HAKEMLİ

An Assessment of the Acceptance of Meaningful Human Control as a Norm of International Law in Armed Conflicts Using Artificial Intelligence

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Bu makale hakem incelemesinden geçmiştir ve TÜBİTAK – ULAKBİM Veri Tabanında indekslenmektedir.

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Date of issue: 14th July 2022 **Date of acceptance:** 10th May 2023

Cite: Akkuş, Berkant. "An Assessment of the Acceptance of Meaningful Human Control as a Norm of International Law in Armed Conflicts Using Artificial Intelligence." *Journal of Ankara Bar Association* 81, no. 3 (July 2023): 49-102. **DOI:** 10.30915/abd.1143722

AN ASSESSMENT OF THE ACCEPTANCE OF MEANINGFUL HUMAN CONTROL AS A NORM OF INTERNATIONAL LAW IN ARMED CONFLICTS USING ARTIFICIAL INTELLIGENCE

ABSTRACT

One major area of concern in relation to the use of autonomous weapon systems is that it involves humans giving some, if not all, control over a weapon system to a form of computer. This idea relates to the concerns that a computer's ability to autonomously operate weapon systems puts the control of these systems beyond the bounds of the armed forces. This article examines the role that the concept of meaningful human control plays in the ongoing discourse, describes current perspectives of what meaningful human control entails, and reviews its value in the context of the analysis of AWS presented in this article. Within this article, as is the case in the wider debate, the term meaningful human control is used to describe a quality that is perceived to be essential for a given attack to be considered to be compliant with international humanitarian law rules. It does not denote a specific class of weapon systems that permit or require a minimum level of human control; rather, it infers that a weapon that is used in an attack that is legally compliant with international humanitarian law rules would essentially incorporate a meaningful level of human control.

Keywords:

meaningful human control | artificial intelligence | autonomous weapon systems | international humanitarian law | marten's clause

Berkant AKKUŞ

YAPAY ZEKANIN KULLANILDIĞI SİLAHLI ÇATIŞMALARDA ANLAMLI İNSAN KONTROLÜNÜN BİR ULUSLARARASI HUKUK NORMU OLARAK KABULÜ ÜZERİNE BİR DEĞERLENDİRME

ÖZ

Otonom silah sistemlerinin kullanımıyla ilgili önemli bir endişe alanı, insanların bir silah sistemi üzerindeki kontrolünün tamamını olmasa da bir kısmını bir bilgisayara vermesini içermesidir. Bu fikir, bir bilgisayarın silah sistemlerini otonom bir şekilde çalıştırma yeteneğinin, bu sistemlerin kontrolünü silahlı kuvvetlerin sınırlarının ötesine koyduğu endişeleriyle ilgilidir. Bu makale, anlamlı insan kontrolü kavramının süregelen söylemde oynadığı rolü incelemekte, anlamlı insan kontrolünün neleri gerektirdiğine dair mevcut perspektifleri açıklamakta ve bu makalede sunulan otonom silah sistemleri analizi bağlamında değerini gözden geçirmektedir. Bu makalede, daha geniş tartışmada olduğu gibi, anlamlı insan kontrolü terimi, belirli bir saldırının uluslararası insancıl hukuk kurallarına uygun olarak kabul edilmesi için gerekli olarak algılanan bir niteliği tanımlamak için kullanılmaktadır. Asgari düzeyde insan kontrolüne izin veren veya bunu gerektiren belirli bir silah sistemleri sınıfını ifade etmez; daha ziyade, uluslararası insancıl hukuk kurallarına yasal olarak uygun bir saldırıda kullanılan bir silahın esasen anlamlı bir insan kontrolü düzeyi içereceği sonucunu çıkarır.

Anahtar Kelimeler:

anlamlı insan kontrolü | yapay zeka | otonom silah sistemleri | uluslararası insancıl hukuk | martens kaydı

INTRODUCTION

Consideration of what represents the legal use of autonomous weapon systems naturally provokes enquiry as to the methods by which it will be possible to ensure that autonomous weapon systems are used according to these legal stipulations. To this end, one of the most consistent elements of the AWS debate to date has focused on the materialisation of the concept of meaningful human control over AWS. As such, the autonomy of weapon systems must be controlled to some extent to make sure that they operate within legal and moral realms. Although this idea was initially prominent within the context of objections against increasing the level of autonomy associated with AWS, it has since been adopted by many academics, States, and NGOs as a means of framing the overall debate.[1]

The essential reason for insisting on human control of weaponry is that humans must remain responsible for the deployment of force. International law details a direct link between control of weaponry and responsibility for the consequences of deployment. In various areas of international law, when exploring the concept of control in order to attribute responsibility, the essential question is who was holding power at the time an incident occurred.

Similarly, international criminal law and most domestic law attributes individual responsibility in terms of responsibility: *mens rea.* If weaponry can undertake these certain essential tasks, such as choosing a target, deciding whether its actions are legal, and launching attacks, without any human intervention, human responsibility may be compromised. When autonomous weaponry is deployed, it is problematic, or even impossible, to determine what the parties behind the deployment intended.

Thus, the law should demand levels of human control whereby the actions of the weaponry reflect the intentions of the deploying party and therefore attribute individual responsibility to them. In order to mirror human intentions, and so attribute responsibility, as targets are being selected the weapons system should be dependent upon real-time direct human control.

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[1] Marc Canellas, Rachel Haga, "Lost in Translation: Building a Common Language for Regulating Autonomous Weapons," *Technology and Society Magazine IEEE* 35, no.3 (September, 2016): 50-58; Filippo Santoni de Sio, Jeoen van den Hoven, "Meaningful Human Control over Autonomous Systems: A Philosophical Account," *Front Robot AI* 5, no.15 (February, 2018): 14.

Within the context of autonomous weapon systems, the notion of meaningful human control was first expressed by the UK in NGO Article 36 in April 2013, in which it was argued that "a positive obligation in international law for individual attacks to be under meaningful human control."[2] This paper was published in response to broad apprehensions about the mounting military use of robotic and remote-controlled weapon systems and, specifically, to the statements that were issued in the 2011 Joint Doctrine Note on Unmanned Systems by the UK Ministry of Defence (MoD).[3] Although States had committed to ensuring that weapons would remain under human control,[4] the MoD highlighted how "attacks without human assessment of the target, or a subsequent human authorization to attack, could still be legal."[5]

Some missions may involve an unmanned aircraft conducting, monitoring, or surveying a given area to identify a target type before reporting the findings of the reconnaissance to a supervisor. Any human-authorised attack that took place following the activities of the unmanned aircraft would be no different from attacks that are carried out based on the data acquired by manned aircraft. Therefore, they should be fully compliant with international humanitarian law if the human decision maker involved was sure that, based on the information provided, the attack was aligned with international humanitarian law requirements and the existing rules of engagement. However, it would involve only a minor technical addition to create a system by which an unmanned aircraft could activate a weapon based solely on the data received by its sensors without any input from human authority. Provided the military organization involved could demonstrate that the principles of the international humanitarian law such as military necessity, humanity, distinction, and proportionality) were appropriately

[2] Richard Moyes, *Killer Robots: UK Government Policy on Fully Autonomous Weapons*, (London: Article 36, April 2013), 1.

[3] Ministry of Defence, *The UK Approach to Unmanned Aircraft Systems Joint Doctrine Note 2/11*, (London: Ministry of Defence, March 2011).

[4] Daniele Amoroso, & Guglielmo Tamburrini, "Toward a Normative Model of Meaningful Human Control over Weapons Systems," *Ethics & International Affairs*, *35*, no. 2, (2021) 245-272.

[5] Moyes, *Killer Robots: UK Government Policy on Fully Autonomous Weapons*, 1.

assessed by the systems of the unmanned aircraft and that the rules of engagement were satisfied, an attack of this nature could be entirely within the realms of the law.[6]

The example provided above highlights how the current UK doctrine lacks clarity and there are some domains in which the policy needs to be clarified to avoid a situation in which the wording is so ambiguous that it is subsequently rendered meaningless. In particular, it is moral agency (i.e., the rules of proportionality and distinction) that are required of humans in combination with the freedom to make a decision as to whether or not to follow the rules that form the basis for the normative power of the law. Specifically, human beings must make cognisant, well-informed decisions about what use of force to apply in a given conflict, and entrusting a machine with such decisions would be fundamentally unacceptable. The human decisions that are made during a conflict should be made within the context of each discrete attack. Although it is acknowledged that an individual attack could involve a range of specific target objects, human control will no longer be meaningful if an autonomous weapon system is engaged in several attacks that necessitate precise judicious deliberation of the target, context, and expected effects.

Some of the weapon systems that are currently in use have a limited ability to operate autonomously. For example, the anti-missile systems that are mounted on ships and some certain sensor fuzed weapon systems. These weapons are legal on the basis that the use of the weapon relies on the relationship between the human operator's understanding of the function of the sensor and control over the context in which it is employed (the duration and/or location of sensor functioning).[7]

However, regardless of the practices that are currently accepted, the concept of fully autonomous weapons remains ambiguous and this, in itself, could lead to calls for existing systems to be banned. While it may seem difficult to delineate a relationship between landmines and fully autonomous armed robots, they do, in fact, have a lot in common. Both landmines and

[6] Ministry of Defence, *The UK Approach to Unmanned Aircraft Systems Joint Doctrine Note 2/11*, 5.

[7] Merel Ekelhof, "Moving Beyond Semantics on Autonomous Weapons: Meaningful Human Control in Operation," *Global Policy 10*, no. 3 (September, 2019): 344.

autonomous weapon systems have the ability to use force to respond to an incoming signal, be it pressure from an external body, such as a foot, or a signal received by an infra-red sensor. Regardless of whether the system is stationary or portable, simple, or multifaceted, it is the ability of landmines and fully autonomous weapons to respond to a violent response without any human intervention at that moment that makes their use profoundly problematic.

There is an inherent need to prevent fully autonomous targeting. The first step toward achieving this may involve acknowledging that the prevention measures that are put in place must be effectively initiated across the board, from the basic systems involved in anti-vehicle landmines through to the state-of-the-art systems that are currently being developed.[8] This article examines the potential solutions to these concerns and puts forth three proposals. First, the Government is asked to mandate meaningful control over individual attacks and elaborate upon what this concept actually means. Second, states should intensify their commitment to refrain from developing fully AWS that has the capability to initiate and complete attacks without meaningful human control. Third, there is a requirement for an international treaty to clarify and reinforce legal protection from fully autonomous weapons.

