

# International Humanitarian Law, Technology & Warfare: The Role of International Humanitarian Law in Regulating Emerging Military Strategies and Weapons Technologies

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*The international community has, in light of the new use of technology within the field of international humanitarian law, adopted several declarations and treaties in reaction to new technologies within weapons and warfare. Discussions in the international community revolve around the application of existing international humanitarian law to technology and war, including cyber military operations, military artificial intelligence, and the use of drones. This paper will examine the role of international humanitarian law in dealing with emerging military strategies and weapons technologies. Furthermore, the effectiveness of the law in regulating these technological advancements will be examined to assess its ability to adequately regulate the mentioned emerging issues. This paper concludes that international law has generally shown reluctance and remained silent in response to the emergence of new technologies. Existing norms of international humanitarian law can, to an extent, be applied to emerging military strategies and weapons technologies. However, the unique features of advanced technologies, the unpredictability and risks posed, can be seen to limit the application of existing norms.*

## **Introduction**

The rapid development of emerging technologies in recent years has challenged existing norms of international humanitarian law. Currently, the challenge regarding weapons and international humanitarian law

centers on emerging technologies that has enabled cyber weapons and other new military technologies. Technologies involving unmanned aerial vehicles, directed-energy weapons, and lethal autonomous robots, threatens the preservation of human dignity, therefore posing a range of normative questions for international law.<sup>1</sup> Not only the use of weapons needs regulation, but as the understanding of weapons changes along with emerging technologies, there is also a need to regulate technologies related to warfare altogether. This extends to regulating military strategies and offensive capabilities. Military strategies are strategies that are formulated and executed for the purpose of neutralizing threats and protecting the interests of a state. Such strategies fuel military operations aimed at achieving specific political aims and objectives.<sup>2</sup>

The law has a role in responding to emerging technologies, regulating them while also taking into account the risks they pose in contrast to the efficiency of modern technology. Technological research has the power and capacity to transform not only the global environment but also humankind itself on a long term, or even permanent, basis.<sup>3</sup> Additionally, ethical concerns, the unpredictability of emerging technologies, and their potential environmental and human impacts are important considerations. Hence, it is crucial for international law to regulate these technologies, supported by effective governance mechanisms that can anticipate, assess, minimize, and mitigate the risks posed by emerging technologies. However, the efficiency of international law in addressing the challenges posed by emerging technologies and the extent of its role in this context can be questioned.

### **Research Objective and Methodology**

The purpose of this paper is to examine the role of international humanitarian law in dealing with emerging military strategies and weapons technologies. Furthermore, the effectiveness of the law in regulating the technological advancements will be examined to determine its regulatory capability in addressing these emerging issues.

A legal dogmatic method will be applied where the legal provisions will be interpreted in order to determine the meaning and content of these provisions. A legal dogmatic method enables a critical analysis of existing norms and achieves the purpose of determining the role and capacity of current law in regulating technological advances. One thing

to note is that the legal dogmatic method generally has distinguished between *de lege lata*, the law as it is, and *de lege ferenda*, the law as it should be, and thereby the importance of defining the basis of one's argumentation. This paper applies both approaches by interpreting and analyzing the sources of international law, taking into consideration the evolving nature of military strategies and weapons technologies. The paper will moreover use the Issue, Rule, Application, Conclusion (IRAC) method of legal analysis to discuss the *issue* and challenges posed by the rapid developments and new discoveries of evolving military strategies and weapons technologies to the international legal framework. It will then analyze the *existing rules* applicable to emerging military strategies and weapons technologies within international humanitarian law. Lastly, it will *apply* these international norms and rules to *conclude* whether the international legal framework adequately regulates emerging military strategies and weapons technologies to subsequently determine its role in this. For the purpose of this paper, the following research question will be answered: What role does international humanitarian law play in responding to emerging military strategies and weapons technologies?

### **Rules and Norms**

The sources of international law can be found in Article 38 (1) of the Statute of the International Court of Justice (ICJ Statute). The article defines the sources of international law and provides guidance to the court on locating an applying relevant laws. There is a distinction between the main sources and subsidiary sources in international law. Article 38 (1) a-c constitutes the main sources—in other words treaties, international customary law, and general principles of law, whereas Article 38 (1) d constitutes subsidiary sources—which are judicial decisions and teachings of highly qualified publicists. Specifically, international treaties including the four Geneva conventions and their additional protocols will be covered as legal sources of international law in accordance with Article 38 (1) a of the ICJ Statute. These sources will be used as they form the core of international humanitarian law, regulating the conduct of armed conflict to limit its effects. The provisions will be interpreted in accordance with the Vienna Convention on the Law of Treaties, considering the wording of the provisions, their context, and purpose of the treaty.

