

Just War Tradition and Ethical Frameworks: Are They Relevant in an Age of Autonomous Weapon Systems?

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Across the vast history of human warfare, two elements of lethal combat have existed, weapon systems and ethics. This is clearly exhibited from the earliest initial hand-to-hand battles to our present-day engagements utilizing Autonomous Weapon Systems (AWS). History shows weapon systems have been used, and humans have had to address the ethical concerns associated with lethal combat, especially the taking of life.

As we move further into an age where lethal force can be delivered utilizing an AWS, with little, to possibly no human interaction, the ethical concerns have not diminished.¹ It is possible they may have even increased, thereby raising the question of the relevance of existing ethical models to address the ethical concerns. Existing ethical models, Just War Tradition (JWT) and ethical frameworks, such as utilitarianism, consequentialism, deontology, and virtues, have been around for centuries. These ethical models have been employed by numerous generations to address the ethical concerns associated with waging war, which involved the deployment of countless weapon systems. The rapidly evolving development, deployment, and utilization of AI equipped autonomous weapon systems (AWS) continues to redefine the ability to wage war.

While the weapons employed to wage war have evolved over the years, the human condition still wrestles with the timeless ethical concerns with lethal combat and the taking of life. These concerns remain whether the fighting is done in person or delegated to an AWS where human engagement is minimized or even possibly removed.² Lethal combat continues and the question remains as to the relevance of existing ethical models to address the ethical concerns arising from the use of AWS. Drawing on a review of historical resources, current literature, and Department of Defense publications, different perspectives about the relevance of ethics in the use of AWS are identified. These perspectives span the range from virtually no need for human deliberated ethics,³ to a robust engagement of humans in the ethical use of AWS.⁴ While there is agreement that some level of ethics should be included in the discussion about the use of AWS, there is no agreement on the use of JWT or other existing ethical frameworks to address these ethical concerns. While not expressly stated, numerous authors and studies have drawn from the tenets of JWT and existing ethical frameworks to validate the ethical decisions made by AWS, yet, still suggesting they are not relevant and some other ethical approach needs to be developed.

This paper argues that JWT and existing ethical frameworks are relevant to ongoing discussions about the ethical implications of AWS. JWT and existing ethical frameworks have been foundational to addressing the ethical concerns with waging war across the centuries, regardless of the weapon systems employed to wage war, and they remain relevant in this new age of evolving AWS.

While the scope of this discussion of the relevance of ethics and AWS has great depth and breadth, the parameters of this paper only allow for a condensed presentation of some of the most prominent points in the discussion. With that goal, this paper begins with a review of JWT, to include both *jus ad bellum*, and *jus in bello*. Following JWT, four impactful ethical frameworks are reviewed: utilitarianism, consequentialism, deontology, and virtues. From there, the attention moves to an overview of AWS, focusing, specifically on autonomy. That discussion leads to a survey of Department of Defense guidance on AWS and ethics. The concluding section focuses on the intersection of ethics and AWS, addressing the relevance of existing ethical models of JWT and ethical frameworks in an age of AWS.

The starting point for addressing the relevance of JWT and ethical frameworks in an age of AWS is JWT. It

covers a wide range of topics associated with war, including social customs, ethical codes, and moral teachings, as they speak to the justification for war and its boundaries.⁵ Military leaders have drawn upon its insights and guidance for centuries. It has been suggested that it arose from the efforts of St. Augustine to justify participation in Roman wars.⁶ Spanning the centuries from St. Augustine to modern times, JWT has evolved, becoming more developed, expansive, and nuanced. It has been foundational for addressing ethical concerns across countless battlefields involving numerous weapon systems. It has addressed ethical questions on the decision to engage with lethal force and corresponding ethical questions on the use of lethal force while engaged. JWT considers both the criteria and principles for justifying going to war, *jus ad bellum*, and the conduct once one is engaged in war, *jus in bello*.⁷ The criteria identified in *jus ad bellum* competent authority for going to war include:⁸

- A competent authority to wage war for a public purpose.
- A just cause (such as self-defense).
- The means must be proportionate to the just cause.
- All peaceful alternatives must have been exhausted.
- A right intention on the part of the just belligerent.

