ARTIFICIAL INTELLIGENCE AND INTERNATIONAL LAW: ACCOUNTABILITY FOR AUTONOMOUS WEAPONS

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) into modern military operations is transforming the nature of armed conflict and raising complex questions concerning accountability under international law. Autonomous Weapon Systems (AWS), capable of identifying, selecting and engaging targets with limited or no further human intervention, challenge traditional assumptions about human control over the use of force. This research examines the compatibility of autonomous weapons with **International Humanitarian Law (IHL)** and explores the allocation of legal responsibility when AI-enabled systems cause unlawful harm. Particular attention is given to the principles of distinction, proportionality, precautions in attack and the obligation to conduct legal reviews of new weapons under Article 36 of Additional Protocol I to the Geneva Conventions. The study further analyses State responsibility, individual criminal responsibility and command responsibility, while examining the difficulties created by algorithmic unpredictability, opaque decision-making, technological errors and the attribution of conduct to human actors. It evaluates emerging international developments under the **Convention on Certain Conventional Weapons (CCW)**, United Nations processes, International Committee of the Red Cross (ICRC) positions and comparative regulatory approaches. The research argues that technological autonomy cannot operate as a legal substitute for human responsibility. Existing international law provides an important foundation, but significant regulatory gaps remain regarding meaningful human control, predictability, accountability and weapons testing. The study therefore advocates a strengthened international framework incorporating clear prohibitions, operational restrictions, mandatory weapons reviews, human oversight and effective accountability mechanisms to ensure that technological advancement does not undermine fundamental humanitarian principles.

Keywords: Artificial Intelligence; Autonomous Weapon Systems; International Humanitarian Law; Human Accountability; Autonomous Warfare.

INTRODUCTION

Artificial Intelligence (AI) is increasingly influencing the methods by which States prepare for and conduct armed conflict, creating a significant shift from conventional human-operated weapons towards systems capable of performing functions with varying degrees of autonomy. Among the most legally sensitive developments are **Autonomous Weapon Systems (AWS)**, which can identify, select and engage targets after activation with limited or no further human intervention. Their emergence raises fundamental questions about whether existing rules of International Humanitarian Law (IHL) can adequately regulate decisions increasingly influenced or executed by algorithms. The legality of such systems must be assessed particularly through the principles of distinction, proportionality, precautions in attack and the prohibition of indiscriminate attacks, as well as the obligation under **Article 36 of Additional Protocol I to the Geneva Conventions, 1977**[1] to review new weapons and methods of warfare. The central concern, however, extends beyond the legality of the weapon itself to the question of **accountability when an autonomous system causes unlawful harm**. Traditional international law generally attributes responsibility to States and individuals, whereas autonomous systems can produce outcomes that may be difficult to predict, explain or trace to a particular human decision-maker. This creates what is often described as an accountability or responsibility gap, particularly where commanders rely on complex systems whose decision-making processes are difficult to understand. International discussions within the **United Nations, Convention on Certain Conventional Weapons (CCW), International Committee of the Red Cross (ICRC) and other forums** demonstrate growing concern regarding meaningful human control and the regulation of autonomous force. The issue is especially significant because technological autonomy must not become a means of avoiding legal responsibility for violations of IHL or international criminal law. Against this background, the present study examines the relationship between AI-enabled autonomous weapons and international legal obligations, analyses the challenges of attributing responsibility for unlawful conduct, evaluates existing international and comparative approaches and considers the need for stronger rules governing human oversight, weapons review, predictability and accountability. The study ultimately seeks to determine how international law can accommodate legitimate technological developments while ensuring that the fundamental principles protecting human life and dignity remain effective during armed

[1] Article 36 of Additional Protocol I to the Geneva Conventions, 1977
https://share.google/j64qTzp6YA0g2GqVs

conflict.

CONCEPTUAL FRAMEWORK OF AI AND AUTONOMOUS WEAPONS

The integration of Artificial Intelligence (AI) into military technology has changed the manner in which information is collected, analysed and converted into operational decisions. AI can assist military personnel in surveillance, threat identification, navigation, target recognition and decision-support. However, **AI and autonomy are not synonymous**. AI may enhance an autonomous system, but autonomous functions can also operate through predetermined rules and sensor-based programming without sophisticated AI. Autonomous Weapon Systems (AWS) become particularly significant under International Humanitarian Law (IHL) when they are capable of selecting and engaging targets without further human intervention. The conceptual distinction between different forms of autonomy is therefore essential for determining the degree of human control and the applicable legal responsibility.

