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Autonomous Weapon Systems and the Inadequacies of Existing Law: The Case for a New Treaty

Thompson Chengeta

ABSTRACT

Autonomous Weapons Systems (“AWS”) raise far-reaching legal, ethical, and security concerns. Among the legal questions that have been raised on AWS is whether AWS are illegal weapons per se and whether they can be used in compliance with international law. This paper posits that before answering these questions, the first question that ought to be answered is whether existing international law is adequate to govern AWS. That which is inadequate cannot be used as a yardstick. Through examples in branches of international law such as international human rights law, international weapons law, international humanitarian law and international law relating to legal responsibility, this paper argues that the development and use of AWS present a lacuna—a legal gap. Furthermore, the existence of a legal gap is also supported by the fact that AWS raise grave ethical concerns that are not necessarily covered in existing law—concerns that ought to be addressed by law. The paper concludes that the lacuna created by AWS cannot be cured by ignoring it, engaging in creative interpretations of existing law, or putting in place political declarations devoid of legal force to bridge that gap. As such, it argues that the international community should adopt a new and comprehensive legally binding instrument on AWS.

INTRODUCTION

Since 2013 and for the past nine years, State Parties to the United Nations Convention on Conventional Weapons (UNCCW) have been asking whether existing law is adequate to govern autonomous weapon systems (AWS).¹ This question has, however, mainly focussed on the inadequacies that may or may not exist in international humanitarian law (IHL) – the law governing armed conflict. This paper posits that in assessing whether existing international law is adequate to govern AWS, all relevant legal regimes under international law such as international human rights

¹ See A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, paras 47 & 114 (d); CCW/MSP/2014/3, Report of the 2014 Informal Meeting of Experts on Lethal Autonomous Weapons Systems, para 28; CCW/MSP/2015/3, Report of the 2015 Informal Meeting of Experts on Lethal Autonomous Weapons Systems, paras 23, 54, 60; Report of the 2016 Informal Meeting of Experts on Lethal Autonomous Weapons Systems, paras 16, 47, 50; CCW/GGE.1/2017/CRP.1, Report of the 2017 Group of Governmental Experts on Lethal Autonomous Weapons Systems, paras 5, 6, 7, 49; CCW/GGE.1/2018/3, Report of the 2018 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, paras 8, 39, 46, 53.

law (IHRL), international weapons law (IWL) and international law relating to legal responsibility – State responsibility and individual responsibility – should be equally considered. As such, the term “existing law” is used in this paper to refer to all legal regimes that are relevant to the governance of AWS. The question whether existing law is adequate to govern AWS is critical because it determines whether or not a new treaty is needed to govern AWS.

I. DEFINITION OF A LACUNA – A LEGAL GAP

Before commencing the discussion whether existing law is adequate to govern AWS, it is important to understand what is meant by a lacuna or legal gap. A lacuna or legal gap is “a situation where the absence of a law or legal norm prevents an inherently illegal situation from being addressed, or where the applicable law is incomplete.”² A lacuna also means the “absence of something that arguably ought to be there” in a particular body of law.³ The discussion in this paper will show that there is a lacuna in existing law that is applicable to AWS on two main fronts:

- a) Autonomy in weapon systems raise legal questions and challenges that existing law cannot adequately answer.
- b) Autonomy in weapon systems have raised a fundamental ethical consideration that humans ought to maintain meaningful human control over use of force. As observed by the ICRC, issues that are raised by AWS go “beyond questions of the compatibility of AWS with our laws to encompass fundamental questions of acceptability to our values.”⁴ Something that ought to be there is not there—there are no specific legal provisions that address a number of ethical concerns that are raised by AWS.

Nevertheless, before the discussion on the inadequacy of existing law, it is necessary to outline a brief background on the AWS discussions in the United Nations (UN).

II. BACKGROUND

In April 2013, the then Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, submitted a report on lethal autonomous weapon systems (“AWS”) to the UN Human Rights Council, noting a number of challenges that are posed by AWS.⁵ While there is no agreed definition of AWS, the commonly used definition is that which is provided in the report, defining AWS as “robotic

² See A/CN.10/2016/WG.I/WP.6, p.2.

³ Kammerhofer, GAPS, THE NUCLEAR WEAPONS ADVISORY OPINION AND THE STRUCTURE OF INTERNATIONAL LEGAL ARGUMENT BETWEEN THEORY AND PRACTICE (2009) 80.

⁴ ICRC, “Ethics and Autonomous Weapon Systems: An Ethical Basis for Human Control?,” Apr. 3, 2018, p.7.

⁵ A/HRC/23/47, 2013, *supra*.

weapon systems that, once activated, can select and engage targets without further intervention by a human operator.”⁶ According to the report, the crucial element of the definition is that “the robot has an autonomous ‘choice’ regarding selection of a target and the use of lethal force.”⁷ In line with this definition, in August 2019, seven years after the submission of the report, States participating in the UN debate on AWS agreed that what is of core interest in the discussion are “autonomous functions in the identification, selection or engagement of a target.”⁸

While the 2013 report notes a number of challenges that are posed by AWS, the following are the main ones: In the area of *jus ad bellum*, the development and use of AWS risks lowering the threshold on the use of force.⁹ AWS will make it too easy for States to go to war or resort to use of force because the deterrence of human cost on the side of States using AWS is reduced or eliminated altogether.¹⁰ As a result, the development and deployment of AWS will jeopardise world peace and security. This concern has been maintained throughout the years and is reflected in the deliberations by States.¹¹

In the area of *jus in bello*, because AWS lack human judgment, it will be difficult for them to be used in compliance with rules of IHL.¹² Where there is no compliance with IHL rules such as distinction and proportionality, the lives and well-being of protected persons such as civilians—who ought to be protected at all times—are placed at risk.¹³

In cases where AWS are used in peace time, for example in law enforcement situations, there are risks which are posed to a number of human rights such as the right to life.¹⁴ It is doubtful if the technology of AWS can have situational awareness and understanding of the nuances of human behaviour in order to comply with fundamental principles on the use of force such as the “protect life principle.”¹⁵ This principle demands that States agents must only use lethal force as a last resort to protect the life of another person who is in immediate danger.¹⁶

⁶ A/HRC/23/47, 2013, *supra*, para. 37.

⁷ *Id.*

⁸ Report of the 2019 session of the United Nations Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2019/3 para. 19 (a).⁹ A/HRC/23/47, 2013, *supra*, para. 58.

¹⁰ *Id.*

¹¹ CCW/GGE.1/2019/3, *supra*, para. 24 (a).

¹² A/HRC/23/47, 2013, *supra*, paras. 31, 55; Thompson Chengeta, *Measuring Autonomous Weapon Systems against International Humanitarian Law Rules*, 5 J. OF L. & CYBER WARFARE 1, 103 (Summer 2016).

¹³ Human Rights Watch, “Losing humanity: The case against Killer Robots,” p. 30; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), June 8, 1977, 1125 UNTS 3 [Hereinafter AP I], art. 51.

¹⁴ A/HRC/23/47, 2013, *supra*, para. 30.

¹⁵ A/HRC/23/47, 2013, *supra*, para. 85.

¹⁶ UN Report of the Special Rapporteur, A/HRC/26/36, 2014, para. 72.

There are also a number of underlying ethical concerns on the development and deployment of AWS.¹⁷ Questions have been raised as to whether it is ethical to allow a machine or a robot the power to decide on whether or not a human being should live or die.¹⁸ The use of AWS in this regard may violate the right to human dignity.¹⁹ These ethical concerns have also been highlighted by the International Committee of the Red Cross (“ICRC”) in its 2018 report on ethics and AWS.²⁰

Another paramount concern raised by AWS is that in cases where there may be violations IHL or IHRL, it may be difficult if not impossible to hold specific persons legally responsible.²¹ In the AWS debate, this is often referred to as the accountability gap.²²

On account of these challenges and concerns, the 2013 report gave an elaborate set of recommendations.²³ Nevertheless, there are two main recommendations that are of interest and relevance to this paper. First, the 2013 report called “on all States to declare and implement national moratoria on at least the testing, production, assembly, transfer, acquisition, deployment and use of [AWS] until such time as an internationally agreed upon framework on the future of [AWS] has been established.”²⁴ Second, the report proposed the establishment of a High Level Panel on AWS whose mandate include, among other things, an “assessment of the adequacy or shortcomings of existing international and domestic legal frameworks governing [AWS],”²⁵ and to “propose a framework to enable the international community to address effectively the legal and policy issues arising in relation to [AWS].”²⁶ Thus, as far back as 2013, the question on the adequacy of the existing legal framework to govern AWS was already posed—but up to date, it is yet to be answered.

One of the above suggested recommendations in the 2013 report was realised in 2016, when, following three UN informal meetings, the State Parties to the UNCCW

¹⁷ See generally Peter Asaro, *On Banning Autonomous Weapon Systems: Human Rights, Automation, and the Dehumanization of Lethal Decision-making*, 94 INT’L REV. OF THE RED CROSS 687-709 (2012).

¹⁸ A/HRC/23/47, 2013, *supra*, para. 95; see also Armin Krishnan KILLER ROBOTS: LEGALITY AND ETHICALITY OF AUTONOMOUS WEAPONS 150 (Ashgate, 2009).

¹⁹ Christof Heyns, *Autonomous weapons in armed conflict and the right to a dignified life: an African perspective*, SOUTH AFRICAN J. ON HUM. RTS, p.57-66 (2017); See also Thompson Chengea, *Dignity, Ubuntu, Humanity and Autonomous Weapon Systems (AWS) Debate: An African Perspective*, 13 BRAZILIAN J. OF INT’L L. 460–502 (2016).

²⁰ See generally ICRC, “Ethics and Autonomous Weapon Systems: An Ethical Basis for HumanControl?” Geneva, Apr. 3, 2018.

²¹ UN Report of the Special Rapporteur, 2013, *supra*, para. 77; Thompson Chengea, *Accountability Gap: Autonomous Weapon Systems and Modes of Responsibility in International Law*, 45 DENVER J.OF INT’L L. & POL’Y, 1-50 (2016).

²² Human Rights Watch, “Mind the Gap: Lack of accountability for Killer Robots,” 2015, p.4.

²³ A/HRC/23/47, 2013, *supra*, paras. 113-126.

²⁴ A/HRC/23/47, 2013, *supra*, para. 113 (emphasis added).

²⁵ A/HRC/23/47, 2013, *supra*, para. 114 (d) (emphasis added).

²⁶ A/HRC/23/47, 2013, 2013, *supra*, para. 114 (c) (emphasis added).

decided to form the UN Group of Governmental Experts on Lethal Autonomous Weapon Systems (“UNGGE”).²⁷

Part of the mandate of the UNGGE is to consider “possible options for addressing the humanitarian and international security challenges posed by emerging technologies in the area of lethal autonomous weapons systems.”²⁸ Although since 2017 the UNGGE has held several formal and informal meetings, the question on the adequacy of the existing legal framework to govern AWS is yet to be answered.

On account of the UNGGE mandate, the question on whether existing law is adequate to govern AWS is, therefore, critical. During the discussions of the UNGGE in August 2019, State delegations differed on the question whether existing law can adequately address the challenges relating to posed by AWS “or if further norms, regulations, rules or clarifications were needed.”²⁹

In that consideration, some States³⁰ and non-governmental organisations³¹ have suggested that an additional legally binding instrument is needed while others have posited that a “faithful compliance with already existing obligations under applicable international law” can suffice.³² Other States like France and Germany have suggested non-binding solutions such as a political declaration; guidelines, principles or codes of conduct.³³

Through some examples, this paper seeks to show—contrary to the views of some scholars³⁴—that AWS raise complex legal, ethical, and operational issues that are outside the arm’s reach of existing law—issues that can only be resolved by an additional legally binding instrument or treaty. The ICRC—an organisation considered to be the ‘guardian’ of IHL—also points to the insufficiency of existing law.³⁵ Once again, in this paper, existing law refers to all legal regimes under international law that are applicable to AWS.

