criticized as incubating soldiers from responsibility for their actions while on mission. |
| Mossad (Israeli National Intelligence Agency) | July 21, 1973 "Lillehammer Affair" (attempted assassination of Ali Hassan Salameh) | Misleading intel led Israeli agents to kill the wrong target, instead resulting in the death of a civilian Moroccan immigrant. It was later revealed that agency personnel knew their source was unreliable. | The Israel Government has never admitted its involvement (though former agents have come forward).<br><br>In 1996, Israel agreed to pay $400,000 in compensation to the surviving wife and son of the slain. |
| United States Air Force | October 3, 2015 "Doctors Without Borders" Bombing in Kunduz, Afghanistan | U.S. military incidentally bombs a hospital in Afghanistan, resulting in the deaths of 42 persons and wounding 30 more.<br><br>The U.S. military initially suggests the attack was intended to defend U.S. ground forces before insisting that the strike was | President Barack Obama issued a formal apology and announced the U.S. would make condolence payments to the families of those killed in the airstrike. Three investigations were later conducted by NATO, a joint U.S.-Afghan group, and the U.S. Department of Defense (whose findings were released on April 29, 2016). |

| | | | |
|---|---|---|---|
| | | requested by Afghan Forces.<br><br>Cockpit recordings show the AC-130 operators questioned the legality of the operation. | Médecins Sans Frontières/Doctors Without Borders has called for an independent probe, arguing the forces who conducted the airstrike cannot be entrusted to investigate the incident impartially. |
| NATO – Colonel Klein & 1st Sergeant Wilhelm (Germany) | September 4, 2009<br><br>Air strike near Kunduz, Afghanistan | Two tanker trucks immobilized on a sandbank were struck by NATO bombers, resulting in up to 142 casualties, many of which were civilians.<br><br>No warning of an attack was issued to bystanders and no explanation of the military aim has ever been provided. | All charges against the two officers were dismissed by the German Federal Prosecutor in 2010, who concluded that the actions were not culpable under either International Law or the German Criminal Code. |

The contrast between the two—an accountability paradigm with clear lines of command as distinguished from a paradigm whose lines of command and accountability are unclear—is troubling. It requires resolution given the increasing favor with which autonomous warfare is viewed. By clear lines of accountability I refer to the example of current accountability models as enforced by the military, with any decisions clearly delineated back to those responsible should error occur.

If faulty intelligence leads to a strike on a civilian target, the intelligence analysts are to blame. If solid intelligence leads to a erroneous strike on a civilian target, perhaps the targeting military operator is to blame.

This is not to say that computers and automated systems should not play any role within the decision-making process. If there are algorithms or platforms that can expediate or finepoint any part of the decision-making process, then surely any military can and should benefit from such a dual partnership. However, it is my assertion that this sort of a partnership can never be replaced by computers alone.

To consistently effectuate lawful targeted killings, I created a decision-making tree intended to ensure the final determination incorporated relevant variables in the invariably limited "window of opportunity." The questions created many "forks in the road." Every answer lends itself to additional questions.

1. Is the commander on the ground and able to assess the situation himself?
2. Is the potential target acting in a suspicious manner?
3. Is the military unit capable of successfully completing the targeted killing?

4. What are the geopolitical consequences of engaging in a targeted killing of that person at that time?
5. Does it meet the international law test? Proportionality, military necessity, collateral damage, alternatives?

Variable assessment depends on "reading" complex operational situations. Invariably, mistakes can be made when human decision making incorporates subjective and objective vector points. Analyzing available information is, naturally, dependent on gathering information. As discussed above, determining whether intelligence information is "actionable" requires the application of a four-part test requiring analysis of received information received and its source. The two—information and source—are intertwined.

The charts in Section III highlight the extraordinary complexity of operational counterterrorism, *in particular the human factor in the decision-making process*. The burden imposed—and obligation mandated—on soldiers and commanders engaged in operational counterterrorism is to apply norms of proportionality and distinction when assessing the legality of a proposed attack.

The principle of distinction—the differentiation between nonparticipant and participant civilians and, therefore, potentially, a legitimate target—is of particular importance when examining autonomous warfare. Proportionality imposes on the nation-state obligations of restraint and avoiding excess when engaging an identified legitimate target.

Failure to correctly assess these factors results in tragedy and violations of international law. The question is whether assessments can be made by machine rather than by humans. Rearticulated, is the autonomous warfare paradigm an acceptable substitute to commanders presently tasked with assessing intelligence information prior to engagement?

Commanders choosing to act on available information are subject to two important caveats—corroborating that information provided by the source is reliable and verifying that alternatives to threat mitigation are operationally unfeasible. Most importantly, they are accountable for their decisions.

