ARTIFICIAL INTELLIGENCE AND INTERNATIONAL HUMANITARIAN LAW: LEGAL PERSONALITY AND ACCOUNTABILITY DEBATE*

Abstract

The rapid development and deployment of artificial intelligence (AI) have fundamentally transformed modern warfare, raising complex legal, ethical, and operational questions within the framework of IHL. AI-powered military technologies, particularly autonomous weapons systems (AWS), have introduced unprecedented challenges regarding legal personality, accountability, compliance with the principles of distinction, proportionality, precaution, and military necessity, as well as the attribution of responsibility for unlawful conduct during armed conflicts. While AI systems are capable of independently selecting and engaging targets with varying degrees of human intervention, existing international legal frameworks were developed on the assumption that human actors remain responsible for decisions involving the use of force. Consequently, significant uncertainty exists as to whether AI systems can possess legal personality or bear responsibility for IHL violations, or whether liability should remain exclusively with states, military commanders, programmers, manufacturers, or operators. This study critically examines the intersection between AI and international humanitarian law by evaluating the legal status of AI systems, the adequacy of existing accountability mechanisms, and the ongoing international debate concerning autonomous weapons. The research adopts a doctrinal legal methodology based on the analysis of primary legal materials, including the four Geneva Conventions of 1949, the Additional Protocols of 1977, the Rome Statute of the International Criminal Court, the Convention on Certain Conventional Weapons (CCW), customary international humanitarian law, judicial decisions, state practice, and relevant United Nations documents. Secondary materials, including scholarly writings, reports of the International Committee of the Red Cross (ICRC), and publications of international organizations, are equally examined to assess contemporary legal developments. The study finds that existing rules of International Humanitarian Law remain technologically neutral and therefore apply to AI-enabled weapons. However the absence of specific treaty regulation governing autonomous weapon systems has created significant legal uncertainty regarding accountability where AI systems operate with high levels of autonomy. The research further finds that AI lacks independent legal personality under contemporary international law and cannot incur criminal or civil responsibility for IHL violations. Rather, legal responsibility continues to rest upon human actors and states through established doctrines of state responsibility, command responsibility, individual criminal responsibility, and weapons review obligations under Article 36 of Additional Protocol I. The study concludes that although existing IHL principles provide an important legal foundation for regulating AI-assisted warfare, they are insufficient to address the unique challenges of highly autonomous weapon systems. Therefore, it recommends the development of a legally binding international instrument establishing minimum standards for meaningful human control over the use of lethal force.

Keywords: artificial intelligence, international humanitarian law, legal personality, accountability, autonomous weapons.

1. Introduction

Artificial intelligence (AI) has emerged as one of the most transformative technologies of the 21st century, profoundly influencing economic activities, governance, healthcare, transportation, and

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military operations. AI has accelerated the evolution of military capabilities in the context of armed conflict by enabling systems that can process vast quantities of information, identify targets, support battlefield decision-making, and, in some instances, independently select and engage targets with minimal human intervention.[1] These technological developments have generated significant legal and ethical concerns regarding their compatibility with the rules and principles of International Humanitarian Law (IHL), which seeks to regulate the conduct of hostilities while minimizing human suffering during armed conflicts.[2]

International humanitarian law, also known as the law of armed conflict, is founded on the principles of humanity, military necessity, distinction, proportionality, and precaution. These principles require parties to an armed conflict to distinguish between combatants and civilians, ensure that attacks are proportionate to the anticipated military advantage, and adopt all feasible precautions to avoid or minimize incidental civilian harm.[3] Traditionally, military commanders and combatants have discharged these obligations through human judgment. However, the growing deployment of AI-enabled military technologies raises fundamental questions regarding whether autonomous systems can reliably comply with these legal standards, particularly when complex contextual assessments and value-based judgments are required.

The increasing sophistication of autonomous weapons systems (AWS), sometimes described as lethal AWS (LAWS), has intensified international debate concerning the future regulation of AI in warfare. Although there is currently no universally accepted legal definition of AWS, these systems generally refer to weapons capable of selecting and attacking targets without further human intervention after activation.[4] The United States, China, Israel, Russia, South Korea, Türkiye, and several European countries continue to invest heavily in AI-enabled military capabilities, arguing that such technologies enhance operational efficiency, improve precision targeting, reduce risks to military personnel, and strengthen national security.[5] At the same time, numerous states, humanitarian organizations, and civil society groups have expressed concern that excessive reliance on autonomous systems may undermine accountability, increase civilian casualties, lower the threshold for the use of force, and erode respect for international humanitarian norms.[6]

One of the central legal controversies is whether AI systems possess legal personality under international law. Legal personality determines whether an entity is capable of possessing rights, bearing obligations, and incurring legal responsibility for unlawful conduct. Under contemporary international law, legal personality is primarily recognized for states, international organizations, natural persons, and corporations within domestic legal systems in limited circumstances.[7] Regardless of their degree of sophistication, AI systems are not recognized as subjects of international law and therefore cannot independently bear criminal or civil responsibility for IHL violations. Instead, human

[1]International Committee of the Red Cross, *Artificial Intelligence and Machine Learning in Armed Conflict: A Human-centered Approach*, Geneva, ICRC, 2019. https://doi.org/10.1016/j.icrc.2019.01.013.
[2]International Committee of the Red Cross, *"What Is International Humanitarian Law?*" (updated 2024).
[3]International Committee of the Red Cross, *Customary International Humanitarian Law Database* (updated 2025), Rules 1, 14, 15, and 17; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Additional Protocol I), adopted 8 June 1977, entered into force 7 December 1978, arts. [Remark 1] 48, 51, and 57.
[4]United Nations Convention on Certain Conventional Weapons Group of Governmental Experts on Lethal Autonomous Weapons Systems, *Chairperson's Summary and Guiding Principles* (latest reaffirmed in discussions through 2025).
[5]Stockholm International Peace Research Institute, *2025. SIPRI Yearbook 2025: Armaments, Disarmament and International Security*. Oxford University Press, 2025.
[6]Campaign to Stop Killer Robots, *Country Positions on Autonomous Weapons* (updated 2025).
[7]Brownlie's*Principles of Public International Law*, Oxford University Press, 2019, 117–150.

actors, including military commanders, operators, programmers, manufacturers, and states whose conduct may be connected with the deployment or misuse of AI-enabled weapons, continue to be responsible[8]

The issue of accountability becomes particularly complex when autonomous systems make operational decisions without direct human supervision. Traditional legal doctrines governing state responsibility and individual criminal responsibility assume that identifiable human decision-makers possessing the requisite intent, knowledge, or negligence are responsible for unlawful conduct.[9] Highly autonomous AI systems, particularly those employing ML algorithms capable of adapting to changing battlefield environments, challenge these assumptions by introducing varying degrees of unpredictability into military operations. Consequently, courts and investigators may need to examine the conduct of multiple actors across the design, programming, procurement, testing, deployment, and operational stages of the weapon's lifecycle to determine responsibility for unlawful attacks involving autonomous weapons.[10]

Nevertheless, international humanitarian law remains technologically neutral. This principle means that a weapon's legality is assessed not by its technological sophistication but by whether its use complies with established legal rules governing armed conflict.[11] Accordingly, AI-enabled weapons remain subject to the requirements of the four Geneva Conventions of 1949, Additional Protocol I of 1977, customary international humanitarian law, and other applicable treaties regulating the means and methods of warfare. Article 36 of Additional Protocol I is of particular importance, which obliges states to review new weapons, means, and warfare methods during their development or acquisition to determine whether their employment would be prohibited under international law.[12] Article 36 weapons reviews are increasingly regarded as a critical mechanism for ensuring that AI-enabled military technologies comply with IHL before deployment.

