
REGULATING ARTIFICIAL INTELLIGENCE IN WARFARE: CHALLENGES TO INTERNATIONAL HUMANITARIAN LAW AND THE NEED FOR GLOBAL LEGAL FRAMEWORKS

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) technologies has significantly transformed modern warfare, raising complex legal, ethical and humanitarian concerns. Autonomous and semi-autonomous military systems, particularly Lethal Autonomous Weapon Systems (LAWS), are increasingly capable of selecting and engaging targets with minimal or no human intervention. While these technological developments promise enhanced operational efficiency and reduced risks for military personnel, they simultaneously challenge the foundational principles of International Humanitarian Law (IHL). Existing legal frameworks, including the Geneva Conventions, were primarily designed to regulate human decision-making during armed conflict and therefore struggle to address situations where autonomous systems perform critical combat functions. This research examines the compatibility of AI-driven warfare with core IHL principles such as distinction, proportionality and military necessity, highlighting the legal ambiguities surrounding accountability and responsibility when autonomous weapons cause unintended harm to civilians or civilian infrastructure. The study further analyses the ongoing international debates concerning the regulation of autonomous weapons, particularly within platforms such as the United Nations and humanitarian bodies like the International Committee of the Red Cross. By evaluating the limitations of current legal mechanisms, this paper argues that the absence of clear international regulations creates a governance gap that could undermine civilian protection and ethical conduct in warfare. The research ultimately emphasizes the urgent need for a comprehensive global legal framework that establishes clear standards for the development, deployment and accountability of AI-enabled weapons systems. Strengthening international cooperation and legal oversight will be essential to ensure that technological innovation in warfare remains consistent with humanitarian values and international legal obligations.

Keywords: Artificial Intelligence in Warfare; International Humanitarian Law; Lethal Autonomous Weapon Systems; Accountability in Armed Conflict; Global Legal Regulation.

INTRODUCTION

The rapid evolution of digital technologies has significantly transformed the nature of modern warfare, with Artificial Intelligence (AI) emerging as one of the most influential innovations in contemporary military strategy. AI systems are increasingly integrated into defence mechanisms for purposes such as surveillance, intelligence analysis, threat detection and autonomous weapon operations. Among these developments, Lethal Autonomous Weapon Systems (LAWS) represent a major shift in combat dynamics, as they possess the capacity to identify, track and engage targets with minimal or no direct human intervention. While such technologies offer strategic advantages, including increased operational efficiency and reduced risks to military personnel, they simultaneously raise profound legal, ethical and humanitarian concerns. The integration of AI into warfare challenges the traditional frameworks of International Humanitarian Law (IHL), which were designed to regulate human conduct during armed conflict. Core principles of IHL, particularly those embodied in the Geneva Conventions, require combatants to distinguish between civilians and military targets, ensure proportionality in the use of force and exercise human judgment in decision-making processes. However, the ability of autonomous systems to independently make targeting decisions creates uncertainty regarding compliance with these principles and raises questions about accountability when violations occur. Furthermore, the increasing reliance on algorithm-driven decision-making introduces risks related to system errors, bias in data processing and potential misuse by state or non-state actors. In response to these concerns, international organizations such as the United Nations and humanitarian institutions like the International Committee of the Red Cross have initiated discussions on the regulation of autonomous weapons and the necessity of establishing clearer global norms. Within this context, the present study explores the intersection between AI-driven warfare and existing humanitarian legal frameworks, highlighting the urgent need for effective international regulation to ensure that technological advancements in military operations remain consistent with humanitarian principles and legal accountability.