The Israel Supreme Court, sitting as the High Court of Justice, addressed this issue in The Public Committee against Torture in *Israel vs. The Government of Israel*.[34] In his seminal decision, President (Chief Justice) Barak wrote the following regarding identification of the legitimate target:

[34] HCJ 769/02 The Public Committee against Torture in Israel v. The Government of Israel (2005) (Isr.), http://www.haguejusticeportal.net/Docs/NLP/Israel/Targetted_Killings_Supreme_Court_13-12-2006.pdf [https://perma.cc/P6GP-26A5].

> On the one hand, a civilian taking a direct part in hostilities one single time, or sporadically, who later detaches himself from that activity, is a civilian who, starting from the time he detached himself from that activity, is entitled to protection from attack. He is not to be attacked for the hostilities which he committed in the past.[35]

Regarding protection of innocent civilians Barak wrote:

> The approach of customary international law applying to armed conflicts of an international nature is that civilians are protected from attacks by the army. However, that protection does not exist regarding those civilians 'for such time as they take a direct part in hostilities (§51(3) of *The First Protocol*). Harming such civilians, even if the result is death, is permitted, on the condition that there is no other less harmful means, and on the condition that innocent civilians nearby are not harmed. Harm to the latter must be proportionate. That proportionality is determined according to a values based test, intended to balance between the military advantage and the civilian damage. As we have seen, we cannot determine that a preventative strike is always legal, just as we cannot determine that it is always illegal. All depends upon the question whether the standards of customary international law regarding international armed conflict allow that preventative strike or not.[36]

The above represents the essence of Israel's targeted killing policy that I was involved in. Much of my perception of the issue is informed by this experience. While I have no field experience with autonomous warfare, I am intimately familiar with the consequences of a decision intended to result in the death of human being.

The Israeli Supreme Court, sitting as the High Court of Justice—carefully and in an extraordinarily nuanced manner—parsed the definition of words critical to this discussion. Barak's opinions regarding the limits of state power emphasized the requirement to balance individual rights with national security.[37] That is the essence of a democracy regardless of the nature of the "foe"; failing to robustly balance undermines the legitimacy of state action. Similarly, Barak was of the controversial opinion that the nation-state must fight terrorism with "one arm tied behind its back" by engaging in self-imposed restraints.

Applying principles of balancing and self-imposed restraints in the context of complex decision making is predicated on a significant number of critical parameters including questions of law, morality, effectiveness, and geopolitics. The question is whether autonomous warfare systems are *simultaneously capable* of protecting individual rights while engaging in preemptive operational counterterrorism when decision making demands extraordinary nuance.

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[35] *Id.* at ¶ 39.
[36] *Id.* at ¶ 60.
[37] *See* Jeremy Waldron, *Safety and Security*, 85 NEB. L. REV. 454, 502 (2006).

Autonomous warfare is a viscerally exciting concept for a new weapon—or strategic undertaking—in warfare.

While serving as Commander of the IDF's School of Military Law (IDF SML, 2001–2004), I had command responsibility for the development of an interactive video teaching soldiers an IDF code of conduct, with particular emphasis on their interaction with the Palestinian civilian population.[38]

The video became the subject of intensive Israeli and international attention and was picked up by multiple media outlets. I was repeatedly asked the following questions: Why make the video? Can you teach morality? How do you determine effectiveness? The concept of teaching morality is rife with controversy—any discussion is vigorous and spirited.

I felt soldiers could be taught to conduct themselves morally with the caveat that the instruction creatively challenge them. In this respect, they were adopting my moralistic dogma while also applying it to their own conscience, being, and future actions. Senior IDF leadership accepted my position on attempting to codify and teach certain aspects of morality, thus producing the pedagogy of the video.

Regarding evidence of effectiveness, I cannot point to empirical demonstrations of success or failure. Simply put, "successful" morality, or even a change in a person's morality, is not a binary success/failure equation that can be proven. I can, however, reference feedback we received from NGOs who noted positive changes in soldier interaction with Palestinians after the introduction of the video.

My reasons for implementing the video can best be explained two-fold: A military in a democracy must act morally, and innumerable complaints filed by human rights organizations regarding conduct/misconduct of IDF soldiers at checkpoints, primarily in the West Bank, highlighted a systemic problem. Someone—I do not recall who—brought to my attention a term used in the U.S. military, "the strategic corporal."[39]

I quickly adopted it when meeting with soldiers and commanders and discussing the video and checkpoints. I found it a particularly effective metaphor in explaining the dramatic impact of significant advancements in technology. The onset of handheld mobile phones enabled instant communication between a seemingly isolated incident at a checkpoint and the broader international community.