The international community has devoted considerable attention to the regulation of autonomous weapons through discussions conducted under the framework of the Convention on Certain Conventional Weapons (CCW). Since 2017, the Group of Governmental Experts (GGE) on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems has examined legal, ethical, military, and technological issues surrounding AWS.[13] Although participating states have reached a consensus on several guiding principles, including the continued applicability of IHL and the necessity of maintaining human responsibility for decisions involving the use of force, negotiations have yet to produce a legally binding international treaty specifically governing autonomous weapons.[14] This regulatory gap has fueled scholarly debate over whether the existing IHL is sufficient or whether a new international convention must regulate AI-driven warfare.

[8]The Oxford Handbook of International Law in Armed Conflict (2014), Chapters 15–18; Artificial Intelligence and Machine Learning in Armed Conflict, International Committee of the Red Cross 2019).
[9]Articles on the Responsibility of States for Internationally Wrongful Acts of the International Law Commission (2001); Rome Statute of the International Criminal Court, arts. 25, 28, and 30.
[10]United Nations Institute for Disarmament Research, *TheWeaponization of Increasingly Autonomous Technologies: Considering Ethics and Social Values*, 2023. https://doi.org/10.1016/j.unidr.2023.
[11]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (Report to the 34th International Conference of the Red Cross and Red Crescent, 2024).
[12]Additional Protocol I to the Geneva Conventions, art. 36. International Committee of the Red Cross, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare* (2020).
[13]Additional Protocol I to the Geneva Conventions, art. 36. International Committee of the Red Cross, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare* (2020).
[14]Convention on Certain Conventional Weapons, Reports of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems (2019–2025). 4.2 [JP]

Furthermore, advances in generative AI, predictive analytics, computer vision, autonomous drones, robotic combat systems, and AI-assisted battlefield intelligence have demonstrated that AI is no longer a prospect for the future but an operational reality. The conflicts in Ukraine and the Gaza Strip have illustrated the increasing integration of artificial intelligence (AI)-supported technologies into military planning, intelligence gathering, target identification, and operational decision-making, thereby reinforcing the urgency of clarifying applicable legal standards and accountability mechanisms.[15] As AI capabilities continue to evolve, ensuring meaningful human control over life-and-death decisions remains one of the defining legal and ethical challenges confronting contemporary international humanitarian law.

Against this background, this study examines the relationship between AI and International Humanitarian Law by analyzing the legal personality of AI systems, evaluating accountability for violations involving autonomous weapons, and assessing the ongoing international debate concerning the regulation of autonomous weapons systems. The study further considers whether existing legal frameworks adequately address emerging technological realities or whether new international legal instruments are required to preserve humanitarian principles while accommodating military technology innovation.

2. Conceptual Clarifications

2.1 Artificial intelligence

AI refers to the capability of computer systems or machines to perform tasks that ordinarily require human intelligence, including learning, reasoning, problem-solving, perception, language understanding, decision-making, and pattern recognition. Unlike conventional software, artificial intelligence (AI) systems are capable of processing enormous volumes of data, identifying complex relationships, and improving their performance through machine learning and other adaptive techniques.[16]

The concept of artificial intelligence (AI) has evolved significantly since it was first introduced by John McCarthy in 1956 during the Dartmouth Summer Research Project on Artificial Intelligence, where AI was described as the science and engineering of making intelligent machines.[17] Modern artificial intelligence encompasses various branches, including machine learning, deep learning, neural networks, natural language processing, computer vision, robotics, and expert systems. These technologies enable machines to perform tasks ranging from medical diagnosis and financial forecasting to autonomous navigation and military targeting.[18]

AI is increasingly employed in the military context for intelligence gathering, surveillance, reconnaissance, logistics, cyber operations, target recognition, predictive analysis, and battlefield decision support. AI-powered systems can rapidly analyze intelligence from satellites, drones, radar systems, and communication networks to assist military commanders in identifying threats and planning

[15]United Nations Office for Disarmament Affairs, *Lethal Autonomous Weapon Systems* (updated 2025); International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024); Stockholm International Peace Research Institute, *SIPRI Yearbook 2025*.
[16]Organization for Economic Co-operation and Development, *OECD Recommendation of the Council on Artificial Intelligence*, 2024.
[17]McCarthy, J., "What Is Artificial Intelligence?" (Stanford University, revised version).
[18]United Nations Educational, Scientific and Cultural Organization, *Recommendation on the Ethics of Artificial Intelligence* (2021).

operations. More advanced systems can operate with varying degrees of autonomy, reducing direct human involvement in targeting decisions.[19]

Despite these technological advances, AI remains a tool rather than an independent legal actor. Contemporary international law does not recognize AI as possessing a legal personality capable of holding rights or obligations. Consequently, the responsibility for AI systems' actions remains attributable to human actors and states responsible for their development, deployment, and operation.[20]

2.2 International humanitarian law

International humanitarian law (IHL), commonly referred to as the law of armed conflict or the law of war, is the branch of public international law that regulates the conduct of parties during armed conflict. Its principal objectives are to protect persons who are no longer participating in hostilities and to restrict the means and methods of warfare to reduce unnecessary suffering.[21] The legal foundations of IHL are primarily found in the Geneva Conventions of 1949, the Additional Protocols of 1977, customary international humanitarian law, and numerous treaties regulating specific weapons. International or non-international armed conflict requires the application of IHL, irrespective of whether a formal declaration of war has been made.[22]

There are several fundamental principles regulating IHL, including humanity, military necessity, distinction, proportionality, precaution, and the prohibition of unnecessary suffering. These principles require parties to distinguish civilians from combatants, refrain from indiscriminate attacks, and adopt all feasible precautions to protect civilian lives and civilian objects during military operations.[23] IHL is technologically neutral. This means that its rules apply equally to conventional weapons, cyber operations, artificial intelligence (AI)-enabled military systems, and emerging technologies. Accordingly, AI-powered weapons must comply with existing humanitarian obligations regardless of their sophistication or autonomy.[24]

2.3 Legal Personality

Legal personality refers to an entity's legal capacity to possess rights, assume obligations, enter legal relationships, and incur legal responsibility under a particular legal system. In international law, legal personality determines whether an entity may enforce rights, bear duties, or be held accountable for violations of international law.[25]

Traditionally, sovereign states have been the primary subjects of international law. However, legal personality has gradually expanded to include international organizations, individuals, and certain non-state actors in limited circumstances. The recognition of individual criminal responsibility under the Rome Statute of the International Criminal Court marked a significant development by allowing