CONCEPTUAL FRAMEWORK OF ARTIFICIAL INTELLIGENCE IN MILITARY OPERATIONS

Artificial Intelligence (AI) has emerged as a transformative force in modern military strategy, significantly altering the way armed forces plan, execute and evaluate military operations. The

conceptual framework of AI in military operations refers to the theoretical and practical understanding of how intelligent algorithms, machine learning systems and autonomous technologies are integrated into defence infrastructures. Unlike traditional weapons systems that rely entirely on human control, AI-based systems possess the capacity to analyze large volumes of data, recognize patterns and make operational decisions within extremely short timeframes. This shift has introduced both opportunities and challenges within the domain of armed conflict. While AI technologies can enhance efficiency, improve situational awareness and reduce risks for soldiers, they also raise serious concerns about legal accountability, ethical responsibility and compliance with international humanitarian norms. Courts have increasingly acknowledged the significance of technological developments in warfare and their implications for human rights and humanitarian law. For instance, in *Prosecutor v. Tadić*, Case¹, the International Criminal Tribunal for the Former Yugoslavia emphasized that emerging methods of warfare must still comply with the fundamental principles governing armed conflict. Therefore, understanding the conceptual foundations of AI in military operations is essential for assessing how technological innovation interacts with legal and humanitarian obligations under international law.

Meaning and Evolution of Artificial Intelligence

Artificial Intelligence refers to computer systems designed to perform tasks that typically require human intelligence, including decision-making, pattern recognition, language processing and predictive analysis. The concept of AI dates back to the mid-twentieth century when early researchers began exploring whether machines could simulate human reasoning. Over time, advances in computing power, big data and machine learning algorithms have enabled the development of increasingly sophisticated AI systems capable of autonomous functionality. In the military context, AI evolved from basic automated defence mechanisms to complex analytical systems capable of assisting commanders in strategic planning and real-time battlefield assessment. Modern AI technologies rely heavily on machine learning models that continuously improve through exposure to large datasets, allowing them to identify threats and patterns that might otherwise escape human detection.

AI Applications in Defence and Military Technology

AI technologies are now widely incorporated into various aspects of defence and military

¹ *Prosecutor v. Tadić*, Case No. IT-94-1-A (Appeals Chamber, 15 July 1999)

operations. One major application involves intelligence, surveillance and reconnaissance (ISR), where AI-powered systems analyze satellite imagery, drone footage and digital communications to detect potential threats. AI is also used in cyber defence mechanisms to identify and respond to cyberattacks in real time. Additionally, military logistics and resource management benefit from predictive algorithms that optimize supply chains, troop deployment and maintenance schedules for equipment. Autonomous drones, robotic ground vehicles and advanced missile guidance systems further illustrate how AI can enhance precision and operational efficiency in modern warfare.

Lethal Autonomous Weapon Systems (LAWS)

Lethal Autonomous Weapon Systems represent one of the most controversial developments in AI-driven warfare. These systems are capable of independently selecting and engaging targets without direct human intervention once activated. LAWS rely on sensors, machine learning algorithms and advanced targeting software to identify objects and determine whether they constitute legitimate military targets. While proponents argue that such technologies can reduce human casualties and improve battlefield efficiency, critics emphasize the risks associated with delegating life-and-death decisions to machines. The absence of human judgment raises significant concerns regarding compliance with the principles of distinction and proportionality under international humanitarian law.

Role of States and Military Powers in AI Development

States and major military powers play a crucial role in the research, development and deployment of AI technologies in warfare. Governments invest heavily in defence innovation programs to maintain strategic advantages in global security competition. Countries with advanced technological capabilities have established specialized research institutions, defence laboratories and collaborations with private technology companies to accelerate AI development. However, the competitive nature of international security politics may encourage rapid technological deployment without adequate regulatory safeguards. As a result, many international organizations and legal scholars argue that global cooperation and transparent governance mechanisms are essential to ensure that AI development in military contexts remains consistent with humanitarian values and international legal obligations.