Customary international law, as a main source of law, will be applied with the respect to state practice and *opinio juris* in accordance with Article 38 (1) b. Customary international law is comprised of two elements—on the one hand, a consistent and general state practice consisting of behavior or acts of states, and on the other hand, the subjective element of *opinio juris* indicating states' intent of being bound by the law. General principles of law in accordance with Article 38 (1) c of the ICJ Statute will also be considered in the interpretation of international law. Furthermore, sources consisting of case law and scholarly literature will be taken into account in accordance with Article 38 (1) d of the ICJ Statute. Other sources, which perhaps do not constitute sources of law in themselves, will be used as means of determining the meaning of the other legal sources under humanitarian international law. Furthermore, there is a noticeable shift in international humanitarian law from being developed through formal sources, primarily treaties, to more of an informal development of regulation. Several informal law-making initiatives have emerged recently including soft law, which also will be taken into consideration.

## **Applying Existing Sources of International Humanitarian Law**

### ***General Provisions and Principles***

The St. Petersburg Declaration of 1868 sets forth fundamental objectives for international humanitarian law. It states that the only legitimate object during warfare is to weaken the enemy's military forces. Additionally, it emphasizes that if the use of arms has the effect of uselessly aggravating human suffering, and render their death inevitable, the objective is exceeded. It states that the employment of such arms would be contrary to the laws of humanity.<sup>4</sup> Furthermore Article 22 of the Hague Convention IV as well as Article 35.1 of the additional protocol I to the Geneva conventions stipulate that the right of states to choose methods or means of warfare are not unlimited. This is also supported by international customary law. International humanitarian law found in customary law, general principles of law, as well as treaties, explicitly regulate means and methods of warfare. These basic and fundamental provisions of humanitarian international law are also applicable to the case of emerging technologies. However, given the unique nature and associated risks of new military strategies and weapons technologies,

existing norms may be inadequate in regulating these advancements.

International humanitarian law aims to balance the two general principles of military necessity and humanitarian considerations. These principles can however either be mutually enforcing or come into conflict with each other. Emerging military strategies and weapons technologies pose challenges to the legal framework. They raise normative questions about the necessity of these weapons systems and where to draw the line concerning their impact on human well-being. This consideration includes the potential threats these weapons pose to humankind and their effects on the international community, given the unpredictable nature of such technological advances. Furthermore, both treaty law and customary law encompass *jus in bello*, which governs the conduct of parties engaged in armed conflicts. International humanitarian law, often stated to be synonymous with *jus in bello*, aims to minimize suffering in armed conflicts and protect civilians and combatants to the fullest extent. *Jus in bello* applies to all parties of an armed conflict, irrespective of the reasons or the justness of the causes for which the parties are fighting. The underlying purpose of international humanitarian law is to protect the victims of armed conflicts, regardless of the parties involved. It is, therefore, important to note that the principle of *jus in bello* is independent of *jus ad bellum*. The former pertains to the conditions under which states are allowed to resort to war or use armed force, as mentioned in connection to the UN Charter and the use of force.<sup>5</sup> International humanitarian law is known as the laws of war which set out rules to protect civilians and combatants during armed conflicts, minimizing human suffering, limiting the barbarity of war, and providing humanitarian aid.

The International Court of Justice (ICJ), in its role as the primary judicial organ under UN, has issued an advisory opinion from 1996 on the Legality of the Threat or Use of Nuclear Weapons where it identifies two rules of international humanitarian law: the rule of distinction and the rule of prohibiting unnecessary suffering. The rule of distinction requires military operations parties to distinguish civilians from combatants and other military objectives and are only to target the latter, while the rule of prohibiting unnecessary suffering prohibits unnecessary suffering to combatants. Emerging weapons technologies fall within the scope of these two basic rules as means of warfare, and such weapons are to adhere to these rules. Moreover, the norm of proportionality in attacks on military targets, which restricts collateral damage to civilians, is considered

jus cogens, as is the rule of distinction. International law encompasses fundamental preemptory norms of law universally applicable and of relevance to the security and safety of humans—jus cogens. Such norms are based in customary international law and reflects the fundamental values of the international security including genocide, war crimes, crimes against humanity, and aggression.<sup>6</sup> If any provision conflicts with these norms, the norms take precedence, rendering the conflicting provision void and null with no legal effect.<sup>7</sup> International humanitarian law explicitly regulates means and methods of warfare. However, the rapid pace of technological advances has produced weapons such as robots and unmanned combat vehicles as well as cyber space creating potential new battlefields. Advanced technologies have generated developments in the destructive, launch, and delivery capabilities of weapons, consequently altering military strategies.