[19]International Committee of the Red Cross, *Artificial Intelligence and Machine Learning in Armed Conflict: A Human-centered Approach* (2019). https://doi.org/10.1007/s10404-019-0022-x
[20]United Nations Institute for Disarmament Research, *TheWeaponization of Increasingly Autonomous Technologies* (2023).
[21]H Okorie, (2021). *Law of Armed Conflict*, Lagos, Princeton Publishers, 3-4
[22]International Committee of the Red Cross, *Commentary on the First Geneva Convention* (2nd ed., 2016).
[23]Additional Protocol I, arts. 35, 48, 51, 52, and 57; Customary International Humanitarian Law Database, International Committee of the Red Cross (updated 2025).
[24]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024).
[25]Brownlie's *Principles of Public International Law*, Oxford University Press, 2019.

individuals to be prosecuted directly for genocide, crimes against humanity, war crimes, and aggression.[26]

The increasing sophistication of artificial intelligence (AI) has prompted scholarly debate over whether autonomous systems should possess limited electronic or legal personality. Proponents argue that advanced AI may operate with sufficient independence to justify a separate legal status, while opponents maintain that AI lacks consciousness, moral agency, intentionality, and the capacity for legal accountability.[27] The prevailing position in international law rejects AI systems' legal personality. Instead, AI is a sophisticated instrument whose actions remain attributable to natural or legal persons responsible for its design, deployment, and operation.[28]

2.4 Accountability

Accountability refers to the legal obligation of individuals, states, organizations, or other entities to answer for their conduct and bear responsibility for unlawful acts or omissions. In international humanitarian law, accountability ensures that violations committed during armed conflict are investigated and that those responsible are held liable through criminal, civil, disciplinary, or state responsibility mechanisms.[29]

In the context of AI-enabled warfare, accountability concerns the determination of who bears legal responsibility when autonomous systems cause unlawful harm. Potentially responsible actors include military commanders, operators, software developers, manufacturers, procurement authorities, and states that deploy AI systems.[30]

Currently, international law recognizes several accountability frameworks applicable to AI-assisted military operations. These include state responsibility under the Articles on Responsibility of States for Internationally Wrongful Acts, individual criminal responsibility under the Rome Statute, command responsibility, and obligations to conduct legal reviews of new weapons under Article 36 of Additional Protocol I.[31] Although AI may perform certain operational functions autonomously, accountability ultimately remains with human decision-makers and states because AI itself lacks legal capacity.[32]

2.5 Autonomous Weapon Systems

Autonomous Weapon Systems (AWS), often referred to as Lethal Autonomous Weapon Systems (LAWS), are weapon systems that can select, identify, track, and engage targets without further human intervention once activated. The degree of autonomy varies significantly, ranging from systems requiring continuous human supervision ("human-in-the-loop") to those capable of operating independently for extended periods ("human-out-of-the-loop").[33]

[26]Rome Statute of the International Criminal Court, art. 25, 28, and 30.
[27]European Parliament, Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).
[28]United Nations Educational, Scientific and Cultural Organization, *Recommendation on the Ethics of Artificial Intelligence* (2021).
[29]Rome Statute of the International Criminal Court: Articles on the Responsibility of States for Internationally Wrongful Acts (2001).
[30]United Nations Institute for Disarmament Research, *TheWeaponization of Increasingly Autonomous Technologies* (2023).
[31]Additional Protocol I, art. 36; Rome Statute, art. Twenty five and 28.
[32]International Committee of the Red Cross, *Artificial Intelligence and Machine Learning in Armed Conflict* (2019). https://doi.org/10.1007/s10404-019-0022-x
[33]International Committee of the Red Cross, *Autonomous Weapon Systems: Technical, Military, Legal and Humanitarian Aspects* (updated guidance). 4.4

There is currently no universally accepted legal definition of AWS under international law. Instead, discussions within the Convention on Certain Conventional Weapons have focused on the functional characteristics of autonomy and the importance of maintaining meaningful human control over decisions involving the use of lethal force.[34]

AWS may improve precision, reduce military casualties, process battlefield information more rapidly, and minimize human error. Critics contend that autonomous systems may struggle to distinguish civilians from combatants in complex environments, make context-dependent proportionality assessments, or comply with human judgment-requiring humanitarian principles.[35] These concerns have prompted growing calls for an internationally binding instrument regulating or prohibiting certain categories of autonomous weapons.[36]

Regardless of future regulatory developments, AWS remains subject to existing international humanitarian law, including the principles of distinction, proportionality, precaution, military necessity, and the obligation to conduct weapons reviews before deployment.[37]

3. The Legal Framework Governing Artificial Intelligence and International Humanitarian Law

Although no comprehensive international treaty specifically regulates artificial intelligence (AI) or autonomous weapons systems (AWS), the use of AI in armed conflict is governed by an extensive body of international humanitarian law (IHL), international criminal law, the law on state responsibility, international human rights law (where applicable), and emerging international soft-law instruments. The existing legal framework is based on the principle that IHL is technologically neutral; consequently, AI-enabled military technologies are subject to the same legal rules that regulate conventional weapons.[38] The principal legal instruments are discussed below.

3.1 The 1949 Geneva Conventions

The four Geneva Conventions of 1949 constitute the cornerstone of international humanitarian law. They establish the legal protections afforded to wounded and sick members of armed forces, people who are incarcerated of war, civilians, and other protected persons during armed conflict.[39]Although the Conventions were adopted decades before the emergence of AI, their provisions apply equally to military operations involving AI-enabled technologies.

The Geneva Conventions impose obligations on parties to armed conflicts to respect and ensure respect for humanitarian principles regardless of the weapon employed. Accordingly, the responsible state and individuals remain liable under the Conventions if AI-assisted military operations result in unlawful killings, indiscriminate attacks, torture, or attacks against protected persons. AI does not diminish the obligations imposed by the Geneva Conventions because responsibility remains attributable to human decision-makers and states.[40]

[34]Convention on Certain Conventional Weapons, Reports of the Group of Governmental Experts on Lethal Autonomous Weapons Systems (2019–2025). 4.2 [JP]
[35]United Nations Office for Disarmament Affairs, *Lethal Autonomous Weapon Systems*, 2025.
[36]Campaign to Stop Killer Robots, *Country Positions on Autonomous Weapons* (updated 2025).
[37]Additional Protocol I to the Geneva Conventions 35, 36, 48, 51, and 57; International Committee of the Red Cross, *2024.*
[38]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024).
[39]Geneva Conventions I–IV of August 12, 1949.
[40]International Committee of the Red Cross, *"What Is International Humanitarian Law?*" (updated 2024).

3.2 Additional Protocol I to the Geneva Conventions (1977)

Additional Protocol I to the Geneva Conventions provides the principal legal framework governing hostilities and is particularly relevant to AI-enabled warfare. Several provisions directly regulate the legality of AWS.

Article 35 prohibits warfare methods and means that cause unnecessary suffering or superfluous injury. Article 48 establishes the principle of distinction, requiring parties to at all times distinguish between civilians and combatants and between civilian objects and military objectives.[41]

Article 51 prohibits indiscriminate attacks, including attacks employing combat methods or means that cannot be directed at specific military objectives. Therefore, autonomous systems incapable of reliably distinguishing civilians from combatants may violate this provision.

Article 57 imposes the obligation to take all feasible precautions, including verification of military objectives and minimization of civilian harm, before launching attacks. These obligations require meaningful human assessment before and during the deployment of AI-enabled weapons.

