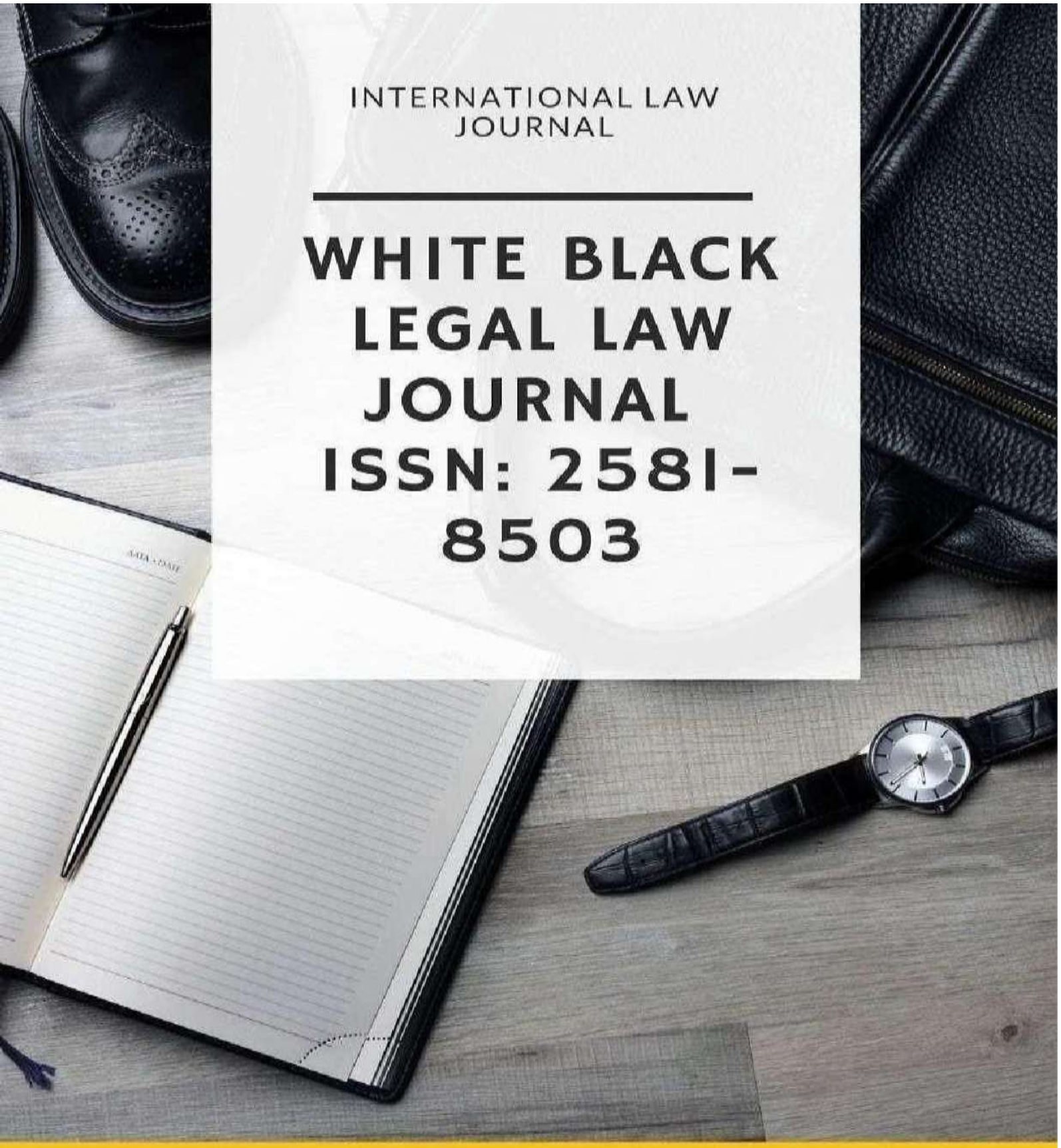

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WAR IN THE AGE OF ARTIFICIAL INTELLIGENCE: THE NEED FOR A BINDING INTERNATIONAL LEGAL FRAMEWORK TO SECURE GLOBAL PEACE.