III. THE INADEQUACY OF EXISTING LAW AND AWS: SOME VIEWS

²⁷ See, UNGGE,

[https://www.unog.ch/80256EEE600585943/\(httpPages\)/5535B644C2AE8F28C1258433002BBF14?OpenDocument](https://www.unog.ch/80256EEE600585943/(httpPages)/5535B644C2AE8F28C1258433002BBF14?OpenDocument).

²⁸ CCW/GGE.1/2019/3, *supra*, para. 11 (5) (e).

²⁹ UNGGE, Chair’s non-paper: Conclusions and Recommendations, Aug. 21, morning, para. 17 (c), available on file [Hereinafter Chair’s non-paper].

³⁰ These states include Austria, Brazil, Cuba, Finland, and African Group of States. ³¹ See “The Campaign to Stop Killer Robots,” available at www.stopkillerrobots.org ³² Chair’s non-paper, *supra*, para. 17 (e).

³³ The proposed political declaration by Germany and France is available here: [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/895931D082ECE219C12582720056F12F/\\$file/2018_LAWSGeneralExchange_Germany-France.pdf](https://www.unog.ch/80256EDD006B8954/(httpAssets)/895931D082ECE219C12582720056F12F/$file/2018_LAWSGeneralExchange_Germany-France.pdf).

³⁴ ICRC, *Expert meeting on Autonomous Weapon Systems: Technical, Military, Legal and Humanitarian Aspects*, Mar. 26-28, 2014, Geneva, Switz., pp. 8, 19, 22.

³⁵ ICRC, *Artificial Intelligence and Machine Learning in Armed Conflict: A Human-Centred Approach*, June 6, 2019.

It should be emphasised that questioning the adequacy of existing law to govern AWS is neither to deny its applicability nor is it to stigmatise all artificial intelligence (“AI”) technologies. Rather, the argument is that AI can only alleviate human suffering if it is adequately regulated and properly used. Insisting that existing law is adequate when it is not only further endangers human rights and lives of civilians and other protected persons.

States and organisations have expressed diverging views on the question whether existing law can adequately address the challenges posed by AWS “or if further norms, regulations, rules or clarifications were needed.”³⁶ In that consideration, some States³⁷ and non-governmental organisations³⁸ suggested that an additional legally binding instrument is needed while others posited that a “faithful compliance with already existing obligations under applicable international law” can suffice.³⁹ To ascertain whether existing law is adequate, this paper examines the different positions that have been taken by stakeholders and their merits.

In June 2021, in its highly publicised position on AWS, the ICRC — an organisation considered to be the “guardian” of IHL — stated that “existing IHL rules do not hold all the answers to the humanitarian, legal and ethical questions raised by AWS.”⁴⁰ For that reason, the ICRC indicated that “new rules are needed to clarify and specify how IHL applies to AWS, as well as to address wider humanitarian risks and fundamental ethical concerns.”⁴¹

The ICRC position is consistent with positions that have been taken by a number of States who are of the view that existing law is inadequate and that new law is needed.⁴² As such, of the policy options that have been suggested in the UNCCW, the option of a new legally binding instrument on AWS enjoys the most support.⁴³ For example, in their 2021 joint statement submitted to the UNCCW, Costa Rica, Panama, the Philippines, Sierra Leone and Uruguay noted the inadequacy of existing law and indicated that “a legally-binding instrument would strengthen the existing framework of international law.”⁴⁴ Further, they argued that “anything short of this [a legally

³⁶ UNGGE, Chair’s non-paper: Conclusions and Recommendations, 21 August, morning, para 17 (c), available on file [Hereinafter Chair’s non-paper].

³⁷ These states include Austria, Brazil, Cuba, Finland, and African Group of States.³⁸ See the Campaign to Stop Killer Robots, available at www.stopkillerrobots.org ³⁹ Chair’s non-paper, *supra*, para 17 (e).

⁴⁰ ICRC position on Autonomous Weapon Systems (2021)11; See also ICRC position on AWS, *supra*; ICRC, *Artificial intelligence and machine learning in armed conflict: A human-centred approach*, 6 June 2019.

⁴¹ *Id.*

⁴² Chair’s non-paper, *supra*, para 17 (c); See also CCW/GGE.1/2019/1/Rev.1, p.1.

⁴³ Suggested by 28 States in the GGE. Also, the United Nations Secretary General, Antonio Guterres, also stated that there should be new international law to ban “machines with the power and discretion to take lives without human involvement”, see *Secretary-General’s message to Meeting of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems*, 29 March, 2019.

⁴⁴ See “Joint Working Paper Submitted by the Republic of Costa Rica, the Republic of Panama, the Republic of the Philippines, the Republic of Sierra Leone and the Eastern Republic of Uruguay” (2021) 5.

binding instrument], including a political declaration or voluntary applicable guidance, can only be acceptable as an intermediary and/or complementary step towards a legally-binding instrument.”⁴⁵

Likewise, the Non-aligned Movement States made it clear that “regarding different proposals on a political declaration, code of conduct and other voluntary measures, including national weapons review process, Confidence Building Measures (CBMs) as well as the establishment of a Committee of Experts, NAM States Parties and other States Parties to the CCW believes that these measures cannot be a substitute for the objective of concluding a legally-binding instrument stipulating prohibitions and regulations.”⁴⁶

Nevertheless, there are also States who maintain that existing law is adequate and that there is no need for a new treaty on AWS. For example, in its 2021 submission to the CCW, Russia noted that it considers “existing legal regulation to be sufficient” and that “restrictions and principles deriving from IHL apply to all types of weapons without exception, including AWS.”⁴⁷ Similar sentiments were expressed by the United Kingdom which noted that “IHL and the existing regulatory framework for the development, procurement and use of weapons systems are capable of sufficiently regulating new capabilities.”⁴⁸ This position is similar to that of the United States and Australia.⁴⁹ Other States like France and Germany suggested non-binding solutions such as a political declaration; guidelines, principles or codes of conduct.⁵⁰

IV. LACUNA AND HUMAN RIGHTS LAW APPLICABLE TO AWS

As noted above, those who discuss the legal gap that is created by the use of AWS without human control mainly focus on IHL. Yet, the use of AWS also creates a legal gap in international human rights law (IHRL). As already indicated above, the AWS debate began in the UN Human Rights Council, an inter-governmental body whose mandate is the promotion and of protection of all human rights across the globe. Just like armed drones, AWS may be used in law enforcement situations and

⁴⁵ *Id.*

⁴⁶ See Working Paper of the Non-Aligned Movement (NAM) and Other States Parties to the Convention on Certain Conventional Weapons (CCW), Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems Geneva, 28 June – 05 July 2021, p.4 para 19.

⁴⁷ See “Russia’s Considerations for the report of the Group of Governmental Experts of the High Contracting Parties to the Convention on Certain Conventional Weapons on emerging technologies in the area of Lethal Autonomous Weapons Systems on the outcomes of the work undertaken in 2017- 2021” (2021) 2.

⁴⁸ See United Kingdom, “written contributions on possible consensus recommendations in relation to the clarification, consideration and development of aspects of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems” (2021) 1. ⁴⁹ See USA Submissions, CCW/GGE.1/2017/WP.6, 10 November 2017.

⁵⁰ See Germany-France proposed political declaration here [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/895931D082ECE219C12582720056F12F/\\$file/2018_LAWSGeneralExchange_Germany-France.pdf](https://www.unog.ch/80256EDD006B8954/(httpAssets)/895931D082ECE219C12582720056F12F/$file/2018_LAWSGeneralExchange_Germany-France.pdf)

counterterrorism operations that are outside situations of armed conflict.⁵¹ Where AWS are used in those situations, fundamental rights such as the right to life, the right to bodily security, the right to non-discrimination and freedom from torture are implicated and IHRL is applicable.⁵² In showing the relevance of IHRL and challenges posed by AWS, States have already noted their concerns of “possible bias in the data sets used in algorithm-based programming relevant to emerging techniques in the area of lethal autonomous weapons systems.”⁵³ States considered that such biases “may diminish, perpetuate or amplify social biases, including gender, and racial biases.”⁵⁴ Just like prohibitions on arbitrary deprivation of the right to life, the right to non-discrimination is part of customary international human rights law.⁵⁵ The potential use of AWS in law enforcement and counterterrorism operations raise difficult questions and challenges various assumptions that underlie IHRL. Thus, it is critical to ascertain whether IHRL is adequate to govern some of the new challenges that are brought about by the potential use of force through artificial agents.

A. State Obligations to Respect, Protect and Fulfil Human Rights

It is long held idea that IHRL seeks to govern the relationship between the State, as represented by State (human) agents on one hand, and the citizens on the other. Yet, with the advent of AWS, the question arises whether artificial agents can act as State agents, for example, for purposes of implementing law enforcement rules and applicable human rights norms. Under IHRL, who may or must be responsible for respecting, protecting and fulfilling human rights when AWS are used? Does the State obligation to respect, protect and fulfil human rights an obligation that is only applicable to a State’s human agents or can it be extended to State’s artificial agents? Answering these questions requires an understanding of what is meant by the duty to respect, protect and fulfil human rights.

The meaning of the obligation to respect, protect and fulfil human rights can be located in the old debate about whether human rights are a simple matter of specific standards of action that States ought to enforce⁵⁶ or whether the obligation should be understood in terms of a set of high-priority values.⁵⁷ One view proceeds from a legal standpoint, noting that IHRL provides for specific obligations that each State is bound to respect and enforce.⁵⁸ Such obligations are provided for in human rights treaties

⁵¹ Andrea Spagnolo, “Human rights implications of autonomous weapon systems in domestic law enforcement: sci-fi reflections on a lo-fi reality,” 43 *Questions of International Law*, p. 38 (2017).⁵² *Id.*

⁵³ CCW/GGE.1/2019/3, *supra*, para. 20 (a).

⁵⁴ Chair’s non-paper, *supra*, para. 19 (a).

⁵⁵ V Dimitrijevic, Customary law as an instrument for the protection of human rights (2006) p.10 available at https://www.ispionline.it/it/documents/wp_7_2006.pdf

⁵⁶ See HL Hart, “Are there any natural rights?” (1955) 64 *Philosophical Review* 175-191; J Tasioulas, “Taking rights out of human rights” (2010) 120 *Ethics* 647-678.

⁵⁷ A Gewirth, *Reason and action* (1978) Chicago: University of Chicago Press; J Griffin, *On humanrights* (2008) Oxford: Oxford University Press.