Since it was first introduced in 2013, the concept of meaningful human control[9] as presented in Article 36 has continued to evolve, and it has since been adopted by several states and civil society actors. Unavoidably, the meaning of the concept, which was somewhat ambiguous at the outset, has evolved over time. Specifically, some factions have removed the qualifier over individual attacks, thereby introducing an element of uncertainty about what elements are to be subject to human control. For example, does the concept of human control apply to the discharge of every weapon? Or is it limited to select weapons? Is it relevant to attacks as a whole? Or certain elements of an attack? It is also worth noting that each individual term is

[8] Matthew Bolton, Thomas Nash and Richard Moyes, *Ban Autonomous Armed Robots,* (London: Article 36, March 2012), 5.

[9] Thompson Chengeta, "Defining the Emerging Notion of Meaningful Human Control in Autonomous Weapon Systems," *New York Journal of International Law & Politics 49,* no. 3 (2017): 833–90.

open to interpretation. For example, the concept of meaningful human control could be considered a priori to omit the use of autonomous weapon systems. On an intuitive level, this is frequently how it is understood. However, the extent to which this is the case in practice varies according to the way in which each individual word is interpreted. Meaningful is an intrinsically subjective concept and, like the notion of human control, it can be understood in a variety of different ways.[10]

Ideas about meaningful human control and the implications this concept has for the ongoing development of autonomous weapon systems continue to change in response to the evolution of the debate; however, the absence of a unified understanding of the content of the concept has not prevented it from being adopted. Expert presenters at the Convention on Certain Conventional Weapons meetings on autonomous weapon systems and many State delegations have referred to meaningful human control in their discourse, and there is a broad level of support for the notion or, at a minimum, an interest in examining it in more depth.

For example, during the 2014 Informal Meeting of Experts, Germany highlighted the importance of MHC in anti-personnel attacks:

> *"It is indispensable to maintain meaningful human control over the decision to kill another human being. We cannot take humans out of the loop. We do believe that the principle of human control is already implicitly inherent to [IHL] … And we cannot see any reason why technological developments should all of a sudden suspend the validity of the principle of human control."*[11]

Norway unequivocally attributed full autonomy to a lack of meaningful human control and expressed apprehension about the aptitudes of autonomous technologies as opposed to focusing on the idea of delegating decisions pertaining to the use of principle of force to autonomous weapon systems:

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[10] UNIDIR, *The Weaponization of Increasingly Autonomous Technologies: Considering How Meaningful Human Control Might Move the Discussion Forward,* (Geneva: United Nations Institute for Disarmament Research, 2014) 3.

[11] Germany (Opening Statement, CCW Meeting of Experts on LAWS: General Exchange, May 2014) 23.

"By [AWS] in this context I refer to weapons systems that search for, identify and use lethal force to attack targets, including human beings, without a human operator intervening, and without meaningful human control. … our main concern with the possible development of [AWS] is whether such weapons could be programmed to operate within the limitations set by international law."[12]

A year later, numerous delegations highlighted how meaningful human control had evolved into a significant element of the ongoing discussion:

"[The 2014 CCW Meeting of Experts] led to a broad consensus on the importance of meaningful human control over the critical functions of selecting and engaging targets … we are wary of fully autonomous weapons systems that remove meaningful human control from the operation loop, due to the risk of malfunctioning, potential accountability gap and ethical concerns."[13]

Meaningful human control continued to occupy a prominent position at the 2018 meetings, during which the delegates broadly agreed that the concept played a fundamental role in the comprehension and regulation of AWS:

"The elements, such as autonomy and meaningful human control (MHC), which were presented at the last four Informal Meetings are instrumental in deliberating the definition of [AWS]."[14]

However, the usefulness of the concept of meaningful human control was also questioned. Undoubtedly, society will witness further in-depth discussions pertaining to human-machine interaction and the notion of meaningful human control. To date, many delegations and experts have highlighted how the phrase meaningful human control is subjective and, as such, difficult to comprehend and apply on a practical level. In the discussions presented in this article, we have expressed concerns of this nature

[12] Norway (Opening Statement, CCW Meeting of Experts on LAWS: General Exchange, May 2014) 1.

[13] Republic of Korea (Opening Statement, CCW Meeting of Experts on LAWS: General Exchange, April 2015) 1-2.

[14] Japan (Opening Statement, CCW Meeting of Experts on LAWS: General Exchange, April 2018) 1-2.

and questioned the extent to which meaningful human control represents a productive means of advancing the existing discussions. We perceive the optimization of the human/machine relationship to represent the principal technical challenge to the ongoing development of AWS and, as such, it is a critical concept that needs to be reviewed at the outset of any weapon system development process. On the basis that this human/machine relationship is of relevance throughout the development and implementation of a system and is not limited to the moment at which a decision is made to engage a target, it is perhaps more useful to examine what represents appropriate levels of human judgment.

The notion of meaningful human control over autonomous weapon systems has also been considered beyond the strict international humanitarian law context, for example, at the Convention on Certain Conventional Weapons meetings and other delegations. For instance, meaningful human control was incorporated into the African Commission on Human and Peoples' Rights General Comment No. 3 on the African Charter on Human and Peoples' Rights on the right to life (Article 4) of 2015:

> *"The use during hostilities of new weapons technologies … should only be envisaged if they strengthen the protection of the right to life of those affected. Any machine autonomy in the selection of human targets or the use of force should be subject to meaningful human control."*[15]

I. MEANING

Within the context of autonomous weapon systems (AWS), the notion of MHC (meaningful human control) was first expressed by the UK in NGO Article 36 in April 2013, in which it was argued that "a positive obligation in international law for individual attacks to be under meaningful human control."[16] The essential reason for insisting on human control of weaponry is that humans must remain responsible for the deployment of force.

[15] General Comment No. 3 on the African Charter on Human and Peoples' Rights: The Right to Life (Article 4), African Commission on Human and Peoples' Rights, 57th ordinary session (18 November 2015) 12.

[16] Moyes, *Killer Robots: UK Government Policy on Fully Autonomous Weapons*, 1.

The lack of a unified understanding of the MHC concept is somewhat expected given that it is not based on an affirmative notion of what is required of an AWS. Rather, it is derived from the fact that apprehensions pertaining to increasing autonomy are grounded in the human involvement that autonomy removes. As such, there is an inherent need to comprehend the human element as a starting point if we are to be in a position to assess the extent to which future or current technologies address the key areas of concern. Specifically, the interest in ensuring MHC over AWS is grounded in the acknowledgement that states are beginning to pursue a path of weapon development that seeks to minimize direct human involvement in attacks;[17] however, it is not yet transparent how eradicating that human element can be taken into consideration in the legal and ethical decisions that are required during times of armed warfare.

The development of the concept of MHC was based on two basic ideas:

There is a general agreement that the deployment of a machine that is capable of applying force and functioning without any type of human input is not acceptable.

Situations in which a human performs a simple action, such as pressing a button to launch a missile, in response to input from a computer without any cognitive evaluation of that input or awareness of the data on which it is based, is not adequate to represent human control in a utilitarian sense.

The basic concept is that there is a need for a meaningful level of human control over the application of force and that the notion of human control should not be simply applied as a formality; humans must have sufficient influence over any acts of violence that are performed by a weapon system to make sure that such acts are only performed in strict alignment with human designs and legal and ethical limitations. The term that is of particular interest here as a means of representing the threshold of sufficiency is meaningful. MHC, therefore, signifies a domain for debate and negotiation. The word meaningful operates principally as an indication of the fact that the nature or form of human control should take need to be unilaterally defined in policy discourse. It is important that attention is not too closely directed to the exact meaning of the concept of meaningful in this context.

[17] Thomas Adams, "Future Warfare and the Decline of Human Decision-making," *Parameters 31*, no. 4 (2001): 57.

Other words may be as suitable in this domain as meaningful, for example, necessary, appropriate, sufficient, effective, etc. However, regardless of what term is applied, the same question remains: How can the international community demarcate what critical features of human control are required to meet legal and ethical criteria? The intention that underpins the discussion of MHC is to demarcate the aspects of human control that should be viewed as being critical in the application of force. In terms of IHL specifically, the basic failure to conserve MHC when deploying AWS jeopardies weakening the central role of attacks as a means of regulating the application of weapons during warfare. However, as was accurately outlined in the African Group statement to the Group of Governmental Experts GGE, it does "not matter what name or term is used to describe human control" because "what matters is the substance and standards of that control."[18]

Judgements need to be made within the context of individual attacks. As such, attacks are an element of the structure of the law, in that they signify units of military action and human legal application. Under the provisions of Article 57, the Additional Protocol I obligates "those who plan or decide upon an attack" to take a set of precautions. The NGO argues that "humans must make a legal determination about an attack on a specific military objective based on the circumstances at the time",[19] and the combined implications of Articles 51, 52, and 57 of API are that machines should not be permitted to identify and launch an attack on a military target without some form of legal and ethical human judgment and control that is directly applied to the attack on that precise military objective at that given time. The idea that such a capacity can be pre-programmed into a machine represents a nullification of human legal agency and, thereby, breaches the case-by-case concept that underpins the structure of these legal rules.

In addition, the intent that motivated the concept was to necessitate that human personnel who are responsible for planning or making decisions pertaining to a military target should employ their judgment to adopt precautionary measures on an attack-by-attack basis. Humans are the agents

[18] Group of Governmental Experts on Lethal Autonomous Weapons Systems (LAWS) 9-13 April 2018 Statement by The African Group.

[19] Richard Moyes, *Key Elements of Meaningful Human Control,* (London: Article 36, April 2016), 3.

that parties within a given conflict rely upon to engage in hostilities and are the recipients of the written law.[20] As such, the current legal structure infers certain limitations to the operation of independent machines. The use of AWS that have the ability to independently initiate attacks and select and engage targets without any type of human intervention, undermines the value of the legal structures that are in place.