The criteria identified in *jus in bello* for the conduct of war include:⁹

- Discrimination: legitimate targets.
- Proportionality: appropriate force.
- Responsibility: who is responsible for actions.

These two aspects of JWT usually operate separately from one another, although they both have an impact on war, the determination for waging war, and how it is to be waged. Historically, both aspects of JWT have been employed to address the range of ethical concerns associated with all aspects of war, including the use of novel weapon systems. Given the historical impact of JWT on the ethical decisions to engage in war, along with the means and methods for conducting war, it is reasonable to employ its principles in the ongoing discussions on AWS.¹⁰ The impact of JWT on the ethical concerns associated with war has been extensive, but it is not the only avenue for approaching this topic. Those are addressed in the following section covering ethical frameworks.

Ethical frameworks that have been employed to address the ethical issues surrounding lethal combat include utilitarianism, consequentialism, deontology, and virtues-based ethics. The first of these, utilitarianism, has often been associated with combat due to its foundational understanding that focuses on the outcome of the greatest good for the greatest number of people.¹¹ This quantification of goodness should be determined from an impartial perspective where equal consideration is given to all of the impacted stakeholders to maximize the benefits for most stakeholders.

The second ethical framework, closely related to utilitarianism, is consequentialism, which holds to the foundational understanding that actions are right or wrong depending on the outcome(s) of the actions, whether they are good or bad.¹² Once again, the determination as to whether an outcome is good or bad lies with the stakeholders involved. In this framework, the ends justify the means.

The third ethical framework is deontology or duty based. Deontology aligns well with military service, as it expects individuals to act in a manner consistent with their duty or obligation.¹³ One must follow or act in a certain manner regardless of the context in which they are operating or the possible consequences which might arise due to their actions. There are certainly challenges with this framework as one may be held accountable for their actions even though they were just doing their duty.

The final ethical framework for consideration is virtues. In this framework an individual will act in a virtuous manner following a moral principle, such as kindness or compassion, which is socially valuable.¹⁴ This framework is based on the personal character or traits of the individual who is undertaking the action. This

framework is based on the understanding there are consistent virtuous characteristics across societies that individuals would strive to emulate. After presenting a condensed review of JWT and ethical frameworks, attention shifts to AWS.

For a clarity, this overview of AWS begins with a definition. There is no singular agreed upon definition of AWS, although, this one encapsulates its core elements, “Platforms capable of selecting and engaging targets without human intervention.”¹⁵ Additionally, the DOD includes the caveat for human operators to have the ability to override the system.¹⁶ The employment of AWS in combat is not new. They have evolved and become more integrated into weapon systems around the world.¹⁷ An argument exists suggesting the use of landmines could be viewed as a prototype of an AWS.¹⁸ These weapons were designed to explode upon contact, such as a pressure switch, without additional actions from an operator. This type of AWS was not very advanced, lacking the capability to select and engage targets. It did not discriminate regarding whom it would harm when it was activated. The ability to select and engage targets is an important feature of present and emerging AWS. While the capability to select and engage targets is significant, one cannot gloss over the prominence of autonomy in these weapon systems. Autonomy conveys the sense of free will, or the ability to make decisions.¹⁹ This concept of autonomy ties back to the earlier definition, in that, an AWS can make decisions, specifically about selection and engagement of targets.

This broad understanding of autonomy, while reasonably accurate, fails to grasp the nuances between “autonomous” and “autonomy” in weapon systems. There is an important distinction between a fully autonomous weapon system and a weapon system that has full autonomy.²⁰ For this discussion, a fully autonomous weapon system can make decisions based upon predetermined criteria or encoded algorithms that guide its decisions. With this type of AWS there is some level of machine learning, utilizing embedded information, such as the parameters defined in JWT, to make decisions. It collects and assesses available data, processing it in a manner that enables it to make decisions. Given the machine learning capabilities and technological advancements in these AWS, they can process data at rate far exceeding human capabilities. This incredible processing speed enables them to react instantaneously, usually much faster than human counterparts could. Utilizing these embedded technological interfaces, they may give the impression that they are able to make their own decisions.²¹ Comparing this to an AWS which has full autonomy, this system would have artificial intelligence (AI) enabling it to “make its own decisions by developing its own ethical framework, built bottom-up from core ethical principles provided.”²² There is no guarantee or assurance that an AWS with full autonomy will develop ethical principles or frameworks that align with or nest within those that have impacted lethal combat for generations. It is quite possible the decisions made by an AWS will not align with those made by a human. AWS do provide unique capabilities that can be utilized like no previous weapon systems. With the arrival of AWS offering novel capabilities, especially in the arena of decision-making, guidance for their ethical use is necessary. That is the focus of the next section, which surveys the Department of Defense (DOD) guidance on AWS.