⁵⁸ See for example, Article 2 of ICCPR.

both at the regional and international level. In legal terms, the State obligations to respect, protect and fulfil human rights is defined as follows:

...the responsibility to ‘respect’ human rights [is] the responsibility of individuals and institutions not to harm the human rights of others through direct, detrimental action...the responsibility to ‘protect’ human rights [is] the responsibility of a third party, usually the State, to prevent and to react to human rights harm committed by others...the responsibility to ‘fulfil’ human rights [is] the responsibility to provide each person with access to the objects of his or her human rights.⁵⁹

The above-mentioned obligations are in reference to human agents or institutions that are manned and controlled by human agents. One of the common questions that is raised is whether it is possible for AWS to respect, protect and fulfil human rights such as the right to life, non-discrimination, freedom from torture, bodily integrity in the manner described above. This is a “can they do it question”. In other words, can AWS be programmed in a way that during a law enforcement or counterterrorism operation, they can refrain from interfering or curtailing the aforementioned rights and instead protect humans from rights abuses? On account of a number of IHRL norms that require human and value judgments during use of force – norms such principles of necessity and proportionality during police use of force – one view is that the obligations to respect, protect and fulfil human rights may not be performed by artificial agents.⁶⁰

There are those who think that the above view points out more of a technological limitation than a position that IHRL prohibits artificial agents from carrying out these obligations. For example, Article 1 of the European Convention on Human Rights (ECHR) relating to the obligation to respect human rights provides that “the High Contracting Parties shall secure to everyone within their jurisdiction the rights and freedoms (in the ECHR)”.⁶¹ Clearly, Article 1 of the ECHR does not specify whether States may only use human agents to secure human rights or whether States may use artificial agents to secure the rights of those within their jurisdiction. Of course, at the time when the ECHR was adopted, there were no prospects of artificial agents carrying out human rights obligations. As such, it can be assumed that the drafters were only making provisions in relation to human agents.

There is a fundamental view that human rights obligations, particularly, the obligation to respect human rights, contain in them moral values that can only be assumed by human agents. According to this view, the IHRL obligation to respect,

⁵⁹ D Karp, “What is the responsibility to respect human rights? Reconsidering the ‘respect, protect, and fulfil’ framework” (2020) 12 *International Theory* 86; UN Office of the High Commissioner for Human Rights, “International human rights law”, available at <https://www.ohchr.org/en/professionalinterest/pages/internationallaw.aspx> (accessed 10 August 2021).

⁶⁰ See Human Rights Watch, “Shaking the foundations: Human rights implications for killer robots” (2014) available at <https://www.hrw.org/report/2014/05/12/shaking-foundations/human-rights-implications-killer-robots> (accessed 10 August 2021).

⁶¹ Article 1 of ECHR.

protect and fulfil human rights should not be narrowly construed. The obligation to respect human rights must not be conceptualised as only requiring one to refrain from doing harm. Rather, the duty to respect human rights must be understood as a human responsibility not to dehumanise others and as such “involves the consideration of each person as a moral equal, the elevation of human rights practice as a basis for judgement inside of a moral agent’s self, and the rejection of state-centrism as the basis for all political responsibility.”⁶² Equally, the duty to protect human rights is then understood as coercion or refraining from coercion of moral agents, for example, law enforcement officials, and structuring of certain action(s) needed to secure human rights. In that same understanding, the duty to fulfil human rights mean allocating resources that are needed to secure certain human rights. In this formulation and understanding, responsibility-bearers are morally and/or legally required to do or refrain from doing something in relation to others’ human rights. Understanding human rights obligations in this way brings to the fore the idea that respecting, protecting and fulfilling human rights involves choices about when and why certain actions are taken or not taken. It becomes very questionable as to whether artificial agents may be capable of such reasoning to perform such duties.

In explaining the nature of the obligation to respect human rights, Karp notes that “the responsibility to respect human rights is about more than just outward action. It is also about moral agents’ beliefs, their inner ethical frameworks, and how these relate to and extend to others.”⁶³ This interpretation of the obligation to respect human rights is supported by a number of preambles and provisions of human rights treaties applicable to AWS.

The Preamble of the Universal Declaration of Human Rights (UDHR) recognises “the inherent dignity and of the equal and inalienable rights of all members of the human family [as] the foundation of freedom, justice and peace in the world.”⁶⁴ It notes that the full realisation of human rights requires “a common understanding of these rights and freedoms” and “that every individual and every organ of society, [should keep the] Declaration constantly in mind.”⁶⁵ It further calls on everyone to strive to teach, educate, promote and respect of human rights in order “to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.”⁶⁶

The above sentiments from the UDHR are also pronounced in the preambles of regional and international human rights treaties.⁶⁷ For example, the Preamble of the International Covenant on Civil and Political Rights (ICCPR) provides that “the individual [has] duties to other individuals and to the community to which he belongs,

⁶² Karp, *supra*, 83.

⁶³ Karp, *supra*, 97.

⁶⁴ Preamble of the UDHR.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ See the preambles of the International Covenant on Civil and Political Rights, the African Charter on Human and Peoples’ Rights and the American Convention for Human Rights.

[and] is under a responsibility to strive for the promotion and observance of the rights recognized in the (ICCPR)".⁶⁸ Likewise, the African Charter on Human and Peoples' Rights (ACHPR) recognise that the obligation to respect human rights also entails an individual obligation towards fellow members of the society.⁶⁹ The Preamble of the ACHPR particularly provides that "fundamental human rights stem from the attributes of human beings" and that "the enjoyment of rights and freedoms also implies the performance of duties on the part of everyone."⁷⁰ Equally, the Preamble of the American Convention on Human Rights (ACHR) provides that "the essential rights of man are...based upon attributes of the human personality."⁷¹ Further, in articulating the obligation to respect human rights, the ACHR notes that "for the purposes of the [ACHR], 'person' means every human being."⁷² A literal reading of provisions of human rights treaties reveals that they were addressed to human agents or natural persons rather than artificial agents which cannot have attributes of human beings. Yet, the autonomy in the critical functions of weapon systems has an implication of transferring to machines the duty to respect human rights of others. Now, this is a novel situation that has not been previously addressed by IHRL and presents a legal gap that the international community ought to address.

Article 1 of the UDHR provides that "all human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood."⁷³ In that regard, the UDHR notes that it is because humans are endowed with reason and conscience that they carry the duty to respect human rights, to recognise each other's humanity and respect each other's human rights. Equally, Article 6 of UDHR provides that "everyone has the right to recognition everywhere as a person before the law."⁷⁴ An interpretation of this provision would suggest that even where it is lawful to kill a particular individual, that individual is still entitled to be recognised as a person. In the sense of this provision, it can be noted that only humans can recognise the humanity of fellow humans. Yet, already there is technology that is referred to as "facial recognition technology", potentially raising the question whether artificial agents can also recognise an individual as a person before the law and whether such recognition is valid under IHRL.

The drafting history of the UDHR can also shade light on what is meant by the duty to respect human rights and whether such a duty may be transferred to artificial agents. During the drafting history of the UDHR, the Chinese delegation emphasized that respect for human rights entails "extending our consciousness to others" and that

⁶⁸ Preamble of ICCPR.

⁶⁹ See Articles 27-29 of ACHPR.

⁷⁰ Preamble of ACHPR.

⁷¹ Preamble of ACHR.

⁷² Article 1 (2) of ACHR.

⁷³ Article 1 of UDHR; see also preambles of the ICCPR, ACHPR, ACHR etc. The UDHR's use of the term "brotherhood" without reference to women is reflective of a patriarchal society that excluded women, even in declarations that claimed to recognise human rights for all.

⁷⁴ Article 6 of UDHR; see also Article 3 of ACHR; Article 16 of ICCPR.

“the individual must see from the perspective of others”.⁷⁵ It is in this sense that some have conceptualised the duty to respect human rights as a responsibility not to dehumanize others.⁷⁶ Therefore, the starting point of the obligation to respect human rights starts with recognising each other’s dignity and equal treatment in both legal and moral terms.⁷⁷ Equality, in this regard, is conceptualised as both a claim and a commitment, something only natural persons can do.⁷⁸

Human rights are not only for claiming but a moral value that each individual is expected to commit to.⁷⁹ Apparently, respect for human rights lies at the heart of what it means to be a human moral agent whose actions and decisions are based on strong moral evaluations.⁸⁰ Artificial agents are incapable of such moral evaluations. Thus, when one speaks of failure to respect human rights, what it means is that at the individual level, a moral agent has, in their decisions, actions or inactions, failed to see or give consideration to the human rights of others.⁸¹ The duty to respect human rights entails a belief in the worth of humans and their rights, not only as an idea but a matter of practice.⁸² When conceptualised this way, it becomes clear that artificial agents cannot carry the obligation to respect human rights since that was never the intention of the drafters of human rights treaties.

Nevertheless, at the time of drafting of many human rights treaties, it can be said that drafters may not have intended to place human rights obligations on non-state actors such as corporations. Yet today, corporations and other business enterprises carry the obligation to respect human rights. Now, there can be a view that since IHRL already recognise that legal persons like corporations – which are not natural persons – have a responsibility to respect human rights, perhaps, an analogy could be drawn for artificial agents to also carry the duty to respect human rights. The UN Office of the High Commissioner for Human Rights (OHCHR) has provided guidelines that provides that “business enterprises should respect human rights. This means that they should avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved.”⁸³ The OHCHR has noted that while human rights treaties generally do not impose direct legal obligations on

⁷⁵ J Hoover, “Rereading the Universal Declaration of Human Rights: Plurality and contestation, not consensus” (2013)12 *Journal of Human Rights* 229-230.

⁷⁶ Karp, *supra*, 97.

⁷⁷ J Waldron, “Dignity and rank” (2007) 48 *European Journal of Sociology* 201-237; C Reus-Smit, *Individual rights and the making of the international system* (2013) Cambridge: Cambridge University Press.

⁷⁸ A Phillips, *The politics of the human* (2015) 78 Cambridge: Cambridge University Press.

⁷⁹ Karp, *supra*, 97.

⁸⁰ C Taylor, “What is human agency?” in *Human Agency and Language: Philosophical Papers* (1985)15-44. Cambridge: Cambridge University Press.

⁸¹ Karp, *supra*, 99.

⁸² *Id.*

⁸³ OHCHR, “The corporate responsibility to respect human rights: An interpretive guide” (2012), Principle 11, available at https://www.ohchr.org/documents/publications/hr.pub.12.2_en.pdf (accessed 10 August 2021)

corporations, corporations are legally liable for human rights violations because just like natural persons, they can affect the enjoyment of human rights by others.⁸⁴

While corporate responsibility to respect human rights may seem an attractive analogy, it may be inapplicable to artificial agents. First, there are human agents behind every corporation who make decisions that direct the actions of a corporation. It is for this reason that in many cases of corporate responsibility for serious human rights violations, there is piercing of the corporate veil to hold human agents criminally liable because they are the ones making decisions for corporations. This is not the same with artificial agents like AWS without human control whose decisions may be independent from humans deploying them. Second, unlike in the case of artificial agents that cannot be punished, corporate responsibility for human rights is possible because in the event of them failing to respect human rights, it is possible to punish them. In this regard, the advent of artificial agents such as AWS pose novel questions and challenges core foundations of human rights. The interpretation of the obligation to respect human rights as entailing human agency crystallises if one considers the framework on the use of force by law enforcement officials and applicable human rights norms that have been developed over the years.

B. AWS and the Duty to Respect and Protect Human rights in Law Enforcement

In September 1990, the UN Congress on the Prevention of Crime and the Treatment of Offenders adopted the Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (UN Basic Principles). The UN Basic Principles have been accepted by States as critical guidelines on use of force by law enforcement officials and have been referred to by regional courts such as the European Court of Human Rights.⁸⁵ What is clear from the UN Basic Principles is that they were drafted with the intention to regulate human to human relationships when force is used not a relationship between a human and an artificial agent. Thus, in terms of the UN Basic Principles, a human agent is expected to carry the obligation to respect, protect and fulfil human rights when force is used.

The Preamble of the UN Basic Principles notes of the vital role of human law enforcement officials in the protection of fundamental human rights as provided for in the UDHR and the ICCPR.⁸⁶ The Preamble particularly notes that “consideration be given to the role of law enforcement officials in relation to the administration of justice, to the protection of the right to life, liberty and security of the person, to their responsibility to maintain public safety and social peace and to the importance of their qualifications, training and conduct.”⁸⁷ More importantly, in reference to human agency, the UN Basic Principles notes that “whenever the lawful use of force and

⁸⁴ OHCHR, *supra*, 10.