Autonomy in some important functions of weapons systems could push the notion of an attack from the specifics of the tactical level, toward the operational and strategic levels. Specifically, the use of AWS in attacks that in their spatial, temporal, or conceptual boundaries go significantly beyond the units of military action over which specific legal judgement would currently be expected to be applied. However, by emphasising the requirement for MHC over attacks in the framework of AWS, states would be affirming a standard that is designed to safeguard the structure of the law as a useful framework for the solicitation of broader ethical and moral principles. With regards to the form of human control that would be meaningful within this context, four primary elements will be suggested:

Predictable, reliable, and transparent technology: On a technical level, the basic design of a given AWS should require human control. If a technology is unpredictable, unreliable, and lacks transparency by design, it goes without saying that it will be more difficult for humans to control it when it is in practical use.

Accurate user information on the target outcome, the technology, and the context in which it is used: Human operators should have access to sufficient data to evaluate the legitimacy of a given military objective at the time the attack is launched, and to assess a planned attack within the context of the existing legal rules; to have a solid understanding of the types of objects that will be targeted and the way in which kinetic force will be employed; and to have an in-depth comprehension of the environment in which the attack will be performed.

Judicious human judgement and action, and a potential for timely intervention: Human commanders must use their judgement when deciding

[20] Merel Ekelhof, "Complications of a Common Language: Why it is so Hard to Talk about Autonomous Weapons," *Journal of Conflict and Security Law 22*, no. 2, (Summer, 2017): 311–331.

whether to initiate the AWS. In the case of systems that are operational for a prolonged period, some faculty for timely intervention (e.g., the ability to halt the independent operation of the AWS) may be required to ensure it does not operate outside the realms of necessary human control.

A framework of accountability: Accountability structures should take into consideration the people involved in both specific attacks and those that span a wider system that programs and maintains the technology and analyses the data on the target objectives and the context in which the systems are used.

The management of individual assaults at a tactical level holds the key to controlling the application of force in armed conflict. The law mandates that the human personnel involved in each individual attack need to make sound legal judgements, and the design and application of AWS must not eliminate such judgements.

Other actors who have prescribed to the concept of MHC have different perceptions and have presented their own views on the criteria that are required for human control to be meaningful. In a statement on technical issues that was published at the 2014 CCW meetings,[21] The International Committee for Robot Arms Control (ICRAC) articulated concerns about the significant technical challenges the developers of AWS are currently encountering and expressed support for MHC as a method of safeguarding that humans can counterbalance these limitations.

It is important that humans assert meaningful control over weapons systems as a means of offsetting the shortfalls of automation. According to ICRAC, the minimum conditions required for meaningful control are as follows:

First, a human operator or commander must have full contextual and situational awareness of the target area and be capable of detecting and reacting to any changes or unexpected circumstances that may have evolved since the attack was planned.

[21] Frank Sauer, *ICRAC Statement on Technical Issues to the 2014 UN CCW Expert Meeting*, (Geneva: International Committee for Robot Arms Control, May 2014), 8.

Second, humans must actively and cognitively participate in the attack and have adequate time to assess the nature of the target and its implications in terms of both the requirement and suitability of the attack, and the likely incidental and accidental outcomes of it.

Third, it must be possible to rapidly suspend or completely abort the attack.[22]

It is worth noting that some of the conditions outlined above extend beyond the levels of direct involvement and awareness that commanders can secure with some existing weapon systems; that is, humans have been deploying weapons that they do not have direct control over in terms of the outcome and target area since the deployment of the catapult.[23]

If we turn our attention to how we can maintain control over the potential harm caused to the people or objects who are the subject of the attack, it is widely accepted in the contemporary world that human personnel should maintain some element of control over the following factors: Who or what is being harmed, the time at which the force is employed, the level of harm that is caused, where the force is applied, the harm that is experienced, how the armed force is employed, and why someone or something is the subject of an attack.

According to MHC requirements, attackers need to have access to enough reliable information about the potential implications of an attack to reasonably anticipate what the outcome will be. It is only in situations in which attackers are able to anticipate the consequences of an attack that they will be able to make satisfactory legal evaluations of the use of force.[24] Subsequently, the degree of autonomy that is afforded to a weapon system must be limited so that human personnel can be confident they have sufficient

[22] Sauer, *ICRAC Statement on Technical Issues to the 2014 UN CCW Expert Meeting*, 8.

[23] Michael Horowitz and Paul Scharre, *Meaningful Human Control in Weapon Systems: A Primer,* (Washington: Center for a New American Security, March 2015), 9.

[24] Kevin Neslage, "Does Meaningful Human Control Have Potential for the Regulation of Autonomous Weapon Systems?," *University of Miami National Security & Armed Conflict Law Review 6,* (2015): 151.

reliable information about the behaviour of the weapon system following its activation.

The Center for a New American Security (CNAS) specifies that the fundamental objective of the MHC should be to certify that human personnel are engaging in a conscious decision-making process about the use of force and that they have sufficient information available when making decisions to ensure that they are legally and morally responsible for any actions they take.[25]

In attempts to respond to the question of why MHC is important, two general schools of thought have emerged. The first argument that is put forth is that MHC is not, and should not be, an isolated requirement; rather, it is a principle that should underpin the design and use of weapon systems as a means of warranting that their use complies with the laws of engagement. This can be traced back to the assumption that the rules of law that determine the extent to which the use of a weapon is legal are the same as those that govern a human being's direct use of force, use of a weapon from an unmanned system, or deployment of an AWS that independently chooses and attacks targets.[26]

According to the second school of thought, MHC represents a separate legal concept that should be unequivocally acknowledged together with the existing principles of IHL. People who prescribe to this line of thinking argue that the current principles under the laws of war are crucial but not adequate to address the problems associated with increased autonomy; as such, the MHC represents a discrete and supplementary concept. Even if it were possible to deploy an AWS in a manner that is compliant with the existing laws of war, its use would be unlawful if it was unable to adhere to the additional standard of MHC.[27]

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[25] Horowitz and Scharre, *Meaningful Human Control in Weapon Systems: A Primer,* 11.

[26] Ingvild Bode, Hendrik Huelss, "Autonomous Weapons Systems and Changing Norms in International Relations," *Review of International Studies 44,* no. 3 (2018): 413.

[27] Thilo Marauhn, "Meaningful Human Control – and the Politics of International Law," in *Dehumanization of Warfare*, ed. Wolf Heintschel von Heinegg, Robert Frau and Tassilo Singer (Berlin: Springer, 2018), 217.

According to these arguments, it is contestable that the MHC concept incorporates three essential components:

1. Human operators need to make informed, cognisant choices about the application of weapons.
2. Human personnel needs to have access to sufficient, reliable information to ensure the action they are taking is lawful in light of the fact that they are aware of the target, the weapon, and the context in which the attack will be launched.
3. The weapon needs to be designed and tested according to a strict set of standards and human personnel need to be adequately trained to ensure they can maintain sufficient control over the use of the weapon.

Some further, more precise, proposals about what can potentially comprise MHC can be offered. The obligatory level of control could signify several factors: The amount of time between the last decision that was made by a human operator and the time at which force was exerted by the machine; the environment or area in which the machine is deployed with a specific focus on the potential presence of humans; the extent to which the machine is specifically designed to engage in defensive or offensive activities or apply lethal force; the extent of the training of the military personnel who have control of the machine; the extent to which military personnel can potentially intervene if the need arises to cease or pause the mission; and the application of precautions related to responsibility.[28]

The level at which MHC should be applied is also worth examining. Although the majority of commentators place an emphasis on the commanders who are responsible for an attack at the tactical level, other personnel will be ideally positioned to certify that human personnel remains in control of AWS. At the highest level of abstraction, a commander who decides on the rules of engagement for a certain application of force is exercising MHC over the use of that force. Below that level, an individual commander orders a

[28] Robin Geiss, *The International-Law Dimension of Autonomous Weapons Systems*, (Berlin: Friedrich-Ebert-Stiftung, October 2015), 17.

specific attack against a precise target. Along an alternative axis, MHC can signify the way a weapon system is devised at the outset.[29]

II. ALTERNATIVES

We have suggested alternatives to MHC. Although we do not oppose the fundamental idea that human personnel must retain control of, and be accountable for, the ultimate actions of an AWS, we believe that endeavouring to set an impartial and unequivocal standard of MHC does not represent the most effective approach.

The idea of appropriate levels of human judgement being applied within the operation of AWS, with appropriate representing a contextual standard: There is no universal standard pertaining to the appropriate level of human judgment to be applied when exercising the use of force with AWS. Generally speaking, AWS differ significantly according to their intended use and the context in which they are used. Specifically, the level of human judgment pertaining to the use of force that is employed will differ according to the functionality of the weapon system; the way in which the operator interacts with the system including the control mechanisms that are in place; the elements of the weapon system that are specific to the operating environment of the system for example, taking into consideration the vicinity of any civilians; the anticipated variability in, or changes to, the operational parameters of the weapon system; the type of risk associated with the use of the system; and the underlying mission objective of the weapon system. Furthermore, scientists and engineers will continue to introduce new technologies; as such, there is an inherent need for a fluid policy standard that facilitates an evaluation of the suitable level of human judgment for particular new technologies.[30]

The measures that are employed to warrant that suitable levels of human judgement are exercised within the context of AWS operations would then take into consideration how weapon systems are engineered and tested,

[29] Chengeta, "Defining the Emerging Notion of Meaningful Human Control in Autonomous Weapon Systems," 833–90.

[30] Michael Meier, *U.S. Delegation Statement on Appropriate Levels of Human Judgment*, (Geneva: US Mission to International Organizations in Geneva, April 2016), 1.

end users are trained, the how the interface between the weapon and the end user is designed.