The DOD has published documents that provide guidance for AWS. The publications cover areas including design, development, and utilization of autonomous and semi-autonomous functions in weapon systems. This survey focuses primarily on DOD Directive 3000.09: Autonomy in Weapon Systems, dated January 25, 2023. Secondary documents include DOD Directive 5500.07: Ethics and Standards of Conduct, DOD Memorandum: Implementing Responsible Artificial Intelligence in the Department of Defense, and the DOD Responsible Artificial Intelligence Strategy and Implementation Pathway. Two elements in DOD Directive 3000.09 of note are the need for “commanders and operators to exercise appropriate levels of human judgment over the use of force,” and “The use of AI capabilities in autonomous and semi-autonomous weapon systems will be consistent with DOD AI Ethical Principles.”²³ The statement about exercising appropriate human judgment implies there is basis for this level of judgment, such as JWT or existing ethical frameworks. The second statement links this expectation of appropriate human judgment to the DOD established AI Ethical principles. Those principles are: responsible, equitable, traceable, reliable, and governable.²⁴ From the perspective of the DOD, there is clear connection between AWS and ethics, especially JWT. This connection appears to exist within the principle of responsibility, in that “DOD personnel will exercise appropriate levels of judgment and care”²⁵ as they are engaged in all aspects associated with AWS. Additionally, this memorandum connects these AI ethical principles with “the existing ethical, legal, safety, and policy frameworks” that have guided the DOD for years.

The ethical principles that have guided the DOD for years are expressed within JWT and ethical frameworks. These are the ethical principles which have guided commanders and operators in the determination of the appropriate level of human judgment and care that should be exercised in the use of any weapon system. The DOD implies that they are to be employed by all DOD personnel in every aspect associated with the development and deployment of AWS. This focus on ethics in the realm of AWS is alluded to within DOD Directive 5500.07, which addressed ethics and standards of conduct. It states that all DOD personnel will be “held to the highest standards of ethical conduct.”²⁶ While these standards of ethical conduct are not expressly stated in this directive, it can be implied they link back to the relevance of JWT as it is discussed in the DOD Law of War Manual.²⁷ The DOD has identified a need to ensure ethical principles are employed by all personnel in all aspects of AWS, from design to deployment. Appropriate levels of human judgment and care are expected from personnel engaged with AWS. This care and judgment is based on ethical principles. The DOD has published specific ethical principles to guide the present and emerging utilization of AI AWS. These principles are connected to the historical use of JWT and ethical frameworks to guide human judgment and provide appropriate care. Even with the DOD’s ethical use of AWS being linked to JWT and existing ethical frameworks, there is still discussion about the intersection of AWS and ethics.

In this discussion about the intersection of AWS and ethics, there appears to be consensus that AWS must include ethics. As stated by Mishra, “the rapid advancement of AWS represents both a technological milestone and an ethical quandary for modern societies.”²⁸ With that understanding, the focal point of the discussion looks at what these ethics should be in addressing these quandaries. There are those, such as the DOD, who see the relevance of JWT and existing ethical frameworks intersecting with AWS. Over time, these principles have helped DOD personnel make ethical decisions about conducting warfare with various weapon systems. From the DOD’s perspective, they remain relevant in the ongoing conversations about AWS and ethics. They have been foundational for the establishment of AI Ethical Principles.

