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CONTENTS

PRESERVING HUMAN DIGNITY IN THE AGE OF AUTONOMOUS WEAPON SYSTEMS

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The regulation of autonomous weapon systems has long been a nebulous topic for lawmakers. It has attracted contentious and prolonged debate within the international community, with no sign of a resolution in sight. Among the many dilemmas, is the ethics of autonomous weapons and whether autonomous weapons can ever be developed and regulated in a manner which preserves human dignity. This is rooted in the key tenets of international humanitarian law, particularly the principle of 'humanity' which prohibits the infliction of superfluous suffering, injury, and destruction when it is not necessary for military purposes. The issues concerning human dignity are central to discussions on the legality of autonomous weapons which take humans out of the loop because such weapon systems alter the means and methods of warfare in ways that are not encompassed by the traditional laws of war. This article considers these issues and explores the notion of human dignity in the autonomous weapons debate, the concept of 'meaningful human control' which has dominated discussions on the use and deployment of autonomous weapons and whether the international community can progress towards a guiding framework for regulating autonomous weapons which incorporates considerations of human dignity and meaningful human control.

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TABLE OF CONTENTS

I INTRODUCTION

The development and use of autonomous weapon systems ('AWS') has been subjected to prolonged and contentious debate. It presents one of the most legally elusive challenges to international humanitarian law ('IHL') and our existing assumptions and traditional interpretations of the law. An Autonomous Weapons System is a weapon system that exercises autonomy in the critical functions of selecting, attacking, acquiring, and tracking targets. An example of an AWS could be armed drones that are currently remote-controlled by human operators. The prospect of taking humans 'out of the loop' of decisions in combat ignited the modern discourse on the applicability of AWS to the tenets of the laws of armed conflict ('LOAC'). These tenets including distinction, military necessity, proportionality, and unnecessary suffering have been used as a practical guiding tool to examine the legality of AWS.[1] Under Article 36 of Additional Protocol I to the Geneva Convention, States are obliged to review their new weapons to ensure they comply with IHL regulations, however, the unprecedented nature of AWS complicates

[1] Marco Sassòli 'Autonomous Weapons and International Humanitarian Law: Advantages, Open Technical Questions and Legal Issues to be Clarified' (2014) 90 *International Law Studies* 308, 310.

this form of assessment.[2] One of the key dilemmas in the regulation and legalisation of AWS is the value of human dignity and whether such an attribute can be maintained in the age of AWS. Human dignity is a classical concept of public international law, but as will be elucidated later in this article, is a nebulous concept among lawmakers in international humanitarian law. This article will explore the right to human dignity in the legal debate surrounding the regulation of AWS, with an examination of the *Martens Clause*, a customary principle of international humanitarian law. As a principle of customary international humanitarian law, the Martens Clause is sometimes interpreted as a baseline of protection for civilians and combatants in warfare when no specific treaty law exists.

This article will explore this first by providing a brief overview of what an autonomous weapon system is for the purpose of this article. It will then delve into the concept of human dignity under the law and particularly through the concept of the *Martens Clause*.[3] The *Martens Clause* is inextricably linked to discussions about morality and human dignity because the first limb of the *Martens Clause* encapsulates the 'principles of humanity'. The phrase 'principles of humanity' has a specific meaning in the context of IHL, where it refers to the idea that the methods and means of warfare available to the warring parties are not unlimited.[4] Third, this article will elucidate how the concept of human dignity has been conceptualised in the AWS legal debate through the notion of 'meaningful human control'. Finally, this essay assesses how meaningful human control, which incorporates the concept of human dignity, can be reconciled with the development and use of AWS in warfare.

II AUTONOMOUS WEAPON SYSTEMS

[2] Group of Governmental Experts of the High Contracting Parties, International Committee of the Red Cross, *Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* GGE.1/2018/3, 6th item, 9-13th April, 5; Thompson Chengeta, 'Are Autonomous Weapon Systems the Subject of Article 36 of Additional Protocol I to the Geneva Conventions?' (2017) 23(1) *UC Davis Journal of International Law and Policy* 65, 66.