FUNDAMENTAL PRINCIPLES OF INTERNATIONAL HUMANITARIAN LAW

International Humanitarian Law (IHL), often referred to as the law of armed conflict, is a branch of international law that seeks to regulate the conduct of parties during armed conflict while minimizing human suffering. Its primary objective is to balance military necessity with humanitarian considerations by protecting individuals who are not participating in hostilities and by restricting the means and methods of warfare. The foundations of modern IHL largely stem from the Geneva Conventions and their Additional Protocols, which establish comprehensive legal standards governing the treatment of civilians, prisoners of war and wounded combatants. These rules apply to both international and non-international armed conflicts and are widely recognized as customary international law. The fundamental principles of IHL—distinction, proportionality and military necessity—serve as guiding norms that determine whether the use of force in armed conflict is lawful. These principles ensure that military operations are conducted in a manner that limits unnecessary suffering and protects civilian populations. In the context of emerging technologies such as artificial intelligence and autonomous weapons, the interpretation and application of these principles have become increasingly significant, as automated systems must still operate within the boundaries established by international humanitarian norms.

Overview of International Humanitarian Law

International Humanitarian Law developed gradually through treaties, customary practices and judicial decisions aimed at humanizing warfare. Its origins can be traced to the nineteenth century, particularly with early conventions that sought to protect wounded soldiers and regulate battlefield conduct. Over time, the legal framework expanded to address the protection of civilians, prisoners of war and humanitarian workers. IHL applies regardless of the legality of the conflict itself and binds all parties involved, including state armed forces and organized non-state actors. The international judiciary has reinforced the binding nature of humanitarian rules. For example, in *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion², the International Court of Justice affirmed that the fundamental principles of humanitarian law are applicable to all forms of warfare and constitute intransgressible norms of international law.

² Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226

Principle of Distinction

The principle of distinction is one of the most fundamental rules of International Humanitarian Law. It requires parties to an armed conflict to clearly distinguish between combatants and civilians, as well as between military objectives and civilian objects. Only legitimate military targets may be attacked, while civilians and civilian infrastructure must be protected from direct assault. This principle aims to prevent indiscriminate attacks that could cause unnecessary harm to non-combatants. In modern conflicts, distinguishing between military and civilian targets has become increasingly complex due to the use of dual-use infrastructure and technologically advanced weapons systems. The importance of this rule has been reaffirmed in international jurisprudence. In *Prosecutor v. Kupreškić*³, the International Criminal Tribunal for the Former Yugoslavia emphasized that the deliberate targeting of civilians constitutes a serious violation of humanitarian law and may amount to a war crime.

Principle of Proportionality

The principle of proportionality complements the rule of distinction by limiting the level of force that can be used during military operations. Even when attacking a legitimate military target, parties must ensure that the anticipated civilian harm is not excessive in relation to the concrete and direct military advantage expected from the attack. This rule seeks to balance military objectives with humanitarian concerns and requires commanders to carefully evaluate the potential consequences of their actions. The proportionality principle is particularly significant in contemporary warfare, where advanced weapons and remote technologies may increase the scale of potential civilian damage. Violations of this rule have been recognized in international criminal jurisprudence. In *Prosecutor v. Galić*⁴, the International Criminal Tribunal for the Former Yugoslavia held that indiscriminate shelling of civilian areas during armed conflict constitutes a breach of the proportionality requirement under humanitarian law.

Principle of Military Necessity

The principle of military necessity permits the use of force that is required to achieve a legitimate military objective, provided that such force is not otherwise prohibited by international law. This principle acknowledges that armed conflict inevitably involves the use

³ Prosecutor v. Kupreškić, Case No. IT-95-16-T (Trial Chamber, 14 January 2000)

⁴ Prosecutor v. Galić, Case No. IT-98-29-A (Appeals Chamber, 30 November 2006)

of coercive measures, but it limits such actions to those that are essential for securing military advantage. Military necessity does not justify unlimited violence; rather, it operates within the framework of humanitarian restrictions designed to reduce suffering. Actions that cause unnecessary destruction or cruelty beyond what is required to accomplish a military goal are considered unlawful. Courts have highlighted the importance of balancing necessity with humanitarian considerations. In *Prosecutor v. Blaškić*⁵, the International Criminal Tribunal for the Former Yugoslavia noted that military operations must remain constrained by the fundamental humanitarian principles governing armed conflict.