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ABSTRACT

The quick integration of military technologies, including artificial intelligence, has changed the nature of warfare. This change raises important concerns about accountability, proportionality, and the need to maintain global peace and protect the environment. Autonomous weapon systems and algorithmdriven targeting methods challenge key principles of international humanitarian law, especially those outlined in the Geneva Conventions and the ban on the use of force under the United Nations Charter. Despite ongoing talks within the United Nations framework, regulation of warfare mostly stays in the area of soft law, non binding resolutions, ethical guidelines, and voluntary commitments. This paper argues that these normative tools are not enough to keep global peace. From another perspective, the debate shows a conflict between legal positivism and natural law theory. While positivism focuses on state consent as the basis for binding obligations, natural law highlights moral principles— especially the protection of human dignity and the right to life. The ongoing armed conflict, despite established legal norms, reflects realist critiques of international law's limited power to enforce. By looking into these theoretical frameworks, this paper argues that a binding international legal framework, backed by enforceable compliance mechanisms, is needed to prevent the decline of humanitarian principles and to ensure lasting global peace in the age of artificial intelligence. Using law to address global issues may serve as a better solution than war.

Keyword

Artificial Intelligence in Warfare; International Humanitarian Law; Legal Positivism; Natural Law Theory; Soft Law vs Hard Law; Global Peace; United Nations Regulation.

I. Introduction

The nature of warfare has changed dramatically in the twenty-first century. Rapid developments in artificial intelligence (AI), autonomous weapon systems, cyber capabilities, and algorithm-driven military technologies have begun to reshape how conflicts are planned and conducted. Warfare today is no longer confined to traditional battlefields. It increasingly extends into digital networks, data systems, and automated technologies that assist—or sometimes replace—human decision-making in military operations.

The growing reliance on artificial intelligence within defence systems has generated significant legal and ethical concerns. Technologies capable of identifying targets, analysing threats, and even initiating attacks raise difficult questions about accountability and responsibility in armed conflict. In particular, autonomous systems that can select and engage targets with limited human involvement challenge core principles of international humanitarian law (IHL), such as distinction, proportionality, military necessity, and precaution.

Although international law already regulates the use of force and the conduct of warfare, these rules were largely developed in a period when such technologies did not exist. As a result, existing legal frameworks struggle to address situations where algorithmic systems influence or determine lethal decisions. While discussions on the regulation of artificial intelligence in warfare are ongoing within the United Nations and other international bodies, most initiatives remain limited to soft law instruments, including voluntary guidelines, political declarations, and ethical principles.

This paper argues that such measures are not sufficient to regulate the growing role of artificial intelligence in modern warfare. Instead, there is an urgent need for a binding international legal framework that can ensure accountability, maintain humanitarian safeguards, and preserve global peace.

Adopting a jurisprudential approach, this paper examines the issue through the perspectives of legal positivism, natural law theory, and realist critiques of international law. These theoretical frameworks help explain why international regulation of emerging technologies often progresses slowly and why existing legal mechanisms struggle to keep pace with technological change. Ultimately, the paper argues that international law must evolve beyond voluntary

norms and develop binding obligations capable of addressing the challenges posed by AI-driven warfare.

II. Evolution of Warfare in the Age of Artificial Intelligence

1. From Conventional Warfare to Algorithmic Conflict

Throughout history, warfare has evolved alongside technological innovation. Early conflicts relied primarily on direct physical combat, which gradually gave way to mechanised warfare during the industrial era and later to the development of nuclear deterrence. In recent decades, technological progress has introduced new dimensions of conflict, particularly through cyber capabilities and digital infrastructures.

Artificial intelligence now represents one of the most significant developments in this ongoing transformation. Military organisations increasingly rely on AI systems to support tasks such as surveillance, reconnaissance, target identification, and operational planning. Predictive algorithms are also being used to analyse vast amounts of data in order to anticipate threats or determine potential strike opportunities.

Unlike conventional weapons, however, AI-based systems operate at speeds that far exceed human cognitive capacity. Decisions that once required extensive human analysis can now be processed within seconds by automated systems. While this technological capability may enhance military efficiency, it also raises concerns about maintaining meaningful human control over life-and-death decisions.

Another concern relates to the potential for algorithmic bias or system errors. Machine-learning systems rely on training data, and flawed or incomplete data may produce unreliable outcomes. In the context of armed conflict, such errors could lead to unintended civilian casualties or violations of international humanitarian law.

2. Autonomous Weapon Systems

Autonomous weapon systems (AWS) represent one of the most controversial applications of artificial intelligence in warfare. These systems are designed to identify and engage targets independently once they are activated, potentially operating without continuous human supervision.