⁸⁵ *McCann v The United Kingdom* (1995), Application Number 18984/91, paras 138 and 157.

⁸⁶ See Preamble of the UN Basic Principles.

⁸⁷ *Id.*

firearms is unavoidable, law enforcement officials shall...exercise restraint in such use and act in proportion to the seriousness of the offence and the legitimate objective to be achieved.”⁸⁸ Further, law enforcement officials must “minimize damage and injury, and respect and preserve human life.”⁸⁹ Furthermore, in line with the State obligation to respect, protect and fulfil human rights, the UN Basic Principles note that governments and law enforcement agencies have an obligation to “ensure that all law enforcement officials are selected by proper screening procedures, have appropriate moral, psychological and physical qualities for the effective exercise of their functions.”⁹⁰ The language in the UN Basic Principles clearly shows reference to moral beings which can only be human agents not artificial agents.

In the above sense, the UN Basic Principles note that when training law enforcement officials, States are under an obligation to “give special attention to issues of police ethics and human rights, especially in the investigative process, to alternatives to the use of force and firearms, including the peaceful settlement of conflicts, the understanding of crowd behaviour, and the methods of persuasion, negotiation and mediation, as well as to technical means, with a view to limiting the use of force and firearms.”⁹¹ There is no doubt that only humans, and not artificial agents, can have situational awareness to understand crowd behavior and be able to persuade, negotiate and mediate. It is in view of artificial agents’ lack of these human qualities that in the context of policing assemblies, the UN Human Rights Committee recently noted as follows:

Fully autonomous weapons systems, where lethal force can be used against assembly participants without meaningful human intervention once a system has been deployed, must never be used for law enforcement during an assembly.⁹²

The above sentiments were also expressed in a 2016 joint report by the UN Special Rapporteur on extrajudicial executions (Christof Heyns) and the UN Special Rapporteur on the rights to freedom of peaceful assembly and of association (Maina Kiai) wherein they noted that “autonomous weapons systems that require no meaningful human control should be prohibited, and remotely controlled force should only ever be used with the greatest caution”.⁹³ Yet, these positions that have been taken by the UN Human Rights Committee and the UN Special Rapporteurs – albeit being positions that are preferred by many – are largely based on ethical considerations that are yet to be codified into law.

⁸⁸ Principle 5 of the UN Basic Principles.

⁸⁹ *Id.*

⁹⁰ Principle 18 of the UN Basic Principles.

⁹¹ Principle 20 of the UN Basic Principles.

⁹² CCPR/C/GC/37, General Comment No. 37 (2020) on the right of peaceful assembly (article 21), 17 September 2020, para 95.

⁹³ A/HRC/31/66, Joint report of the Special Rapporteur on the rights to freedom of peaceful assembly and of association and the Special Rapporteur on extrajudicial, summary or arbitrary executions on the proper management of assemblies, 4 February 2016, para 67 (f).

It is also important to note that the UN Basic Principles give reference to the human rights norms that perpetrators of human rights violations must be punished and that victims of human rights violations have a right to a remedy.⁹⁴ Further, when articulating command responsibility as one of IHRL mode of responsibility for human rights violations, it is clear that the drafters of the UN Basic Principles had in mind a human-to-human relationship that a human-to-artificial-agent relationship. In Principle 24, it is provided that “Governments and law enforcement agencies shall ensure that superior officers are held responsible if they know, or should have known, that law enforcement officials under their command are resorting, or have resorted, to the unlawful use of force and firearms, and they did not take all measures in their power to prevent, suppress or report such use.”⁹⁵ Yet, notwithstanding the fact that drafters had human agents in mind when they crafted most of these rules and guidelines on use of force, the question still remains whether it follows that the use of artificial agents is prohibited. The position in this paper is that this is not a simple question that can be fully answered by way of interpretation – it is a legal gap that needs to be bridged by a new legal instrument.

In December 1979, the UN General Assembly adopted Resolution 34/169 on the Code of Conduct for Law Enforcement Officials (Code of Conduct). This Code of Conduct is referenced in the UN Basic Principles mentioned above.⁹⁶ In a commentary on who qualifies as a “Law Enforcement Official”, the Code of Conduct notes that “the term ‘law enforcement officials’, includes all officers of the law, whether appointed or elected, who exercise police powers, especially the powers of arrest or detention.”⁹⁷ In terms of this definition, when army, security or intelligence officers – whether uniformed or not – exercise police powers, they are governed by the Code of Conduct and human rights rules that govern the conduct of law enforcement officials.⁹⁸ This definition and formulation has proven to be critical in the context of armed drones where the US’s Central Intelligence Agency participated in counterterrorism operations that were outside the context of armed conflict.

Nevertheless, the fundamental question remains whether the definition of Law Enforcement Officials as provided for in the Code of Conduct only covers human agents or if it can also cover artificial agents. Can a State appoint or elect an artificial agent to exercise police powers? In other words, when an artificial agent is allowed to exercise police powers, is it prohibited by IHRL to consider it to be a law enforcement official? While not autonomous, in a police operation in the Bronx, the New York Police Department has already used an unarmed 70-pound ground robot that was developed by Boston Dynamics.⁹⁹ This prompted the presentation of a Bill to the New York City Council by some Council Members calling for a law that “would prohibit

⁹⁴ Principles 23 and 26 of UN Basic Principles.

⁹⁵ Principle 24 of UN Basic Principles. ⁹⁶

See Preamble of UN Basic Principles.⁹⁷

Article 1(a) of Code of Conduct.

⁹⁸ Article 1(b) of Code of Conduct.

⁹⁹ M Wareham, “Don’t arm robots for policing” (2021) Human Rights Watch, available at <https://www.hrw.org/news/2021/03/24/dont-arm-robots-policing> (accessed 10 July 2021).

the New York City Police Department (NYPD) from using or threatening to use robots armed with a weapon or to use robots in any manner that is substantially likely to cause death or serious physical injury.”¹⁰⁰

It is clear that the efforts of the Council women and men who proposed the above-mentioned Bill are aimed at retaining human control over use of force. In its General Comment 36 on the Right to Life, the UN Human Rights Committee noted as follows:

The development of autonomous weapon systems lacking in human compassion and judgment raises difficult legal and ethical questions concerning the right to life, including questions relating to legal responsibility for their use. The Committee is therefore of the view that such weapon systems should not be developed and put into operation, either in times of war or in times of peace, unless it has been established that their use conforms with article 6 and other relevant norms of international law.¹⁰¹ (My emphasis)

It is clear here that while the UN Human Rights Committee notes the difficulties that are raised by AWS because they lack human qualities and as such takes the position that they should not be used, it is clear that nothing is expressly said in terms of Article 6 of the ICCPR that expressly prohibits the use of artificial agents. It is critical also to note that the UN Human Rights Committee invokes critical sentiments of ethics as a basis why use of certain AWS must not be allowed. Yet again, such ethics may not necessarily be part of the current codified law – at least in express form. Thus, while it is possible – through an interpretative vehicle – to take the position that use of force through artificial agents may be inconsistent with current IHRL, it is clear that an express legal rule on the need of human control that ought to be there is not there.

Similarly, the African Commission for Human and Peoples’ Rights, a regional organisation tasked with the protection of rights on the African Continent, has also called for retaining human control over use of force. In General Comment Number 3 on Article 4 relating to the right to life in the African Charter on Human and Peoples’ Rights, the African Commission notes that “any machine autonomy in the selection of human targets or the use of force should be subject to meaningful human control.”¹⁰² Yet, notwithstanding its demand for retainment of meaningful human control as it is critical for protection of human rights, the African Commission is aware that existing IHRL does not expressly outlaw or exclude the use of artificial agents. For this reason,

¹⁰⁰ Ben Kallos, Vanessa L. Gibson, Antonio Reynoso, “A Local Law to amend the administrative code of the city of New York, in relation to prohibiting the police department from using a robot armed with a weapon” (2021), available at <https://legistar.council.nyc.gov/LegislationDetail.aspx?ID=4856756&GUID=716C2D7E-ED51-4C9E-9312-AB9529B6C812&Options=ID%7cText%7c&Search=> (accessed 13 August 2021).

¹⁰¹ CCPR/C/GC/36, General comment No. 36 on article 6 of the International Covenant on Civil and Political Rights on the right to life, 3 September 2019, para 65.

¹⁰² General Comment No. 3 on the African Charter on Human and Peoples’ Rights: The Right to Life (Article 4), para 35.

in its 2021 Resolution 473, the African Commission recommended that the emerging notion of human control must be codified as a human rights principle.¹⁰³ It particularly appealed to States as follows:

[The African Commission] appeals to State Parties to ensure that all AI technologies, robotics and other new and emerging technologies which have far reaching consequences for humans must remain under meaningful human control in order to ensure that the threat that they pose to fundamental human rights is averted. The emerging norm of maintaining meaningful human control over AI technologies, robotics and other new and emerging technologies should be codified as a human rights principle.¹⁰⁴ (My emphasis)

The above call for codification of human control points to the Commission's realisation of a lacuna in current IHRL – something that ought to be there is not there.

Does the existence of IHRL terms and words that show that drafters of relevant IHRL treaties did not anticipate uses of artificial agents towards respect and protection of human rights a reason to exclude artificial agents? Indeed, in local jurisdictions, courts are already grappling with the question whether the interpretations of terms and words in existing law – words and terms that were crafted with human agents in mind – should include artificial agents. For example, in the 2021 Australian case of *Thaler v Commissioner of Patents*, the Court grappled with the question whether an AI system can be recognised in law as an inventor for purposes of an Australian law relating to registration of patents.¹⁰⁵ The Australian Commissioner of Patents had ruled that in terms of the applicable law, only humans, not artificial agents, are recognised as inventors.¹⁰⁶ On appeal, the Court ruled that given the reality of AI technology, artificial agents can be inventors although they cannot be beneficiaries of such inventions.¹⁰⁷ The *Thaler* case discusses questions that are relevant to the current considerations whether IHRL obligations are only addressed to human agents or can also be applicable to artificial agents.

In the foregoing discussion, the paper has referred to various words that are used in the human rights treaties and guidelines – words that suggest that such treaties and guidelines were addressed to human agents not artificial agents. In the *Thaler* case, the Australian Commissioner of Patents had insisted that the use of the word “inventor” in the relevant law could only have been addressed to human agents. In commenting on this, the Court noted as follows:

...More is required than mere resort to old millennium usages of ...word[s]. If words are only “pictures of ideas upon paper” (*Dodson v Grew* (1967) *Wilm* 272 at 278; 97

¹⁰³ ACHPR/Res.473 (EXT.OS/XXX1) 2021, Resolution on the need to undertake a Study on human and peoples' rights and artificial intelligence (AI), robotics and other new and emerging technologies in Africa, para 6.

¹⁰⁴ *Id.*

¹⁰⁵ *Thaler v Commissioner of Patents* [2021] FCA 879.

¹⁰⁶ *Thaler, supra*, paras 85, 87, 100, 101.

¹⁰⁷ *Thaler, supra*, para 226.