Lastly, it is preferable to view the picture from the perspective of state control over AWS as opposed to human control. If we were to acknowledge that MHC represents a starting point from which it is possible to develop national strategies that govern AWS, we could subsequently view MHC from the perspective of the affairs and goals of a given state and the outcomes of the actions it takes. In this regard, the concept of MHC could be adjusted to the exercise of meaningful state control (MSC). It is imperative that states are ultimately held responsible for their actions, especially in situations in which the use of dangerous weapons is delegated to its armed forces. The same is the case for AWS. States should be fully accountable for the use of these weapons, from development, production, and acquisition, through to handling, maintenance, storage, and use.[31]

III. ARGUMENTS AGAINST MEANINGFUL HUMAN CONTROL

There is no disputing the general idea that human personnel need to maintain strict control over any weapons they deploy. Nonetheless, the efforts that have been made thus far to relate meaningful human control to international humanitarian law appear to be largely counterproductive. At best, meaningful human control could viably be perceived to represent a principle that guides the design and use of weapon systems as a means of ensuring the use of such systems is fully compliant with the laws of war. Even in that regard, however, it is a redundant inclusion; the existing rules of IHL already adequately regulate the use of AWS. The primary argument in contradiction of incorporating the notion of MHC into a debate on AWS and IHL, in its more extensive form as an independent standard or rule, is that it is derived from two false premises, one technical and one legal.

The false technical principle motivating the perceived requirement for MHC is that it assumes that the software and hardware components that form an AWS control system do not, in themselves, represent an exercise of MHC. One cannot logically express concerns that the autonomous capabilities of weapons should be limited as a means of ensuring that humans

[31] Poland (Text, CCW Meeting of Experts on LAWS: Characteristics of LAWS, April 2015) 1.

preserve adequate control over the systems if one comprehends the control system of the weapon to be the means by which human control is already sustained.

Machine autonomy represents a form of control; it does not necessarily represent a diminishment of control. AWS are developed by engineers who base designs on human operational understanding of how the targets will be determined and the attacks will be conducted and combine this with technical expertise on how weapons are operated and legal knowledge of the rules pertaining to IHL when programming AWS control systems. Responsible humans conduct weapon reviews through which they test and verify how the AWS function in the situations in which they are anticipated for use to make sure that they operate in full compliance with the relevant rules of weapons law. According to the existing rules of IHL, attack planners and commanders are required to "[t]ake all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects."[32] As such, at a minimum, they should select AWS that have been tested and proven to function successfully in the conditions of the anticipated attack. Once an AWS has been activated, its control system, which has been tested by human personnel, takes responsibility for controlling the weapon system in the specific conditions for which it has been tested in the same way that the control systems of existing weapons perform. It is challenging to ascertain how any element of that process can be construed to lack an acceptable level of human control.

Apprehensions about sustaining an acceptable level of human control over AWS could best be comprehended as concerns about the incidents that can potentially occur following the activation of the weapon system during the course of an attack; for example, concerns that it could execute some illegal act, such as randomly attacking a civilian target. We have already examined the classification of civilian harm by an AWS. In the event such an unfortunate occurrence took place, it would be the outcome of a deliberate act of a human, an error within the AWS, or unavoidable collateral damage. Not one of these concerns are exclusive to AWS, and all are taken into consideration in the existing law; as such, there is no specific requirement for a new notion of MHC.

[32] API art 57(2)(a)(ii).

The deceptive legal principle that underpins meaningful human control is that it is based on the assumption that the prevailing rules of international humanitarian law do not warrant a sufficient level of human control over AWS that can effectively achieve the aims of the law. An evaluation of the existing targeting law highlights how this is not the case. It does not seem to be viable that a weapon system can function beyond human control without its application acting in violation of an existing rule. If the people who are responsible for planning an attack cannot guarantee that an AWS will only engage legal targets, then they are unable to meet their basic responsibilities under the principle of distinction.[33] If they cannot safeguard that civilian harm will be minimised, and the AWS will abstain from launching an attack if the anticipated civilian harm is deemed to be extreme, they are unable to meet their responsibilities under the principle of proportionality.[34] If they cannot certify that the AWS will abandon or pause an attack in response to changes in the conditions, they also fundamentally fail to conform to their obligations.[35]

There appears to be a degree of confusion on this particular point. According to Human Rights Watch, the bans that have been placed on the use of a range of existing weapons stand as a testament to the need for acknowledgement of meaningful human control. While meaningful human control as an explicit term has not been mentioned in international arms treaties, the notion of human control is by no means new within the context of disarmament law. The acknowledgement of the requirement for some degree of human control is present in the vetoes on the use of mines and biological and chemical weapons. Such prohibitions were grounded, at least in part, in the inability of military personnel to influence who these weapons engage and when. For example, once a mine has been placed, military personnel can not have any degree of control over when it will be activated and by whom. Similarly, while a human can decide at what point the preliminary target of a chemical or biological weapons attack will commence, the effect of such weapons following their release is uncontrollable and can transcend space and time to cause an inadvertent number of injuries and

[33] API art 57(2)(a)(i).

[34] API art 57(2)(a)(iii).

[35] API art 57(2)(b).

deaths. The embargos on mines and biological and chemical weapons act as a precedent for banning the use of weapons that humans are not able to exert full control over.[36]

An evaluation of the legal rules governing the use of mines,[37] biological[38] and chemical[39] weapons indicates that they were each outlawed on the basis that they violated essential policies and laws that have long predated any idea of MHC as an isolated concept. Insomuch as one could view the indiscriminate behaviour of a substance or weapon as evidence of the inability to exert full control, the bans could be accredited to a lack of control; however, in such a case, the notion of MHC does not appear to add to the prevailing standard of distinction. Mines are stringently controlled because a basic pressure switch represents a very inexact method of detecting a fighter; the use of chemical and biological weapons involves using toxic agents that have indiscriminate effects that operate in isolation of how the weapon system itself is controlled.

Beyond those two central issues, acknowledging MHC as a restriction on the development of novel control system technologies risks interfering with advances that may enhance an attacker's capacity to achieve military objectives with superior accuracy, and a reduced risk of causing harm to civilians than that currently possible. Human Rights Watch has acknowledged the important role precision weapons play in attacking targets in heavily populated areas;[40] it appears questionable to propose that future developments in selecting and evaluating potential targets on board a weapon system following activation will not engender further prospects for avoiding civilian casualties.

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[36] Human Rights Watch, *Losing Humanity: The Case Against Killer Robots*, (New York: Human Rights Watch, 2012).

[37] Ottawa Convention, Preamble.

[38] Jean Marie Henckaerts and Louise Doswald Beck, *Customary International Humanitarian Law,* (Cambridge: Cambridge University Press, 2005), 256.

[39] Henckaerts and Beck, *Customary International Humanitarian Law*, 259.

[40] Human Rights Watch, *Off Target: The Conduct of the War and Civilian Casualties in Iraq,* (New York: Human Rights Watch, December 2003).

Finally, even if concerns pertaining to a potential path of weapon development are perceived to represent a viable basis for regulation, it is not completely clear as to what development path proponents of MHC are apprehensive about: Are they concerned that AWS will be too intelligent, or not intelligent enough? Concerns that AWS will be too intelligent represent the basic fear that humans will not be able to reliably predict how they will behave in the multifaceted and frenzied conditions of an attack. On the flip side, concerns that AWS will not be intelligent enough equate to apprehensions that they will ultimately fail in a more predictable way, be it through failure to select the correct target or an alternative form of failure. Either way, the use of a weapon that is the object of such trepidations would violate prevailing preventative obligations.

IV. CONTROLLABILITY

The existing IHL does not consider any substantial level of autonomous competence in weapon systems. It indirectly assumes that every action performed by a weapon will be instigated by a human being and that, following the accomplishment of the action, the weapon will stop operating until the point at which a human operator originates an additional action. If the use of the weapon results in some type of failure, which results in the infringement of IHL, the broad assumption is that this was either due to a human failure further supposing that the weapon that was deployed not intrinsically illegal, or a failure of the weapon, the latter of which should be instantly obvious to the personnel operating it and, as such, contingency measures would be available to avert the failure and/or prevent it from continuing uncontrolled.

If an AWS is activated and subsequently fails in conditions in which it is not possible for personnel to take rapid intervention measures, the failure will represent the failure of a machine as opposed to the failure of a human. Opponents of AWS frequently cite the potential for a runaway failure when arguing against their use. Controllability represents a critical aspect of MHC. Military powers are not typically concerned with developing weapon systems that they risk losing control over. However, it is feasible that risk tolerance will vary from military to military. The pursuit of a strategic advantage on the battlefield could motivate militaries to construct weapons that exercise high degrees of autonomy that serve to reduce human control. Although

any type of weapon is prone to failure and causing accidents, AWS debatably add an additional facet in that a failure could, theoretically, result in the weapon system inaccurately choosing and engaging with a significant number of targets. As such, an area that is worthy of consideration relates to the development of weapons that are legal when they are functioning as per the design brief but are unsafe and have the potential to cause significant harm if they break down or encounter unexpected circumstances in the height of the action.

The deployment of AWS in situations in which a human is unable to rapidly intervene, such as on extended operations or in disputed areas, may modify the nature of the danger the non-combatants face. Controllability could be perceived to be no different to the need to be able to direct any weapon at a specific military objective, and all weapons systems carry some degree of risk of malfunction. To some degree, the various forms of risk that are associated with the failure of an AWS are simply standard elements that should be taken into consideration by attack planners when developing precautionary measures. However, if these risks serve to hinder the achievement of the benefits of AWS, one potential response could be to acknowledge the need for a failsafe mechanism, whether that takes the form of a method of human intervention or similar. While some systems may be purposely created to operate in a manner that exceeds human capabilities, there is a need for humans or an alternative system to intervene in a timely fashion.

V. LEGAL NATURE OF MEANINGFUL HUMAN CONTROL

The objective of this section is to examine MHC as a normative concept, the outputs of which will be imperative within the ongoing discussion. MHC is currently a legal requirement in its narrowest interpretation; that is, as requiring human intervention/presence at every deliberation associated with employing force against a human target). This would immediately preclude the use of AWS as previously defined. Therefore, the ongoing debate that can be observed at the relevant international fora would require the existing law to be reformulated (*de jure condito*) in a manner that refrained from the introduction of new regulations (*de jure condendo*). The idea of MHC can fit in three distinct categories: customary law, treaty law or general principles of international law.

A) TREATY AND CUSTOMARY LAW

Before progressing with the discussion, it is first worth examining the extent to which the current treaty or customary laws specify the requirement for MHC to be involved in every application of force against a human target.