2.1 Meaning and Nature of Artificial Intelligence in Warfare

Artificial Intelligence in warfare refers to computational technologies capable of performing functions associated with human intelligence, including **perception, pattern recognition, prediction, classification, planning and decision-support**. Military AI may process information from satellites, radar, cameras, drones and other sensors much faster than human operators. Its functions may include identifying potential threats, predicting movements, prioritising targets and assisting commanders in operational planning.

AI does not itself possess legal personality or independent responsibility under international law. Its outputs remain connected to human decision-making and State military operations. Consequently, the use of AI must remain consistent with applicable IHL, particularly the rules governing the conduct of hostilities. The ICRC confirms that existing IHL applies to AWS and that the principles of distinction, proportionality and precautions remain relevant to emerging weapons technologies.

2.2 Meaning and Characteristics of Autonomous Weapon Systems

An Autonomous Weapon System is generally understood as a weapon that, once activated, can **select and engage targets without further human intervention**. The ICRC describes AWS as systems that respond to information received from their environment through sensors and act

according to a generalised target profile.

The defining characteristic is therefore not simply the presence of AI, robotics or advanced software, but **autonomy in critical functions relating to target selection and application of force**. Such systems may operate in air, land or maritime environments. Their principal legal difficulty arises when the person who activates the system does not know the precise identity, timing or location of the target that will ultimately be engaged.

This creates particular challenges under **Articles 48, 51 and 57 of Additional Protocol I (AP I), 1977**[2], concerning distinction, civilian protection and precautions in attack.

2.3 Levels of Autonomy in Weapon Systems

Autonomy exists on a spectrum rather than as a simple division between human-controlled and fully autonomous weapons. At one end are **manually operated systems**, where the human identifies the target and controls the attack. Semi-autonomous systems may permit the weapon to perform certain functions automatically while requiring human selection of individual targets. A second category consists of **human-supervised autonomous systems**, where the system may independently identify and engage targets but the operator retains the capacity to monitor, intervene or terminate the operation. At the highest level, a system may independently select and engage targets after activation without further intervention.

The U.S. Department of Defense framework similarly distinguishes between systems involving human selection, human supervision and systems capable of selecting and engaging targets without further human intervention. For international law, the level of autonomy matters because greater autonomy can reduce the operator's ability to exercise meaningful judgment before an attack.

2.4 AI-Based Target Selection and Engagement

AI-based target selection involves collecting environmental information, identifying objects or persons according to programmed characteristics and determining whether a potential target satisfies a predetermined profile. Sensors may detect movement, appearance, location, heat

[2] Articles 48, 51 and 57 of Additional Protocol I (AP I), 1977 https://share.google/j64qTzp6YA0g2GqVs

signatures or other characteristics before the system selects an object for engagement.

This process creates serious IHL concerns because **legal targeting is contextual**. Under Article 48 AP I, parties must distinguish between civilian populations and combatants and between civilian objects and military objectives. Article 51 provides protection to civilians against direct attack, while Article 57 requires feasible precautions in attack.

The difficulty is that legal judgments may depend upon context, intention, behaviour and changing circumstances. The ICRC has specifically observed that determining whether an individual is a civilian or otherwise lawfully targetable can involve qualitative and contextual assessments that cannot necessarily be reduced to numerical parameters within an autonomous target profile.

2.5 Distinction between Autonomous Weapons, Drones and AI Decision-Support Systems

These concepts should not be used interchangeably. A **drone** is primarily an unmanned platform that can be remotely operated or contain autonomous functions. A drone therefore does not automatically constitute an autonomous weapon. An **AI decision-support system**, by contrast, may analyse intelligence, recommend targets or predict threats while leaving the ultimate decision to a human commander. It assists human judgment rather than necessarily replacing it.

An **autonomous weapon system** involves autonomy specifically in the critical functions of selecting and engaging targets. The CCW discussions similarly focus on the role of human intervention in target identification, selection and engagement rather than merely on the technological sophistication of the system. The distinction is legally important because the existence of AI or a drone alone does not establish that a weapon operates autonomously.

2.6 Human Control and Human–Machine Interaction

Human control is the central accountability principle in the regulation of autonomous weapons. It requires meaningful human involvement in decisions concerning the use of force, rather than merely placing a human somewhere within the technological chain. Effective control may involve appropriate decisions regarding **when and where the system is deployed, what targets it may engage, the duration and geographical scope of operation, the reliability of the system, continuous or appropriate supervision and the ability to intervene or deactivate it**. The ICRC has recommended restrictions designed to preserve effective human supervision and timely

intervention.

This principle is also connected with **Article 36 AP I**, which requires States Parties, when studying, developing, acquiring or adopting a new weapon, means or method of warfare, to determine whether its employment would be prohibited by applicable international law.[3]

Human–machine interaction therefore cannot be treated merely as a technical design question. It is directly connected to compliance with IHL and accountability. If an autonomous system operates unpredictably or beyond meaningful human supervision, attributing an unlawful attack to a responsible human actor becomes substantially more difficult. The conceptual framework consequently establishes an essential proposition for autonomous warfare: **greater technological autonomy must not result in diminished human responsibility for the use of force**.