As emerging technologies are new phenomenon that develops in a rapid pace, international law applies to it in a limited manner. The nature, form, development or even deployment of new technologies, are oftentimes not regulated. For instance, in the Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques (ENMOD), it is stated that the development and use of environmental modification technologies are neither regulated nor prohibited under international law, but only their hostile use in the context of an international armed conflict.<sup>8</sup> Similarly, in its 1996 advisory opinion on the Legality of the Threat or Use of Nuclear Weapons, the ICJ stated that, in the absence of specific treaty obligations freely accepted by states, the development of nuclear weapons is not prohibited by international law. The use is not unlawful, per se, at least in circumstances where the state faces an existential threat and otherwise complies with the laws of armed conflict.<sup>9</sup> The unique features of new military emerging technologies, including uncertainty, secrecy, technological skepticism, and law-making, have had the effect of states being reluctant in expressing their positions on existing law. As the effects of new technological advances are uncertain, the associated risks also become uncertain, and difficulties arise in determining whether current laws are to be applied in these cases.

### ***Means and Methods of Warfare***

Military weapons developed in connection with technological advances are included in the terms “means of war” and “methods of war” under

international humanitarian law, to which the rule of distinction and the rule of prohibiting unnecessary suffering are to be applied. The rapid development of emerging technologies, particularly AI, has significantly enhanced the expansion of operational capabilities of weapons, including targeting and firing.<sup>10</sup> The issue of Lethal Autonomous Weapons Systems (LAWS), with the specific purpose of deploying lethal force, along with other automated weapons like unmanned combat vehicles such as drones, has become more disputed. The Convention on Certain Conventional Weapons (CCW) bans or restricts the use of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or civilians indiscriminately.<sup>11</sup> However, this convention does not specifically address the use of LAWS. At the very least, the 11 guiding principles established by the Group of Governmental Experts (GGE) in relation to this convention has discussed the emerging technologies in the context of LAWS. The principles stipulate that drones and Autonomous Weapons Systems (AWS) are to comply with international humanitarian law and impose legal obligations on parties, holding them liable for violations of the norms.<sup>12</sup> The principles also specify that individuals are to bear accountability and criminal responsibility in accordance with international criminal law.<sup>13</sup> However, the 11 guiding principles established by the GGE are only potential principles and does not constitute a main source of law, and therefore not binding on states. Nevertheless, they take the form of soft law which serves as a means of determining the meaning of the other legal sources under humanitarian international law. Soft law can eventually also show evidence of *opinio juris* and state practice, which in turn, can constitute customary international law.

LAWS are defined as weapons systems with autonomy in critical functions, enabling them to select and attack targets without human intervention, judgement, or control.<sup>14</sup> This poses limits in the application of existing norms as the responsibility and accountability of the use of these weapons systems can be questioned. LAWS can carry out an attack without human intervention, potentially without an identifiable individual behind the attack. State responsibility derived from customary international law encompasses states' obligations, also codified by the International Law Commission (ILC) in the articles on Responsibility of States for Internationally Wrongful Acts. Article 1 stipulates that every internationally wrongful act of a state entails the responsibility of that state. An internationally wrongful act is an act, or omission, by the state

that is attributable to the state under international law and considered a breach of international obligations, governed by international law.<sup>15</sup> The articles stipulate that every wrongful act of a state, including acts of omission, entails the state responsibility, implying a comprehensive regulation. While not binding as a codified legal instrument, these draft articles are binding as customary international law.

Individual criminal responsibility applies in accordance with international criminal law. International law establishes mechanisms for holding individuals accountable for their crimes such as war crimes, crimes against humanity, and violations against the fundamental rights stipulated in international human rights law. Institutions such as the International Criminal Court (ICC) investigate and prosecute individuals responsible for these crimes when national authorities are unable or unwilling to do so. ICC is a criminal court prosecuting individuals independent from the UN, while ICJ is a civil court assessing disputes between states under UN. International law includes mechanisms for peaceful settlements such as negotiation, mediation, and arbitration.<sup>16</sup> However, as mentioned previously, the issue with emerging weapon technologies and systems derives from the lack of human control, complicating the application of existing law. There is a need to identify a state, entity, or individual responsible for their use and potential consequences, which poses a challenge of defining technologies that are automatic in contrast to autonomous. Autonomous technologies, which operate without human intervention, raise issues for their regulation within the international legal framework.