According to the existing analysis, the existing IHL and IHRL-relevant agreements do not include explicit reference to MHC. Rather, it represents a notion that emerged during the discussions surrounding AWS.[41] However, when delving into the detail in more depth and considering the deliberations that took place during the CCW forum, one can find rather dispersed references to MHC.[42] This could be attributed to the fact that as well as being inherently imprecise, MHC represents a somewhat political concept. This idea has motivated the majority of debaters to argue that MHC could at best augment the current treaty obligations (such as IHL targeting rules) and, as such, represent a regulatory concept as opposed to an independent treaty norm.[43]

The same is true of customary law, which combines the requirements of both *opinio juris* and general practice:[44] neither of which attach with regards to MHC. States have developed conflicting ideas on what represents MHC; for example, as previously described, although pretty much all the States are in agreement that some degree of human control needs to be exercised during the execution of potentially fatal actions, a disparity can be observed in terms of the specific positions States adopt in terms of

[41] Marauhn, "Meaningful Human Control – and the Politics of International Law," 217.

[42] The report of the 2013 CCW Meeting of High Contracting Parties uses the term only once; in the program of work for the 2015 MoE the term is referred to twice, while again in the Chair's letter for the 2016 MoE only once.

[43] Daniele Amoroso, Frank Sauer, Noel Sharkey, Lucy Suchman and Guglielmo Tamburrini, *Autonomy in Weapon Systems The Military Application of Artificial Intelligence as a Litmus Test for Germany's New Foreign and Security Policy*, (Berlin: Heinrich Böll Foundation, 2018), 45.

[44] ICJ, *North Sea Continental Shelf (Federal Republic of Germany v. Denmark; Federal Republic of Germany vs. Netherlands* (Judgment), ICJ Rep. 3, 44, 20/02/1969 § 77.

AWS.[45] As such, it is extremely difficult, if not impossible, to understand the existing declarations within the context of the *opinio juris*. MHC represents a political point of negotiation that plays a fundamental role in the restatement of broad agreement: As soon as it is declared a normative ruler, it is likely that it will be abandoned.

However, when one looks at the situation is more depth, it becomes apparent that at least one recent development is worth further investigation, if only for the purpose of highlighting how MHC is beginning to be incorporated in international law outside the customary fora. The African Commission on Human and Peoples' Rights (ACHPR) released General Comment No. 3 on the Right to Life (Art. 4 ACHPR) in November 2015. The Section that describes the use of force exercised during armed conflict declares: "[a]ny machine autonomy in the selection of human targets or the use of force should be subject to meaningful human control" (§ 35).[46] To the best of our understanding, this inclusion represented the first time that MHC has been explicitly referenced General Comment to an IHRL treaty. While General Comments have no binding effect, they do guide the future application of the treaty within new cases and can be employed as a means of evaluating the development of customary law; to put it succinctly, the inclusion of an MHC reference within the General Comment could serve to promote it to treaty or even customary law.

However, the inclusion of the MHC requirement in an official document avails our initial view that MHC has yet to acquire an autonomous *locus standi* within international law as opposed to acting in contradiction to it. First, while the reference to MHC in a non-binding text could prompt the ACHPR's judicial bodies to consider it in review, this is not necessarily going to happen. At a bare minimum, there is no legally binding MHC agreement. Second, while the General Comment references MHC, it does not fully explain the associated concept; as such, an interpreter would find

[45] Justin Haner, Denise Garcia, "The Artificial Intelligence Arms Race: Trends and World Leaders in Autonomous Weapons Development," *Global Policy 10,* no. 3 (September, 2019): 331-37.

[46] "General Comment No. 3 on the African Charter on Human and Peoples' Rights: The Right to Life (Article 4)," African Commission on Human and Peoples' Rights, accessed 11 July 2022, http://www.achpr.org/instruments/general-comments-right-tolife/ § 35.

it very difficult to extract a definitive meaning from the text. Third, the paragraph of interest concludes: "[t]he use of such new technologies should follow the established rules of international law."[47] Again, the somewhat novel reference to MHC is *de facto* depotentiated by a closing comment that asserts the need to follow the pre-existing IHL/IHRL rules.

Two significant texts include a reference to MHC. First, a resolution in relation to AWS that was adopted by the European Parliament on September 12, 2018, called for the States to agree on a position in advance of the 2018 meeting of States party to the CCW.[48] Within this resolution, the notion of MHC is referenced on three occasions; however, it is not concisely defined. That said, it is worth highlighting that given its position as the EU power centre that possesses the highest degree of democratic legitimization, the Parliament has adopted an unexpectedly strong stance against AWS: the matter is now left to the Council and the other EU institutions that participate in the meetings of the CCW to resolve. Development of this nature is yet to accepted as a fundamental aspect of the ongoing debate on AWS and reveals very little about the true status of the concept of MHC in contemporary international law. As well as remaining undefined, as previously described, the text takes the form of a resolution; as such, it is not legally binding within EU law. It is reasonable to assume that it may, therefore, have no tangible impact on how States conduct themselves. However, it is important not to underestimate the fact that, despite the fact it lacks true legal standing, MHC could influence ongoing State practice. In fact, some progress has already been observed at the domestic level.[49]

To conclude, we can infer from the ongoing debate that MHC currently has no constitutional standing in either IHL or IHRL. Treaty and

[47] African Commission on Human and Peoples' Rights, "General Comment No. 3 on the African Charter on Human and Peoples' Rights: The Right to Life (Article 4)."

[48] European Parliament, *Resolution of 12 September 2018 on Autonomous Weapon Systems (2018/2752(RSP))*, P8_TA-PROV(2018)0341.

[49] "Proposition de resolution visant a interdire l'utilisation, par la Defense belge, de robot tueurs et de drones armes," Chambre des Représentants de Belgique, accessed 07 June 2022, https://www.lachambre.be/kvvcr/showpage.cfm?section=/flwb&language=fr&cfm=/site/wwwcfm/flwb/flwbn.cfm?lang=F&legislat=54&dossierID=3203.

customary law have yet to develop to the point that MHC can be viewed to represent a legal requirement in situations in which lethal force is deployed. However, the analysis presented thus far is useful in that it highlights how more attention is being drawn to the application of MHC within AWS. The stances that have been adopted by the EU and Belgium are relatively telling in this regard. Whether such stances can be viewed as a push toward the development of a new norm remains questionable. Undoubtedly, within their capacity as State organs, legislative bodies have an entitlement to fulfil functions as lawmakers within international law. However, it is questionable as to the extent to which a practice can evolve when the underlying concept, in this case, MHC, has yet to be defined. As such, it appears that there is an underlying agreement for the various actors that are of relevance in the debate invest efforts in establishing and adopting a common view of MHC. At a minimal, this will facilitate their ability to elucidate on the purpose of the concept.

B) GENERAL PRINCIPLE OF INTERNATIONAL LAW

MHC has been described as a "principle … that has historically been taken for granted – assumed but never stated".[50] This description highlights two interesting concepts: MHC represents a principle, not a rule, and the principle of MHC is implicit in nature.

Legal theory frequently distinguishes between rules and principles,[51] and this distinction has also attracted significant interest from scholars focused on international law.[52] International practice views "general principles

[50] Peter Asaro, "Jus Nascendi: Robotic Weapons and the Martens Clause," in *Robot Law*, ed. Ryan Calo, Michael Froomkin, Ian Kerr (Cheltenham: Edward Elgar Publishing, 2016), 383.

[51] Ronald Dworkin, *Taking Rights Seriously,* (London: Harvard University Press, 1978), 24.

[52] Samantha Besson, "General Principles of International Law: Whose Principles?," in *Les Principes en Droit Europeen – Principles in European Law,* ed. Samantha Besson and Pascal Pichonnaz (Zurich: Schulthess, 2011), 19-64; Michelle Biddulph and Dwight Newman, "A Contextualized Account of General Principles of International Law," *Pace International Law Review 26,* no. 2 (March, 2014): 286-344.

of law" as contributors to international law,[53] as recognized *inter alia* by Art. 38(1)(c) of the ICJ Statute, in which there is a reference to "general principles of law recognized by civilized nations". At a high level, the ICJ Statute involves two distinct types of principles: (1) the principles that are formally recognized in the legal orders of States; and (2) the principles that are deduced from the rules that underpin international law.[54] Some scholars argue that the resulting dichotomy is inevitable due to the conflict between two fundamentally conflicting legal theories–natural law and legal positivism–that were in existence during the period in which the Statute of the PCIJ as drafted and arguably exist in the contemporary era.[55] Specifically, general principles play a very important role in natural law, which is also frequently referred to as *neo-constitutionalism* or *neo-natural* law, on the basis that they are structurally exposed to extra-positive influences; for example, moral laws such as ethics or justice.[56]

Before we can determine the extent to which (and if at all) MHC represents a principle of international law, there is a need to clarify the fact that we are concerned with the general principles that are inferred from the rules that are currently incorporated in international law. Specifically, it is the rules that pertain to the application of force against human subjects in and IHRL that will be examined. Now this is clarified, we will turn our attention to determine whether the features of MHC are comparable to those that are frequently viewed as the general international law principles. If we were to ascertain that this is the case, there would be a need

[53] Robert Kolb, "Principles as Sources of International Law with Special Reference to Good Faith," *Netherlands International Law Review 53,* no. 1 (April, 2006): 4.

[54] Beatrice Bonafè, Paolo Palchetti, "Relying on General Principles in International Law," in *Research Handbook on the Theory and Practice of International Lawmaking,* ed. Catherine Brölmann and Yannick Radi (Cheltenham: Edward Elgar Publishing, 2016), 176.

[55] Riccardo Pisillo Mazzeschi and Alessandra Viviani, "General Principles of International Law: From Rules to Values?," in *Global Justice, Human Rights and the Modernization of International Law*, ed. Riccardo Pisillo Mazzeschi and Pasquale De Sena (Berlin: Springer, 2018), 125.

[56] Dworkin, *Taking Rights Seriously*, 22.

for international actors, including States, to approach MHC as a requisite element of international law.