Protection of Civilians under the Geneva Conventions

The protection of civilians is one of the central objectives of International Humanitarian Law. The legal framework established by the Geneva Conventions and their Additional Protocols provides extensive safeguards for civilian populations during armed conflict. These rules prohibit direct attacks on civilians, collective punishment, hostage-taking and acts of terror against civilian communities. They also require parties to ensure access to humanitarian assistance and to respect the neutrality of medical personnel and relief organizations. Civilians who are not participating in hostilities must be treated humanely at all times and protected from violence, intimidation and degrading treatment. The international community has consistently reaffirmed that violations of these protections may constitute serious war crimes, reinforcing the importance of maintaining strict compliance with humanitarian norms even in the most technologically advanced forms of warfare.

LEGAL AND ETHICAL CHALLENGES OF ARTIFICIAL INTELLIGENCE IN WARFARE

The integration of Artificial Intelligence (AI) into military operations has introduced significant legal and ethical challenges within the framework of international law. While AI technologies offer strategic advantages such as improved precision, faster data analysis and reduced risks to military personnel, they simultaneously raise complex concerns about accountability, legality and humanitarian protection. Autonomous systems are capable of making operational decisions based on algorithmic processes, which may reduce direct human involvement in combat situations. This shift creates uncertainty regarding responsibility when unlawful harm occurs

⁵ *Prosecutor v. Blaškić*, Case No. IT-95-14-T (Trial Chamber, 3 March 2000)

during military operations. International law, particularly the principles governing armed conflict, was primarily designed to regulate human decision-making rather than machine-based judgments. As AI systems become increasingly capable of selecting and engaging targets independently, questions arise about whether existing legal frameworks are sufficient to address such technological developments. Courts have repeatedly emphasized that evolving methods of warfare must still comply with humanitarian standards. In *Prosecutor v. Strugar*⁶, the International Criminal Tribunal for the Former Yugoslavia reaffirmed that commanders may be held responsible for unlawful attacks carried out under their authority, highlighting the importance of accountability even when modern technologies are involved.

Accountability and Responsibility for AI Decisions

One of the most significant legal concerns surrounding AI-based weapons is the question of accountability. When autonomous systems make targeting decisions independently, determining who is legally responsible for unlawful harm becomes difficult. Responsibility could potentially fall on military commanders who deploy the system, programmers who design the algorithms or states that authorize its use. However, the distributed nature of AI development complicates traditional legal doctrines of command responsibility and state liability. Without clear legal frameworks, victims of wrongful attacks may struggle to obtain justice or compensation. This accountability gap has become a central issue in international discussions regarding the regulation of autonomous weapons.

Difficulties in Applying Existing International Law

Existing legal rules governing armed conflict were drafted long before the emergence of advanced AI technologies. As a result, applying traditional principles of International Humanitarian Law to autonomous systems presents considerable challenges. Legal concepts such as intent, judgment and proportionality are inherently human-centered and may be difficult to translate into algorithmic decision-making processes. Courts have acknowledged the evolving nature of warfare and the need to interpret humanitarian rules in light of new technologies. In *Prosecutor v. Martić*⁷, the International Criminal Tribunal for the Former Yugoslavia recognized that emerging weapons systems must still be evaluated according to established humanitarian standards, even if their operational mechanisms differ from

⁶ Prosecutor v. Strugar, Case No. IT-01-42-A (Appeals Chamber, 17 July 2008)

⁷ Prosecutor v. Martić, Case No. IT-95-11-T (Trial Chamber, 12 June 2007)

traditional weapons.