INTERNATIONAL LEGAL FRAMEWORK GOVERNING AUTONOMOUS WEAPONS

International law does not presently contain a single treaty devoted exclusively to Autonomous Weapon Systems (AWS). Instead, their development and use are regulated through existing **International Humanitarian Law (IHL)**, including the Geneva Conventions, Additional Protocol I, customary international law and the law governing the means and methods of warfare. The ICRC's current position is that existing IHL applies to AWS, while recognising that existing rules may not answer every legal and humanitarian concern created by increasing autonomy. Thus, the legality of an autonomous weapon depends not merely upon its technological sophistication but upon whether its design and employment can comply with fundamental IHL principles.

3.1 International Humanitarian Law and the Regulation of Means and Methods of Warfare

IHL regulates both **the means of warfare**, such as weapons and **the methods of warfare**, such as targeting practices. Article 35(1) of Additional Protocol I (AP I), 1977 establishes that the right of parties to an armed conflict to choose methods or means of warfare is **not unlimited**. Article 35(2) prohibits weapons and methods causing superfluous injury or unnecessary suffering[4].

[3] Article 36 AP I https://share.google/j64qTzp6YA0g2GqVs
[4] Article 35(1) and Article 35(2) of Additional Protocol I (AP I), 1977 https://share.google/j64qTzp6YA0g2GqVs

Therefore, the mere fact that an AWS is technologically advanced does not place it outside international law. Its capabilities, anticipated effects and operational environment must be assessed against applicable IHL obligations.

3.2 Geneva Conventions and Additional Protocol I

The **Geneva Conventions of 1949** establish the fundamental humanitarian protections applicable during armed conflict, while AP I provides detailed rules concerning the conduct of hostilities in international armed conflicts. Particularly relevant are **Articles 35–36 and 48–58 of AP I**[5].

Article 36 is especially important because States developing, acquiring or adopting a new weapon must determine whether its employment would be prohibited under international law. The ICRC considers weapons reviews particularly significant for AWS because their autonomous functions may create uncertainty regarding their actual effects.

3.3 Principle of Distinction

The principle of distinction requires parties to distinguish between **civilians and combatants** and between **civilian objects and military objectives**. Article 48 AP I establishes this as a basic rule, while Article 51 protects civilians against direct attack.

For AWS, the major difficulty is whether an autonomous system can reliably identify the legal status of a person or object in a changing battlefield. An algorithm may recognise visual or behavioural patterns but may not understand contextual factors that determine whether a person is a lawful military target.

The ICJ confirmed in **Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 ICJ Rep 226**, that the protection of civilians and the distinction between civilian and military targets are cardinal principles of IHL[6].

3.4 Precautions in Attack

Article 57 AP I requires those who plan or decide upon an attack to take feasible precautions to verify that targets are military objectives, choose means and methods that minimise civilian harm

[5] Articles 35–36 and 48–58 of AP I https://share.google/j64qTzp6YA0g2GqVs
[6] Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 ICJ Rep 226 https://share.google/0AzKlB7jfbcxwPAEL

and cancel or suspend an attack where it becomes apparent that the attack would violate applicable rules.

For AWS, precautionary obligations must operate both **before deployment and during use**. States should therefore evaluate the weapon's reliability, operating environment, target parameters, foreseeable failures and capacity for human intervention. A system that cannot be adequately controlled in its intended environment raises serious compliance concerns.

3.5 Prohibition of Indiscriminate Attacks

Article 51(4) AP I prohibits indiscriminate attacks, including attacks that are not directed at a specific military objective or employ means that cannot be directed at a specific military objective.

This rule has direct significance for unpredictable AWS. If a system's behaviour cannot reasonably be predicted or constrained, there may be circumstances in which its use produces effects that cannot satisfy the requirements of distinction and directed targeting. The ICRC has therefore recommended that **unpredictable autonomous weapons be prohibited** and that strict restrictions be imposed on other systems.

3.6 Article 36 Weapons Review

Article 36 AP I requires a State Party, when studying, developing, acquiring or adopting a new weapon, means or method of warfare, to determine whether its employment would be prohibited by international law in some or all circumstances.

For AWS, a meaningful weapons review should consider not merely the weapon's physical characteristics but also its **software, algorithms, sensors, operating limits, reliability, predictability and intended deployment environment**. Review should also consider whether modifications to an existing autonomous system fundamentally alter its legal characteristics.

Article 36 therefore provides an important preventive mechanism: potentially unlawful systems should be identified **before battlefield deployment**, rather than only after civilian harm occurs[7].