Consequences regarding the court of international opinion were dramatic. The need for instant explanation imposed significant burdens on the IDF. More importantly, visuals enabled us to better understand particular events: Where soldiers needed to be punished, punishment was meted out; where Palestinian reports of soldier misconduct were shown to be incorrect, it greatly facilitated explaining particular events and their broader significance.

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[38] Amos N. Guiora, *Teaching Morality in Armed Conflict: The Israel Defense Forces Model*, 18 JEWISH POL. STUD. REV. 3, 3 (2006).

[39] Charles C. Krulak, *The Strategic Corporal: Leadership in the Three Block War*, MARINES CORPS GAZETTE, Jan. 1999, at 18–22.

The reality of instant communication required the corporal address the operational question at hand with greater sensitivity. A worldwide audience could be privy to his decision making in real time. It was increasingly difficult to hide behind traditional responses that information is being gathered and will be studied in due time. The event was readily accessible to anyone with a TV, much less a computer.

To enhance the corporal's decision making capabilities, a number of initiatives were undertaken, including creation of a new position: Check Point Commander ("CPC") and a training program with the specific purpose of preparing individuals for this position. The video was an integral part of both. What is important is that the concept of "strategic corporal" emphasized individual accountability and responsibility.

I am particularly taken by Professor Heather Roff's term, "The Strategic Robot." More than any other articulation of this phenomenon, Professor Roff's has deeply influenced my perception of weapons of the future. The term captures the most problematic aspect of autonomous warfare. Professor Roff's term is of particular interest to me because it suggests a dramatic transformation from the corporal to AWS. The corporal accountability model is universally understood and accepted: A soldier "owns" mistakes and is culpable for misconduct. The strategic robot model raises questions of profound importance regarding the essence of soldiering—accountability and responsibility.

The lack of current research and discussion regarding accountability as it pertains to AWS either suggests it has not yet been questioned or that there will be a penchant for lack of transparency. As I discuss below, that gap is deeply troubling. The "strategic robot" reflects a paradigm shift reflecting the future of military engagement. The consequences are of utmost importance to military commanders, national security decision makers, public officials, and the broader public.

The juxtaposition of the two words—"strategic" and "robot"—suggests a powerful paradigm shift in how warfare is conducted. The transformation from soldier to strategic robot must give us pause. It is not a semantic change but rather a substantive shift demanding close scrutiny and skepticism. "Strategic" is distinct from "tactical"; the former is an overarching, long-term plan and goal, while the latter refers to the short-term implementation and application.

The shift to a paradigm whereby human decision making is significantly limited represents a profound strategic shift. In traditional military engagement between nation-states, armies engage with armies; it is the axiomatic "tanks-tanks/planes-planes" paradigm. Both sides possessed enormous arsenals, with the most sophisticated "state of the art" weapons causing massive destruction.

In the increasingly predominant conflict between state actors and nonstate actors, the former possesses overwhelming force. The only question is whether the available weapons will be applied in accordance with international law and the self-imposed restraints previously referenced.

The shift is a direct product of the onset of the age of terrorism and the end of conflict between nation-states. This is an extraordinary geopolitical and geostrategic transformation with profound consequences. The shift requires a rearticulation of

goals, purposes, and missions particularly because many targets and enemies operate without uniforms, borders, or limits themselves. One of the inevitable ramifications is the development and adoption of weapons that enable the nation-state to narrow the focus of engagement to a particular individual or group of individuals.

While the operational focus of counterterrorism is far narrower than traditional military engagement, the question is what that shift tolerates regarding decision making in AWS. More precisely, the inquiry involves whether this profound change need result in the minimization of human involvement in the decision-making process. That, in many ways, is the essence of autonomous warfare favoring "humans out of the loop" as compared to contemporary counterterrorism driven by "humans in the loop."

The "humans in the loop" model also applies to traditional warfare. There is, then, greater similarity between traditional warfare and operational counterterrorism than between the latter and autonomous warfare. The emphasis on "humans out of the loop" is unique to autonomous warfare; both traditional warfare and operational counterterrorism emphasize human decision making predicated on accountability and responsibility.

The long-term consequences of this proposed new normal go well beyond the introduction of an improved weapons system or a tactical shift in combat theory and practice. If indeed the strategic robot truly emerges as the new weapon of choice, it will be arguably the most significant change in warfare in centuries. Whether it is *the* most significant transformation in the history of human conflict-engagement is the subject of a different inquiry.