[3] Hague Convention No. II – Laws and Customs of War on Land, adopted 29 July 1899, (entered into force 4 September 1900) article 23(e).

[4] Dr Hans-Peter Gasser, 'International Humanitarian Law and the Protection of War Victims' in *International Humanitarian Law: An Introduction* (Paul Haupt Publishers, 1998) 56.

While there is no international consensus on the meaning of AWS, the International Committee of the Red Cross ('ICRC') has provided a comprehensive definition that has assisted States in assessing the legality of their weapons. Accordingly, AWS includes 'weapons that can independently select and attack targets … the critical functions of acquiring, tracking, selecting and attacking targets' make it autonomous.[5] AWS is distinct from remotely operated weapon systems ('ROWS'). The latter still requires 'meaningful human control' because humans still exercise the decision to use lethal force.[6] AWS is also distinguishable from automated weapon systems and automatic weapons defence systems as these weapons are solely defensive rather than offensive.[7] For example, these weapons must first sense an incoming hazard before responding automatically whereas AWS can attack a target which is chosen independently.[8] Defining what 'autonomy' encompasses for AWS is challenging because it is difficult to define the extent of human agency required to control a weapon. Around the world, there are different interpretations and understandings of what autonomy means. Some may understand autonomy to mean implicitly positioning the autonomous weapon as a stand-in for a human operator in the legal sense, whereas others may consider autonomy to mean still placing obligations on personnel who plan and decide upon attacks and who use autonomous weapons to carry out those attacks. In some cases, definitions of autonomy appear to be selected to support a preferred regulatory outcome.

The International Committee for Robot Arms Control ('ICRAC') report has outlined the main characteristics and limitations of current autonomous robotic systems.[9] This includes that they are capable of complex reasoning or judgement when carried out by humans. For example, that they can only carry out single rather than multiple tasks; they have little capability to perceive their environment and, consequently, are mostly capable in simple, predictable environments. Moreover, they have limited adaptability to unexpected changes in their environment; they can be slow at performing the assigned task; they are unreliable in performing their assigned task and generally cannot devise

[5] International Committee of the Red Cross, *Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects*' (26-28 March 2014), 5.
[6] Ibid.
[7] Ibid 2.
[8] Ibid.
[9] Frank Sauer, 'ICRAC Statement on Technical Issues to the 2014 UN CCW Expert Meeting' (Discussion Paper No 1, May 2014).

an alternative strategy to recover from a failure.[10] However, autonomous robotic systems will gradually become more sophisticated with advances in computation techniques and sensor quality. At least 381 partly autonomous weapon and military robotics systems have been deployed or are under development in 12 states, including France, Israel, Russia, the United Kingdom, and the United States.[11]

III HUMAN DIGNITY UNDER INTERNATIONAL HUMANITARIAN LAW

The concept of human dignity is considered a classical concept in public international law and has played a central role in international legal discourse since the turn of the 19th century. It has drawn recognition in both constitutional and international documents and has become the foundation for various legal frameworks.[12] However, human dignity does not have a uniform application in law and therefore has become a nebulous concept in both its meaning and ultimate purpose. Essentially, it has failed insofar to provide a universalistic basis in judicial decision-making under both human rights and international humanitarian law. Part of the obstacle is that human dignity is a moral value, but it also appears in various legal instruments and attracts widely shared ethical principles under the portmanteau of one description.[13] The principle of human dignity first became notable in legal discussions with the First Hague Peace Conference of 1899 which gave birth to the *Martens Clause*. The Russian delegate, jurist and diplomat FF Martens, formulated a declaration that became the preambular clause to the *Hague Conventions (IV) on the Laws and Customs of War on Land*.[14] It reads:

> The High Contracting Parties deem it expedient to declare that, in cases not covered by the rules adopted by them, the inhabitants and belligerents remain under the protection and governance of the principles of the law of nations, derived from the usages established among civilized peoples, from the laws of humanity, and from the dictates of public conscience.[15]

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[10] Ibid 2.
[11] Ibid.
[12] Michael Salter, 'Reinterpreting Competing Interpretations of the Scope and Potential of the Martens Clause' (2012) 17(3) *Journal of Conflict and Security Law* 403, 404.
[13] Ibid.
[14] Hague Convention No. IV – Laws and Customs of War on Land, Date opened for Signature or Signed 18 October 1907, (entered into force 26 January 1910) Preamble.
[15] Ibid.