[7] Article 36 AP I https://share.google/j64qTzp6YA0g2GqVs

3.7 Martens Clause and the Principle of Humanity

The **Martens Clause**, reflected in Article 1(2) AP I, provides that civilians and combatants remain under the protection of principles of international law derived from established custom, humanity and the dictates of public conscience even where a particular situation is not expressly regulated by treaty[8].

Its relevance to AWS is significant because technological developments may move faster than treaty-making. The principle prevents the absence of a specific treaty rule from being interpreted as unlimited freedom to employ emerging weapons.

In the *Nuclear Weapons* Advisory Opinion, the ICJ expressly referred to the Martens Clause and recognised the continuing relevance of the **principles of humanity and dictates of public conscience**. Accordingly, technological autonomy cannot be treated as a legal vacuum. Even where a particular AWS is not expressly prohibited, its design and use remain subject to the fundamental humanitarian principles governing armed conflict. The current international debate therefore concerns not whether IHL applies to autonomous weapons, but whether **additional binding rules are necessary to ensure that autonomy does not undermine civilian protection and human responsibility**.

ACCOUNTABILITY FOR AUTONOMOUS WEAPONS UNDER INTERNATIONAL LAW

Accountability is one of the most difficult legal questions raised by Autonomous Weapon Systems (AWS). An autonomous weapon cannot itself bear legal responsibility; international law continues to place obligations on **States and human actors** who develop, authorize, deploy or control military operations. The concern arises when an autonomous system produces an unlawful outcome that was not specifically intended or reasonably foreseeable by the human actors involved. The ICRC emphasises that responsibility for compliance with IHL cannot be transferred to a machine, algorithm or weapon system and that human control must be retained.

4.1 Concept of Legal Accountability in Autonomous Warfare

Legal accountability means identifying the person or State legally responsible for conduct that

[8] Article 1(2) AP I https://share.google/j64qTzp6YA0g2GqVs

violates applicable international law. In autonomous warfare, responsibility may potentially arise at different stages **design, testing, authorization, deployment, supervision and operation**. The central difficulty is avoiding an accountability gap where each participant argues that another actor or the autonomous system itself, caused the unlawful result. Accountability must therefore be assessed through existing regimes of **State responsibility, international criminal law and domestic law**, while ensuring that autonomy does not become a defence against responsibility.

4.2 State Responsibility for AI-Enabled Military Operations

A State may incur international responsibility where conduct attributable to its armed forces breaches an international obligation. The **Articles on Responsibility of States for Internationally Wrongful Acts, 2001**, particularly Articles 2, 4 and 7, provide the general framework for attribution and wrongful conduct[9].

Thus, if a State's armed forces deploy an AWS that violates IHL, the technological autonomy of the weapon does not automatically remove State responsibility. A failure to adequately test, review or control the system may further strengthen questions concerning State compliance. Article 36 of Additional Protocol I[10] is particularly relevant because States Parties must review new weapons for their compatibility with applicable international law.

4.3 Individual Criminal Responsibility

Individual responsibility becomes relevant where autonomous weapons are connected with **war crimes or other international crimes**. Article 25 of the **Rome Statute[11]** establishes individual criminal responsibility for persons who commit order, induce, aid or otherwise contribute to crimes within the Court's jurisdiction.

However, criminal liability requires the applicable elements of the particular offence, including the necessary mental element. A commander cannot automatically be punished merely because an autonomous weapon unexpectedly malfunctioned. Prosecutors would need evidence connecting the individual's conduct and required knowledge or intent with the alleged crime. This makes foreseeability, system testing and operational knowledge particularly important.

[9] Articles on Responsibility of States for Internationally Wrongful Acts, 2001, particularly Articles 2, 4 and 7 https://share.google/mFF744iY5Phb186AA
[10] Article 36 of Additional Protocol I https://share.google/j64qTzp6YA0g2GqVs
[11] Article 25 of the Rome Statute https://share.google/407qQaVF6VC1C66NA

4.4 Command Responsibility

Article 28 of the Rome Statute recognises responsibility of military commanders where forces under their effective command and control commit crimes and the commander fails to exercise proper control.

In AWS operations, command responsibility may become relevant where a commander knowingly deploys an inadequately tested or unpredictable system, ignores warnings concerning its operation or fails to take reasonable measures to prevent or repress unlawful conduct. Nevertheless, autonomy cannot simply be equated with a human subordinate; the prosecution must establish the statutory requirements of effective command or authority and the applicable knowledge standard.

4.5 Responsibility of Military Operators and Commanders

Operators and commanders remain central because they determine **whether, where and under what conditions** an autonomous weapon is activated. Their responsibilities may include verifying the system's operational parameters, selecting an appropriate environment, ensuring compliance with targeting rules and monitoring the weapon where technically feasible.