The legal challenges associated with such systems are significant. If an autonomous weapon mistakenly targets civilians or causes disproportionate harm, determining responsibility becomes extremely difficult. Responsibility may potentially fall on several actors, including the programmer who designed the system, the manufacturer who produced it, the military commander who deployed it, or the state that authorised its use.

This uncertainty has led many scholars to describe a "responsibility gap" within existing legal frameworks. Traditional doctrines of command responsibility and state responsibility were developed for situations where human actors made operational decisions. When those decisions are influenced— or made entirely—by algorithmic systems, these legal doctrines become more difficult to apply.

3. Technological Deterrence and the Legacy of Automated Warfare

One of the most striking historical examples illustrating the dangers of automated military systems is the Soviet "Perimeter" system, commonly referred to as the "Dead Hand." Developed during the Cold War, the system was designed to guarantee nuclear retaliation even in the event that the Soviet leadership and command structure were completely destroyed in a surprise nuclear attack.

The existence of such a system reflected the extreme strategic logic that dominated Cold War nuclear deterrence. Both the United States and the Soviet Union possessed vast nuclear arsenals capable of destroying each other many times over. Within this context, the doctrine of Mutually Assured Destruction (MAD) emerged as the central framework governing nuclear strategy. The theory suggested that nuclear war could be prevented only if both sides were certain that any attack would result in catastrophic retaliation.

The Soviet Union feared the possibility of a "decapitation strike," in which an adversary might launch a surprise attack targeting political leadership and command centers before retaliation could be authorised. To address this vulnerability, engineers developed the Perimeter system, an automated mechanism capable of initiating retaliatory nuclear strikes if certain conditions indicated that a largescale nuclear attack had already occurred.

The system reportedly monitored several indicators, including seismic activity consistent with nuclear explosions, abnormal radiation levels, and disruptions in communication with military

command structures. If these signals collectively suggested that the Soviet Union had suffered a devastating nuclear attack and leadership communication had been severed, the system could initiate a retaliatory response.

Rather than directly launching nuclear missiles itself, the system would deploy special command rockets designed to transmit launch codes across Soviet territory. These signals could then activate remaining missile silos, submarines, and strategic bombers, effectively triggering a large-scale retaliatory strike even in the absence of human decision-makers.

While the primary objective of the system was deterrence rather than aggression, its existence highlights the dangers associated with delegating critical military decisions to automated systems. The possibility that nuclear weapons could be launched automatically—even after the destruction of political authority—illustrates the profound ethical and legal dilemmas posed by automated warfare technologies.

Systems such as the Dead Hand raise questions about responsibility and human control in warfare. If machines are capable of initiating catastrophic military actions without direct human authorisation, traditional legal frameworks that assume human accountability become increasingly difficult to apply.

The historical example of the Perimeter system therefore serves as an early warning about the risks associated with automated decision-making in warfare. In an era increasingly shaped by artificial intelligence, similar concerns arise regarding autonomous weapons systems and algorithmic military decision processes.

4. Information Warfare, Deepfakes, and AI Manipulation in Modern Conflicts

In addition to transforming physical combat operations, artificial intelligence has also significantly expanded the scope of information warfare. Modern conflicts increasingly involve battles over information, public perception, and digital narratives.

A recent example illustrating this phenomenon emerged following the terrorist attack in Pahalgam in Jammu and Kashmir in April 2025. The attack resulted in the tragic loss of civilian lives and immediately generated widespread attention across national and international media. However, alongside the physical violence, a parallel digital conflict quickly emerged through

the spread of artificial intelligence–generated misinformation.

In the aftermath of the attack, numerous manipulated images, fabricated videos, and AI-generated audio recordings began circulating across social media platforms such as X (formerly Twitter), Facebook, YouTube, and WhatsApp. Many of these materials were created using generative AI tools capable of producing highly realistic but entirely fabricated content.

Some viral images purported to show victims or scenes from the attack but were later identified as AI-generated visuals. Others depicted emotionally charged scenes of grieving families or dramatic rescue situations designed to provoke strong public reactions. Although these images were not authentic, they spread rapidly online and influenced public perception of the event.

In addition to fabricated images, manipulated video clips and voice recordings were also circulated. In one widely shared example, a video appeared to show a prominent international political figure making statements regarding the attack. Later analysis revealed that the audio had been artificially generated using voice-cloning technology and inserted into an unrelated video recording.