Most significantly, Article 36 requires every State Party to determine whether its employment would be prohibited under international law during the study, development, acquisition, or adoption of a new weapon. This obligation forms the principal legal basis for reviewing AI-powered weapons before deployment and has become central to international discussions on autonomous weapon systems.[42]

2.3 Customary International Humanitarian Law

Customary international humanitarian law regulates AI-enabled military operations in addition to treaty law. The ICRC's study on customary IHL identifies universally applicable rules binding upon both international and non-international armed conflicts, irrespective of treaty ratification.[43]
Among the most relevant customary principles are the following:

a. The principle of distinction;
b. proportionality;
c. Military necessity;
d. Precaution in the attack;
e. Prohibition of indiscriminate attacks;
f. prohibition of weapons causing unnecessary suffering; and
g. The obligation to investigate alleged crimes of war.

These customary rules apply regardless of technological innovation. Therefore, even in the absence of AI-specific treaties, the deployment of AI systems must comply with established humanitarian norms.

3.4 Rome Statute of the International Criminal Court (1998)

The Rome Statute of the International Criminal Court establishes individual criminal responsibility for genocide, crimes against humanity, war crimes, and aggression.[44] The Rome Statute does not recognize AI as a legal person capable of criminal liability. Instead, criminal responsibility attaches exclusively

[41]Additional Protocol I, art. Thirty five and 48.
[42]Additional Protocol I, art. Thirty six and 57; International Committee of the Red Cross, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare* (2020).
[43]International Committee of the Red Cross, *2025. Customary International Humanitarian Law Database* (updated 2025).
[44]Rome Statute, Arts. 25, 28, and 30.

to natural persons who commit, order, facilitate, aid, abet, or otherwise contribute to international crimes.

Articles 25, 28, and 30 are particularly relevant to AI-enabled warfare. Article 25 establishes individual criminal responsibility, Article 28 codifies command responsibility, and Article 30 requires intent and knowledge as the general mental elements for international crimes. Consequently, military commanders, operators, and other human actors remain responsible for the unlawful use of AI-enabled weapons where the statutory requirements are satisfied.

3.5 Articles on the Responsibility of States for Internationally Wrongful Acts (ARSIWA) (2001)
The Articles on the Responsibility of States for Internationally Wrongful Acts provide the principal framework governing state responsibility under international law.[45]

Under Articles 1–4, every internationally wrongful act attributable to a state engages its international responsibility. AI systems deployed by state armed forces constitute instruments through which states exercise governmental authority. Accordingly, IHL violations committed through autonomous weapons remain attributable to the deploying state.

Therefore, ARSIWA eliminates the argument that AI autonomy creates a legal vacuum. Regardless of technological sophistication, responsibility continues to attach to the state whose organs employ the weapon.

3.6 Convention on Certain Conventional Weapons and the Group of Governmental Experts on Lethal Autonomous Weapons Systems
The Convention on Certain Conventional Weapons constitutes the principal international forum for Autonomous Weapon Systems negotiations. Since 2017, the Group of Governmental Experts on Lethal Autonomous Weapons Systems has examined the legal, ethical, military, and technological implications of AI-enabled weapons.[46]

Although negotiations have not yet produced a legally binding treaty, the participating states have reaffirmed several guiding principles, including the following:

a. The International Humanitarian Law applies fully to autonomous weapons.
b. Human responsibility for decisions involving the use of force cannot be transferred to machines.
c. Accountability under international law must always be preserved.
d. Weapons reviews under Article 36 remain essential.

These principles increasingly influence state practice concerning AI governance.

3.7 International Committee of the Red Cross Position on Autonomous Weapon Systems
Although not legally binding, the International Committee of the Red Cross has significantly shaped the international legal understanding of AI in armed conflict.[47] The ICRC advocates:

a. Maintaining meaningful human control over force use;
b. prohibiting the use of unpredictable autonomous weapon systems

[45]ARSIWA (2001), Arts. 1–4.
[46]CCW GGE on Laws, *Reports, and Guiding Principles* (2019–2025).
[47]ICRC, *Position on autonomous weapons systems* (updated 2025).

c. prohibiting systems designed to target human beings without sufficient human control; and
d. Strengthening Article 36 of the weapons review procedures.

The recommendations of the ICRC are increasingly reflected in diplomatic negotiations and state practice.

3.8 United Nations General Assembly and the United Nations Office for Disarmament Affairs

The United Nations General Assembly and the United Nations Office for Disarmament Affairs have increasingly addressed AI governance in military contexts. Recent UN discussions emphasize the following:

a. preserving human accountability; and
b. Ensuring compliance with the IHL;
c. Promoting transparency in the development of AI weapons;
d. encouraging international cooperation; and
e. Exploring the legally binding regulation of autonomous weapons.[48]

Although resolutions of the General Assembly are generally non-binding, they contribute to the progressive development of international law and influence state practice.

3.9 UNESCO Recommendation on the Ethics of Artificial Intelligence (2021)

In 2021, the United Nations Educational, Scientific, and Cultural Organization adopted the Recommendation on the Ethics of Artificial Intelligence in 2021, the first global normative instrument on AI ethics.[49] Although not legally binding, it provides important guidance relevant to military AI by promoting the following:

a. Human rights;
b. transparency;
c. accountability;
d. Human oversight;
e. fairness;
f. risk assessment; and
g. Responsible AI governance.

The Recommendation reinforces the principle that AI should remain subject to meaningful human supervision.

3.10 OECD Recommendation on Artificial Intelligence (AI)

The organization for Economic Co-operation and Development Recommendation on AI, updated in 2024, establishes principles for trustworthy AI that are internationally recognized.[50] These include:

a. accountability;
b. robustness;
c. transparency;
d. explainability;

[48]UNODA, *Lethal Autonomous Weapon Systems* (updated 2025); UN General Assembly resolutions on autonomous weapons and artificial intelligence governance (2023–2025).
[49]UNESCO, *Recommendation on the Ethics of Artificial Intelligence* (2021).
[50]OECD, *Recommendation of the Council on Artificial Intelligence* (updated 2024).

e. human-centered values; and
f. Responsible innovation.

Although designed primarily for civilian applications, these principles increasingly influence discussions concerning military AI governance and regulatory standards.

The current legal framework governing AI in armed conflict is fragmented but comprehensive. While no dedicated treaty specifically regulates AI or autonomous weapons systems, existing international law, including the Geneva Conventions**,** Additional Protocol I**,** customary International Humanitarian Law, the Rome Statute of the International Criminal Court, theArticles on State Responsibility, and the ongoing work of the CCW Group of Governmental Experts, collectively provide the legal basis for regulating the development, deployment, and use of AI-enabled military technologies. These instruments consistently affirm that AI systems do not possess international legal personality, that responsibility for violations of IHL remains with states and natural persons**,** and that meaningful human control, accountability, and compliance with humanitarian principles must be maintained despite advances in military AI. Emerging soft-law instruments from UNESCO, the OECD, the ICRC, and the United Nations further complement this framework by promoting responsible AI governance while negotiations continue toward the possible adoption of a legally binding international instrument on autonomous weapons.

4. An AI Systems Possess Legal Personality or Bear Responsibility for Violations of International Humanitarian Law and Can Liability Remain Exclusively with States, Military Commanders, Programmers, Manufacturers, or Operators?