Risk of Civilian Harm and Human Rights Violations

AI-driven weapons may increase the risk of unintended harm to civilians if algorithms misidentify targets or rely on incomplete or biased data. Unlike human soldiers, autonomous systems may lack contextual understanding of complex battlefield environments, increasing the likelihood of errors. Civilian infrastructure such as hospitals, schools and residential areas could be mistakenly identified as military targets, leading to serious humanitarian consequences. Moreover, such incidents may violate fundamental human rights protections recognized under international law. In *Isayeva v. Russia*⁸, the European Court of Human Rights held that disproportionate military actions causing civilian casualties may constitute violations of the right to life under international human rights law.

Ethical Concerns in Autonomous Decision-Making

Beyond legal challenges, the use of AI in warfare raises profound ethical questions. Delegating life-and-death decisions to machines challenges long-standing moral principles regarding human responsibility in armed conflict. Many scholars argue that human judgment is essential for evaluating complex ethical considerations during military operations. Autonomous systems, however advanced, operate based on programmed rules and data patterns rather than moral reasoning. This raises concerns about whether machines should be allowed to determine the use of lethal force. Ethical debates surrounding AI warfare emphasize the importance of maintaining meaningful human control over weapons systems to ensure that military decisions remain consistent with humanitarian values.

Cybersecurity and AI Manipulation Risks

AI-based military technologies are also vulnerable to cybersecurity threats and external manipulation. Adversaries may attempt to hack, disrupt or manipulate AI systems to alter their behavior or redirect their targets. Such interference could lead to unintended attacks, escalation of conflicts or even friendly fire incidents. The reliance on complex digital infrastructure further increases the risk of system malfunctions or software vulnerabilities. These cybersecurity concerns highlight the importance of robust safeguards, secure programming

⁸ *Isayeva v. Russia*, Application No. 57950/00 (Judgment, 24 February 2005)

practices and international cooperation to prevent the misuse of AI technologies in warfare. Without adequate protections, the integration of AI into military operations may introduce new forms of instability and risk within global security environments.

INTERNATIONAL EFFORTS TO REGULATE AUTONOMOUS WEAPONS

The rapid development of Artificial Intelligence in military technologies has triggered global concern regarding the regulation of autonomous weapons systems. Lethal Autonomous Weapon Systems (LAWS), which are capable of identifying and engaging targets without direct human intervention, have raised complex legal, ethical and humanitarian questions. As these technologies continue to evolve, the international community has increasingly recognized the necessity of establishing regulatory frameworks to ensure that their use remains consistent with international law and humanitarian principles. Several international organizations, humanitarian institutions and states have begun to examine the legal implications of AI-driven warfare and the potential risks associated with delegating combat decisions to machines. These discussions primarily focus on ensuring compliance with International Humanitarian Law, protecting civilian populations and maintaining human accountability in military operations. International judicial bodies have also emphasized that the development of new weapons must be carefully assessed under existing legal norms. For instance, in *Nicaragua v. United States*⁹, the International Court of Justice reaffirmed that states remain bound by established humanitarian principles regardless of the type of weapons or technologies they employ in armed conflict. This principle underscores the importance of international oversight and cooperation in regulating emerging military technologies.

Global Discussions on Autonomous Weapons

Global discussions on autonomous weapons have intensified in recent years due to concerns about the humanitarian consequences of delegating combat decisions to machines. Scholars, policymakers and civil society organizations have raised questions about whether autonomous systems can reliably comply with the principles of distinction, proportionality and precaution in armed conflict. Numerous international forums and expert meetings have been organized to examine the ethical and legal implications of LAWS. These discussions often focus on whether autonomous weapons should be completely banned, strictly regulated or allowed under certain

⁹ *Nicaragua v. United States*, Merits Judgment, 1986 I.C.J. 14

conditions that ensure meaningful human control. Civil society initiatives, including global campaigns advocating for the prohibition of fully autonomous weapons, have played a significant role in raising public awareness and encouraging international dialogue on this issue.