ER 106 at 108 per Wilmot CJ) and if, as Holmes K described it, they are not “crystal[s], transparent and unchanged, [but] the skin of a living thought and may vary greatly in colour and content according to the circumstances and the time in which [they] are used” (Towns v Eisner, 245 US 418, 425 (1918)), I need to grapple with the underlying idea, recognising the evolving nature of patentable inventions and their creators. We are both created to create. Why cannot our own creations also create?¹⁰⁸

As has already been noted, in many human rights treaties and documents, obligations are addressed to persons, individuals and State agents such as law enforcement officials. There is no doubt that times have changed and circumstances that existed when these words were used have also changed. At the time of adoption of various human rights treaties, there were neither artificial agents nor were there any such contemplation by the drafters of IHRL treaties. In the spirit of Justice Beach in the Thaler case who asked, if “we are both created to create, why cannot our own creations also create?”, some may further ask: As creations, we are bearers of obligations, why cannot our own creations also bear obligations? Just like there is no express IHRL provision that expressly state that only human agents may carry the obligation to respect, protect and fulfil human rights, the Court noted that “there is no specific provision in the Act [Australian law] that expressly refutes the proposition that an artificial intelligence system can be an inventor”.¹⁰⁹

It is important, however, to note that the Thaler case, particularly the reasoning viz ability to invent, can be distinguished from how artificial agents would interact with obligations to respect, protect and fulfil human rights. In paragraph 119, the Court particularly noted that “there is no aspect of patent law, unlike copyright law involving the requirement for a human author or the existence of moral rights, that would drive a construction of the Act as excluding non-human inventors”.¹¹⁰ It is clear in Thaler that the Court recognises that the construction of certain laws may preclude their applicability to artificial agents especially where issues of ethics and morality are central. It is also no wonder that while recognising that an artificial intelligence system may be recognised as an inventor, the Court noted that “such a non-human inventor can neither be an applicant for a patent nor a grantee of a patent.”¹¹¹ In so holding, the Court recognised that while artificial agents may be capable of performing certain acts, they cannot be bearers of rights and obligations.

The Thaler case also discussed another critical question that is relevant to the current consideration – the issue of what is meant by decision-making when artificial agents are used. In the UNGGE discussions on AWS, a number of States often argue that AWS may not be referred to as artificial agents or as making their own decisions. Indeed, one of the Guiding Principles of the UNGGE provides that “in crafting potential policy measures, emerging technologies in the area of lethal autonomous

¹⁰⁸ Thaler, *supra*, para 15.

¹⁰⁹ Thaler, *supra*, para 118.

¹¹⁰ Thaler, *supra*, para 119.

¹¹¹ Thaler, *supra*, para 226.

weapons systems should not be anthropomorphized.”¹¹² The essence of this principle is to say that even where AWS are designed to perform police and combatant functions – functions that have been the preserve of human agents – they should not be anthropomorphized. According to the reasoning of Thaler, taking such a stance is against logic and is tantamount to burying one’s head in sand. It is worthwhile to repeat verbatim the questions that were posed by Justice Beach in the Thaler case:

127 Who sets the goal for the system? The human programmer or operator? Or does the system set and define its own goal? Let the latter be assumed. Further, even if the human programmer or operator sets the goal, does the system have free choice in choosing between various options and pathways in order to achieve the goal? Let that freedom also be assumed. Further, who provides or selects the input data? Let it be assumed that the system can trawl for and select its own data. Further, the larger the choice for the system in terms of the algorithms and iterations developed for the artificial neural networks and their interaction, the more autonomous the system. Let it be assumed that one is dealing with a choice of the type that DABUS has in the sense that I have previously described.

128 Making all of these assumptions, can it seriously be said that the system is just a brute force computational tool? Can it seriously be said that the system just manifests automation rather than autonomy? Admittedly, one should not confuse the two concepts as is sometimes the case for certain types of machine learning (Daria Kim, “AI-Generated Inventions”: Time to Get the Record Straight?” (2020) 69(5) GRUR International 443, 446). But it would seem to me that such a system could at least be described as semi-autonomous if not autonomous. And it would likely be fair to describe its output in such terms at least.

131 Let me make a more general point. If the output of an artificial intelligence system is said to be the invention, who is the inventor? And if a human is required, who? The programmer? The owner? The operator? The trainer? The person who provided input data? All of the above? None of the above? In my view, in some cases it may be none of the above. In some cases, the better analysis, which is consistent with the s 2A object, is to say that the system itself is the inventor. That would reflect the reality. And you would avoid otherwise uncertainty. And indeed, that may be the case if the unit embodying the artificial intelligence has its own autonomy. What if it is free to trawl the internet to obtain its own input or training data? What about a robot operating independently in a public space, having its own senses, learning from the environment, and making its own decisions? And what about the more exotic, such as a mobile unit on Mars left to its own devices and not seeking instructions from Earth?

The totality of the Court’s questions here is that it is impractical, undesirable and dishonest to refer to decisions of an autonomous systems as if they were decisions of the human agent who developed, activated or deployed it. If it is clear that the system is making autonomous decisions, then such decisions are that of the artificial

¹¹² Principle (i) of the UNGGE Guiding Principles, CCW/GGE.1/2019/3, UNGGE 2019 Report, p.12.

agents. In the context of the obligation to respect, protect and fulfil human rights, this poses very difficult questions that points to a lacuna in IHRL. The questions that have been discussed so far also extends to the international law notion of State responsibility of international wrongful acts that is discussed under the Lacuna in Responsibility Law Applicable to AWS section below.

V. LACUNA IN WEAPONS LAW AND LEGAL REVIEW OF NEW WEAPONS

The legal gap that is created by AWS can also be noticed in international weapons law (“IWL”) – the law that governs weaponry. Central to IWL is the legal review of new weapons, a process whose objective is to make sure that States do not develop or transfer weapons that are prohibited by international law or whose use is inconsistent with norms of international law. Many States agree that legal reviews of new weapons “are a useful tool to assess nationally whether potential weapons systems based on emerging technologies in the area of lethal autonomous weapons systems would be prohibited by any rule of international law applicable to that State in all or some circumstances.”¹¹³ The UNGGE has since repeated the language found in Article 36 of Additional Protocol I on the review of new weapons,¹¹⁴ noting, in particular, that “in accordance with States’ obligations under international law, in the study, development, acquisition, or adoption of a new weapon, means or method of warfare, determination must be made whether its employment would, in some or all circumstances, be prohibited by international law.”¹¹⁵

While it is worthwhile that States involved in the discussions have agreed on the importance of legal reviews of new weapons, it ought to be noted—as will be fully discussed below—that the utility of legal reviews of new weapons depends on whether or not the existing law against which one measures the new weapons is adequate to govern such a weapon. The inadequacy of existing law limits the effectiveness of legal review of new weapons.

It is also important to note that under the current discussions, some States have noted that there are weapon systems that would be illegal per se.¹¹⁶ States have noted, in particular, that “any weapons system, including a weapon system incorporating emerging technologies in the area of lethal autonomous weapons systems, must not be used if it is of a nature to cause superfluous injury or unnecessary suffering, or if it is indiscriminate, that is, incapable of being used in accordance with the prohibition on indiscriminate attacks, or is otherwise incapable of being used in accordance with the requirements and principles of IHL.”¹¹⁷

The above admission that there are weapon systems that would be illegal per se by virtue of the degree of their autonomy raises the question whether this makes it

¹¹³ CCW/GGE.1/2019/3, *supra*, para. 17 (i).

¹¹⁴ AP I, art. 36.

¹¹⁵ CCW/GGE.1/2019/3, *supra*, para. 17(i) and Principle (e), Annex IV, p.13.

¹¹⁶ Chair’s non-paper, *supra*, para. 16 (i).

¹¹⁷ Chair’s non-paper, *supra*, para. 16 (i) (emphasis added).

an obvious case that additional regulations are needed to codify such prohibitions in express terms.

Currently, there are three cardinal rules of IWL that are considered in the legal review of new weapons. These are prohibitions on weapons that are indiscriminate by nature,¹¹⁸ weapons that cause superfluous harm,¹¹⁹ and weapons that cause serious damage to the environment.¹²⁰ These rules have attained customary international law status and are part of Article 36 of Additional Protocol I on the review of new weapons.¹²¹ They are the basis upon which a new weapon can be deemed illegal *per se* or a lawful weapon that can be used in compliance with IHL.

There are scholars and States that posit that once AWS are deemed compatible with the above three rules, then that must be the end of the debate. This is certainly not a true capture of all the concerns associated with AWS—in particular, ethics and value-based concerns that go beyond what is found in existing law.¹²² As earlier noted in the framing of this paper, something that ought to be there is absent. With the advent of AWS, the three IWL rules that were once an ultimate yardstick on the acceptability of a new weapon have become, unfortunately, an inadequate scale.

The drafters of the above-mentioned IWL rules did not anticipate weapons that carry computers that make decisions and legal judgments on the use of force against humans.¹²³ Reasonably, they concerned themselves with review of new weapons that are nothing more than tools in the hands of fighters. They did not anticipate ‘robo-combatants’—a situation that arises in cases where weapon systems are fully autonomous.

The legal inquiry in terms of Article 36 is whether a weapon is lawful in terms of the three IWL rules and can be used by humans in compliance with applicable laws. The question is not whether the weapon or capability can, by itself, make lawful decisions on the use of force and carry out legal judgments associated with such decisions. That duty has, from time immemorial, been the sacred preserve of humans. Thus, AWS enter uncharted territory where they threaten—or at the very minimum—question some of humanity’s long held views and values.¹²⁴

Of course, there are States that have argued that under no circumstances can robots or computers make decisions to use force because they only execute pre-

¹¹⁸ Rule 71 of ICRC Customary Study; art. 51(4) of AP I; art. 8 (2)(b) of ICC Statute; and para. 42 (b) of San Remo Manual.

¹¹⁹ Rule 70 of ICRC Customary Study; art. 35(2) of AP I; art. 20 (2) of Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non- International Armed Conflicts (Protocol II), June 8, 1977, 1125 UNTS 609; Preamble of UNCCW; art. 3(3) Protocol II to CCW; art. 8 (2) (b) of ICC Statute; art. 23 (e) of 1899 Hague Regulations. ¹²⁰ Rule 45 of ICRC Customary Study; AP I, art. 35 (3) and art. 55 (1).

¹²¹ AP I, art. 36.

¹²² ICRC, “Ethics and Autonomous Weapon Systems: An Ethical Basis for Human Control?,” Apr. 3, 2018, p.5.

¹²³ Chengeta, *Are AWS the subject of Article 36 on the Review of New Weapons?* (2016).

¹²⁴ Simpson & Christopher, *Lacunae and Silence in International Space Law—a Hypothetical Advisory Opinion from the International Court of Justice* (2017); Morita, *The Issue of Lacunae in International Law and Non Lique Revisited* (2017), pp.33-51.

programmed human decisions.¹²⁵ According to this view, there is nothing far reaching about AWS to the extent of creating a lacuna. This view appears to be anchored on a misdirection of what human decision-making means when force is used.¹²⁶

The decision to use force or to attack a human cannot be sufficiently pre-programmed.¹²⁷ Once a decision has been made, it has to be reviewed throughout the targeting cycle until the final release of force.¹²⁸ The IHL precautionary rule demands this.¹²⁹ As will be further argued below, the issue of decision-making and the notion of attack under IHL is problematic in cases where AWS are used.

In terms of the existing legal regime, new weapons ought to be reviewed in terms of applicable laws, the applicable laws of which are inadequate. It is to this end that the ICRC has noted that while the current legal reviews of new weapons are important, “they are not a substitute for States working towards internationally agreed limits on autonomy in weapon systems.”¹³⁰ I suggest adding other rules to the existing three IWL rules—for example, the requirement of fixed, verifiable minimum level of human control over weapon systems.