The increasing deployment of artificial intelligence (AI) in military operations has generated one of the most significant contemporary debates in international humanitarian law (IHL): whether AI systems can possess legal personality and bear responsibility for violations committed during armed conflict, or whether responsibility should remain exclusively with human actors and states. The issue arises because advanced AI-enabled systems, particularly autonomous weapons systems (AWS), can perform functions that traditionally require human judgment, including identifying, selecting, tracking, and engaging military objectives with varying degrees of autonomy.[51] While these technological developments have transformed warfare, they have not altered the fundamental principles governing legal responsibility under international law.

International law is premised on the principle that only entities possessing legal personality can hold rights, assume obligations, and incur responsibility for internationally wrongful acts. Traditionally, international legal personality has been primarily recognized for sovereign states, international organizations, and natural persons. Following the adoption of the Rome Statute of the International Criminal Court, individuals also became direct subjects of international criminal law, capable of being prosecuted for genocide, crimes against humanity, war crimes, and aggression.[52] Regardless of their sophistication or operational autonomy, AI systems are not recognized as subjects of international law. Therefore, they cannot independently possess legal rights, owe legal obligations, or incur criminal or civil liability for IHL violations.

[51]International Committee of the Red Cross, *Artificial Intelligence and Machine Learning in Armed Conflict: A Human-centered Approach* (2019). https://doi.org/10.1007/s10404-019-0022-x
[52]Rome Statute of the International Criminal Court, art. 25, 28, and 30.

This position reflects the traditional understanding that moral agency, intentionality, consciousness, and the capacity to understand legal duties and consequences presuppose legal responsibility. AI systems function through algorithms, ML models, statistical inference, and data processing rather than conscious reasoning or moral deliberation. Although advanced AI systems may generate intelligent or adaptive outputs, they remain technological artifacts created and deployed by humans.[53] Consequently, contemporary international law regards AI as an instrument through which human actors exercise military power rather than an autonomous legal actor.

The principle of legal personality has been interpreted conservatively within international law. In the Reparation for Injuries Suffered in the Service of the United Nations, the International Court of Justice recognized international legal personality exists only where the international legal system confers rights and obligations upon an entity.[54] Since no international treaty or customary rule grants legal personality to AI systems, they remain outside the category of subjects capable of bearing international legal responsibility. The absence of legal personality also prevents AI from being prosecuted before international criminal tribunals or from being held civilly liable under international law.

Nevertheless, some legal scholars have argued that increasingly sophisticated AI systems should be granted a form of limited or "electronic" legal personality analogous to corporate legal personality. They contend that autonomous systems capable of making independent operational decisions should bear legal consequences where those decisions produce unlawful harm.[55]Proponents are of the view that such recognition could simplify liability in situations where no single human actor exercises direct control over the conduct of an autonomous weapon.

However, this proposal has attracted substantial criticism. Critics argue that corporations possess legal personality because domestic legal systems expressly create them and because corporations remain controlled by natural persons who ultimately benefit from their activities. In contrast, AI systems lack consciousness, intentions, free will, moral judgment, and independent economic existence.[56] Therefore, granting AI legal personality could undermine accountability by allowing responsible human actors to evade liability behind the actions of machines. The prevailing view among governments, international organizations, and legal scholars is that human decision-makers must remain the center of accountability.

The International Committee of the Red Cross (ICRC) has consistently maintained that human responsibility cannot be transferred to machines regardless of technological sophistication. According to the ICRC, compliance with the International Covenant on Human Rights (IHL) requires meaningful human judgment in applying legal principles such as distinction, proportionality, and precautions in attack because these assessments involve contextual, ethical, and value-based decisions that AI cannot presently replicate.[57] Likewise, the United Nations Institute for Disarmament Research emphasizes that legal accountability remains inseparable from human control over military operations involving AI-enabled weapons.[58]

[53]United Nations Educational, Scientific and Cultural Organization, *Recommendation on the Ethics of Artificial Intelligence* (2021).
[54]Reparation for Injuries Suffered in the Service of the United Nations, 1949, p. 174.
[55]European Parliament, Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).
[56]United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies* (2023).
[57]International Committee of the Red Cross, *Position on autonomous weapons systems* (updated 2025).
[58]UNIDIR, *The Weaponization of Increasingly Autonomous Technologies* (2023).

Therefore, state responsibility remains the primary mechanism for addressing IHL violations involving AI systems. Under the Articles on Responsibility of States for Internationally Wrongful Acts (ARSIWA), every internationally wrongful act attributable to a state engages that state's international responsibility regardless of whether the conduct was carried out through conventional weapons or artificial intelligence (AI)-enabled systems.[59] If a state's armed forces deploy an autonomous weapon that commits an unlawful attack resulting in civilian casualties contrary to IHL, the state is responsible because the weapon functions as an instrument of state action. Under international law, the technological characteristics of the weapon do not interrupt attribution.

In addition to state responsibility, individual criminal responsibility continues to apply to persons whose conduct contributes to the unlawful use of AI-enabled weapons. The Rome Statute establishes criminal responsibility for individuals who commit, order, aid, abet, facilitate, or otherwise contribute to the commission of international crimes.[60] Military commanders who authorize the unlawful deployment of autonomous weapons may incur criminal liability under the doctrine of command responsibility where they knew or should have known that subordinates were committing violations and failed to prevent or punish such conduct.[61] Thus, AI does not displace the traditional principles of criminal accountability. Military commanders occupy a particularly significant position within this accountability framework. Commanders retain legal responsibility for decisions concerning the deployment of AI-enabled weapons, operational planning, target selection policies, rules of engagement, and military personnel supervision. Even when autonomous systems perform targeting functions independently after activation, commanders remain responsible for ensuring that such systems are employed only in IHL-consistent circumstances.[62] Failure to conduct appropriate operational assessments or weapons reviews before deployment may expose commanders to criminal or disciplinary liability where unlawful consequences result.

Operators also bear potential responsibility when they misuse autonomous systems, activate them in unlawful circumstances, disregard operational limitations, or fail to intervene where intervention remains possible. Modern AI-enabled weapons operate under varying degrees of human supervision rather than complete autonomy. Consequently, operators may retain the ability to suspend or terminate attacks when civilian harm becomes foreseeable. Their failure to exercise such control may constitute negligence or criminal conduct depending on the applicable legal framework.[63]

Programmers and software developers present more complex accountability questions because they rarely participate directly in military operations. Nevertheless, criminal or civil liability may arise under domestic law or, in exceptional circumstances, international criminal law if the requisite mental element is established where programmers intentionally design software to facilitate unlawful attacks, knowingly introduce defects that foreseeably cause indiscriminate harm, or deliberately circumvent legal safeguards incorporated into AI systems.[64] However, mere involvement in software development does not automatically create liability absent proof of knowledge, intent, or substantial contribution to an international crime.

[59]Articles on the Responsibility of States for Internationally Wrongful Acts 1–4.
[60]Rome Statute, art. Twenty five and 30.
[61]Rome Statute, Art. 28.
[62]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024).
[63]Additional Protocol I to the Geneva Conventions 48, 51, and 57.
[64]United Nations Office for Disarmament Affairs, *Lethal Autonomous Weapon Systems*, 2025.