The ICRC stresses that human beings must retain responsibility for decisions concerning the use of force and that meaningful human control requires factors such as predictability, supervision, intervention and appropriate operational restrictions.

Accordingly, an operator may face responsibility where unlawful deployment results from a negligent or knowingly unlawful decision, subject to the applicable domestic or international criminal-law standard.

4.6 Responsibility of Developers, Manufacturers and Technology Companies

Developers and manufacturers occupy a more complicated position. Merely creating or supplying military technology should not automatically establish international criminal responsibility. Liability would require a legally recognised basis and sufficient connection between the person's conduct and the unlawful outcome.

Nevertheless, responsibility may become relevant where developers **knowingly design defective**

systems, conceal serious safety limitations, provide misleading operational information or deliberately contribute to unlawful use. Product-liability and domestic criminal law may provide additional avenues where international criminal law does not apply. The ICRC has recognised programmers, manufacturers, commanders and other participants as possible actors within the broader accountability debate.

Ultimately, the accountability framework should ensure that **autonomy distributes functions but does not eliminate responsibility**. The more autonomous and unpredictable a weapon becomes, the stronger the need for traceable decision-making, rigorous weapons review, human supervision and documented responsibility throughout its lifecycle.

LEGAL CHALLENGES CREATED BY AI-ENABLED AUTONOMOUS WEAPONS

AI-enabled Autonomous Weapon Systems (AWS) create challenges that are not limited to technological reliability. Their operation directly affects the application of **International Humanitarian Law (IHL)** because the rules governing attacks require human beings to make context-specific judgments. The greater the autonomy of a weapon, particularly where machine-learning systems are involved, the more difficult it may become to predict, explain and control its behaviour. The ICRC has therefore identified unpredictability, loss of human control, discrimination between lawful and unlawful targets, proportionality and accountability as major concerns.

5.1 Unpredictability and Loss of Human Control

The most fundamental concern is the possibility that the human operator may not know **which target will be attacked, when the attack will occur or precisely where it will take place**. This differs from conventional weapons where the human decision-maker generally determines the particular target and timing of the attack.

Article 57 of Additional Protocol I requires feasible precautions in attack, while Article 36 requires States Parties to conduct legal reviews of new weapons. If an autonomous system behaves unpredictably in its intended operational environment, meaningful compliance with these obligations becomes difficult. The ICRC has consequently recommended that autonomous weapons whose effects cannot sufficiently be understood, predicted and explained should be prohibited.

5.2 Difficulty in Applying the Principle of Distinction

Under **Article 48 and Article 51 of Additional Protocol I**, parties must distinguish between civilians and combatants and between civilian objects and military objectives. The problem for AWS is that lawful targeting often requires contextual judgment rather than simple object recognition.

An AI system may identify a person based on movement, appearance, equipment or behavioural patterns, but such characteristics may not establish that the individual is lawfully targetable. The system may also encounter surrendering combatants, wounded persons, civilians directly participating in hostilities or objects whose military status has changed[12].

The ICRC has noted that AWS raise particular difficulties because the legal assessment required by IHL cannot always be reduced to a predetermined target profile.

5.3 Proportionality Assessment by Autonomous Systems

Article 51(5)(b) of Additional Protocol I[13] prohibits an attack expected to cause incidental civilian harm that would be excessive in relation to the concrete and direct military advantage anticipated. Article 57 reinforces the obligation to take precautions.

Proportionality is particularly difficult to automate because it involves a **contextual and predictive legal judgment**. The value of a military advantage and the expected civilian harm cannot necessarily be converted into fixed mathematical variables. A system may accurately estimate physical damage but still be unable to make the normative judgment required by IHL.

Therefore, an autonomous system should not be treated as an independent legal decision-maker. Human judgment and appropriate operational constraints remain necessary.

5.4 Algorithmic Bias and Target Identification

AI systems learn patterns from training data and those patterns may contain inaccuracies or biases. In a military context, an erroneous classification can have consequences involving **life, death and civilian protection**. An algorithm trained to associate particular behavioural, visual

[12] Article 48 and Article 51 of Additional Protocol I https://share.google/j64qTzp6YA0g2GqVs
[13] Article 51(5)(b) of Additional Protocol I https://share.google/j64qTzp6YA0g2GqVs

or geographic characteristics with hostile activity may incorrectly classify civilians as threats.

This creates concerns under the principle of distinction and also raises questions about the reliability of weapons before deployment. The ICRC has specifically identified bias as a concern associated with AI and machine-learning systems, particularly where automatic target recognition is involved.