A. Lacuna in IHL and challenges of applying IHL to AWS

In the UNGGE discussions on AWS, there is an agreement among States that international law, in particular, IHL, is applicable to AWS and that AWS must be used in compliance with international law.¹³¹ This is also reflected in the UNGGE guiding principles where it is stated that “international humanitarian law continues to apply fully to all weapons systems, including the potential development and use of lethal autonomous weapons systems.”¹³²

Further, States have pointed out that the nature of IHL rules such as distinction and proportionality require that humans make judgments on the use of force.¹³³ To this end, it has been noted that “human judgment is essential in order to interpret, implement and comply with international law,”¹³⁴ and that such “human judgment cannot be replaced by machines.”¹³⁵

There are four points that are worth noting in relation to the above acknowledgments and pronouncements by States. First, it is trite that international law

¹²⁵ This is one of the main arguments of the United States in the UN Group of Governmental Experts on Lethal Autonomous Weapon Systems.

¹²⁶ Chengeta, *Defining the Notation of Meaningful Human Control over AWS* (2017).

¹²⁷ ICRC Statement to the UN CCW Group of Governmental Experts on Lethal Autonomous Weapon Systems, Mar. 25-29, 2019.

¹²⁸ *Id.*

¹²⁹ AP I, art. 57.

¹³⁰ ICRC Statement to the UN CCW Group of Governmental Experts on Lethal Autonomous Weapon Systems, Mar. 25-29, 2019.

¹³¹ CCW/GGE.1/2019/3, *supra*, para. 16 (a).

¹³² CCW/GGE.1/2019/3, *supra*, Annex IV, p.13.

¹³³ CCW/GGE.1/2019/3, *supra*, para. 17 (e) and (f).

¹³⁴ Chair’s non-paper, *supra*, para. 16 (f).

¹³⁵ Chair’s non-paper, *supra*, para. 16 (f).

is applicable to the use of force by States.¹³⁶ Yet, the question at hand is not whether international law is applicable to use of force in general, but whether existing international law allows or can adequately govern the use of force through AWS. Thus, a mere acknowledgment by States that international law is applicable to AWS does not, respectfully, advance the debate on AWS.

Second, it is trite IHL that in armed conflict, any use of force—regardless of weapon, means or method used—must be done in compliance with IHL targeting rules. Thus, once again, this pronouncement by States in the UNGGE and its inclusion in the eleven principles does not, respectfully, advance the debate. The question that remains to be answered is whether existing IHL is adequate; whether certain AWS are illegal per se and or can be used in compliance with IHL. These are substantive questions that need to be fully answered.

Third, it is jumping the huddle to pronounce that AWS must be used in compliance with IHL because there are critical legal and ethical question as to whether they should be used in the first place. Further, pronouncing that AWS should be used in compliance with IHL presupposes—and wrongly so—the adequacy of existing IHL.

Fourth, while one agrees with States' pronouncements that "human judgment cannot be replaced by machines,"¹³⁷ it should be noted that there is nowhere in the existing IHL where this is expressly written. At best, it is an inference or interpretation of existing law as assisted with certain important human values that are not necessarily codified in existing IHL. Now that this expression is missing in existing IHL and yet so important to States, it points to the need for additional law.

The above view is supported by a number of scholars who note that the advent of autonomy in weapon systems poses novel and difficult questions of IHL interpretation.¹³⁸ Chief among these questions is whether it may or must be only humans/natural persons who are responsible for respecting and implementing IHL rules or whether such responsibilities may be passed to artificial agents.¹³⁹ This has led to the emergence of a widely discussed notion of maintain human control over weapon systems. In regard to the notion of maintain human control, some scholars have noted that it is not clear what level of human control is required, permitted or prohibited in terms of existing IHL.¹⁴⁰ The fundamental question is whether IHL is solely an effects-based regime, concerned only about compliance with IHL provisions not on how belligerents comply with such provisions or whether IHL mandates that only humans bear the obligation to comply with its provisions. It is in this sense that

¹³⁶ It is the essence of *jus ad bellum* and *jus in bello*. See also Thompson Chengeta, Dapo Akande, Christof Heyns, and Lawrence Hill-Cawthorne, *The Right to Life and the International Law Framework Regulating The Use Of Armed Drones*, 65 INT'L & COMP. L. Q. 4, 791-827 (2016).

¹³⁷ Chair's non-paper, *supra*, para. 16 (f).

¹³⁸ Sipri Report, 2021, p.14.

¹³⁹ Sipri Report, 2021, p.14.

¹⁴⁰ Sipri Report, 2021, p.3.

the UNGGE has inquired on what type and degree of human control over weapon systems is required by IHL.¹⁴¹

It is important to note that the demand to maintain human control over use of force also stems from ethical considerations – considerations of which are not sufficiently captured in existing IHL.¹⁴² In answering these questions, SIPRI concluded that current IHL does not provide an answer to these questions.¹⁴³ States like Venezuela have argued that IHL was conceptualised with natural persons in mind and as such it is a human-centric framework where only individual humans are agents who are expected to carry out IHL obligations.¹⁴⁴ Of course, these views are supported by those who apply deontological ethics to the debate. Nevertheless, other States such as the United States are of the view that human control is not necessarily important as the crux of the matter is minimising civilian harm. For those who approach the matter from this standpoint – often supported by invoking consequentialist ethics – it does not matter whether IHL rules are applied by natural persons or artificial agents as long as there is minimisation of civilian harm.¹⁴⁵

Another difficult question that points to a lacuna in IHL relates to the question when IHL restrictions on attacks begin and end in cases where AWS are used. Where AWS are used it may not be clear as to when an attack begins and when it ends. When it comes to the starting point of an attack, there are two main theories – the theory of direct endangerment and the placement theory. In terms of the direct endangerment theory, where AWS are used, “direct endangerment could be interpreted as occurring at various points in time, including: (a) at the point when the person or object is selected for force application; (b) earlier, at the point when the person or object is identified as a potential target; or (c) even earlier, at the point when the AWS is activated and begins attempting to match input data to the target profile library, because then all persons or objects within the operational area of the AWS are potentially directly endangered.”¹⁴⁶ On the other hand, in placement theory, the activation of AWS is considered to be similar to the placement of a mine.¹⁴⁷ The fundamental question is what this means in terms of IHL, whether there are sufficient answers or if there is need for further clarifications of the law.

¹⁴¹ See CCW Convention, GGE LAWS, ‘Report of the 2019 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems’, CCW/GGE.1/2019/3, 25 Sep. 2019, p. 5.

¹⁴² Sipri Report, 2021, p.52.

¹⁴³ Sipri Report, 2021, p.52.

¹⁴⁴ Working Paper of Venezuela to UNGGE.

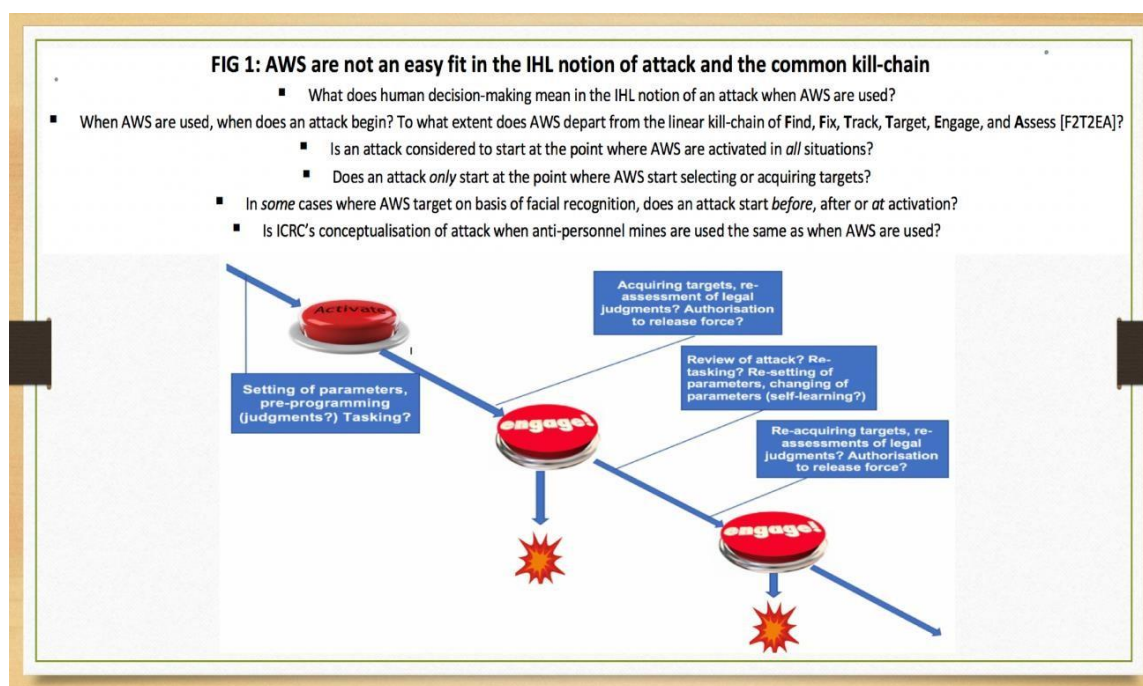
¹⁴⁵ L Lewis, “Killer robots reconsidered: Could AI weapons actually cut collateral damage?” (2020) *Bulletin of Atomic Scientists*; CCW Convention, ‘Israel considerations on the operationalization of the eleven guiding principles adopted by the Group of Governmental Experts’ (2020); CCW Convention, GGE LAWS, “Working paper of the Russian Federation: National implementation of the guiding principles on emerging technologies in the area of lethal autonomous weapons systems” (2020); CCW Convention, UNGGE LAWS, “US commentaries on the guiding principles” (2020).

¹⁴⁶ Sipri Report, 2021, p.23.

¹⁴⁷ Sipri Report, 2021, p.24.

The legal and ethical arguments that the decision to use force and the making of legal judgments associated with such force cannot be delegated to computers¹⁴⁸ are anchored on one's understanding as to when the use of AWS constitutes an attack. Likewise, perceptions on the sufficiency or meaningfulness of human control exercised over a particular attack are dependent on where one thinks an attack begins and ends.

More importantly, the application of certain IHL targeting rules also depends on where the attack starts and ends.¹⁴⁹ Yet, while IHL defines an attack as “acts of violence against the adversary,” there is no indication as to when an attack begins.¹⁵⁰ In the past, there was no need for the law to pinpoint the beginning and end of an attack because weapons were unsophisticated, and it was easy to locate when an attack starts. Yet, the questions in **Fig 1** below clearly shows this may no longer be the case where AWS are used.



While existing unmanned systems such as armed drones have followed—with easy adaptation—the F2T2EA linear kill-chain within which it is easy to locate the start and end of an attack, the introduction of autonomy in weapon systems makes the kill-chain obsolete “to a point that questions the notion of the current looped-linear F2T2EA methodology.”¹⁵¹

¹⁴⁸ ICRC, “Ethics and Autonomous Weapon Systems: An Ethical Basis for Human Control?,” Apr. 3, 2018, p.5.

¹⁴⁹ See AP I, art. 57.

¹⁵⁰ AP I, art. 49 (1).

¹⁵¹ Benitez, *It's about time: The pressing need to evolve the kill chain* (2017).

Autonomy in AWS introduces a complicated time/range paradigm where the kill chain is executed internally or via a network of other AWS presenting a multi-domain battle that is characterised by challenges of cross-domain synergies. Existing law did not anticipate this, and it has never been experienced before.

Some may argue that the question as to when an attack begins is not new in disarmament. When the question was asked in the case of anti-personnel mines, it was resolved that a mine constitutes an attack when a person is endangered by it.¹⁵² Yet, this “endangerment threshold” may not necessarily be helpful in the case of AWS which are more sophisticated and unpredictable.