Similarly, manufacturers occupy an increasingly important position within the accountability debate. Defense contractors responsible for producing AI-enabled military technologies may incur liability under domestic product liability regimes, contractual obligations, export control laws, or sanctions legislation where defects contribute to unlawful harm.[65] However, international humanitarian law generally regulates the conduct of armed conflict parties rather than private commercial manufacturers. Consequently, manufacturers are ordinarily not directly responsible under IHL unless their conduct satisfies the requirements for aiding and abetting international crimes or otherwise incurs liability under applicable domestic or international legal rules.

One of the greatest practical challenges is the so-called *"accountability gap."* This concept refers to situations in which highly autonomous AI systems operate unpredictably, making it difficult to identify the precise human actor legally responsible for unlawful outcomes.[66] ML algorithms may evolve through exposure to operational data, producing decisions that were neither specifically anticipated nor directly programed by developers. Such adaptive behavior complicates the traditional legal concepts of causation, foreseeability, negligence, and intent. Nevertheless, most scholars reject the conclusion that accountability therefore disappears. Rather, responsibility should be distributed among the relevant human actors according to their respective roles in designing, approving, deploying, supervising, and employing the system.

Article 36 of Additional Protocol I to the Geneva Conventions provides an important preventive mechanism by requiring states to review new weapons, means, and warfare methods before their adoption to determine whether their use would be prohibited under international law.[67] Comprehensive legal reviews of AI-enabled weapons should be conducted to evaluate algorithmic reliability, predictability, explainability, cybersecurity vulnerabilities, compliance with distinction and proportionality, human oversight mechanisms, and operational limitations. Effective Article 36 reviews reduce accountability gaps by ensuring that states understand AI systems' capabilities and limitations before deployment.

International discussions within the Group of Governmental Experts on Certain Conventional Weapons have consistently reaffirmed that human responsibility for decisions regarding the use of force must be preserved.[68] Although states remain divided over whether a legally binding treaty regulating autonomous weapons is necessary, there is a broad agreement that under existing international law, machines themselves cannot bear legal responsibility. This consensus reflects the continuing importance of maintaining meaningful human control over the use of lethal force.

In conclusion, contemporary international law does not recognize AI systems as possessing a legal personality capable of bearing responsibility for violations of IHL. AI lacks the legal status, moral agency, and normative capacity to incur criminal or civil liability. Therefore, under the law of state responsibility, responsibility remains with states and with human actors, including military commanders, operators, programmers, manufacturers, and other relevant participants, whose conduct

[65]Organization for Economic Co-operation and Development, *OECD Framework for Anticipatory Governance of Emerging Technologies*, 2024.
[66]United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies* (2023).
[67]Additional Protocol I, art. 36. International Committee of the Red Cross, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare* (2020).
[68]Governmental Experts on Lethal Autonomous Weapons Systems, Reports and Guiding Principles (2019–2025).

contributes to unlawful outcomes. While increasingly autonomous military technologies complicate attribution and evidentiary assessment, they do not eliminate accountability. Instead, they reinforce the need for robust weapons reviews, meaningful human control, transparent governance, and clearer international legal standards to ensure that responsibility remains firmly attached to those who design, authorize, deploy, and use AI-enabled military systems.

5. Artificial Intelligence, International Humanitarian Law, and Existing Accountability Mechanisms

The rapid integration of artificial intelligence (AI) into military operations has significantly altered the nature of modern warfare and generated renewed debate on the adequacy of existing accountability mechanisms under the International Humanitarian Law (IHL). AI-enabled military technologies, particularly autonomous weapons systems (AWS), have enhanced the speed, precision, and efficiency of military operations through automated target recognition, intelligence analysis, surveillance, logistics, and battlefield decision support.[69] However, these technological advances also challenge traditional legal assumptions regarding human control, legal responsibility, attribution of unlawful conduct, and accountability for IHL violations. The central question is whether existing international legal mechanisms are sufficient to regulate increasingly autonomous military technologies or whether new legal frameworks are required.

International humanitarian law is founded on the principle that human actors and states are accountable for violations of the law of armed conflict. The four Geneva Conventions of 1949, their Additional Protocols, customary international humanitarian law, and international criminal law collectively establish legal obligations governing hostilities, irrespective of the technology employed.[70] Consequently, IHL is technologically neutral, meaning that its rules apply equally to conventional weapons, cyber operations, RP systems, and AI-enabled weapons. Therefore, the legality of military conduct does not depend upon the sophistication of the technology but upon compliance with humanitarian principles such as distinction, proportionality, military necessity, humanity, and precautions in attack.[71]

The distinction principle remains the cornerstone of accountability within IHL. Article 48 of Additional Protocol I requires parties to, at all times distinguish between civilians and combatants and between civilian objects and military objectives.[72] Therefore, autonomous systems must possess sufficient reliability to identify lawful military targets and avoid attacks against protected persons. While AI-assisted target recognition has the potential to improve precision in certain operational environments, critics argue that current AI systems remain incapable of making the contextual and ethical judgments often required in complex battlefields where civilians and combatants intermingle.[73] Consequently, unlawful attacks committed through AI systems continue to engage the responsibility of the deploying state and the individuals responsible for authorizing or conducting military operations.

[69]International Committee of the Red Cross, *Artificial Intelligence and Machine Learning in Armed Conflict: A Human-centered Approach* (2019). https://doi.org/10.1007/s10404-019-0022-x
[70]Geneva Conventions of August 12, 1949; Additional Protocol I of 1977.
[71]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024).
[72]Additional Protocol I, Article 48.
[73]United Nations Office for Disarmament Affairs, *Lethal Autonomous Weapon Systems*, 2025.

Similarly, the principle of proportionality prohibits attacks expected to cause incidental civilian harm that would be excessive in relation to the anticipated concrete and direct military advantage.[74] Nuanced legal and military judgment involving the balancing of competing humanitarian and operational considerations is required to assess proportionality. Although AI algorithms can process large quantities of battlefield information more rapidly than humans, they lack the normative reasoning and contextual understanding necessary to perform proportionality assessments independently. The International Committee of the Red Cross has consistently maintained that such decisions require meaningful human judgment and cannot be entirely delegated to autonomous systems.[75]

Existing accountability mechanisms under international law operate principally through state and individual criminal responsibilities. The Articles on the Responsibility of States for Internationally Wrongful Acts state that every internationally wrongful act attributable to a state engages that state's international responsibility.[76] Where state armed forces employ AI-enabled weapons, any violation of IHL committed through those systems remains attributable to the state because AI functions as an instrument of governmental authority rather than as an independent legal actor. Therefore, the autonomy of the technology does not interrupt legal attribution.

Alongside state responsibility, the Rome Statute of the International Criminal Court establishes individual criminal responsibility for persons who commit, order, aid, abet, facilitate, or otherwise contribute to war crimes, crimes against humanity, genocide, and aggression.[77] Military commanders who knew or should have known that subordinates were committing violations and failed to prevent or punish such conduct remain criminally liable under Article 28. Operators, commanders, and other military personnel may incur liability where the unlawful deployment of AI-enabled weapons results from intentional or reckless conduct. Accordingly, the current international criminal law continues to locate responsibility in natural persons rather than in autonomous technologies.