Role of the United Nations in Regulating AI Warfare

The United Nations has emerged as the primary international forum for discussions on the regulation of autonomous weapons. Through various expert panels and international meetings, the organization has facilitated dialogue among member states, legal scholars and humanitarian organizations regarding the potential risks associated with AI-driven warfare. A key platform for these discussions is the Convention on Certain Conventional Weapons (CCW), where states debate the need for new international rules governing LAWS. Within this framework, government experts examine technical, legal and ethical aspects of autonomous weapons and explore possible regulatory measures. The UN's involvement highlights the growing recognition that global cooperation is necessary to address the challenges posed by rapidly advancing military technologies.

Contributions of the International Committee of the Red Cross

The International Committee of the Red Cross (ICRC) has played a crucial role in shaping international discussions on autonomous weapons. As a leading humanitarian organization dedicated to the protection of victims of armed conflict, the ICRC has consistently emphasized that emerging weapons technologies must comply with International Humanitarian Law. The organization has conducted legal analyses, policy discussions and expert consultations aimed at evaluating the humanitarian risks associated with AI-driven warfare. The ICRC strongly advocates for the preservation of meaningful human control over weapons systems, arguing that human judgment is essential for ensuring compliance with humanitarian principles and preventing unlawful harm to civilians.

State Positions on the Regulation of Lethal Autonomous Weapons

States hold differing views regarding the regulation of Lethal Autonomous Weapon Systems, reflecting variations in technological capability, military strategy and legal perspectives. Some countries support the development of a new international treaty that would prohibit or strictly

regulate autonomous weapons, emphasizing humanitarian concerns and the risks associated with automated combat decisions. Other states, particularly those investing heavily in military AI technologies, favor a more cautious approach that focuses on adapting existing legal frameworks rather than creating new binding rules. Despite these differences, there is growing recognition among many governments that transparency, international dialogue and cooperative regulation are necessary to prevent the misuse of AI technologies in warfare and to ensure that military innovation remains consistent with international legal and humanitarian standards.

NEED FOR A COMPREHENSIVE GLOBAL LEGAL FRAMEWORK

The rapid integration of Artificial Intelligence into military systems has created an urgent need for a comprehensive global legal framework to regulate the development and use of autonomous weapons. While existing international legal instruments governing armed conflict provide important humanitarian protections, they were developed in an era when warfare was primarily conducted by human actors. The emergence of AI-enabled weapons that can independently analyze battlefield data and execute combat functions has exposed significant gaps in the current legal structure. Without clear international regulations, the deployment of autonomous systems may lead to inconsistent interpretations of legal obligations, reduced accountability and increased risks to civilian populations. The international community has therefore begun to explore the possibility of establishing specific regulatory mechanisms that address the unique challenges posed by AI-driven warfare. Judicial institutions have also emphasized the necessity of ensuring that evolving methods of warfare remain consistent with humanitarian principles. In *Prosecutor v. Delalić et al. (Čelebići Case)*¹⁰, the International Criminal Tribunal for the Former Yugoslavia highlighted the importance of maintaining accountability and adherence to humanitarian norms in all forms of armed conflict, regardless of the technologies employed. This reinforces the argument that legal frameworks must evolve to address the realities of modern technological warfare.

Limitations of Existing International Humanitarian Law

Although International Humanitarian Law provides fundamental rules governing the conduct of hostilities, its current provisions may not adequately address the complexities associated

¹⁰ *Prosecutor v. Delalić et al. (Čelebići Case)*, Case No. IT-96-21-T, Judgment, 16 November 1998

with autonomous weapons systems. Traditional legal principles were designed with human decision-making in mind, assuming that combatants possess the ability to exercise judgment, evaluate proportionality and distinguish between lawful and unlawful targets. Autonomous systems, however, rely on algorithmic decision-making processes that may not fully capture the contextual and moral considerations required in combat situations. Furthermore, existing treaties do not clearly define the level of human involvement required when deploying autonomous weapons. These limitations create uncertainty regarding how current legal standards should be applied to AI-based warfare.