What is relevant, however, is addressing, and, ultimately, determining whether standards, criteria, and accountability inherent to operational counterterrorism rooted in the rule of law are transferable to this newly developing "human out of the loop" autonomous warfare.

## IV. ENSURING COMPLIANCE

The difference in the proposed paradigms is the means by which an individual is killed. Given the seeming tenuousness between human decision making and autonomous warfare, accountability standards must be stricter than in the existing means of killing a supposedly legitimate target. In traditional military engagement, the essence of command responsibility is accountability for all actions and their results. It is essential that a similar model be applied to autonomous warfare.

According to the European Parliament, Directorate-General for External Policies, Policy Department report on Human Rights Implications of the Usage of Drones and Unmanned Robots in Warfare:

> The fundamental principle that governmental power and authority must be exercised in accordance with clear, legitimate and enforceable rules lies not only at the heart of liberal democracies—it encapsulates the very essence of the rule of law. . . . Transparency and accountability must be taken particularly seriously when States resort to lethal force as a matter

> of foreign policy. . . . At the most basic level, legal accountability requires the recognition that States remain legally responsible for the consequences of their use of robotic weapons irrespective of the operational autonomy achieved by such systems.[40]

The troubling nature of autonomous warfare is manifested by the *clear desire to minimize human involvement in its application.* That raises significant concern because the *human element is essential* to fully informed decision making when killing is the stated objective. To remove the human element from ascertaining the extent to which a person poses an imminent threat is to create a paradigm whereby nuance and subtlety are largely eviscerated. Computers cannot process, much less resolve, grey areas as this is the essence of human judgement. In essence, if you plug X question into a computer, it is going to be programmed to respond YES or NO, not MAYBE, and *this* is what you find problematic, because sometimes "maybe" or "depends" or "perhaps" is the best possible answer to a given question. How do you program morality into a computer? What kind of morality do you use? To which ethicist are you prescribing a doctrine?

The reliance on autonomous systems as "decision makers" has raised objections that Professors Ken Anderson and Matthew Waxman correctly summarize as: "The third objection [to robotic warfare, ANG] holds that autonomous weapons systems that remove the human being from the firing loop are unacceptable because they undermine the possibility of holding anyone accountable for what, if done by a human soldier, might be a war crime."[41]

Implementing robust accountability standards and criteria is "at risk" when decision making has been largely removed from commanders. Person-specific counterterrorism—the specific identification of a particular individual—depends on sophisticated analysis of the decision making vectors highlighted in the charts above.

The application of those vectors in a time-sensitive environment when a "kill/not kill" decision is in the balance is, I believe, the greatest challenge to those involved in operational counterterrorism. It is the decision point with the greatest stakes and most compelling consequences and ramifications.

Commanders are trained to lead, assess, decide, and assume responsibility for consequences of their decisions. The expression "command is lonely" captures the essence of accountability for decisions made. The four requirements—leading, assessing, deciding, and accountability—are integral to the targeted killing paradigm previously addressed.

A decision-making process rooted in the rule of law and principles of morality will implement the charts interspersed throughout this article. Doing so facilitates rationale-based decision making which then incorporates these relevant

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[40] NILS MELZER, POLICY DEP'T, EUROPEAN PARLIAMENT, HUMAN RIGHTS IMPLICATIONS OF THE USAGE OF DRONES AND UNMANNED ROBOTS IN WARFARE 37 (2013).

[41] Kenneth Anderson & Matthew Waxman, *Policy Review Law and Ethics for Robot Soldiers* 11 (Am. Univ. Wash. Coll. Law, Research Paper No. 2012-32) (Columbia Law Sch. Pub. Law & Legal Theory Working Paper Grp., Paper No. 12-313, 2012).

considerations. The commander's decision reflects situational awareness, circumstantial assessment of "on the ground" realities, previous experience, unit-capability experience, flexibility-nuance regarding orders received, viability of alternatives, "exit" policy, and the capability of successfully accomplishing the mission.

**Case in point:** An IDF battalion commander[42] was given an order to detain three suspected terrorists in Nablus. When approaching the city, the commander received an urgent update from his intelligence officer that while spotters had located the suspected terrorists, they were surrounded by school-age children. The commander had, according to his analysis, three options: (1) cancel the mission; (2) proceed with the mission, regardless of the consequences to the children; or (3) engage in "cat and mouse" with the terrorists. The commander decided to cancel the mission. He reasoned that the costs of collateral damage did not outweigh the benefits accrued from arresting the three and the mission could be achieved at a later date.