A range of hypotheses has been published relating to the inclusion of general principles within international law.[57] The majority of scholars are in overall agreement that the general principles relate to legal logic and are, therefore, applicable to both local and international legal systems, and that principles may be derived from prevailing treaty and customary laws. Per this perception, which pure legal positivists tend to instinctively favour,[58] the general principles can be extracted from specific clauses or complicated amalgamations of specific rules. To put it more succinctly, the general principles remain implicit until they are discerned by a legal operator. When applying this notion to MHC, we can see that, thus far, attempts to establish a positive requirement for some form of human intervention at every stage in the process of using force is doomed for failure on the basis that asserting MHC would lay unstated in the prevailing rules of IHL and IHRL is somewhat of a rhetorical pretence. Surely such a stance cannot be supported on the basis that it deduces precisely that which it hopes to demonstrate.

Contrariwise, a more hopeful approach seems to emanate from a somewhat alternative perception of the general principles outlined in international law; namely, as aspects that constitute the "axiomatic premises"[59] of the international legal order. The proponents of this theory frequently refer to the principles of justice, equity, *bona fides*, territorial sovereignty, equality of States, *pacta sunt servanda*, reciprocity, and proportionality.[60] It has recently been proposed that the additional principles of human life and dignity and elementary considerations of humanity should be incorporated in this list on the basis that they seem to correlate with the contemporary

[57] Mazzeschi, "General Principles of International Law: From Rules to Values?," 128; Mahmoud Bassiouni, "A Functional Approach to General Principles of International Law," *Michigan Journal of International Law 11,* no. 3 (1990): 768-818.

[58] Christian Tomuschat, *International Law Ensuring the Survival of Mankind on the Eve of a New Century: General Course on Public International Law,* (The Hague: M. Nijhoff, 2001):162.

[59] Tomuschat, *International Law: Ensuring the Survival of Mankind on the Eve of a New Century. General Course on Public International Law*, 161.

[60] Vladimir Degan, *Sources of International Law,* (The Hague: Nijhoff, 1997), 548.

structure of the international legal order.[61] When considering the contemporary landscape in which the general principles of international law exist, supporters exhibit a propensity to focus on methods of evidencing moral consistency as a prerequisite:[62] as appropriately observed, general principles are expressive of the values that are inherent within the legal order within which they operate. However, placing a specific emphasis on this feature will not result in the complete omission of legal positivism from the debate, as the consent of the international community as a collective unit is preserved in the majority of the aforementioned theories.[63]

According to this perspective, there is scope for MHC to exist as a general aspect of international law. On the one hand, it can be argued that MHC is aligned with an axiomatic premise of the international legal order on the basis that it incorporates an indisputable value-oriented content: we demonstrated that a predominantly resounding understanding of MHC is that it claims to protect the dignity of people who are the targets of AWS because they mandate human involvement and decisions pertaining to the specific application of force. It is undoubtable that MHC has strong roots in morality. However, on the other hand, although one could argue that the acceptance of MHC as a common denominator[64] within the debate surrounding AWS is symptomatic of the fact that it has been recognised by actors of relevance, such as NGOs and States, it is important to recognise that the actors are not in agreement on the principle itself; that is, they have developed entirely different perceptions of it.

Per the theories described in the preceding debate, it is clear that the general principles of international law are different to customs on the basis

[61] Tomuschat, *International Law: Ensuring the Survival of Mankind on the Eve of a New Century. General Course on Public International Law*, 355.

[62] Cancado Trindade, *International Law for Humankind – Towards a New Jus Gentium,* (The Hague: Nijhoff, 2010), 496.

[63] Cancado Trindade, "Some Reflections on the Principle of Humanity in its Wide Dimension," in *Research Handbook on Human Rights and Humanitarian Law*, ed. Robert Kolb and Gloria Gaggioli (Cheltenham: Edward Elgar Publishing, 2013), 190.

[64] UNIDIR, *The Weaponization of Increasingly Autonomous Technologies: Considering How Meaningful Human Control Might Move the Discussion Forward*, 3.

that they are not contingent on general practice and *opinio iuris* as they depict the latter; rather, they are acknowledged, discovered or discernible to interpreters.[65] That said, it's reasonable to question what is actually being discerned when such diverse perceptions of a single concept are in existence. In fact, one aspect of MHC that remains consistent throughout the ongoing debate is that it is too multiform and, as such, open to varied interpretations.

The lack of agreement on the concept of meaningful human control makes it difficult to delineate a base of recognition upon which MHC can be formally acknowledged as an international law principle. However, this does not imply that the ongoing discourse on MHC does not have any implications for the nature of that notion. It is likely that a more ethical debate on the morality associated with autonomous acts of war may ultimately enable States and other actors to develop a more holistic and universal understanding of MHC. However, even if this theory was universal, which it is not on the grounds that is it strongly opposed to the tenants of legal positivism, the issue with MHC would raise *a priori*: there is a lack of clarity in the ongoing discourse as to the immorality of autonomous killing in itself. It is only when the moral aspects of autonomous killing are clarified that it will be possible for debates surrounding MHC as a general principle of international law to be productive.

C) PROBLEMATIC PRINCIPLE

The ongoing discourse surrounding MHC can be positioned within the context of the ongoing contrast between the natural-law and positivist theories. However, in recent times, scholars have proposed that some of the general principles of international law may be limited to a programmatic effect; that is, as opposed to being legally binding, their universal recognition and acceptance would be *de jure condendo*.[66]

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[65] Mary O'Connell and Caleb Day, "Sources and the Legality and Validity of International Law–Natural Law as Source of Extra-Positive Norms," in *The Oxford Handbook on the Sources of International Law,* ed. Samantha Besson and Jean D'Aspremont (Oxford: Oxford University Press, 2017), 573.

[66] Mazzeschi and Viviani, "General Principles of International Law: From Rules to Values?," 155.

This class seems to be particularly suitable for MHC on the basis that it takes both openness to moral implications and the remaining undefined content into consideration in a manner that positive and natural lawyers may find acceptable. As a consequence of their programmatic disposition, however, their primary purpose would be to add momentum to the liberal development of international law. Once the moral substratum has been clarified and agreed to, they could then become binding.

In addition, even among the most staunch sceptics of AWS (i.e., those who would support a limited comprehension of MHC as already being preserved in positive law), the idea of MHC seems to be simply *de jure condendo*. It is frequently described as a "guiding principle";[67] a principle making the content of a "new legal norm" that still awaits adoption;[68] an "emerging notion".[69] It is unsurprising, therefore, that the actors involved continue to invoke a legal instrument by which AWS can be prohibited.[70] An imprecise concept of MHC that is based on moral, ethical, and value-orientated foundations will not be sufficient in itself; however, it can potentially inspire the evolution of positive law.

Jacques Maritain once highlighted how: "[w]e agree about the rights but on condition that no one asks us why […] why is where the argument begins".[71] If we were to exchange the phrase the rights with MHC, we have a perfect depiction of the present status of the discourse on AWS.

Some commentators are concerned that insisting on MHC may be disadvantageous in terms of the ongoing protection of human beings

[67] Christof Heyns, "Autonomous Weapons in Armed Conflict and the Right to a Dignified Life: an African Perspective," *South African Journal on Human Rights 33*, no. 1 (April, 2017): 70.

[68] Heyns, "Autonomous Weapons in Armed Conflict and the Right to a Dignified Life: an African Perspective," 66.

[69] Chengeta, "Defining the Emerging Notion of Meaningful Human Control in Weapon Systems," 835.

[70] Human Rights Watch, *Heed the Call. A Moral and Legal Imperative to Ban Killer Robots*, (New York: International Human Rights Clinic, August 2018).

[71] Jacques Maritain, *Human Rights: Comments and Interpretation*, (New York: Columbia University Press, 1949), 9.

and, as such, reject its inclusion as a legal requirement.[72] Significantly, this particular position remains embedded in the ongoing discussions in the CCW forum.[73] The most recent GGE Report, for example, does not contain any references to the concept of MHC and human control is only cited twice—once within the context of an explanation of the proposals of a legally-binding instrument and once within a political declaration on AWS.[74] In contrast, while all States appear to pay lip service to the need to maintain MHC over weapons, there remains a significant lack of agreement as to what this means and involves. In the same way understandings of MHC can span a broad spectrum, as to can perceptions of the functions of MHC.

The discussion thus far has established that if the establishment of a shared understanding of MHC is required to ensure a robust system of accountability,[75] it is not particularly indispensable; i.e., State accountability can do without. On the contrary, if the definitive objective is to maintain human input within every act of force against human targets, MHC may have an autonomous *locus standi* in IHL and IHRL. With respect to this particular element of MHC, the discussion has highlighted how: (i) an understanding of MHC of this nature is based in moral arguments; (ii) it will take further effort to translate these arguments into legal terms because MHC is not preserved in treaty and customary law and, as such, could present as a general principle of international law that is applicable to the use of force on the proviso that its purpose and meaning are fully clarified.

The current status of the discourse surrounding MHC is that it remains a *de jure condendo* principle; i.e., it is a programmatic treaty that could

[72] Rebecca Crootof, "A Meaningful Floor for Meaningful Human Control," *Temple International and Comparative Law Journal 30,* no. 1 (December, 2016): 62.

[73] "The Report of the 2015 MoE," Convention on Certain Conventional Weapons – Group of Governmental Experts on Lethal Autonomous Weapons Systems, accessed 13 July 2022, https://www.un.org/disarmament/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/.

[74] "The August 2018 Report of the GGE," Convention on Certain Conventional Weapons – Group of Governmental Experts on Lethal Autonomous Weapons Systems, accessed 13 July 2022, https://meetings.unoda.org/section/ccw-gge-2022_documents_18542/.

[75] Chengeta, "Defining the Emerging Notion of Meaningful Human Control in Weapon Systems," 835.

inspire later laws to prohibit AWS to assert force in the absence of MHC. In addition, those who contrast these weapons do not cease invoking an *ad hoc* treaty, as though moral imperatives – taking the shape of "principles of humanity" and "dictates of the public conscience" (as per IHL) as well as of the principle of "human dignity" (as per IHRL) – were not sufficient as such to legally proscribe a weapon. If one were to read between the lines, it is feasible to argue that legal positivism has emerged triumphant over natural-law theories.