On the one hand, these weapons systems enable precise attacks, which would be in compliance with the rule of distinction as they distinguish the targets from civilians more effectively. Additionally, as the weapons systems need to be initiated by an individual, it can be argued that the element of human intervention is present, and thus the existing norms are applicable. On the other hand, it has been questioned whether drone attacks at a battlefield can be applied to current norms. This arises from the potential difficulty in tracking the responsible parties in the event of a violation of the rules. Additionally, there is the issue of applying existing norms to AWS, which requires no human intervention at all. There is a general consensus among states that maintaining the human aspect of international humanitarian law in relation to LAWS is essential. Removing human cognitive abilities, such as judgement,



reasoning, and discretion, and replacing it with machines to execute lethal attacks raises fundamental legal and ethical concerns. Weapons systems that are fully autonomous without retaining human control have been banned by a number of states which indicates evidence of *opinio juris* and state practice with regards to customary international law.<sup>17</sup>

Existing provisions, such as Article 45 of Geneva convention I, Article 46 of Geneva convention II, as well as Articles 57 and 87 of the additional protocol I, explicitly mention the role of human agents and command responsibility in executing attacks, taking precautions to reduce risks to civilians, and making choices regarding means and methods. The GGE has stated in its principles that it is a state's obligation under international law to determine whether the employment of LAWS would in some, or all circumstances, be prohibited under international law when developing and adopting such new technologies.<sup>18</sup> Moreover, the need for risk assessment and mitigation measures arises during the development of new technologies, considering the risks associated with their acquisition and the establishment of appropriate safeguards.<sup>19</sup>

International organizations, such as the Human Rights Watch, have called for a preemptive ban on the use of fully autonomous weapons. Doubts have been raised about their compatibility with meeting international humanitarian law standards, including the rules of distinction, proportionality, and military necessity. Additionally, their use is considered as a threat to the fundamental right to life and the principle of human dignity. A number of states, legislators, policymakers, entities, organizations, and individuals have called for a ban on fully autonomous weapons systems. This reflects their awareness and concern about the potential removal of human control over the use of force, particularly in light of recent developments where several states have integrated autonomy into weapons systems. There is a consensus among states in favor of banning fully autonomous weapons and, with decision-making, control, and judgment as primary criteria for the legality of weapons systems.<sup>20</sup> The consensus among states also serves as evidence of *opinio juris*. Furthermore, a report of special rapporteur Heynes raised the issue of lethal autonomous robotics (LARS) as weapons systems. These weapons systems require no human intervention once activated, raising concerns for the protection of life due to their potentially devastating and far-reaching effects on humankind. The report moreover questions the compatibility of the operation of such weapons systems with

the requirements of existing international humanitarian law. As further discussed, these weapons systems also raise issues connected to accountability and responsibility. The deployment of such technologies might not be deemed acceptable under international law, considering the argument that robots lack the power of life and death of humans.<sup>21</sup>

Emerging technologies have led to the development of new mass destruction weapons such as nuclear weapons, chemical weapons, and biological weapons that risk having devastating impacts on human lives. There is a number of disarmament treaties that could apply to these kinds of weapons such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the Biological Weapons Convention (BWC) which effectively prohibits biological and toxin weapons, and the Chemical Weapons Convention (CWC) which aims to eliminate weapons of mass destruction by prohibiting chemical weapons. Emerging technologies have also enabled the further development of missiles that can deliver weapons of mass destruction. However, there is no legally binding multilateral instrument that regulates missiles, and there are different views within the international community on how to deal with this issue. This divergence in views makes it difficult to reach an agreement and adopt a treaty binding upon all states. Nevertheless, the Hague Code of Conduct Against Ballistic Missile Proliferation (HCCOC) seeks to prevent the proliferation of missiles and related technology.

There is still no established definition and scope of AI and AWS strategies.<sup>22</sup> The absence of an established definition and scope creates challenges in regulating AWS, as such is detrimental for understanding weapons systems as well as facilitating a common agreement regulating these. Without a common understanding and definition of such weapons, no uniform legal standard on an international level can be achieved. Furthermore, there have also been discussions about the ambiguity of where the line between peaceful and military uses of emerging weapons technologies is to be drawn. There are for instance weapon systems that incorporate dual-use technologies. Many treaties and other legal sources, such as the 11 guiding principles by the GGE, establish a clear divide between peaceful uses and military or weaponized uses of technologies, and aim to protect these peaceful use of technologies. For instance, the CWC allows free trade and international cooperation, including the exchange of scientific and technical information. Similarly, the BWC allows state parties to use it for peaceful purposes and facilitates the

exchange of scientific and technical information.<sup>23</sup> The issue with dual-use technologies, however, is that they can be used for both benevolent and harmful purposes. Technologies developed for peaceful purposes can be misused, with the potential to cause immense harm and threaten human lives, contrary to their original purpose of enhancing human well-being.<sup>24</sup> The question discussed is if it is possible to guarantee a peaceful use of such technologies and where the line is to be drawn.