One of the strongest accountability mechanisms applicable to AI-enabled weapons is the obligation contained in Article 36 of Additional Protocol I. Article 36 requires states to determine whether its use would be prohibited under international law during the development, acquisition, or adoption of any new weapon.[78] This review process has become increasingly important as states develop AI-powered military technologies. Effective Article 36 reviews should examine algorithmic reliability, predictability, explainability, cybersecurity resilience, compliance with the principles of distinction and proportionality, operational limitations, and the degree of meaningful human control retained over the weapon's operation. Article 36's proper implementation significantly reduces the likelihood of unlawful deployment and strengthens preventive accountability.

Despite these well-established legal mechanisms, numerous scholars argue that when applied to highly autonomous AI systems, existing accountability frameworks face serious practical challenges. One of the principal concerns is the emergence of an *"accountability gap."* This concept describes situations in which the conduct of highly autonomous systems cannot easily be attributed to any single human actor because complex interactions between software developers, machine-learning algorithms, military commanders, procurement authorities, operators, and battlefield conditions result in operational

[74]Additional Protocol I, Art. 51(5)(b).
[75]International Committee of the Red Cross, *Position on autonomous weapons systems* (updated 2025).
[76]Articles on the Responsibility of States for Internationally Wrongful Acts, 1–4.
[77]Rome Statute of the International Criminal Court, art. 25, 28, and 30.
[78]Additional Protocol I, art. 36. International Committee of the Red Cross, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare* (2020).

decisions.[79] ML systems may adapt their behavior based on operational data, producing outcomes that were not specifically anticipated by programmers or commanders. Consequently, identifying the individual possessing the necessary intent, knowledge, or negligence required for criminal liability may become considerably more difficult.

Accountability gap has been raised by many advanced AI systems' technical opacity. Contemporary ML models frequently operate as "black box" algorithms whose internal decision-making processes cannot be easily explained even by their developers.[80] This lack of explainability creates evidentiary challenges during investigations into alleged IHL violations because investigators may struggle to determine why an autonomous system selected a particular target or made a specific operational decision. Such evidentiary uncertainty may impede criminal prosecutions and complicate the allocation of responsibility among multiple actors involved in the weapon's lifecycle.

Another significant challenge concerns the allocation of responsibility among military commanders, operators, programmers, manufacturers, and states. Military commanders exercise operational authority over deployment decisions, programmers design algorithms, manufacturers produce hardware, and operators activate or supervise the systems. In highly autonomous environments, responsibility may be distributed across numerous actors rather than being concentrated on a single individual.[81] Existing international law provides only limited guidance concerning the precise allocation of liability among these different participants, particularly where no actor intended the unlawful outcome yet systemic failures collectively produced civilian harm.

Notwithstanding these challenges, the prevailing position among international organizations is that existing accountability mechanisms are fundamentally capable of regulating AI-enabled warfare provided that they are properly implemented. The ICRC maintains that AI does not create a legal vacuum because established doctrines of state responsibility, individual criminal responsibility, command responsibility, and weapons review continue to apply irrespective of technological sophistication.[82] Similarly, the United Nations Institute for Disarmament Research argues that human actors should remain accountable throughout the lifecycle of autonomous weapons, from design and programming to deployment and operational use.[83]

International discussions conducted within the framework of the Group of Governmental Experts on Lethal Autonomous Weapon Systems have reinforced this position. Since 2019, participating states have repeatedly affirmed that responsibility for decisions concerning the use of force cannot be transferred to machines and that an appropriate level of human judgment and control is required for compliance with IHL.[84] Although negotiations have not yet produced a legally binding treaty regulating autonomous weapons, there is a broad consensus that accountability must remain with states and natural persons.

[79]United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies* (2023).
[80]United Nations Educational, Scientific and Cultural Organization, *Recommendation on the Ethics of Artificial Intelligence* (2021).
[81]Organization for Economic Co-operation and Development, *Recommendation of the Council on Artificial Intelligence*, 2024.
[82]International Committee of the Red Cross, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts* (2024).
[83]United Nations Institute for Disarmament Research, *The Weaponization of Increasingly Autonomous Technologies*.
[84]Governmental Experts on Lethal Autonomous Weapon Systems, *Reports and Guiding Principles* (2019–2025)

Nevertheless, growing military reliance on AI has exposed areas where existing legal mechanisms require further development. Current international law contains no universally accepted definition of autonomous weapons systems, no legally binding standards concerning meaningful human control, no comprehensive rules governing algorithmic transparency, and no internationally agreed procedures for auditing AI decision-making during military operations.[85] The absence of such standards may create inconsistencies in national weapons review processes and complicate international investigations into AI-related violations.

Furthermore, accountability mechanisms would benefit from stronger international cooperation concerning AI governance. States should adopt transparent Article 36 weapons review procedures, improve the documentation of algorithmic decision-making, establish independent verification mechanisms for AI-enabled weapons, strengthen military training concerning AI and IHL, and encourage information sharing regarding best practices for responsible AI deployment. Such measures would reinforce existing legal frameworks without fundamentally altering the IHL's established principles.

The growing emphasis on meaningful human control reflects the consensus that accountability cannot be separated from human decision-making. Meaningful human control requires that human operators retain sufficient understanding of the capabilities of the weapon, exercise informed judgment before deployment, supervise operational performance where feasible, and remain capable of intervening or terminating attacks when circumstances require.[86] Maintaining such control preserves the chain of legal responsibility upon which both international humanitarian law and international criminal law depend.

In conclusion, the existing accountability mechanisms under International Humanitarian Law remain legally applicable to AI and autonomous weapons systems. The principles of state responsibility, individual criminal responsibility, command responsibility, weapons review under Article 36, and distinction, proportionality, precaution, and military necessity continue to provide a comprehensive legal framework for AI-enabled warfare. However, the current system has practical limitations due to increasing levels of autonomy, algorithmic opacity, distributed decision-making, and evidentiary complexity. Although these challenges do not render existing accountability mechanisms obsolete, they demonstrate the need for clearer international standards on meaningful human control, enhanced weapons review procedures, greater algorithmic transparency, and the progressive development of international law to ensure that accountability remains effective in an era of increasingly autonomous military technologies.

6. Conclusion and Recommendations

The rapid integration of artificial intelligence (AI) into military operations has fundamentally transformed the conduct of armed conflict and introduced unprecedented legal, ethical, and operational challenges for international humanitarian law (IHL). While AI technologies have the potential to improve military precision, enhance situational awareness, reduce risks to combatants, and minimize incidental civilian harm, their increasing autonomy in critical functions, such as target identification, target selection, and the use of lethal force, raises profound concerns regarding compliance with the core principles of distinction, proportionality, precaution, military necessity, and humanity. Existing

[85]United Nations General Assembly, resolutions and First Committee discussions on autonomous weapons and artificial intelligence (AI) governance (2023–2025).
[86]International Committee of the Red Cross, *Position on Autonomous Weapon Systems* (updated 2025); Guiding Principles of the Convention on Certain Conventional Weapons Group of Governmental Experts on Lethal Autonomous Weapon Systems.

IHL was developed on the assumption that human beings, not autonomous systems, would make decisions concerning the use of force. Consequently, the emergence of increasingly autonomous weapons systems has exposed significant gaps in the application of established legal doctrines to technologically advanced warfare methods.