Proposal for International Regulation of AI Weapons

To address these challenges, many scholars and policymakers have proposed the development of new international regulations specifically designed to govern AI-enabled weapons. Such regulations could take the form of a new international treaty, an additional protocol to existing humanitarian conventions or internationally agreed guidelines establishing clear limits on the use of autonomous systems in combat. Key proposals emphasize the requirement of “meaningful human control” over critical functions such as target selection and engagement decisions. Establishing legally binding standards would help ensure that technological innovation in military systems does not undermine the humanitarian objectives of international law.

Strengthening Accountability Mechanisms

Another essential component of a global legal framework is the creation of stronger accountability mechanisms. In situations where autonomous systems cause unlawful harm, it must be possible to identify the individuals or entities responsible for the decision to deploy such technologies. Accountability mechanisms could include clearer doctrines of command responsibility, enhanced oversight of military AI development and international monitoring bodies responsible for reviewing the legality of new weapons systems. Strengthening accountability would not only protect victims of unlawful attacks but also encourage states to adopt responsible practices when developing and deploying AI-based military technologies.

Future Directions for Global Governance of AI in Warfare

Looking forward, the governance of AI in warfare will likely require a combination of legal

regulation, international cooperation and technological oversight. States, international organizations and research institutions must collaborate to establish shared standards for the ethical and lawful use of AI in military contexts. Future regulatory frameworks may also incorporate transparency requirements, independent review processes and international reporting mechanisms designed to monitor the development of autonomous weapons. By adopting a proactive and cooperative approach, the international community can ensure that advances in artificial intelligence are guided by principles that protect human dignity, preserve global security and maintain compliance with international humanitarian law.

CONCLUSION

The rapid integration of Artificial Intelligence into military technologies represents one of the most transformative developments in contemporary warfare. While AI-driven systems offer significant strategic advantages, including enhanced operational efficiency, faster decision-making and reduced risks to military personnel, they simultaneously introduce complex legal, ethical and humanitarian challenges. As autonomous technologies increasingly influence the conduct of hostilities, the traditional frameworks of international law face growing pressure to adapt to these emerging realities. The principles of International Humanitarian Law (IHL), which were developed to regulate human actions during armed conflict, must now be interpreted and applied in the context of sophisticated algorithmic systems capable of performing critical combat functions. This shift has generated serious concerns regarding accountability, compliance with humanitarian principles and the protection of civilian populations.

Throughout this study, it has been demonstrated that existing legal frameworks, including the norms derived from the Geneva Conventions, provide important foundational principles such as distinction, proportionality and military necessity. These principles remain essential for regulating the conduct of armed conflict; however, their practical application becomes increasingly complex when autonomous weapons systems operate with limited human intervention. The difficulty in determining responsibility for decisions made by AI systems highlights a significant accountability gap within the current legal structure. Without clear attribution of responsibility, victims of unlawful harm may face considerable obstacles in seeking justice and redress.

In addition to legal challenges, the deployment of AI in warfare raises profound ethical

questions about the delegation of life-and-death decisions to machines. Autonomous systems lack human judgment, moral reasoning and contextual awareness, which are critical factors in evaluating the legality and humanitarian consequences of military operations. The possibility that algorithmic errors, biased datasets or cybersecurity vulnerabilities could lead to unintended attacks further underscores the risks associated with relying heavily on AI-driven combat systems. These concerns have prompted increasing international attention toward the regulation of Lethal Autonomous Weapon Systems and the preservation of meaningful human control over the use of force.

International institutions and humanitarian organizations, including the United Nations and the International Committee of the Red Cross, have played an important role in facilitating global discussions on the governance of autonomous weapons. These initiatives reflect a growing recognition among states and policymakers that the development of AI technologies in warfare must be guided by clear legal standards and ethical considerations. Nevertheless, significant differences remain among states regarding the extent and form of regulation required, highlighting the need for continued international dialogue and cooperation.

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