We are of the opinion that a partially dissimilar reading is desirable. MHC fits best into the general principles of international law. While such principles are permeated by moral ambitions, they appropriately encompass the main notion of MHC in its narrowest denotation. However, the understanding of MHC is so diverse that it is not currently practicable to position it as a general principle of international law: the actors involved simply cannot reach a universal agreement on what it actually involves. As a result, we conclude that there is a requirement for a more principled discussion on MHC. Essentially, NGOs, States, and representatives from civil society need to become involved in debates to agree a universal understanding of the values that MHC aims to serve. Only then can the discourse progress and MHC can move toward becoming a binding general principle of international law.

VI. WHY MEANINGFUL HUMAN CONTROL SHOULD BE ELEVATED TO A PRINCIPLE OF INTERNATIONAL HUMANITARIAN LAW

Incorporating meaningful human control to the AP I and the preamble to the CCW would bring the principle to the forefront of standard considerations. It would make the need to consider humane behaviour and the views of the general public a formal requirement. In addition, it would also make formal the long-held moral principle that it is essential that weapons should be susceptible of control. This principle is incorporated into a number of IHL documents and is held to be true in many legal systems. Furthermore, including this principle in fundamental IHL documentation that underpins the ways in which combat should be regulated would establish it at the centre of the law of armed conflict. Its inclusion would place it on equal footing with long-accepted principles of IHL such as distinction and the need to avoid unnecessary suffering.

Including the principle in such documentation would give it more legal force. This will effectively rule that weapons that have no meaningful human control are in contravention of the law, which ought to make their deployment less likely. If meaningful human control was included in AP I then it would come under Article 36, whereby every party would be obliged to assess whether any new weaponry complied with AP I, effectively ensuring that all new weapons were subject to meaningful human control. If the principle was included in the preamble to the CCW this would lay valuable groundwork for any later protocol created regarding autonomous weaponry, because the preamble details the standard framework on which CCW regulations regarding prohibition of or restriction of particular types of weapons rest. This would make weaponry that lacked meaningful human control restricted or prohibited without the need to evaluate whether such weaponry was capable of distinction or avoiding unnecessary suffering; this will avoid the debate that has frequently provoked controversy in this area.[76]

Including such regulations in the codification process would avoid the dead-end which is been reached through the CCW regarding this weaponry, moving the debate away from details and encapsulating an overarching principle. IHL generally evolves by initially establishing a basic principle and then going on to create regulations regarding particular weaponry at a later date. An abstract principle is useful in two ways, in that it can be regarded as more acceptable, and more applicable. Abstract principles can be more easily applied to a greater number of scenarios.[77] This is extremely useful in terms of combat regulation, where a complex multiplicity of scenarios is possible and technology is rapidly evolving. Meaningful human control could vary for different forms of weaponry, so establishing it as a principle is essential to allow it to remain flexible and to develop in ways that allow it to adapt to developments in weaponry. Furthermore, abstract principles will probably prove more acceptable to interested parties as they are generally less restrictive and offer possibilities for the regulations to be interpreted to

[76] Adam Cook, *Taming Killer Robots: Giving Meaning to the Meaningful Human Control Standard for Lethal Autonomous Weapon Systems,* (Alabama: Air University Press Curtis E. LeMay Center for Doctrine Development and Education, 2019), 23.

[77] Steven Groves, *A Manual Adapting the Law of Armed Conflict to Lethal Autonomous Weapons Systems*, (London: Margaret Thatcher Center for Freedom The Heritage Foundation, April 2016), 4-6.

a degree. This is not to say that it is not extremely important to have clear definitions and precise regulation; incorporating the principles into regulation is not intended to fulfil such requirements; instead it would represent an initial move towards supporting the generally agreed moral principle and permitting more specifics to be introduced through legal debate at a later stage. Closer definitions of meaningful human control will doubtless develop as legal argument progresses and military documentation is reviewed.[78]

Including such principles in documentation would demand some changes in the actors in the debate, which could lend new impetus to the discussion and new perspectives. Changes in the CCW preamble will involve negotiations including those parties who have already been involved in the discussion on the control of automated weaponry, however changes to AP I would require the participation of 60 additional states who are signatories to AP I but not signatories to the CCW. Bringing in more states would support the universal nature of the principal. Furthermore, changing the debate from a technical discussion of weaponry to a discussion of humanitarian principles could be fruitful.[79]

The Additional Protocol I of the Geneva Convention, agreed in 1977, contains regulations with regard to the ways in which combat is conducted and how civilians may be protected. I propose that a demand for meaningful human control would be best inserted in Articles 35 and 57.[80] Article 35

[78] Sean Welsh, "Regulating Lethal and Harmful Autonomy: Drafting a Protocol VI of the Convention on Certain Conventional Weapons," (Proceedings of the 2019 AAAI/ACM Conference on AI, Ethics, and Society, Oxford, 27 January 2019).

[79] Elvira Rosert, *How to Regulate Autonomous Weapons Steps to Codify Meaningful Humanitarian Control as a Principle of International Humanitarian Law,* (Frankfurt: Peace Research Institute Frankfurt Spotlight, December 2017), 2.

[80] Amendment procedures for AP I and the CCW: AP I has never been subject to amendment (though there were amendments to the Annexe in 1993). However, the procedure for amendment is stipulated in Article 97, which states that "Any contracting party (or several contracting parties) may submit a proposal (consisting of one or several amendments) to the Depositary of the Protocol. The Depositary will consult the contracting parties as well as the International Committee of the Red Cross by asking them for written comments, deciding on the basis of the comments whether to hold a conference to consider the amendment, and invite the parties to the conference in case of a positive decision." The CCW was originally intended to

essentially imposes limitations on the rights of all combatants in the area of selecting the ways and means in which they conduct a combat and bans the deployment of weaponry which will cause unnecessary suffering, unnecessary injury, or environmental damage. I propose an additional cause should be added reading: It is not permitted to deploy weaponry that operates outside meaningful human control. Article 57 details the precautions that must be taken in combat, imposing an obligation for combatants to "a constant care (…) to spare the civilian population, civilians, and civilian objects." Part of this article demands that combatants must do "everything feasible to ensure that the objectives to be attacked are neither civilians nor civilian objects." I would add an additional clause to this, reading: Meaningful human control must be imposed at every stage of any combat operation. The CCW, which was agreed in 1980, comprises a general framework and five protocols, each one addressing a particular form of weaponry. The preamble details the fundamental principles of the Convention, which are that civilian populations must be protected, and unnecessary suffering avoided. I propose that an additional clause should be inserted into the preamble to include meaningful human control, reading: It is not permitted to deploy any form of this weaponry that operates outside meaningful human control.

VII. AUTONOMOUS WEAPON SYSTEMS AND MARTENS CLAUSE

Since the launch of the pro-ban efforts, the Martens Clause is frequently cited in calls to ban AWS. International lawyers are well versed on the historical background and content of Martens Clause. It was first inserted into the Preamble of the Second Hague Convention containing the Regulations on the Laws and Customs of War on Land in response to a proposal that was put forth by Fyodor Fyodorovich Martens, a Russian publicist. However, it was later included in several IHL mandates, including the CCW, it the

have a measure of flexibility and this intention has been fulfilled by the fact that a number of new protocols have been adopted. Thus far no amendments have been made to the preamble, but these are possible under the standard procedure detailed in CCW Article 8 (I) (a-b), which states: "Every party may propose amendments to the depositary, who will then determine whether a majority of the contracting parties agree to conduct a conference to discuss the amendment. However, considering the budgetary constraints, an additional conference is not necessarily needed. Instead, according to Article 30 of the CCW Rules of Procedure, amendments can also be submitted to the Chair of the Conference and discussed in one of the regular meetings."

contemporary form of the Martens Clause. According to this article: "the civilian population and the combatants shall at all times remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience".[81]

Within the domain of AWS, the Martens Clause is often cited to support the view that any weapons systems that have the ability to engage in life-or-death decisions in the absence of any human intervention are against the "the principles of humanity" and "the dictates of public conscience" that are ingrained in international law.[82] Specifically, delegating human responsibility to a machine to make decisions that could have lethal consequences would go directly against the notion of human dignity.[83] This line of thinking is somewhat more far-reaching than those put forward previously on the basis that it is constructed upon the principles of human dignity and humanity, both of which are foundational in nature. Although this argument is underpinned by a straightforward position; i.e., the principles of human dignity/humanity are violated when a machine causes harm to a human being, it involves distinguishing between two variants.

The first of these variants is based on the assumption that it is possible to legally justify the suppression of human life it doing so is non-arbitrary; that is, based "on a considered and informed decision".[84] For the decision to be non-arbitrary, which is the point at which the underlying tenets of

[81] Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, opened for signature Dec. 12, 1977, Art.1 (2), 1125 UNTS 3; Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts, opened for signature Dec. 12, 1977, para. 4, 1125 UNTS 609.

[82] Diego Mauri, "The Holy See's Position on Lethal Autonomous Weapons Systems An Appraisal through the Lens of the Martens Clause," *Journal of International Humanitarian Legal Studies 11,* no. 2 (June, 2020): 117.

[83] Amanda Sharkey, "Autonomous Weapons Systems, Killer Robots and Human Dignity," *Ethics and Information Technology 21,* no. 2 (February, 2019): 83.

[84] Peter Asaro, "On Banning Autonomous Weapon Systems: Human Rights, Automation, and the Dehumanization of Lethal Decision-making," *International Review of the Red Cross 94,* no. 1 (June, 2012): 687.

humanity come into play, the action that results in the death of a human must be based on human judgment because it is only human cognitive processes that guarantee a full comprehension "of the value of individual life [and] the significance of its loss".[85]

The second variant was put forward by Christof Heyns, the Special Rapporteur on extrajudicial, summary or arbitrary executions.[86] He argued that allowing robots to make potentially lethal decisions would blatantly fly in the face of human dignity on the basis that it would deny them a position from which they "have no venue, futile or not of appealing to the humanity of the enemy". In fact, the decision as to whether or not to attack a target would have been made according to a set of hypothetical data that was established during the stage at which the AWS was programmed or by the machine's own development in response to intelligent learning from past experiences. In this regard, the ultimate life-or-death decision could not be overruled at the point at which the AWS is on the verge of releasing force, and the outcome would be that the human target would be in some way written off without any opportunity to change the outcome.[87]

This argument has been rebuffed on many levels. The main argument against both variants is that it draws from several implications' connotations of the principles of humanity and human dignity that have yet to be demonstrated in practice. For example, the assumption that non-arbitrary use of lethal force needs to be an outcome of value judgements that are derived from human reason is often disputed. From a legal perspective, it is only necessary that the targeting decisions in themselves, regardless of the party that makes them, are in compliance with the objective requirements of IHL. Furthermore, it is also rational to argue that, from the perspective of the people that are the potential targets of lethal force, it does not actually

[85] Human Rights Watch, *Shaking the Foundations: The Human Rights Implications of Killer Robots,* (New York: Human Rights Watch, May 2014), 3.