There was, from the commander's perspective, two-fold accountability—mission achievement would result in significant collateral damage, while mission cancellation would, conceivably, facilitate terrorist escape and enable the local community to view the IDF as "weak."[43]

While this example is not directly related to targeted killing it highlights both the issue of accountability and the consequence of minimizing, if not eviscerating, human input in decision making. There are, as discussed in Section II, distinct categories of "humans in the loop" decision-making paradigms integral to autonomous warfare. There must be an individual present to exercise discretion when determining whether to engage in a targeted killing.

It goes without saying that mistakes are made in assessing the quality of the intelligence received, in perceiving the actions of the identified target, in incorrectly determining the imminence of the presumed threat, and in the manner in which the attack is conducted.

While in these instances decisions were implemented without all factors taken into careful and thorough consideration, decision makers, to varying degrees, were held accountable. Accountability is the essence of command. Command structure is dependent on proper delegation of responsibility and accountability. Soldiers and commanders alike depend on a command structure that ensures military discipline, clear lines of command, and a confirmation of systemic and institutionalized principles of accountability and responsibility.

That is the essence of a military and is essential for mission articulation and achievement. Failure to create, and ensure, a clear chain of command raises significant concerns regarding the proper functioning of a military unit. The core of a military unit is discipline and accountability; the former is the "heart and soul" of a military, while the latter ensures consequences for mistakes, intentional or otherwise.

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[42] The commander shared the story with me when I was serving in the IDF.

[43] The decision to "reverse" was witnessed by many Palestinians.

The constant in the decision-making tree was command accountability. My questions were directed exclusively at the commander; my recommendation was dependent on his answers. Those answers were based on his "on the ground" assessment reflecting professional experience, military training, understanding of the threat posed, recognition of the costs and benefits of undertaking or not undertaking the operation, application of international law principles of proportionality, distinction, collateral damage, and alternatives. The individual soldier bears responsibility for actions taken and commands given.

I find this process of fundamental importance because the clarity guided me throughout my career, both with respect to my actions and those of others. I believe my personal experiences and insight can provide valuable input for the vast majority of both civilians and military personnel who have never been faced with such decisions and may be unable to fathom the complexities that accompany ordering the death of another individual. Those same standards of accountability must be applied to autonomous warfare decision making and its consequences. There can be no middle ground or wiggle room in this matter.

## V. CONCLUSION

There is no doubt that the potential application of autonomous warfare presents change. Change in this context is not intended either as a "positive" or a "negative," but instead as the acknowledgment of a new reality viewed favorably by some and with extreme distress by others. The primary source of concern focuses on the transfer of the decision-making process and issues of responsibility and accountability onto artificial intelligence rather than that developed by humans.

These are profound strategic questions which extend significantly beyond the issues of tactics and specific applications. While the targeted killing paradigm raises important and complicated questions and concerns, the degree of human involvement in the decision-making process has not been raised as a point of controversy or opposition. That is why, as suggested above, operational counterterrorism—of which targeted killing is but one example—more closely resembles traditional military engagement than autonomous warfare.

The suggestion that AWS are strategic goes to the heart of the issue. By labeling it as a strategic entity, the term implies the autonomous system replaces the soldier in importance.

Enhanced robotic warfare utilizes highly technologically advanced AWS to significantly minimize human decision making, emphasizing algorithms and mathematical modeling in determining when an individual may be targeted for a targeted killing. Robotic warfare is undoubtedly seductive. It reduces the presence of "boots on the ground." However, minimization of morality—if not totally ignoring its significance—poses an extraordinarily dangerous honeytrap of temptation.

> In warfare, it is a mistake to think that morality stands still. Thinking about the ethics of war shifts frequently to accommodate technological change. At the beginning of World War I, submarine warfare was considered cowardly and inhuman. At the start of World War II, both sides agreed not to bomb civilians. In both cases, the sphere of the permissible widened to accommodate the realities of the conflict. After Vietnam, some attempt was made to incorporate the wholesale slaughter of civilians within a more agreeable perspective.[44]

The concept of morality has evolved over thousands of years. The introduction of morality into war and armed conflict is one of the most fluid and dynamic aspects of conflict, oftentimes creating a "gray zone" of questionable application of weapons and strategies within the spectrum of armed conflict. Counterterrorism has presented similar questions of morality within the broader scope of conflict between asymmetrical forces.

Who is a "civilian" and who are "legitimate targets" are examples of the "gray zone" in operational counterterrorism. Decision making regarding application of the terms is complicated and sensitive. How AWS, or robots, would "define" and "apply" terminology in the context of autonomous warfare is at the crux of the dilemma regarding *nonhuman decision making*.

[44] BILTON & SIM, *supra* note 1, at 14.