Furthermore, advances in biotechnology have led to enhanced capabilities of soldiers.<sup>25</sup> It is questioned whether these soldiers are to be considered combatants in accordance with existing international humanitarian law. A soldier with enhanced capabilities may not fit the traditional definition of a human being. This has sparked debates about whether these soldiers are entitled to the same protection under the Geneva conventions. Additionally, questions arise regarding the application of basic and fundamental norms under the international humanitarian law, such as the rule of distinction and the rule prohibiting unnecessary suffering. It can also be discussed whether such a soldier should instead fall under the term of means of war. Moreover, developments within nanotechnology have led to nano-weapons which have enhanced the defensive as well as offensive military capabilities in relation to bioterrorism. Nano-weapons could include conventional missiles that are smaller and faster, with enhanced accuracy guided by navigation systems and increased penetration capability. It could be in the form of chemical agents as well as biological agents with self-replication capability. They have huge destructive powers which in turn might blur the distinction between conventional weapons and weapons of mass destruction.<sup>26</sup> Applying existing norms to these types of weapons can be problematic when it comes to the rule of distinction, the prohibition of certain weapons and methods of warfare, and the rule of unnecessary suffering. Emerging technologies have enabled unmanned attacks, LAWS as well as cyber operations which might not be based on physical force. The traditional definitions of weapons thus might not be applicable to all cases of weapons developed through military technological advances today, and the question raised is whether these modern weapons should be entirely prohibited as a preemptive action due their unpredictable risks and dangers.

However, if these provisions do not extend to new weapons developed through advances of technologies, the Martens Clause, a

fundamental element of the Geneva Conventions and international humanitarian law, applies. The clause was confirmed by the ICJ in its 1996 advisory opinion on the Legality of the Threat or Use of Nuclear Weapons and contained in Article 1(2) of the additional protocol I to the Geneva conventions. The Martens Clause specifies that if none of the treaties or other international agreements are applicable, civilian and combatants are to be protected by the general principles of international law and customary international law. This provision fills the gap in existing law, allowing an interpretation in cases where no consensus has been reached between parties to the international agreements. The clause ensures more effective protection for humans in the event of emerging technologies and associated risks. It also indicates that parties who have denounced treaty obligations are still bound by existing customary norms of warfare. Existing norms under humanitarian international law is thereby applicable to new weapons, inferring responsibility on the parties that are developing them. However, the provision does not define the terms “weapon,” “means” or “method of warfare.” This lack of specific definitions allows parties to have a certain discretion when developing and designating weapons, means, and methods of warfare. Consequently, all new technologies are to be reviewed to determine whether they comply with the rules under humanitarian international law. This in turn weakens the protection offered by the provision.

### **The Geneva Conventions and Additional Protocols**

The four Geneva conventions and their additional protocols form the core of international humanitarian law.<sup>27</sup> The Geneva conventions and their additional protocols have been ratified by almost all states and are universally applicable, ensuring an efficient protection of the provisions and rights stipulated in these treaties. Furthermore, many of its provisions also constitute customary international law which further strengthens its protection. However, a common challenge in international law, as it is characterized by a decentralized system, is the enforcement of these laws. Their effectiveness is dependent on the willingness of states to enforce the provisions.

With regard to the application of these laws to AWS, the lawfulness of such weapons first needs to be analyzed. The first rule in according with additional protocol I is that weapons systems must not, by their very nature, be indiscriminate, and their method or means cannot

be directed at a specific military objective in accordance with Article 51 (4) b). The second rule stipulates that the method and means of warfare is not limited and that the use of weapons that “cause superfluous injury or unnecessary suffering”<sup>28</sup> is prohibited in accordance with Article 35 (2). The article further states that methods or means of warfare “to cause widespread, long-term and severe damage to the natural environment”<sup>29</sup> is also prohibited. Furthermore, Article 36 in the additional protocol I to the Geneva conventions is of great importance in the context of emerging technologies and new weapons. In the case of the development and other stages of new weapons, means, or methods of warfare, the parties involved have an obligation to determine whether their employment is prohibited under international law. This is especially important in the case of dual-use technologies or autonomous systems, where the human element has been removed. Furthermore, Article 36 has been discussed as potentially constituting customary international law. This interpretation is supported by evidence of state practice, where states have established weapons review procedures and mechanisms. *Opinio juris* is further indicated by states accepting Article 36 as law in various contexts, including treaty negotiations, expressed opinions leading up to the adoption of treaties, and its incorporation into national law.<sup>30</sup>