Such incidents demonstrate how artificial intelligence can be used to manipulate information during moments of crisis. Deepfake technology allows individuals or organisations to create convincing but false narratives that may inflame political tensions, spread propaganda, or undermine trust in reliable sources of information.

The use of AI-generated misinformation during conflicts represents a new dimension of hybrid warfare, combining elements of cyber operations, psychological warfare, and information manipulation. These tactics can influence public opinion, intensify diplomatic disputes, and complicate efforts to establish factual narratives during rapidly evolving crises.

From a legal perspective, the spread of AI-generated misinformation during armed conflicts raises important questions regarding regulation and accountability. Existing international humanitarian law primarily focuses on physical acts of violence, yet the manipulation of information through advanced technologies can also produce significant social and political harm.

As artificial intelligence continues to develop, international legal frameworks may need to expand their scope to address the growing role of digital information warfare in modern conflicts.

5. The Limits of International Law: Lessons from International Case Law

Several important cases in international law illustrate the limitations of legal enforcement within the international system. These cases highlight the structural challenges faced when attempting to regulate state behaviour in matters involving military power and political interests.

One notable example is the case of Nicaragua v. United States (1986) before the International Court of Justice. In this case, Nicaragua accused the United States of supporting armed groups known as the Contras and engaging in activities that violated the prohibition on the use of force under international law.

The International Court of Justice concluded that the United States had indeed violated principles of non-intervention and the prohibition on the use of force. The Court ordered the United States to cease its unlawful actions and provide reparations for the damage caused.

However, the United States rejected the Court's jurisdiction and did not comply with the order to pay compensation. This outcome demonstrated one of the central limitations of international law: the absence of a centralised enforcement authority capable of compelling powerful states to comply with judicial decisions.

Similar challenges have appeared in other international cases. In the Arrest Warrant Case (Democratic Republic of Congo v. Belgium), the International Court of Justice ruled that sitting foreign ministers enjoy immunity from criminal jurisdiction in foreign courts. Although the decision clarified legal principles regarding diplomatic immunity, it also illustrated how procedural protections may temporarily shield individuals accused of serious crimes.

The case involving Prosecutor v. Omar Hassan Ahmad Al Bashir before the International Criminal Court further demonstrates the difficulties of enforcing international criminal law. Despite the issuance of arrest warrants for genocide and crimes against humanity, several states failed to arrest the Sudanese president when he visited their territories. Without cooperation

from national governments, international courts often lack the practical means to enforce their decisions.

Another example is the South West Africa Cases, in which Ethiopia and Liberia challenged South Africa's administration of Namibia under apartheid policies. The International Court of Justice ultimately dismissed the case on procedural grounds, a decision that received widespread criticism for prioritising technical legal reasoning over substantive justice.

III. From a different point of view.

These cases collectively illustrate an important jurisprudential tension within international law. While legal norms exist and international courts can issue judgments, enforcement frequently depends on political will and cooperation among states.

This reality supports the argument made by many realist scholars that international law often functions more as a framework of normative guidance than as a system of enforceable commands. Without effective enforcement mechanisms, legal rules may struggle to restrain powerful actors in matters involving national security or military technology.

1. Legal Positivism and the Challenge of State Consent

Legal positivism understands law as a system of rules that derive their authority from formal recognition by legitimate institutions rather than from moral considerations. Within the international legal system, this typically means that legal obligations arise through treaties, customary international practice, or other expressions of state consent.

When viewed through this lens, the current regulatory gap surrounding artificial intelligence in warfare becomes easier to understand. Because states have not yet collectively agreed on a binding treaty governing the development and use of autonomous weapon systems, there is no comprehensive legal regime specifically addressing such technologies. While ethical debates and diplomatic discussions continue to take place, positivist theory emphasizes that international norms become legally binding only when states formally accept them.

This perspective helps explain why international efforts to regulate military uses of artificial intelligence have progressed slowly. States that possess advanced technological capabilities

may see AI as a strategic advantage in future conflicts. Consequently, they may be reluctant to commit themselves to legal restrictions that could limit their military or technological development.

At the same time, the positivist approach reveals an important structural limitation of international law. Because the creation of legal rules depends largely on the willingness of states to consent, legal development may stall when powerful actors perceive regulation as contrary to their national interests. In the context of AI-driven warfare, this raises concerns that technological innovation may advance more rapidly than the legal frameworks designed to regulate it.