Since then, other major international law texts have continued to refer to human dignity in their preambles, confirming its foundational role in understanding human dignity under the law. For instance, the Preambles of both the *International Covenant on Civil and Political Rights* ('ICCPR') and the *International Covenant on Economic, Social and Cultural Rights* ('ICESCR') state that the equal and inalienable rights of all members of the human family 'derive from the inherent dignity of the human person'. The protection of these rights are then 'essential for the dignity and liberty of Man'.[16] Under the *Martens Clause*, the 'laws of humanity' can be dissected into two key components: first, the requirement to treat others humanely and second, to show respect for human life and dignity.[17] Article 3 of the ICCPR provides some clarity on the first limb, which mandates the humane treatment of others. The Article outlines that humans must be treated humanely in the absence of specific laws.[18] The ICRC has built upon this definition to provide guidance on the discourse assessing the legality of AWS. In particular, they have stressed that emotions including compassion and empathy are central to humane treatment.[19] Furthermore, the ICRC maintains that to align with the principles of IHL, the capacity to feel emotion is necessary because it serves to minimise or avoid harm being inflicted upon others.[20] Respect for human life and dignity compels ethical questions about whether a machine without meaningful human control should make life and death decisions as well as the manner of killing.[21] It has also raised the significance of not arbitrarily depriving someone of their life, appreciating the value of human life and the profundity of loss.[22] An expansive interpretation of the *Martens Clause* that has been

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[16] Ibid 110.
[17] Group of Governmental Experts of the High Contracting Parties, International Committee of the Red Cross, *Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* GGE.1/2018/3, 6th item, 9-13th April, 5, 6.
[18] *International Covenant on Civil and Political Rights,* opened for signature 16 December 1966, 999 UNTS 171 (entered into force 23 March 1976) art 3.
[19] Group of Governmental Experts of the High Contracting Parties, International Committee of the Red Cross, *Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects,* GGE.1/2018/3, 6th item, 9-13th April, 5, 7-8; Human Rights Watch, *Losing Humanity: The Case Against Killer Robots* (Report, 19 November 2012) 6.
[20] Kevin Neslage, 'Does "Meaningful Human Control" Have Potential for the Regulation of Autonomous Weapon Systems?' (2016) 6 *University of Miami National Law Security and Armed Conflict Law Review* 151, 158.
[21] Human Rights Watch, *Losing Humanity: The Case Against Killer Robots* (Report, 19 November 2012) 7; Amanda Sharkey, 'Autonomous Weapons Systems, Killer Robots and Human Dignity' (2019) 21(2) *Ethics and Information Technology* 75.
[22] Ibid.

exhorted by the Human Rights Watch argues that AWS degrades human dignity because it cannot exercise ethical judgement and simply treats humans as both objects and indiscriminate targets and therefore disrespects the worth of human life in the process.[23] It removes the potentially restraining influences of humanity.[24] The case has been made that to preserve human morality, justice and law, autonomous lethal systems must not be accepted, and concludes, '[as] a matter of the preservation of human morality, dignity, justice, and law we cannot accept an automated system making the decision to take a human life.'[25] As well as the dignity of those killed or attacked by autonomous weapons, it is argued that the dignity of those in whose name such attacks are carried out is compromised, because the opportunity to be a moral person and to make moral decisions is lost when machines are used to make lethal decisions.[26] Thus, in such arguments, it is maintained that AWS violates the principle of protecting human dignity, in that the latter dictates that decisions affecting the life and physical integrity of human beings involved in armed conflicts should be reserved for human operators.[27] Weapons that lack meaningful human control over the critical functions would be unable to comply with the principles of the *Martens Clause*. These arguments have been used as a justification for banning AWS while still in its infancy.[28] From this point of view, autonomous targeting is unacceptable because it 'objectifies' human beings, reducing them to algorithmically processed 'data points', thereby systematically denying their inherent value as human beings.[29] Suppressing human life is ethically and legally justifiable only if it is based on human judgement, for only human decision-making offers a guarantee that the values at stake (human life, physical integrity and so on) can be fully appreciated.[30] However, there have been some criticisms of this perspective. Some concerns have been raised about the merits of placing a strong emphasis on human dignity in arguments against autonomous weapons. Scholar, Adam Saxton argues that the problem with the human dignity