Furthermore, it needs to be analyzed whether the actual use of these AWS is prohibited under certain circumstances. To determine this, the rule of distinction, also stated in Articles 48, 51-52 of the additional protocol I, stipulates the distinction between combatants and civilians, and military and civilian objectives. The rule of proportionality also serves as an indicator for whether the use of the weapons is prohibited or not, which is stated in Articles 51 (5) b) and 57 (2) iii), stipulating that a human judgement is needed based on reasonableness. Reasonableness is determined based on whether an attack is expected to cause loss of civilian life or injury, excessive in relation to the military advantage anticipated, where one is to refrain from launching such an attack. Furthermore, there is the rule of precaution, obliging feasible precautions in an attack, including sparing civilians and thereby taking precautions related to the choice of means and methods of attack, in accordance with Article 57 of additional protocol I. However, the rules of distinction, proportionality, and precaution require human judgment to determine objectives, assess the reasonableness of an attack, and take precautions. AWS lack human intervention, which poses challenges for compliance with these rules.

All four Geneva conventions contain common Article 3 which stipulates a protection for armed conflicts of a non-international character as well. Furthermore, additional provisions were added in protocol II to the conventions protecting victims of non-international armed conflicts. However, scholars have argued that these provisions are limited in their effectiveness of ensuring such protection as they fail to define such a conflict and the protective measures for civilians in those conflicts.<sup>31</sup> As many of the common conflicts of today are conflicts with a non-international character, or so-called intrastate conflicts, it is important to regulate such conflicts along with the developments of society and human security. The issue of regulating non-international conflicts is due to the fundamental principle of sovereignty where states are reluctant to let other states intervene in their internal matters.

## **The Role of International Humanitarian Law**

### ***The Relationship between International Humanitarian Law and Emerging Technologies***

There have been discussions about the compatibility of technology and law, and the role of law in regulating emerging technologies, as these two elements can be contradictory. International law has been argued to restrict the development and innovation of technological advances, while at the same time hinder the risks posed by these technologies. Some argue that the regulation of evolving technologies has more downsides because when the development of technologies is impeded, the potential of these technologies to mitigate risks through progressive and innovative solutions decreases. Meanwhile, others argue that the law can foster competitiveness and would not limit the development of new technologies; rather, it could help mitigate the risks posed by these technologies.<sup>32</sup> It has been said that “regulation is technology of governance”<sup>33</sup> as the role of regulation on technology depends on the technology of regulation. The regulatory design can hinder or foster as well as shape technological advances. This indicates the importance of the role of international law in regulating emerging technologies.

International humanitarian law has a role in minimizing human suffering by establishing a legal framework to protect civilians and combatants in armed conflicts. It plays a role in arms control and disarmament as it seeks to regulate the use of weapons in order to

enhance human security. This is particularly important in the context of emerging technologies and the development of new weapons of mass destruction that pose threats to individual security. International norms contribute to reducing the risks of armed conflict and the devastating and lasting impact of weapons on human lives. International humanitarian law can thereby be seen to play a critical role in controlling arms proliferation and regulating emerging military strategies and weapons technologies. Furthermore, international humanitarian law can be seen to strengthen the human values considered to be protected by the international community. It has a role in minimizing the misuse and disruption of public order over the use, allocation, and control over technology. The legal framework has a role as a regulator to accommodate the different interests by states and other stakeholders by finding rational and equitable solutions.<sup>34</sup>

As new military strategies and weapons technologies have shown to possess inherent efficiency and brings advantages to modern warfare, international law must accommodate itself to these developments. International humanitarian law has a role in providing order and clarity to the rights and obligations of actors in the international community. Existing norms are established to create a system where individuals are held accountable for their actions and crimes that threaten human security, such as war crimes and crimes against humanity, which are part of the jus cogens norms. The ICC is the main institution responsible for investigating and prosecuting individuals when states are unable to do so. By promoting accountability and deterrence, international criminal justice helps to prevent future atrocities and contributes to human security. It is to regulate uncertainty, unpredictability, and the unknown future developments which in turn requires transparency, flexibility, accountability as well as participation by international actors. The international legal framework also has a role in promoting technological development, accommodating exchange of knowledge, and providing a framework for a peaceful dispute settlement system.<sup>35</sup> As emerging military strategies and weapons technologies are technically complex, there is a need for international law to have the capability to obtain, understand, and translate scientific evidence into law.