The debate concerning whether AI systems should possess legal personality or bear responsibility for violations of the International Covenant on Human Rights (IHL) demonstrates the limitations of contemporary international law. Regardless of their sophistication, AI systems remain incapable of possessing legal consciousness, moral agency, intention, or independent legal rights and obligations. Accordingly, AI cannot be regarded as a legal person capable of incurring international criminal responsibility or civil liability under existing international law. Therefore, the responsibility for unlawful conduct committed through AI-enabled military systems continues to rest upon human actors, including states, military commanders, operators, programmers, manufacturers, and, where appropriate, private defense contractors. The principles of state responsibility and individual criminal responsibility remain the primary mechanisms through which accountability is maintained under international human rights (IHL).

Nevertheless, assigning responsibility to human actors becomes increasingly difficult when autonomous systems independently adapt, learn, or make decisions that are not fully foreseeable by their developers or operators. The diffusion of decision-making across multiple actors involved in AI design, programming, procurement, deployment, and operation creates what many scholars describe as the "accountability gap." This gap threatens the effective enforcement of IHL by making it difficult to establish causation, foreseeability, intent, and control, particularly where autonomous systems operate with minimal or no direct human intervention during combat. Existing doctrines of command responsibility, state responsibility, and international criminal liability were not specifically designed to address highly autonomous technologies capable of complex decision-making.

The analysis of existing international legal frameworks demonstrates that while the Geneva Conventions, Additional Protocol I, customary IHL, international criminal law, and weapons review obligations under Article 36 of Additional Protocol I continue to apply to AI-enabled weapons, these rules do not comprehensively regulate the unique characteristics of autonomous military technologies. Currently, the law governs the use of weapons rather than the technology itself, leaving uncertainty regarding acceptable levels of autonomy, meaningful human control, algorithmic transparency, machine learning adaptation, and responsibility for unpredictable autonomous conduct. Therefore, the absence of a dedicated international treaty regulating lethal autonomous weapons systems has generated divergent state positions and inconsistent regulatory approaches.

International discussions within the framework of the Convention on Certain Conventional Weapons (CCW) have significantly advanced global dialogue on autonomous weapons, but a legally binding instrument capable of addressing the complex legal and ethical issues raised by AI in armed conflict has yet to be produced. While many states, international organizations, academics, and civil society organizations advocate legally binding limitations or prohibitions on fully autonomous weapons systems, others favor continued reliance on existing IHL principles supplemented by non-binding principles and national weapons review mechanisms. This divergence reflects broader geopolitical, technological, and military considerations that continue to impede international consensus.

ltimately, although existing international humanitarian law remains sufficiently flexible to regulate many aspects of AI-assisted warfare, additional normative clarification and regulatory development are increasingly evident to preserve meaningful human accountability in the use of force. The principle that human beings, not machines, must remain legally responsible for decisions involving life and death constitutes a fundamental cornerstone of international humanitarian law. Ensuring meaningful human control over autonomous weapons, strengthening weapons review procedures, enhancing algorithmic transparency and explainability, clarifying the allocation of legal responsibility among relevant actors, and pursuing international agreement on the governance of military AI are essential to maintaining IHL's effectiveness, legitimacy, and humanitarian objectives in the age of AI. As military technologies continue to evolve, the enduring challenge for the international community will be to ensure that technological innovation never outpaces the legal and ethical principles designed to protect humanity during armed conflict.

In light of the legal, ethical, and operational challenges posed by the increasing use of artificial intelligence (AI) in armed conflict, the following recommendations are proposed to strengthen accountability, ensure compliance with international humanitarian law (IHL), and promote responsible military innovation.

a. Adoption of a Legally Binding International Instrument on Autonomous Weapons Systems

The international community should negotiate and adopt a legally binding treaty that specifically regulates or prohibits lethal autonomous weapons systems (LAWS) that operate without meaningful human control. Such an instrument should clearly define permissible levels of autonomy, prohibit fully autonomous systems capable of independently selecting and engaging human targets, and establish uniform standards governing the development, deployment, transfer, and use of military AI technologies. A dedicated treaty would eliminate many of the legal uncertainties currently associated with applying traditional IHL to emerging autonomous technologies.

b. Preservation of Meaningful Human Control over Force Use

States should ensure that meaningful human control remains an indispensable legal requirement for all decisions involving the use of lethal force. Human operators should retain authority over target verification, proportionality assessments, distinction between combatants and civilians, and decisions to employ lethal weapons. AI should function as a decision-support tool rather than a substitute for human judgment, thereby preserving human accountability under IHL and preventing the delegation of life-and-death decisions to machines.

c. Strengthening the National Weapons Review Procedures

States party to Additional Protocol I should strengthen the implementation of Article 36 weapons review mechanisms to specifically evaluate AI-enabled military systems before deployment. These reviews should assess not only the physical characteristics of new weapons but also the reliability of ML algorithms, predictability of autonomous behavior, cybersecurity vulnerabilities, algorithmic bias, explainability, and compliance with the principles of distinction, proportionality, precaution, and military necessity. Independent multidisciplinary experts, including legal scholars, artificial intelligence (AI) engineers, military practitioners, and ethicists, should participate in these assessments.

d. Clarification of Accountability Frameworks Under International Law

International legal institutions should clarify the allocation of legal responsibility among states, military commanders, operators, programmers, software developers, manufacturers, and private defense

contractors involved in the lifecycle of AI-enabled weapons systems. Existing doctrines of state responsibility, command responsibility, and individual criminal responsibility should be adapted through interpretative guidance or supplementary legal instruments to ensure that no accountability gaps arise where autonomous systems contribute to IHL violations. AI systems themselves should not be recognized as legal persons or bear independent legal responsibility, as they lack legal and moral agency.

e. Development of International Standards for Military AI Governance

The United Nations, the ICRC, regional organizations, and other relevant stakeholders should collaborate to develop international standards governing the ethical design, testing, deployment, monitoring, and use of military AI. These standards should emphasize transparency, explainability, reliability, auditability, cybersecurity, human oversight, and respect for fundamental humanitarian principles. Harmonized international standards would promote consistency among states while reducing the risks of unregulated technological competition.

f. Promotion of transparency and confidence-building measures

States should adopt transparency measures by voluntarily disclosing national policies concerning the development and deployment of AI-enabled military systems, subject to legitimate national security considerations. Information sharing regarding weapons review procedures, operational safeguards, testing methodologies, and legal compliance mechanisms would strengthen states' mutual confidence and contribute to the development of customary international norms governing military AI.

g. Investment in Explainable and Reliable Artificial Intelligence

Governments and defense industries should prioritize R&D aimed at producing explainable, predictable, and verifiable AI systems suitable for military operations. Explainable AI enhances human supervision by enabling operators to understand the reasoning underlying AI-generated recommendations, thereby facilitating lawful military decision-making and improving post-conflict accountability investigations where alleged violations of international human rights (IHL) occur.

h. Continuous Review of and Adaptation of International Humanitarian Law

Given the rapid evolution of AI technologies, international humanitarian law should be subject to periodic review through state practice, judicial interpretation, scholarly engagement, and multilateral dialogue. Rather than replacing the existing framework, future developments should clarify how established IHL principles apply to increasingly autonomous military technologies while ensuring that technological advancements never diminish the protection afforded to civilians or weaken accountability for violations of international law.