Furthermore, an attack using mines is not a lawful attack that is contemplated in Article 49 (1) of AP I. The definition of an attack as “acts of violence against the adversary”¹⁵³ in Article 49(1) only covers lawful attacks—those that are directed against legitimate targets. Under IHL, for one to be an adversary—against whom it is lawful to direct an attack—a person has to be a combatant or directly participating in hostilities. Depending on the level of autonomy, not all AWS attacks are unlawful as is the case with anti-personnel mines.¹⁵⁴ As such, AWS presents a case of uncharted territory in as far as it concerns the question when the use of AWS constitutes an attack.

VI. LACUNA IN RESPONSIBILITY LAW APPLICABLE TO AWS

In addition to the legal gaps in IHRL, IWL and IHL discussed above, other legal gaps can be noted in international law relating to legal responsibility. This is mainly in regard to State responsibility and individual responsibility.

A. State Responsibility

The development and potential use of AWS without human control raises difficult questions that show either a gap in existing law or the need for further clarification. The following are some of the questions: Is the mere use of AWS without human control an internationally wrongful act in international law attracting State responsibility? Can an artificial agent be recognised as a State agent in terms of the law on State responsibility? What would be the conditions that must be satisfied to prove that an artificial agent was representing the State at the time of committing wrongful act? It is likely that AWS may be used across different jurisdictions, particularly in counter-terrorism operations. When this happens, what are the implications to State responsibility for human rights violations? Notions of

¹⁵² ICRC Report on the Meeting of the International Society of Military Law and the Law of War [Lausanne, 1982], para. 1960, p. 622; Maslen, *Anti-Personnel Mines under Humanitarian Law: Aview from the Vanishing Point*, p. 190.

¹⁵³ Emphasis added.

¹⁵⁴ The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti- Personnel Mines and on their Destruction (the Ottawa Convention), Mar. 1, 1999, has 133 signatories and 164 State Parties.

extraterritorial application of human rights and rules of State responsibility are mainly anchored on the ability of a State to exercise effective control. Where an artificial agent is operating across borders and making its own decisions, can a State still be said to be in effective control to attract State responsibility?

The law on State responsibility has been articulated in terms of the UN Draft Articles on Responsibility of States for Internationally Wrongful Acts (hereinafter Draft Articles).¹⁵⁵ The Draft Articles lay out “the general conditions under international law for the State to be considered responsible for wrongful actions or omissions, and the legal consequences which flow there- from.”¹⁵⁶ Article 1 of the Draft Articles is critical for this paper’s discussion and provides that “every internationally wrongful act of a State entails the international responsibility of that State.” The international law norm here is that where a State breaches international law, it entails the international responsibility of that State.¹⁵⁷

In terms Article 2 of the Draft Articles, “there is an internationally wrongful act of a State when conduct consisting of an action or omission: (a) is attributable to the State under international law; and (b) constitutes a breach of an international obligation of the State.” A number of case law emphasise that these two conditions need to be satisfied when articulating the international responsibility of a State for an internationally wrongful act.¹⁵⁸ In other words, for there to be international responsibility of a State, there must be “an unlawful international act be imputed to it, that is, that there exists a violation of a duty imposed by an international juridical standard.”¹⁵⁹ It is important to briefly discuss what is meant by these two conditions and show how the deployment of artificial agents such as AWS poses challenges that may not have been anticipated.

1. Conduct that constitutes a breach of an international obligation of the State

¹⁵⁵ Text of the Draft Articles was adopted by the International Law Commission at its fifty-third session, in 2001, and submitted to the General Assembly as a part of the Commission’s report covering the work of that session (A/56/10).

¹⁵⁶ Draft Articles, *supra*, 31.

¹⁵⁷ See for example cases such as *Phosphates in Morocco*, Judgment, 1938, PCIJ, Series A/B, No. 74, p. 10, at p. 28; *Factory at Chorzów*, Jurisdiction, Judgment No. 8, 1927, PCIJ, Series A, No. 9, p. 21; *Merits*, Judgment No. 13, 1928, PCIJ., Series A, No. 17, p. 29; *Corfu Channel*, Merits, Judgment, ICJ Reports 1949, p. 4, at p. 23; *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, Merits, Judgment, ICJ Reports 1986, p. 14, at p. 142, para. 283, and p. 149, para. 292; *Reparation for Injuries Suffered in the Service of the United Nations*, Advisory Opinion, ICJ Reports 1949, p. 174, at p. 184; *Interpretation of Peace Treaties with Bulgaria, Hungary and Romania, Second Phase*, Advisory Opinion, ICJ Reports 1950, p. 221.

¹⁵⁸ *United States Diplomatic and Consular Staff in Tehran*, Judgment, ICJ Reports 1980, p. 3, at p. 29, paras 56, 90; *Military and Paramilitary Activities in and against Nicaragua (supra)*, pp. 117–118, para. 226; and *Gabc’ikovo- Nagymaros Project case*, p. 54, para. 78.

¹⁵⁹ *Dickson Car Wheel Company (USA) v. United Mexican States*, UNRIIAA, vol. IV (Sales No. 1951.V.1), p. 669, at p. 678 (1931).

Article 12 of the Draft Articles provides that “there is a breach of an international obligation by a State when an act of that State is not in conformity with what is required of it by that obligation, regardless of its origin or character.” Likewise, various international cases note that for there to be State responsibility for an internationally wrongful act, the conduct complained of should be in violation of international law or the obligation of a State – as covered in both treaty and non-treaty obligations such as those stipulated by customary international law.¹⁶⁰ As already indicated, the question is whether the mere use of an artificial agent such as an AWS without human control is an internationally wrongful act in international law attracting State responsibility?

While various States, scholars and organisation have indicated their opposition to the idea of deploying artificial agents in use of force, there is no express or well-defined State obligation in international law that stipulates that States are prohibited from using such artificial agents during use of force. At best, what is invoked is the argument that the deployment of artificial agents in use of force is inconsistent with the right to dignity and ethics and as such, whether or not such agents may be able to comply with laws on the use of force is beside the point. While that argument is strong, it is clear that it is a matter of interpretation of the right to dignity and ethics. While it is strongly opposed on ethical grounds and arguments anchored in the right to dignity, there is no express State obligation against use of artificial agents in armed conflict or law enforcement operations. It is argued in this regard that there is a lacuna because something that ought to be there in international law is not there.

2. Conduct that is attributable to the State under international law The

second condition for State responsibility is that the wrongful conduct complained of must be attributable to the State. The commentary of the Draft Articles in relation to the conduct that is attributable to the State under international law notes as follows:

For particular conduct to be characterized as an internationally wrongful act, it must first be attributable to the State. The State is a real organized entity, a legal person with full authority to act under international law. But to recognize this is not to deny the elementary fact that the State cannot act of itself. An “act of the State” must involve some action or omission by a human being or group: “States can act only by and through their agents and representatives.”¹⁶¹ The question is which persons should be considered as acting on behalf of the State, i.e. what constitutes an “act of the State” for the purposes of State responsibility.¹⁶² (My emphasis)

¹⁶⁰ *Factory at Chorzów, Jurisdiction* (supra); *Reparation for Injuries Suffered in the Service of the United Nations, Advisory Opinion, ICJ Reports 1949, (supra)*, p.184; *Rainbow Warrior* affair, UNRIIAA, vol. XX (Sales No. E/F.93.V.3), p. 215 (1990), p. 251, para. 75.

¹⁶¹ *German Settlers in Poland, Advisory Opinion, 1923, PCIJ, Series B, No. 6*, p. 22.

¹⁶² Draft Articles, *supra*, 35.

Clearly, the general rule of international law is that the only conduct attributable to the State is that of its organs of government or agents of the State.¹⁶³ Agents of States are considered to be those who act at the instigation, direction or control of the State. As such, conduct of private actors or persons is not attributable to the State unless where the State in whose territory violations occur fails to remedy the situation in accordance with rules of international law.¹⁶⁴ In international law, the threshold of attribution to a State is very high – it is not a case of “mere recognition of a link of factual causality.”¹⁶⁵ Rather, the task “is to establish that there is an act of the State for the purposes of responsibility.”¹⁶⁶ As already indicated, the fundamental question is whether an artificial agent – such as AWS without human control – can or should be recognised as State agents under the law of State responsibility.

Article 4 (2) of the Draft Articles defines an organ of State as “any person or entity which has that status in accordance with the internal law of the State.” The official commentary on the Draft Articles notes that “the reference to a State organ in article 4 is intended in the most general sense. It is not limited to the organs of the central government, to officials at a high level or to persons with responsibility for the external relations of the State. It extends to organs of government of whatever kind or classification, exercising whatever functions, and at whatever level in the hierarchy, including those at provincial or even local level.”¹⁶⁷ While what is meant by a State organ or agent has wide scope to cover all who act on behalf of the State, it is clear that such actors are contemplated to be human agents. Indeed, international law cases note that even where legal persons act on behalf of the State, there is always a human agent directly making decisions.¹⁶⁸ Yet again, as already discussed above, the fact that the drafters of the Draft Articles may have only used certain words and terms in anticipation that only human agents can truly act on behalf of the State, does it mean that even in today’s world of technology, only human agents, not artificial agents, can act on behalf of the State? Or should the international community adopt the reasoning in the Thaler case that recognised an AI system as an inventor for purposes of patent law? Should the international community recognise artificial agents such as AWS without human control as State agents for purposes of State responsibility law?

¹⁶³ Draft Articles, *supra*, 38; see also I Brownlie, *System of the Law of Nations: State Responsibility* (1983) Oxford, Clarendon Press pp. 132–166.

¹⁶⁴ See the *Tellini Case* of 1923, League of Nations, *Official Journal*, 4th Year, No. 11 (November 1923), p. 1349.

¹⁶⁵ Draft Articles, *supra*, 38–39.

¹⁶⁶ Draft Articles, *supra*, 39.

¹⁶⁷ Draft Articles, *supra*, 40.

¹⁶⁸ Moore, *History and Digest*, vol. III, p. 3127, at p. 3129 (1871); *Salvador Commercial Company*, UNRIAA, vol. XV (Sales No. 66.V.3), p. 455, at p. 477 (1902); *Finnish Shipowners (Great Britain/Finland)*, vol. III (Sales No. 1949.V.2), p. 1479, at p. 1501 (1934); *Dispute concerning the interpretation of article 79 of the Treaty of Peace*, vol. XIII (Sales No. 64.V.3), p. 389, at p. 438 (1955); *Difference Relating to Immunity from Legal Process of a Special Rapporteur of the Commission on Human Rights*, p. 87, para. 62; *Phosphates in Morocco*, *supra*, at pp. 25–26; *Rights of Nationals of the United States of America in Morocco*, Judgment, ICJ Reports 1952, p. 176, at pp. 193–194; *Military and Paramilitary Activities in and against Nicaragua*, *supra*.

If artificial agents were to be accepted as valid agents that can act on behalf of a State, a related question is what the responsibility of a State is when AWS, as an unpredictable system, acts outside the parameters of instructions? The relevant provision is Article 7 of the Draft Articles which provides that “the conduct of an organ of a State or of a person or entity empowered to exercise elements of the governmental authority shall be considered an act of the State under international law if the organ, person or entity acts in that capacity, even if it exceeds its authority or contravenes instructions.”¹⁶⁹ This position has been made clear in case law, including those relating to human rights protection. For example, in the case of Velásquez Rodríguez noted as follows:

This conclusion [that there has been a violation of the Inter-American Convention of Human Rights] is independent of whether the organ or official has contravened provisions of internal law or overstepped the limits of his authority: under international law a State is responsible for the acts of its agents undertaken in their official capacity and for their omissions, even when those agents act outside the sphere of their authority or violate internal law. (My emphasis)

A literal reading of Article 7 may make it seem as if establishing responsibility is a straightforward matter even when artificial agents act contrary to instruction or the intentions of those deploying them. There is a temptation to think that since States are responsible for actions of human agents even when they act against instruction, then the same ought to apply to artificial agents. Yet, everything is not that simple, particularly, if one considers the origins of Article 7 through the lenses of State practice.