[23] John Lewis, 'The Case for Regulating Fully Autonomous Weapons' (2015) 124 *Yale Law Review* 1309.
[24] Amanda Sharkey (n 21) 77.
[25] Peter Asaro, 'On banning autonomous lethal systems: Human rights, automation and the dehumanizing of lethal decision-making, special issue on new technologies and warfare' (2012) 94(886) *International Review of the Red Cross* 687.
[26] Amanda Sharkey (n 21) 77-8.
[27] Ibid.
[28] Christopher Toscano, 'Friend of Humans: An Argument for Developing Autonomous Weapon Systems' (2015) 8 *Journal of National Security Law and Policy* 189, 196.
[29] Richard Moyes, 'Key Elements of Meaningful Human Control' (Background Paper, Article 36, April 2016) 1.
[30] Ibid.

argument about autonomous weapons is that the use of autonomous weapons should not be viewed as a violation of human dignity 'due solely to the weapon's autonomy'.[31] He asserts that this is not the only way that human dignity can be compromised: it is generally undermined in war when humans are sacrificed to achieve military objectives. His argument is that autonomous weapons threaten human dignity by 'potentially changing the dynamic between weapons and their operators'.[32] He is concerned about losing the potential advantages that automation could bring to warfare and argues against the need for a ban. Instead, he suggests that further thought and investigation are needed to ensure that enough human control of weapons is maintained to ensure that humans can remain responsible and accountable for their use.[33] Tyler D Evans also is critical of human dignity being afforded too much weight when assessing the legality of autonomous weapons.[34] According to Evans, when the Martens Clause is given more weight in considering the compatibility of AWS under IHL, the view formed is that AWS violates the principles of humanity. This broad approach regards the principles of humanity as independently enforceable sources of international law and therefore if violated, could theoretically prohibit an autonomous weapon.[35] According to Evans, AWS is not the only form of weaponry which compromises human dignity as a wide range of weapons and technologies already do so on the battlefield. He argues that AWS can overcome 'fog of war' issues regularly encountered by human soldiers and take greater precautionary steps to assess a legitimate target.[36] This is because it has the capacity to directly approach potential enemies and be subjected to the first shots without risking a human soldiers' life.[37] Unlike AWS, humans are more likely to succumb to stress or emotions in a conflictual environment which can make it more difficult to make immediate and precise decisions, without margin of error, as to when to pull the trigger.[38] This indicates that AWS could diminish much of the unpredictability of human behaviour.

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[31] Adam Saxon, '(Un)dignified Killer Robots? The Human Dignity Argument' *Lawfare Blog* (Blog post, 20 March 2016) <https://www.lawfareblog.com/undignified-killer-robots-problem-human-dignity-argument >.
[32] Ibid.
[33] Ibid.
[34] Tyler Evans, 'At War With the Robots: Autonomous Weapon Systems and the Martens Clause' (2013) 41(3) *Hofstra Law Review* 697, 711.
[35] Ibid 724-25.
[36] Ibid.
[37] Ibid.
[38] Christopher Toscano (n 28) 211.

In turn, this could allow for a reduced risk to civilians and other combatants because AWS would be better positioned to target more precisely and make firing decisions in a more controlled manner than a human soldier.