Approaching this intersection from a different avenue, others suggest that a new ethic needs to be created to address the concerns associated with AWS.²⁹ This ethic could be created by the AWS itself, separated from parameters of existing ethical principles. Referring back to weapon systems that have full autonomy, such systems could construct their own ethical frameworks to guide their decision making for the use of lethal force.³⁰ These new ethical frameworks may or may not align with existing principles in JWT and previously discussed ethical frameworks. Some reason that this development of new ethical frameworks might make AWS more ethical as they would remove human bias and slow response times associated with decision-making.³¹ Utilizing a self-constructed ethical framework, an AWS could work outside of those human factors, thereby improving the deployment of lethal force. This approach to ethical development, where decisions are made at the speed of conflict, could reduce casualties, improve targeting, and enhance deterrence. These are certainly worthy objectives to achieve through the deployment of any weapon system. At the present time, no weapon system has full autonomy to create its own ethical framework and operate independently of humans.

The emergence of AWS on the battlefield offers novel ways of conducting war. Their emergence also raises ethical concerns about their development and deployment. While the weapon systems may be novel, the ethical concerns are not, especially when they are associated with lethal combat and the taking of life. This paper has presented a condensed discussion focusing on the relevance of JWT and existing ethical frameworks in addressing the ethical concerns of AWS. This was done through a review of JWT, covering *jus ad bellum* and *jus in bello*. Four existing ethical frameworks were discussed. They included utilitarianism, consequentialism, deontology, and virtues-based ethics. This was followed by an overview of AWS, focusing specifically on autonomy. This overview highlighted the difference between a fully autonomous weapon system and a weapon system with full autonomy. Next a survey of DOD publications on AWS explored the use and relevance of JWT and existing ethical frameworks for addressing ethical concerns with the development and deployment of AWS. The concluding section focuses on the intersection of ethics and AWS. This intersection identified two approaches to addressing ethical concerns with AWS. The first approach utilized JWT and existing ethical frameworks. The second approach suggested that a weapon system with full autonomy could craft its own ethical framework to address the concerns. Given the theoretical nature, assumptions, and uncertainty of the second approach, the first approach, utilizing JWT and existing ethical frameworks, is preferred. These ethical principles

remain relevant as tools to address the ethical concerns associated with AWS, especially lethal combat and the taking of human life.

Endnotes

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- 20 U.S. Department of Defense. (2023). Department of Defense Directive 3000.09: Autonomy in weapon systems. <https://www.esd.whs.mil/portals/54/documents/dd/issuances/dodd/300009p.pdf>. p. 21,23.

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- 24 U.S. Department of Defense. (2021). Implementing responsible artificial intelligence in the Department of Defense. <https://media.defense.gov/2021/May/27/2002730593/-1/-1/0/IMPLEMENTING-RESPONSIBLE-ARTIFICIAL-INTELLIGENCE-IN-THE-DEPARTMENT-OF-DEFENSE.PDF>; U.S. Department of Defense. (2022). Responsible artificial intelligence strategy and implementation pathway. p. 5; Smith, C. J. (2022). DoD responsible AI (RAI) strategy and implementation pathway [Presentation]. Software Engineering Institute, Carnegie Mellon University. <https://apps.dtic.mil/sti/trecms/pdf/AD1178522.pdf> The principles are: 1. Responsible: DoD personnel will exercise appropriate levels of judgment and care, while remaining responsible for the development, deployment, and use of AI capabilities. 2. Equitable: The Department will take deliberate steps to minimize unintended bias in AI capabilities. 3. Traceable: The Department's AI capabilities will be developed and deployed such that relevant personnel possess an appropriate understanding of technology, development processes, and operational methods applicable to AI capabilities, including transparent and auditable methodologies, data sources, and design procedure and documentation. 4. Reliable: The Department's AI capabilities will have explicit, well-defined uses, and the safety, security, and effectiveness of such capabilities will be subject to testing and assurance within those defined uses across AI capabilities' entire life-cycle. 5. Governable: The Department will design and engineer AI capabilities to fulfill their intended functions while possessing the ability to detect and avoid unintended consequences, and the ability to disengage or deactivate deployed systems that demonstrate unintended behavior.
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