### ***The Stopping Power of Norms and the International Community***

Existing norms of international humanitarian law have potential power to hinder threats to the security and safety of humans.<sup>36</sup> If there is

an existing belief in the legitimacy of international law, particularly concerning grave crimes against humanity and other atrocities, it could influence the compliance with these rules. A strong belief in the international norms, and the knowledge of it being enshrined in law, could affect the political behavior of states and individuals.<sup>37</sup> However, for international law to have a stopping power, it is essential that existing law efficiently regulates and protects individuals from emerging technologies. Furthermore, the unpredictable nature of emerging military technologies and weapons technologies has pressed concerns for states to cooperate. International humanitarian law serves as an organizational mechanism for fostering cooperation among states. Thus, it could result in a common understanding of these technologies and the obligations arising from their development and use. The emergence of military strategies and weapons technologies requires effective control and measures to be taken by international humanitarian law. This could, in turn, enable a creation of future agreements and provisions regulating these technologies. However, an increased control would also mean a loss of sovereignty, which many states might be reluctant about. This poses challenges of the regulation of emerging military strategies and weapons technologies. On the other hand, it has also been argued that the loss of sovereignty could contribute to mutual advantages between states.<sup>38</sup>

International humanitarian law constitutes the framework of rules and principles that regulate the behavior between international actors. In connection to emerging military strategies and weapons technologies, international humanitarian law plays a crucial role in regulating the development and use of these emerging technologies to address the challenges and risks they pose to humans and society. Technological advances have the potential to fundamentally transform the global environment and, over the long term, even humankind itself on a permanent basis. It is, therefore, necessary for international humanitarian law to have the capability to efficiently regulate and govern these technologies, anticipating, assessing, minimizing, and mitigating the risks they pose. This is of particular importance in order to prevent states or other actors from acting unilaterally.<sup>39</sup> A common approach and regulation is necessary to address the challenges and risks posed by emerging technologies, given their unpredictable nature. With that said, international humanitarian law must regulate not just the past and present



development and use of technologies, but also the uncertain futures these technologies pose.<sup>40</sup> Existing norms must establish an international regulatory environment that fosters technologies contributing to human development while simultaneously limiting the risks associated with such technological advances and minimizing unacceptable legal applications. International humanitarian law serves as a vital framework for regulating emerging military strategies and weapons technologies by ensuring their compatibility with humanitarian principles.

International humanitarian law plays a role in regulating the development of emerging military strategies and weapons technologies. This role is particularly urgent because these technological advances bring about unknown and unpredictable consequences that could have long term effects. However, it can be questioned if the current international legal framework has the capability to respond to the challenges posed by these technologies. The role of international humanitarian law is dependent on the effectiveness of existing international norms. If there is no adequate legal framework for regulating evolving technologies, belief in these norms, and consequently compliance with them, weakens, as does the role of international law in regulating emerging military strategies and weapons technologies. The effectiveness of international law relies on state compliance, enforcement mechanisms, and international cooperation among states and international organizations. As the international legal framework is a decentralized system built on the principle of sovereignty, there exists limits in its enforcement mechanism and compliance of states. The application of existing provisions is subject to several limitations inherent of the nature of international law itself.

### ***General Principles of Law***

The principle of sovereignty is a fundamental principle binding upon states of the international community as a main source of law. The principle prohibits the interference by one state in the internal matters and the territory of another state.<sup>41</sup> Existing norms rooted in the principle of state sovereignty allows states to utilize their resources, conduct research, develop, and deploy such technologies as they see fit.<sup>42</sup> However, under the same principle of sovereignty, international law also obliges all states to ensure that activities within their jurisdiction and control do not harm other states. Thereby, the potential harmful transboundary effect of emerging military strategies and weapons technologies over

humankind, the environment, other states, and the global interests are being protected. This aligns with the general principle of law—the no harm rule, which also constitutes customary law and implies that states have a duty to prevent, reduce, and control the risk of environmental harm to other states. However, international law does not prescribe the actions or measures, allowing states to interpret and implement it as they see fit. This discretion results in states deciding which risks it deems acceptable and may, at times, override a negative assessment based on national protection goals. Furthermore, these provisions are built on the principle of due diligence, meaning that, in international law, the basic stance is that states are not strictly liable for transboundary environmental damage. Instead, states are required to exercise due diligence to prevent significant transboundary harm originating from their territory. As long as a state has acted in accordance with the principle of due diligence, it is not held responsible for unintended consequences of technological developments or unintentional or accidental acts.