[86] Heyns, "Autonomous Weapons in Armed Conflict and the Right to a Dignified Life: an African Perspective," 68.

[87] Maya Brehm, *Defending the Boundary: Constraints and Requirements on the Use of Autonomous Weapon Systems Under International Humanitarian and Human Rights Law,* (Geneva: Geneva Academy of International Law and Human Rights, February 2017), 65.

matter "the threat they are exposed to comes from manned or unmanned weapons", because it is highly dubious as to whether "the mere potentiality of a human commander's mercy or compassion would make a difference if, in fact, this potentiality does not materialize".[88]

To some extent, these criticisms highlight the extent to which the arguments against AWS that are based exclusively on the "principles of humanity" elements of Martens Clause are constructed on *a priori* assumptions that fall apart when put under greater scrutiny. However, the counterarguments that are leveraged fail to take into consideration the fact that human dignity and humanity are not indisputable concepts; i.e., it is not possible to infer what specifically represents inhumane purely through a process of logical deduction. Rather, the notion of dignity is "a function of contemporary social understandings".[89]

This line of thinking is embodied in the reference to the "dictates of public conscience" that is included in Martens Clause. This pulls the intangible "principles of humanity" back to a more concrete form that is embedded in the way in which the international community responds to the realities of warfare on a social level.[90] Undeniably, this aspect of the clause is perhaps one of the most contentious because there is an inherent lack of certainty as to whose conscience is of relevance.[91] The opinions of the State and academics can differ somewhat in this regard because they vary from those that purely equate "public conscience" with *opinio iuris* to those that assert that

[88] Dieter Birnbacher, "Are Autonomous Weapon Systems a Threat to Human Dignity?," in *Autonomous Weapons Systems: Law, Ethics, Policy, ed.* Nehal Bhuta, Susanne Beck, Robin Geiss, Hin-Yan Liu, Claus Kress (Cambridge: Cambridge University Press, 2016), 121.

[89] Robert Sparrow, "Robots and Respect: Assessing the Case Against Autonomous Weapon Systems," *Ethics & International Affairs 30,* no. 1 (March, 2016): 109.

[90] Rupert Ticehurst, "The Martens Clause and the Laws of Armed Conflict," *International Review of the Red Cross 37,* no. 3 (January, 1997): 134.

[91] Theodor Meron, "The Martens Clause, Principles of Humanity, and Dictates of Public Conscience," *American Journal of International Law 94,* no. 1 (January, 2000): 85.

the Martens Clause promotes public opinion to an IHL source.[92] It's also worth noting that the ICJ did not provide more transparent guidance when it addressed Martens Clause in the *Nuclear Weapons* Advisory Opinion.[93]

The basic notion that AWS should not have the ability to make life-or-death decisions has been increasingly attracting consensus in more recent times across the international context as a whole. Specific evidence of this can be found across various documents and meetings; for example, in the States at the Human Rights Council's reaction to the presentation of the Heyns Report on Lethal AWS,[94] at the UN General Assembly First Committee on Disarmament and International Security, and during CCW Informal Meetings of Experts;[95] in parliamentary proposals that are directly designed to address this situation;[96] in the publications of international human rights supervisory bodies;[97] in the qualified criticism voiced in the Open Letters signed in 2015 and 2017, respectively, by renowned experts in the fields of robotics and artificial intelligence (AI) and founders and CEOs of AI and

[92] Meron, "The Martens Clause, Principles of Humanity, and Dictates of Public Conscience," 93.

[93] *International Court of Justice (ICJ), Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, 08/07/1996,* § 226.

[94] Christof Heyns, *Report by the Special Rapporteur on extrajudicial, summary or arbitrary executions UN Doc A/HRC/23/47,* (Geneva: UN, April 2013), 63-74.

[95] "Chris Charpenter, US Public Opinion on Autonomous Weapons," Convention on Certain Conventional Weapons – Group of Governmental Experts on Lethal Autonomous Weapons Systems, accessed 13 July 2022, https://www.un.org/disarmament/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/.

[96] Stephan Kolossa, "Hasta la Vista, LAWS – Where Do We Stand on the Long-Debated Ban on Lethal Autonomous Weapon Systems?," *Humanitäres Völkerrecht: Journal of International Law of Peace and Armed Conflict 1,* no. 3 (September, 2018): 207.

[97] African Commission on Human and Peoples' Rights, "General Comment No 3 on the African Charter on Human and Peoples' Rights: The Right to Life (Article 4)," 57th Ordinary Session 4-18 November 2015 para 35.

robotics companies;[98] and in the results of opinion surveys.[99] Although it would be largely speculative to come to a conclusion in this regard, it is clear that there is an overall movement toward prohibiting AWS.

However, even if the various movements were to become consolidated under the umbrella of "dictates of public conscience", it is difficult to conceive what normative outcomes would result? Some factions argue that this would be entirely immaterial because the Martens Clause only comes into play when more specific regulation is unavailable, while the extant weapons law is presently awash with standards and tenets that have applications that can be readily extended to AWS.[100] This notion, which serves to strip the Martens Clause of any relevance in modern-day contemporary international law, remarkably bears a resemblance to the argument put forward by the Russian Federation immediately prior to the ICJ during the advisory trials in the *Nuclear Weapons* case. At that time, it was argued that the Clause should be "formally be considered inapplicable"[101] due to the basis of the implementation of a complete code of war with the Geneva Conventions and the Protocols. However, this argument was outright rejected by the ICJ, which highlighted how the Clause has ongoing relevance as "effective means of addressing the rapid evolution of military technology".[102] This *dictum* is even more relevant to contemporary technologies like AWS because their disruptive nature means that it is problematic to apply the tenets that were developed in relation to human-controlled weapons to systems of this nature.

[98] "An Open Letter to the United Nations Convention on Certain Conventional Weapons," Future of Life Institute, accessed 14 July 2022, https://futureoflife.org/autonomous-weapons-open-letter-2017.

[99] "Three in Ten Americans Support Using Autonomous Weapons," Ipsos, accessed 7 July 2022, www.ipsos.com/en-us/news-polls/three-ten-americans-support-using-autonomous-weapons.

[100] Michael Schmitt, "Autonomous Weapon Systems and International Humanitarian Law: A Reply to the Critics," *Harvard National Security Journal 4,* no.1 (February, 2013): 32.

[101] *International Court of Justice (ICJ), Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, 08/07/1996,* § 13.

[102] *International Court of Justice (ICJ), Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, 08/07/1996,* § 78.

That said, extensive antipathy, even if manifested into the "dictates of public conscience", is not able to *ipso facto* prohibit the development and application of AWS. As per Theodor Meron's stark warning, "the Martens clause does not allow one to build castles of sand".[103] Contrary to what proponents of the bro-ban movements may argue, states did not purposely include tenets of humanity and the edicts of public conscience in the considerations on which international humanitarian law was formed.[104] However, as Meron highlighted, the Clause fulfils a more restricted, yet proportionately beneficial function because "[i]t serves as a powerful vehicle for governments and especially NGOs to push the law ever more to reflect human rights concerns. Where there already is some legal basis for adopting a more humanitarian position, the Martens clause enables decision makers to take the extra step forward".[105]

As a result of this observation, we can more effectively position the Martens Clause within the whole argumentative strategy that is put forward by the pro-ban campaign by determining its exact weight and role. In their current form, neither the "principles of humanity" nor the "dictates of public conscience" elements of the Clause serve as isolated cases against AWS because they do not represent formally recognized sources of international law. More accurately, they may strengthen the contentions examined in the previous sections and, thereby, provide pro-ban campaigners with further leverage to persuade cautious states to progress toward the acceptance of a Protocol that outlaws the potentially lethal applications of AWS.

[103] Meron, "The Martens Clause, Principles of Humanity, and Dictates of Public Conscience," 88.

[104] Antonio Cassese, "The Martens Clause: Half a Loaf or Simply Pie in the Sky?," *European Journal of International Law 11,* no. 1 (February, 2000): 187.

[105] Meron, "The Martens Clause, Principles of Humanity, and Dictates of Public Conscience," 88.

CONCLUSION

The aspiration to retain meaningful human control over the functions of autonomous weapon systems represents a response to the notion that increasing the autonomous competencies of weapon systems represents removing some human aspect from military operations. The perception that a formal mandate for meaningful human control may be acknowledged in, or incorporated within, existing international humanitarian law originated from civil society actors and is being adopted by an increasing number of the States who are involved in the Convention on Certain Conventional Weapons deliberations on autonomous weapon systems.

Regardless of the fact that the parties involved have yet to agree on a clear-cut definition of meaningful human control, the notion appears to be conceptually unsound. It depends on the inaccurate premise that autonomous technologies are inherently associated with a lack of human control and a mistaken perception that international humanitarian law does not already dictate that humans need to have adequate control over weapon systems.

From the viewpoint of the author, it may be possible to better rise to the challenges associated with the use of autonomous weapons systems by contextually applying the law in its current form as opposed to introducing new laws. The notion of meaningful human control facilitates the implementation of the law in its current form but does not add anything new to the existing standards. Rather, including this concept may introduce problems on the basis that it could distort some of the lucidity of the existing rules and, thereby, weaken existing law. As such, the law should not be modified, and the notion of meaningful human control should not be written into law. However, the term could serve alternative purposes if it is examined in more depth in the political and non-legal domains.

As described in the introductory section, the terminology is of high relevance. It may have a range of purposes; however, in the context of international law, it enables a more accurate determination of obligations and rights. The concept of meaningful human control is not suitable for such precise specifications. It highlights considerations that are of relevance and interest; however, if it were to be written into the law, there is a high risk that it would weaken international standards as opposed to reinforcing

them. To this end, while the concept may have application in the political domain, it should be avoided in the legal context.

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