Accordingly, Article 36 weapons reviews should consider not only the physical weapon but also **training data, system reliability, operating environment, failure rates and foreseeable classification errors**.

5.5 Black-Box Decision-Making and Explainability

Many machine-learning systems operate as **"black boxes"**, meaning that even their developers or users may have difficulty explaining how a particular input produced a particular output. This is especially problematic when an AI system recommends or autonomously selects a target.

Lack of explainability creates two legal problems. First, commanders may be unable to determine whether the system can reliably comply with IHL before deployment. Secondly, after an unlawful attack, investigators may struggle to determine **why the system selected a particular target and which human decision contributed to the outcome**.

The ICRC has therefore emphasised predictability, transparency and human understanding as important components of effective human control.

5.6 Cyber Manipulation and Adversarial Attacks

Autonomous weapons depend heavily on **software, sensors, communication networks and data**. This creates vulnerabilities to cyber interference, spoofing, adversarial inputs, data corruption and other forms of manipulation. An attacker who alters sensor information or interferes with an AI system may cause an AWS to misidentify a target or operate outside its intended parameters.

Such interference can complicate both IHL compliance and responsibility. A State deploying an autonomous system must consider foreseeable technological vulnerabilities and implement appropriate safeguards before and during its use. Where a cyber operation contributes to an

unlawful attack, the legal analysis may additionally involve the applicable rules governing cyber operations during armed conflict.

The underlying concern is therefore broader than ordinary malfunction: **an autonomous weapon must remain sufficiently reliable and controllable even in a hostile digital environment**. Human supervision, intervention and effective deactivation mechanisms are consequently important safeguards.

JUDICIAL AND INTERNATIONAL INSTITUTIONAL PERSPECTIVES

The regulation of Autonomous Weapon Systems (AWS) is developing through a combination of **international judicial decisions, treaty-based institutions, United Nations processes and humanitarian initiatives** rather than through a single comprehensive treaty. Existing judicial jurisprudence provides the legal principles against which autonomous weapons must be assessed, while institutions such as the UN, Convention on Certain Conventional Weapons (CCW), Group of Governmental Experts (GGE) and International Committee of the Red Cross (ICRC) are shaping the emerging normative framework. The central institutional trend is increasingly towards ensuring that technological autonomy does not remove **human judgment, control and accountability** from decisions involving the use of lethal force.

6.1 International Court of Justice and Principles of IHL

The International Court of Justice (ICJ) has not yet decided a case specifically concerning autonomous weapons. Nevertheless, its jurisprudence concerning the use of force and IHL provides an important legal foundation. In **Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion**[14], the Court recognised the continuing relevance of humanitarian principles governing armed conflict, including distinction and proportionality. It also emphasised that the lawfulness of force must be assessed consistently with applicable humanitarian rules.

This reasoning is relevant to AWS because technological novelty does not displace established IHL obligations. An autonomous weapon must therefore be capable of being employed consistently with applicable humanitarian rules irrespective of the sophistication of its technology.

[14] Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 ICJ Rep 226 https://share.google/0AzKlB7jfbcxwPAEL

6.2 International Criminal Court and Individual Responsibility

The **Rome Statute of the International Criminal Court (ICC)** provides an important framework for individual accountability where autonomous weapons are connected with international crimes. **Article 25** establishes individual criminal responsibility for persons who commit order, induce, aid or otherwise contribute to crimes within the Court's jurisdiction. **Article 28** further addresses the responsibility of military commanders and other superiors who fail to exercise proper control over forces under their effective command[15].

In the AWS context, the existence of an algorithm does not create an independent criminally responsible actor. Responsibility would instead have to be established against relevant human decision-makers according to the applicable elements and mental requirements of the particular offence. Questions concerning deployment decisions, knowledge of system limitations and failure to take preventive measures may therefore become important evidence.

6.3 International Criminal Tribunal Jurisprudence on Command Responsibility

The jurisprudence of the International Criminal Tribunal for the former Yugoslavia (ICTY) provides valuable guidance on **effective control**, which is particularly relevant when analysing responsibility for autonomous military systems. In **Prosecutor v Sefer Halilović[16]**, the Trial Chamber emphasised that command responsibility requires a superior-subordinate relationship, knowledge or reason to know of crimes and failure to take necessary and reasonable measures to prevent or punish them. It also stressed that mere influence is insufficient where effective control is not established.

For autonomous weapons, this principle prevents automatic attribution to a commander merely because the commander occupied a senior position. Evidence would need to establish actual authority and control, together with the relevant knowledge and omission.