2. Natural Law and the Moral Boundaries of Autonomous Warfare

Natural law theory approaches legal questions from a moral standpoint, emphasizing values such as justice, human dignity, and the protection of life. According to this tradition, legal systems should reflect fundamental ethical principles rather than relying solely on formal rules or state consent.

From a natural law perspective, the increasing use of autonomous weapon systems raises serious moral questions. Artificial intelligence may be capable of processing enormous quantities of information and identifying patterns, but it lacks the capacity for moral reasoning or ethical judgment. Decisions involving life and death often require sensitivity to human context, compassion, and responsibility—qualities that cannot be authentically reproduced by machines.

The core principles of international humanitarian law, including distinction and proportionality, depend heavily on human interpretation and judgment. Determining whether a military target is legitimate or assessing whether potential civilian harm would be excessive involves complex evaluations that go beyond purely technical calculations. When such determinations are influenced or carried out by algorithms, the ethical foundation of these legal principles becomes increasingly uncertain.

For natural law scholars, the issue therefore goes beyond questions of efficiency or technological capability. Delegating lethal decision-making to machines risks weakening the moral values that humanitarian law is meant to safeguard. Maintaining meaningful human

involvement in the use of force thus becomes essential for preserving the ethical integrity of the law governing armed conflict.

3. Realism and the Politics of Military Innovation

Realist theory in international relations offers a more cautious perspective on the role of law in shaping state behaviour. Realists generally argue that states act primarily in pursuit of power, security, and national interest rather than strict adherence to legal or moral norms.

From this viewpoint, international law often reflects political compromise rather than a system capable of imposing strict constraints on state conduct. While legal rules may influence state behaviour in certain circumstances, they rarely override fundamental security concerns.

The rapid development of artificial intelligence–based military technologies illustrates this tension clearly. Many states continue to invest heavily in autonomous systems because they promise important strategic advantages, such as improved surveillance, faster decision-making, and reduced risks for military personnel.

In such an environment, technological competition may limit the effectiveness of international regulatory efforts. Even if legal frameworks are proposed, their success will ultimately depend on the willingness of states to respect and enforce them. Without strong institutional mechanisms or collective political commitment, international norms may struggle to regulate the military application of artificial intelligence effectively.

4. Implications for the Development of International Law

Taken together, the perspectives of legal positivism, natural law theory, and realism reveal the complexity of addressing artificial intelligence within the framework of international law. Positivism highlights the central role of state consent in the creation of binding legal obligations. Natural law emphasises the ethical responsibility to protect human dignity and life. Realism, meanwhile, reminds us that political power and strategic competition often shape the limits of legal regulation.

These different approaches suggest that regulating AI-driven warfare will require both legal innovation and political cooperation. International law must adapt to technological developments while still preserving the humanitarian principles that form its foundation.

The creation of a binding international framework governing autonomous weapon systems may therefore represent one of the most important legal challenges of the modern era. Whether the international community succeeds in establishing such rules will play a significant role in determining how artificial intelligence influences the future of warfare and global security.

IV. Conclusion.

The rapid integration of artificial intelligence into military technologies marks a turning point in the evolution of warfare. Autonomous systems, algorithm-driven targeting, cyber capabilities, and AIenabled information operations are fundamentally reshaping how conflicts are conducted.

These developments present serious challenges for existing legal frameworks governing armed conflict. Principles of international humanitarian law—such as distinction, proportionality, and military necessity—were developed in a context where human decision-making remained central to military operations. As artificial intelligence becomes increasingly involved in operational decisions, applying these principles becomes more complex.

Through the perspectives of legal positivism, natural law theory, and realist critiques of international relations, this paper has examined the deeper theoretical challenges associated with regulating AI driven warfare. While soft law initiatives have contributed to international dialogue, they remain insufficient to effectively address the risks associated with autonomous weapons and algorithmic military systems.

The international community must therefore consider the development of a binding legal framework capable of regulating the military use of artificial intelligence. Such a framework should establish clear rules regarding human control, accountability, transparency, and compliance with humanitarian principles.

Ultimately, the challenge posed by artificial intelligence in warfare is not solely technological but also legal and philosophical. The ability of international law to adapt to these emerging realities will play a critical role in determining whether advanced technologies contribute to global stability or exacerbate future conflicts.

In this sense, the future of warfare in the age of artificial intelligence will depend not only on technological innovation but also on the willingness of the international community to strengthen legal institutions capable of preserving peace and protecting human dignity.