IV MEANINGFUL HUMAN CONTROL – A CONCEPTUALISATION OF HUMAN DIGNITY IN THE REGULATION OF AUTONOMOUS WEAPONS SYSTEMS

Central to the discussion around how human dignity is conceptualised in the AWS debate is the notion that taking human judgement away from life and death decisions violates the moral principle of human dignity. This propelled the notion of 'meaningful human control' ('MHC') into the discourse on the regulation of AWS and whether MHC should become a requirement in the regulation of autonomous weapons. MHC is inextricably linked to the concept of human dignity.

Scholars have defined MHC according to a number of elements and characteristics that extend beyond the moral element of human dignity. This includes predictability and reliability, situational awareness, context-control, the capacity for human intervention, and an understanding of machine capabilities so that humans can take control where necessary. John Boyd's OODA Loop Model can provide a basic framework to facilitate a legal analysis of MHC by identifying levels of meaningful control and where a human is involved in the decision-making process.[39] The acronym stands for (1) Observe, (2) Orient, (3) Decide, and (4) Act.[40] It details a procedure for how humans gather information, scrutinise it for decision-making purposes and act accordingly.[41] A 'human-in-the-loop' system obliges a human to manage the system to choose a target and attack it. A 'human-on-the-loop' manifests where the system chooses targets and strikes them, with some human supervision.[42] A system capable of attacking without any human involvement is a 'human-out-of-the-loop' and would not accord with the elements of MHC discussed above.[43] However, a 'human-on-the-loop' weapon could still accord with the

[39] William C Marra and Sonia K McNeil, 'Understanding "The Loop": Regulating the Next Generation of War Machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1139, 1145.
[40] Rebecca Crootof, 'The Killer Robots Are Here: Legal and Policy Implications' (2015) 35(5) *Cardozo Law Review* 1837, 1861.
[41] Ibid; Markus Wagner, 'The Dehumanisation of International Humanitarian Law: Legal, Ethical and Political Implications of Autonomous Weapon Systems' (2014) 47(5) *Vanderbilt Journal of Transnational Law* 1371, 1382.
[42] Ibid.
[43] Ibid.

key components of MHC raised above. Under the 'Orient' stage, AWS can independently study the environment, calculate the strategic impacts, gather, and assess information and then make approximations. As AWS develops, it could perform the 'Orient' stage with greater predictability and reliability than a human.[44] Currently, only a human commander exercises this level of subjectivity. However, to strengthen the predictability and reliability components of MHC, the weapon would need to be designed to facilitate the prioritisation of human control in a given situation which can be used to intervene where necessary.[45] Furthermore, with advancements in machine learning, AWS could potentially fulfil the 'Decide' stage of the OODA Model.[46] The 'Decide' phase constitutes the last conscious step in the decision-making stage before it culminates with the delivery of force through the 'Act' stage.[47] In this scenario, a machine would require human input to consider how to proceed, once it had discerned and positioned itself with its surroundings. Ultimately, a human operator having the capacity to override any action of the machine would help preserve the human judgement of making decisions on the battlefield, thus preserving human dignity to some degree.

Furthermore, a broad deontological theoretical framework focused on Kantian ethics can facilitate the examination of the moral characteristics of the MHC concept. Philosopher, Immanuel Kant's moral theory advances value-based ethics founded on the normative stance that rational beings should behave in ways that regard humanity as an end goal.[48] Kant's human-centric approach endorses moral responsibility and the value and status of human dignity as important elements for MHC.[49] Kant argued that dignity is a social value. It motivates humans to respect each other in the interests of peaceful co-

[44] Timothy McFarland, 'The Status of Autonomous Weapon Systems Under International Humanitarian Law' (Doctor of Philosophy, The University of Melbourne, 2017) 1, 55-6; Shin-Shin Hua, 'Machine Learning Weapons and International Humanitarian Law: Rethinking Meaningful Human Control' (2019) 51(1) *Georgetown Journal of International Law* 117, 123.
[45] Ibid; Thompson Chengeta, 'Defining the Emerging Notion of Meaningful Human Control in Weapon Systems' (2017) 49(3) *New York University Journal of International Law and Politics* 833, 852.
[46] Shin-Shin Hua (n 44) 126; Kevin Neslage (n 20) 164-5.
[47] Kevin Neslage (n 20) 165.
[48] Ozlem Ulgen, 'Kantian Ethics in the Age of Artificial Intelligence and Robotics' (2017) 43 *Questions of International Law* 59, 60-1.
[49] Ibid, 61-2.