6.4 United Nations General Assembly and Autonomous Weapons

The UN General Assembly has become an increasingly important forum for developing international discussion on lethal autonomous weapons. **Resolution A/RES/79/62, adopted on**

[15] Rome Statute of the International Criminal Court (ICC) Article 25 and 28 https://share.google/407qQaVF6VC1C66NA

[16] Prosecutor v Sefer Halilović, Case No IT-01-48-T, Judgment (16 November 2005)

2 December 2024 by 166 votes to 3, with 15 abstentions[17], specifically addressed lethal autonomous weapons systems.

The General Assembly subsequently adopted **Resolution A/RES/80/57 on 1 December 2025**[18], by 164 votes to 6, with 7 abstentions. These resolutions demonstrate growing international recognition that the development and use of AWS require continued consideration within the framework of international law and international security. Although General Assembly resolutions are generally not equivalent to binding treaties, broad support for such resolutions can contribute to diplomatic and normative development.

6.5 Convention on Certain Conventional Weapons (CCW)

The **CCW** has become the principal multilateral forum for examining autonomous weapons. Since 2017, its High Contracting Parties have considered the challenges posed by emerging technologies in the area of lethal autonomous weapons systems through a dedicated GGE. The CCW process has repeatedly reaffirmed the relevance of IHL.

The significance of the CCW lies in its attempt to develop a combination of **legal, military and technological standards** rather than treating AWS solely as a disarmament issue. Its current discussions consider potential prohibitions, restrictions and operational measures.

6.6 Group of Governmental Experts on Lethal Autonomous Weapons Systems

The GGE on LAWS provides States with a specialised forum for examining autonomy, human control and possible regulatory approaches. The 2025 process included discussion of **context-appropriate human judgment and control and the critical functions of LAWS**, while States also submitted proposals concerning prohibitions and regulatory measures.

The process continued in 2026, with sessions scheduled in March and August–September and further work on a rolling text. This demonstrates that the international debate remains active and that consensus on the precise legal form of future regulation has not yet been reached.

[17] Resolution A/RES/79/62, adopted on 2 December 2024 by 166 votes to 3, with 15 abstentions https://share.google/uY4JPMUI5OM1sG7Hy
[18] Resolution A/RES/80/57 on 1 December 2025 https://share.google/Onk2RZq9C5lAZK2wG

6.7 ICRC Position on Autonomous Weapons

The ICRC has taken a particularly strong humanitarian position. It considers autonomous weapons to be systems capable of selecting and applying force to targets without human intervention and identifies serious concerns regarding **loss of human control, unpredictability, civilian protection and ethical responsibility**.

The ICRC recommends new legally binding international rules, including prohibitions on certain unacceptable autonomous weapons and restrictions on others. It has advocated limits concerning **target types, duration, geographical area and circumstances of use**, together with effective human supervision and the possibility of timely intervention or deactivation.

This approach is important because it moves beyond the simple proposition that existing IHL applies and asks whether additional rules are necessary to make that protection effective in practice.

6.8 Emerging International Consensus on Meaningful Human Control

Although States have not yet adopted a universally binding definition of **"meaningful human control,"** international discussions increasingly recognise the importance of maintaining appropriate human judgment over the use of force. Current CCW discussions specifically examine **context-appropriate human judgment and control** and the critical functions of autonomous weapons.

Meaningful human control should involve more than a human merely pressing an activation button. It requires appropriate understanding of the system, predictability of its operation, defined targets and operational environments, adequate supervision and the capacity to intervene where necessary. The ICRC similarly recommends human–machine interaction capable of ensuring effective supervision and timely intervention.

The emerging institutional position therefore supports a fundamental principle: **autonomous technology may assist military operations, but responsibility for the decision to use lethal force cannot be surrendered to an algorithm.** The continuing challenge is to convert this principle into sufficiently precise and legally binding international rules.

CONCLUSION

The emergence of Artificial Intelligence in warfare, particularly through Autonomous Weapon Systems, represents a fundamental challenge to the existing framework of International Law. While autonomous technologies may offer military advantages such as speed, precision and reduced human exposure to danger, their ability to identify, select and engage targets without continuous human intervention creates serious concerns regarding civilian protection and legal accountability. This study demonstrates that existing **International Humanitarian Law**, including the principles of distinction, proportionality, precautions in attack and the prohibition of indiscriminate attacks, remains applicable to autonomous weapons. Article 36 of Additional Protocol I further provides an important preventive mechanism through mandatory legal review of new weapons and methods of warfare.

However, the existence of applicable legal principles does not completely resolve the accountability difficulties created by increasingly autonomous systems. Unpredictability, algorithmic errors, limited explainability, cyber vulnerabilities and difficulties in establishing causation may create situations in which responsibility becomes difficult to attribute. Nevertheless, technological autonomy cannot be permitted to become a substitute for human responsibility. States, commanders and other relevant human actors must remain accountable for decisions concerning the development, deployment and use of autonomous weapons within the limits established by international law.