The principle of sovereignty presents challenges for international law in regulating emerging technologies due to limitations in its scope and application. These limitations are based on the structural restraints inherent in the consensual nature of the international legal framework.<sup>43</sup> International law need to be agreed upon by the states in order for them to be binding upon them. Furthermore, international law consists of vague and sometimes conflicting norms and rules. Enforcing international law is challenging because, unlike national law, there is no such thing as a world government in the international community. Lastly, there are also issues of overlapping and competing jurisdictions and institutions, particularly regarding the transboundary nature of emerging technologies.<sup>44</sup> The principle of sovereignty poses challenges for an efficient regulation of emerging military strategies and weapons technologies as these technologies in fact are emerging and new issues. Along with new security threats of today, that takes the form of nonconventional and transnational threats, the protection of borders and territorial integrity does not seem to be the ultimate objective.<sup>45</sup> In light of today's globalized and interconnected world, the borders between states are blurred, and emerging technologies have become a transnational issue. The shift from traditional interstate conflicts to intrastate conflicts poses challenges for effectively regulating emerging technologies due to the principle of sovereignty.

### ***The International Legal Framework***

The formal sources of international law binding upon states provide a basic framework in which the regulation of emerging technologies might take place. However, international law is more focused on regulating specific activities rather than future ones which limits the substantive scope of the law. Technologies are rapidly emerging, and the law might not be able to keep up. The creation of international treaties and other agreements is a time-consuming process. Additionally, customary law requires repeated state behavior over a period of time, along with an agreement to be bound by these norms. Regarding treaties and agreements, states are only bound by them if they become state parties. These limitations can affect the role of international law in regulating emerging technologies. With regard to the development of technologies, states are not the only actors involved; the research is oftentimes conducted by individuals. Private individuals have an influence in the development of so-called governance regimes, but regarding individual responsibility for international crimes, international law may have a limited role in the regulation of these actors. The law gives the freedom to pursue scientific knowledge and is considered a fundamental right. The precise boundaries to such a right remain open to debate, but ethical limits apply when the nature of the research is such that the process itself has potentially adverse impacts on humans. The risks and increasing recognition of the problem of uncertainty with emerging technologies have given rise to legal regulations in some circumstances. The freedom of gaining knowledge over prohibiting research becomes valid when the research is being conducted responsibly and for legitimate scientific purposes, where the compliance of international legal norms comes into question.

### **Conclusion**

International law has, in general, been reluctant and silent in responding to the emergence of new technologies. Existing norms of international humanitarian law can to an extent be applied on emerging military strategies and weapons technologies. Yet, the unique features of advanced technologies, along with the unpredictability and risks posed, can limit the application of existing norms. The challenges posed by LAWS, biotechnology, enhanced soldier capabilities, and nano-weapons

create problematic issues. These challenges stem from the removal of human elements and the blurred distinction between traditional and new technological weapons, resulting in uncertainty. The existing international legal framework is built upon the principle of sovereignty and is subject to other inherent limitations of international law. This raises the question of whether the existing legal framework can accommodate the concept of emerging technologies and whether international law has the capability to regulate these technological advances. However, amid contemporary developments such as non-state actors in international law, new technological advances within military strategies and weapons, and a transnational challenge of blurred lines across state borders, international law will most likely also evolve. In today's international community, marked by the rising of nontraditional, nonconventional, and transnational threats of emerging military strategies and weapons technologies, there is a need for international humanitarian law to regulate and accommodate the threats and challenges that these technologies pose. International humanitarian law has, both at present and in the future, a crucial role in regulating emerging military strategies and weapons technologies, as these technological advances bring unknown and unpredictable consequences that could have long-term effects.

Future research should analyze the need for new norms and rules, or alternatively, how to interpret existing provisions in order to fill in the gaps in the existing legal framework and address emerging military strategies and weapons technologies more effectively. On the one hand, interpreting existing law and applying an approach of *de lege ferenda*, the law as it should be, in contrast to *de lege lata*, the law as it is, could be an alternative using general principles of law, soft-law, and other sources to interpret existing provisions. This tendency has also been observed in international humanitarian law. Nevertheless, there is a limit to interpreting existing norms where too far-reaching interpretations instead would constitute the creation of new law. On the other hand, creating new laws could be an alternative as new provisions could better address emerging technologies with its unique features. Yet, in the case of creating new laws, the process is time-consuming and might not be able to keep up with the fast-paced development of new technological advancements. Additionally, reconciling the interests of all international actors' and achieving a common understanding to reach an agreement is a challenge.

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