existence.[50] Unlike animals, humans can treat others with dignity and recognise their worth.[51]

This approach informs the 'meaningful' aspect of MHC in the need for humans to be morally responsible for their actions. Moral responsibility entails willingly engaging in intentional action, being free to intervene or abstain from acting, acknowledging the effect of force on others, and appreciating the moral reasons underpinning actions.[52] Key to the element of 'moral responsibility' in MHC is that the duty-bearer must execute actions in warfare with moral maturity. This includes curbing their impulses, making appropriate judgements in restraining their self-driven interests, appreciating their own and others' rights and interests and considering how the exercise of their rights can affect others.[53] Ultimately, a machine is not functionally tantamount to a morally responsible human agent and therefore combatants cannot relinquish their rights to a machine.

A doctrinal analysis of the current legal literature distils three key arguments about how the principle of humanity interlinks with the regulation of AWS and the MHC elements of 'human dignity' and 'moral responsibility'.[54] Firstly, the use of AWS depersonalises the exercise of force to the extent of inhumanity. This effectively uproots 'human dignity' and 'moral responsibility' which are key to MHC. It physically and psychologically detaches combatants from the effects of their actions.[55] The moral buffer posed by AWS makes it easier to commit atrocities in conflict. It also contradicts the legal weapons review which prohibits weapons from causing unnecessary suffering and superfluous harm and the need to balance it against military necessity.[56] Any suffering without a legitimate military purpose is unnecessary.[57] Article 36 of *Additional Protocol I* to the *Geneva Conventions*

[50] Ibid, 70-1; Thompson Chengeta, 'The challenges of increased autonomy in weapon systems: In search of an appropriate legal solution' (LLD Thesis, University of Pretoria, 2015) 160.
[51] Ozlem Ulgen (n 48).
[52] Michael Skerker, Duncan Purves, and Ryan Jenkins, 'Autonomous Weapons Systems and the Moral Equality of Combatants' (2020) 1 *Ethics and Information Technology* 1, 7.
[53] Ibid.
[54] Thompson Chengeta, 'The challenges of increased autonomy in weapon systems: In search of an appropriate legal solution' (LLD Thesis, University of Pretoria, 2015) 143-5.
[55] Ibid.
[56] Ibid 87.
[57] Ibid 134.

1977 reflects an implicit need to maintain an appropriate level of human judgement or MHC over the decision-making actions of the targeting process.[58]

The use of weapons that are impossible to surrender to is deemed inhumane according to literature discussing the principle of humanity in the AWS legal debate.[59] This aligns with the MHC element of 'moral responsibility' and the importance of recognising when to cede or restrain one's interests because of its impacts on others. In a warfare scenario without AWS, if a combatant surrenders fighting due to wounds or sickness, the humane approach is to spare their life.[60] However, AWS without MHC cannot discern when a fighter is about to surrender or is too injured or sick to continue fighting.[61] This echoes the difficulties of the distinction principle because AWS lacks the sophistication of human emotional judgement to recognise the abrupt alterations to a target's status from legitimate to illegitimate on the battlefield.[62] It also returns back to the notion of moral responsibility and the significance of humans to make moral decisions. Compassion is part of human nature whereas a robot is incapable of sufficient empathy to treat others humanely.