The study therefore supports the development of **clear and legally binding international standards** requiring meaningful human control, rigorous weapons reviews, operational limitations, adequate testing, traceability and effective mechanisms for intervention and accountability. International institutions, particularly the United Nations, CCW and ICRC, have an important role in developing these standards. Ultimately, technological progress in warfare must remain subordinate to the fundamental principles of humanity, ensuring that the increasing autonomy of weapons does not result in the decreasing accountability of those who deploy them.

REFERENCES

1. Schmitt MN, editor. *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*. 2nd ed. Cambridge: Cambridge University Press; 2017.

2. Sassòli M. *International Humanitarian Law: Rules, Controversies and Solutions to Problems Arising in Warfare*. Cheltenham: Edward Elgar Publishing; 2019.

3. Dinstein Y. *The Conduct of Hostilities under the Law of International Armed Conflict*. 4th ed. Cambridge: Cambridge University Press; 2022.

4. Boothby WH. *Weapons and the Law of Armed Conflict*. 2nd ed. Oxford: Oxford University Press; 2016.

5. Casey-Maslen S. *Autonomous Weapons Systems Under International Law*. In: Talves K, Spreen D, editors. *Artificial Intelligence in Military Technology*. Cham: Springer; 2025. p. 161-179. doi:10.1007/978-3-031-95578-5_10.

6. Kwik J. *Lawfully Using Autonomous Weapon Technologies*. The Hague: T.M.C. Asser Press; 2024.

7. Amoroso D, Tamburrini G. Autonomous weapons systems and meaningful human control: ethical and legal issues. *Curr Robot Rep*. 2020;1:187-194.

8. Santoni de Sio F, van den Hoven J. Meaningful human control over autonomous systems: a philosophical account. *Front Robot AI*. 2018;5:15.

9. Ekelhof M. Moving beyond semantics on autonomous weapons: meaningful human control in operation. *Global Policy*. 2019;10(3):343-348.

10. Williams J. Locating LAWS: lethal autonomous weapons, epistemic space and "meaningful human" control. *J Glob Secur Stud*. 2021;6(4

11. Umbrello S. Coupling levels of abstraction in understanding meaningful human control of autonomous weapons: a two-tiered approach. *Ethics Inf Technol*. 2021;23:455-464.

12. Veluwenkamp H. Reasons for meaningful human control. *Ethics Inf Technol*. 2022;24:51.

13. Santoni de Sio F, van den Hoven J, et al. Accountability and control over autonomous weapon systems: a framework for comprehensive human oversight. *Minds Mach*. 2020;30:1-25.

14. Sauer F. Stepping back from the brink: why multilateral regulation of autonomy in weapons systems is difficult, yet imperative and feasible. *Int Rev Red Cross*. 2021;102(913):235-258.

15. International Committee of the Red Cross. *ICRC Position on Autonomous Weapon Systems*. Geneva: International Committee of the Red Cross; 2021.

16. International Committee of the Red Cross. *Limits on Autonomy in Weapon Systems: Identifying Practical Elements of Human Control*. Geneva: ICRC; 2020.

17. International Committee of the Red Cross. Artificial intelligence and machine learning in armed conflict: a human-centred approach. *Int Rev Red Cross*. 2021;102(913):1-30.

18. International Committee of the Red Cross. *Autonomous Weapon Systems and International Humanitarian Law: Selected Issues*. Geneva: International Committee of the Red Cross; 2026.

19. United Nations. *Convention on Certain Conventional Weapons: Group of Governmental Experts on Lethal Autonomous Weapons Systems*. Geneva: United Nations Office for Disarmament Affairs; 2025.

20. United Nations General Assembly. *Lethal Autonomous Weapons Systems*. A/RES/79/62. New York: United Nations; 2024.

21. United Nations General Assembly. *Responsibility of States for Internationally Wrongful Acts*. Resolution 56/83, Annex. New York: United Nations; 2001.

22. International Law Commission. *Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries*. Yearbook of the International Law Commission, 2001, Vol II, Part Two. New York: United Nations; 2001.

23. International Committee of the Red Cross. *Protocol Additional to the Geneva Conventions of 12 August 1949 and Relating to the Protection of Victims of International Armed Conflicts (Protocol I)*. Geneva: ICRC; 1977.

24. International Committee of the Red Cross. *The Geneva Conventions of 12 August 1949*. Geneva: International Committee of the Red Cross; 2016.

25. United Nations Office for Disarmament Affairs. *Convention on Certain Conventional Weapons*. New York: United Nations Office for Disarmament Affairs; 1980.

26. International Committee of the Red Cross. *Autonomous Weapons: The ICRC Recommends Adopting New Rules*. Geneva: International Committee of the Red Cross; 2021.