A *Towards a 'Meaningful Human Control' Doctrine in International Humanitarian Law?*

Based on the above discussion, it is shown that preserving human dignity goes hand in hand with other principles of IHL. It informs all the other principles be it the principle of distinction, proportionality, and the prevention of superfluous suffering in warfare. The *Martens Clause* has become an opening to incorporate ethical considerations as well as the prioritisation of the value of human dignity and human element (both in presence and behaviour) in decision-making procedures related to the regulation of autonomous weapons. Indeed, the *Martens Clause* has featured in discussions by the Convention on Certain Conventional Weapons ('CCW') panel. The CCW panel reviews and negotiates the

[58] Ibid 77, 80.
[59] Ibid 141-3.
[60] Ibid 142.
[61] Ibid 142-3.
[62] Ibid.

development of specific rules on conventional weapons to address humanitarian concerns. The aim is to minimise the suffering in armed conflict.

B Uniform Standard

Amongst the existing legal scholarship and material arising from the CCW panel and expert meetings, clear support is conveyed for a global standard of MHC applicable to all weapon systems including AWS.[63] Some assert that a uniform standard of MHC should be embedded throughout the entire weaponization process. This spans from pre-development, testing and evaluation to the certification and deployment of the weapon, command, and control testing and even an aftermath assessment.[64] Others suggest MHC only needs to be exerted at specific moments such as the 'wider loop approach' proposed by the Dutch government where MHC occurs at the planning stage of the targeting process.[65] However the latter approach has limited applicability and relevance for the deliberate targeting of military objectives. A global, uniform standard of MHC provides certain advantages in regulating AWS. Adopting the concept as language in a treaty reflects a greater overall acceptance by the international community for a standard to evaluate new weapon technology.[66] MHC offers a common language for discussing the concept in relation to the regulation of AWS because it centres on a shared goal of preserving some quantum of control over all weapon systems.[67] It can facilitate a legal standard within a regulatory treaty or additional protocol centred on AWS.[68] It could obligate manufacturers to design and develop AWS according to the established elements of MHC. A narrowed definition can also pinpoint accountability to a specific actor such as

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[63] Adam Cook, 'Taming Killer Robots: Giving Meaning to the 'Meaningful Human Control' Standard for Lethal Autonomous Weapons' (2017) *The Judge Advocate General School Research Series* 1, 16.
[64] Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, *Possible outcome of 2019 Group of Governmental Experts and future actions of international community on Lethal Autonomous Weapons Systems,* /GGE.1/2019/3, 5th item, 25-29th March 4.
[65] Daniele Amoroso and Guglielmo Tamburrini, 'What makes "meaningful" the human control over weapons systems?' (ICRAC Working Paper Series No 4, Report to the CCW GGE, International Committee for Robot Arms Control, August 2019) 1, 8.
[66] Kevin Neslage (n 20) 171.
[67] Tae Takahashi and Elena Finckh, 'The Weaponization of Increasingly Autonomous Technologies: Considering how Meaningful Human Control might move the discussion forward' (Research paper No 2/2014, UNIDIR, 13 November 2014) 3.
[68] Rebecca Crootof (n 40) 1900.

the end user who exercises control over the weapon's decision-making.[69] Furthermore, it ensures that all new weapon systems remain predictable, that their actions reflect the human operator's intentions, and that human dignity is preserved to some degree.

A uniform application of MHC would need to define terms like 'predictability' and 'understanding of a weapon's capabilities and limitations' which lack definitive meanings and would require further interpretation for individual applications of AWS.[70] The definition for an agreed standard of MHC should be reasonably flexible to encompass potentially sophisticated forms of AWS, the present weapons review standards and the vast array of situations that employ AWS.[71]

Unfortunately, a uniform, global standard of MHC is far too elusive and difficult to implement across all weapon systems. There is no one-size-fits-all situation and MHC is highly context dependent. A less cluttered, smaller environment may enable less need for MHC compared to a complex, unpredictable scenario.[72] Furthermore, an additional tenet of MHC in IHL may only serve to blur the current principles of IHL and its overall effectiveness for regulating the means and methods of warfare.[73] A uniform MHC standard stemming from IHL may undermine fundamental tenets like military necessity, distinction, proportionality, and humanity. Instigating a new international legal instrument or additional principle of IHL that imposes MHC in individual attacks may weaken pre-existing principles of IHL.[74]

C *Meaningful Human Control as a Guiding Framework*

Alternatively, MHC can be used as a guiding framework for discussing the weaponization of AWS. The discussion above reflects the importance of ensuring MHC is retained across the process of developing and using AWS. Human dignity is an important consideration

[69] Thompson Chengeta (n 45) 868.
[70] Adam Cook (n 63) 17.
[71] Ibid 18.
[72] Christopher Toscano (n 28) 212, 233.
[73] Thompson Chengeta (n 45) 842.
[74] Ibid.

in human-machine interaction and ethical principles which are often shunned in approaches that parochially evaluate current AWS technology.[75]

The above analysis has demonstrated an assumption that more autonomy in a weapon is tantamount to lower control or that a machine is being entrusted with the decision-making process. However, AWS is increasingly improving the degree of control humans can exercise over force. Thus, AWS does not necessarily constitute a lack of human control in itself.[76] Unlike the more technical elements of the MHC guiding framework, human dignity and moral responsibility are among the most difficult elements for AWS to adopt because machines lack moral agency. The humanity principle presumes that combatants should be humans and not machines because of humans' capacity for moral decision-making. However, some extent of human dignity can be retained by how AWS is designed and operated by humans.

For example, AWS is becoming increasingly more sophisticated. Advanced machine learning could substitute human control and therefore, the current *a priori* prioritisation for humans over machines could subsequently be rejected.[77] AWS is already reflecting signs of exercising greater predictability, reliability, and situational awareness particularly in targeting and selecting objects which can lead to actions that preserve moral responsibility and prevent superfluous and unnecessary suffering.

More sophisticated forms of AWS do not succumb to the same mistakes that can happen in particularly high-pressure, dangerous environments.[78] These effects of warfare can increase the prospect of soldiers committing war atrocities, violating standards of LOAC and suffering fear, anger and panic which can cloud judgement.[79] By targeting with greater precision, the risks for both combatants and civilians are minimised.[80] Therefore, a concept of MHC could transition to appropriate levels of human control or a greater

[75] Tae Takahashi and Elena Finckh (n 67) 8.
[76] Eric Jensen 'The (Erroneous) Requirement for Human Judgment (and Error) in the Law of Armed Conflict' (2020) 26(96) *International Law Studies* 26, 47.
[77] Ibid 56; Shin-Shin Hua (n 44) 131-2.
[78] Tyler D Evans (n 34) 730.
[79] Ibid.
[80] Ibid 730.

focus on ensuring the means and methods of warfare protect humanity and human dignity and are within the lawful limits of LOAC.

V CONCLUSION

The consideration of human dignity in the regulation of AWS under IHL is a laborious task. This article has, however, demonstrated that internationally, lawmakers recognise the importance of human dignity in considering moral responsibility, proportionality, distinction, and the need to restrain unnecessary and superfluous suffering in warfare. Legislative instruments and documents which delineate the *Martens Clause* also continue to guide lawmakers and allow them to balance those considerations with other principles of IHL. The article has argued human dignity does not have a uniform application in the law and therefore has become a nebulous concept in both its meaning and ultimate purpose. This has meant it has failed insofar to provide a universalistic basis in judicial decision-making under both human rights law and IHL, particularly in the context of autonomous weapons. Moreover, the article raises salient considerations regarding human dignity being afforded too much weight when assessing the legality of autonomous weapons because it could unduly curtail the development of weapons that may in fact prevent soldiers from risking their own lives on the battlefield. This article has then shown that it is possible to reconcile human dignity to some degree with other elements through the concept of MHC which has a strong human dignity element to it. It has explored John Boyd's OODA Loop Model to highlight that MHC most likely corresponds with the human-on-the-loop approach. The notion of MHC closely intertwines with moral responsibility and Kantian moral ethics on human dignity. The article then examines whether the international legal community can move towards a 'MHC' doctrine that could be implemented as a uniform standard during weapons review. As argued above, a one-size-fits-all approach is too difficult to implement given the varied characteristics of weapons. Instead, the article concludes that a guiding framework on MHC could be useful for future discussions on the development and regulation of AWS.

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