First, States reasoned that States should always be held responsible for actions of their agents committed by their agents by virtue of their official capacity because “if this were not the case, one would end by authorizing abuse, for in most cases there would be no practical way of proving that the agent had or had not acted on orders received.”¹⁷⁰ In the case of artificial agents, the reasoning that there is no practical way to prove that an agent had or had not acted on orders received does not hold true. In fact, a State using an artificial agent can easily prove that the artificial agent did not act according to instructions given. In this regard, the question becomes whether, if AWS or artificial agents are used, the rule on State responsibility in terms of Article 7 remains the same or it needs adjustment. There is no law that currently deals with State responsibility or how principles enunciated in Article 7 of the Draft Articles should be interpreted in cases where artificial agents are used.

¹⁶⁹ See also Article 91 of the Protocol Additional to the Geneva Conventions of 12 August 1949; ICRC, *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* (Geneva, Martinus Nijhoff, 1987), pp. 1053–1054.

¹⁷⁰ See the opinions of the British and Spanish Governments given in 1898 at the request of Italy in respect of a dispute with Peru, see *Archivio del Ministero degli Affari esteri italiano*, serie politica P, No. 43, Note verbale by Duke Almodóvar del Río, 4 July 1898.

The second issue that problematises the applicability of Article 7 in the case of artificial agents is that in terms of Article 7, unauthorized conduct of State agents is attributable to the State only if such conduct was performed by the State agent in their official capacity. As such, it is critical to distinguish between unlawful conduct of State agents that was committed in their official capacity and unlawful conduct of State agents that is so removed from the scope of their official functions. The latter is not attributable to the State. Thus, where conduct of a State agent is unlawful or contrary to the instructions from the State, to ascertain whether a State is still responsible, the critical question is whether the conduct complained of has been “carried out by persons cloaked with governmental authority.”¹⁷¹ In other words, “the question is whether they were acting with apparent authority.”¹⁷²

While it may be easy to establish when a human State agent is “acting with apparent authority”, the case may not be so clear in the case of artificial agents. For example, questions arise as to when is an artificial agent considered to be “cloaked with governmental authority” and when is it not? Can it be the case that artificial agents, unlike human agents, would be considered to be always “cloaked with governmental authority?” In a case where an artificial agent has been spoofed, hacked or its system has been corrupted by third parties, is that system still “cloaked with governmental authority” that all its actions are still attributable to the State in terms of Article 7? Answers to these questions are not straightforward and they serve to show some of the gaps in existing law in cases where AWS are deployed.

B. Individual responsibility

The use of artificial agents like AWS without human control also present gaps in as far as the law relating to individual responsibility is concerned.¹⁷³ Under IHRL, the paper has already referred to how the use of artificial agents present difficult questions to the obligation to respect, protect and fulfil human rights, even so, in the context of responsibility. AWS also create the same challenges for violations of IHL. In its on-year research project, SIPRI concluded that AWS raise questions on legal responsibility that existing law does not fully answer.¹⁷⁴ AWS create an individual responsibility gap for war crimes and other breaches of IHL.¹⁷⁵ Individual responsibility for crimes is premised on the legal assumption that it is humans who make decisions in an attack and the resultant acts are a manifestation of human intention. This assumption is not always true where AWS are used.¹⁷⁶

¹⁷¹ See *Petrolane, Inc. v The Government of the Islamic Republic of Iran*, Iran-US CTR., vol. 27, p.64, at p. 92 (1991).

¹⁷² Draft Articles, *supra*, 46.

¹⁷³ Chengeta, *Accountability Gap and AWS* (2016).

¹⁷⁴ Sipri Report, 2021, p.16.

¹⁷⁵ Chengeta, *Accountability Gap and AWS* (2016).

¹⁷⁶ HRW, *Mind the Gap* (2015).

Some have argued that an individual responsibility gap does not arise because whosoever activates AWS is responsible.¹⁷⁷ This view is a misdirection as it ignores settled criminal law principles on human intention and seeks to introduce a strange and an untenable notion of “strict individual liability” for war crimes.

Of course, in pointing to the lacuna that is created by AWS in legal responsibility as provided for in international criminal law, some States have questioned the relevance of international criminal law. The questioning of the relevance of international criminal law in the AWS debate is a misdirection. Throughout the discussions, States, non-government organizations, and scholars have grappled with the question of responsibility over AWS. When AWS are used, a question arises as to who is legally responsible in the event that they act in violation of applicable law, contrary to the intentions of those deploying them.¹⁷⁸

On the question of responsibility, the UNGGE noted two principles, one on accountability and another on non-transferability of human responsibility to machines.¹⁷⁹ The two principles provide that “accountability for developing, deploying and using any emerging weapons system in the framework of the UNCCW must be ensured in accordance with applicable international law, including through the operation of such systems within a responsible chain of human command and control.”¹⁸⁰ Further, it is provided that “human responsibility for decisions on the use of weapons systems must be retained since accountability cannot be transferred to machines.”¹⁸¹

Once again, there are a number of points that should be noted on these pronouncements by the UNGGE. First, for the States questioning the relevance of international criminal law, it appears there is a misunderstanding of the UNGGE principle that provides that responsibility of AWS “must be ensured in accordance with applicable international law.”¹⁸² International criminal law falls under international law. Indeed, international criminal law has helpful jurisprudence that is elaborate on issues of “command” and “control” when seeking to determine responsibility.¹⁸³

Second, as already noted above, it is a limitation for the UNGGE to give reference to international law without ascertaining the adequacy of that international law in the first place.

VII. LACUNA AND EXISTING GENERAL PRINCIPLES OF LAW

¹⁷⁷ Dunlap, *Accountability and Autonomous Weapons: Much Ado About Nothing?* (2016). ¹⁷⁸

Thompson Chengeta, *Accountability Gap: Autonomous Weapon Systems and Modes of Responsibility in International Law*, 45 DENVER J. OF INT’L L. & POL’Y 1, 1-50 (2016).

¹⁷⁹ CCW/GGE.1/2019/3, *supra*, Annex IV, p.13.

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ Thompson Chengeta, *Accountability Gap: Autonomous Weapon Systems and Modes of Responsibility in International Law*, 45 DENVER J. OF INT’L L. & POL’Y 1, 1-50 (2016).

Having noted the different legal gaps that are presented by AWS in legal regimes such as IHRL, IWL, IHL and the law relating to State and individual responsibility, it is possible that some may argue that general principles of law may be used to bridge such gaps. A similar argument was presented and found unconvincing by the International Court of Justice (“ICJ”) in the Nuclear Weapons Case. While the ICJ noted the timelessness of IHL basic principles, the Court admitted that nuclear weapons presented a qualitative difference from other conventional weapons. According to the Court, existing law neither “contain[ed] any specific prescription authorizing the threat or use of nuclear weapons.”¹⁸⁴

Thus, while courts sometimes fill in lacunae by applying general principles of law,¹⁸⁵ they may only go as far and are not allowed to create law. To this end, Judge Vladlen Vereshchetin noted that where a “court finds a lacuna in the law or finds the law to be imperfect, it ought merely to state this without trying to fill the lacuna or improve the law by way of judicial legislation.”¹⁸⁶ Instead, the Court emphasised the importance of express regulations in international law through new treaties where appropriate.

Where there is a lacuna like in the case of AWS, inaction is not a viable option because otherwise one risks the residual negative principle that provides that “what is not prohibited is legally permitted.” After all, the attitude of governments bears witness to whether something is considered unlawful and restrictions on States’ conduct cannot be presumed but expressly stated in conventions.¹⁸⁷

A. Lacuna and the need to codify the notion of Human Control

In full view of the fact that something that ought to be there in the current law is not there, the majority of States participating in the AWS debate have been emphasising the need to maintain meaningful human control over AWS.¹⁸⁸ Building on the prominence of the notion of human control in the AWS debate, during the August 2019 discussions, States suggested that it should be elevated and become the 11th guiding principle governing the AWS discussions.

Nevertheless, the United States of America refused the inclusion and use of the term “human control.” The UNCCW operates on consensus and as such States ended up settling to include the 11th guiding principle as a “principle on human-machine interaction.”¹⁸⁹ It provides that “human-machine interaction which may take various

¹⁸⁴ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, ICJ GL no. 95, ICJ 1996(July 8, 1996), para. 52.

¹⁸⁵ See *Corfu Channel Case* (UK v. Albania), Assessment of Compensation, 15 XII 49, ICJ 1949 Dec.15, 1949; and *Trail Smelter Arbitration* (United States v. Canada), Arbitral Trib., 3 U.N. Rep. Int’l Arb. Awards 1905 (1941).

¹⁸⁶ *Id.* (declaration of Judge Vereshchetin, p. 280).

¹⁸⁷ See *Anglo-Norwegian Fisheries Case* (United Kingdom v. Norway) 1951 I.C.J. Rep. 116; and *S.S.Lotus* (France v. Turkey), Judgment, 1927 P.C.I.J. (ser. A) No. 10 (Sept. 7).

¹⁸⁸ Daniele Amoroso and Guglielmo Tamburrini, “What makes human control over weapon systems meaningful?” Aug.2019, p.2.

¹⁸⁹ CCW/GGE.1/2019/3, *supra*, para. 16 (a).

forms and be implemented at various stages of the life cycle of a weapon, should ensure that the potential use of weapons systems based on emerging technologies in the area of lethal autonomous weapons systems is in compliance with applicable international law, in particular IHL. In determining the quality and extent of human-machine interaction, a range of factors should be considered including the operational context, and the characteristics and capabilities of the weapons system as a whole.”¹⁹⁰

It defeats the essence of discussions for the UNGGE to circle around or avoid the term “human control.” Human control over weapons or use of autonomy in weapon systems is the crux of the matter. It does not matter whether autonomy in weapon systems is used in the context of armed conflict, law enforcement, counter-terrorism operations or other situations, human control is central to the debate. If the role and impact of autonomy in weapon systems is of core interest to the UNGGE as agreed by the participating States in the August 2019 report,¹⁹¹ then, human control is a normal corollary. It naturally follows. It is understandable that States may differ on the interpretation of what human control means and, on the quality, and extent that is required—something that can be further discussed—but this is not the same as doing away with that critical phrase.

While it may be understood that States in the UNCCW seek to achieve consensus on the matter under discussion, consensus is of no consequence if it defeats the object and purpose of discussions in the first place. Until recently, the critical consideration by the majority of States has been the extent and quality of human control that is required for weapon systems and their use to be legally and ethically acceptable.¹⁹² This crucial and pointed consideration was replaced in the UNGGE 2019 report by a vague phrase that refers to “the quality and extent of human-machine interaction.”¹⁹³

As has already been indicated and suggested by the African Commission in 2021, the emerging notion of human control should be codified as a human rights principle in a legally binding instrument.

VIII. CONCLUSION

AWS are likely to be deployed both in armed conflict and in law enforcement situations during peace times. When this happens, AWS raise complex question that show that there is a legal gap in existing law. Under IHRL, questions arise, for example, whether the obligations to respect, protect and fulfil human rights can only be carried by humans or if they can also be extended to artificial agents. Similar questions arise under IHL where it is questioned whether it is only human combatants, not artificial agents, who are obligated to respect IHL rules such as distinction, proportionality and precaution. Equally, under IWL, the shortcomings of the legal

¹⁹⁰ *Id.*

¹⁹¹ CCW/GGE.1/2019/3, *supra*, para. 19 (a).

¹⁹² Daniele Amoroso and Guglielmo Tamburrini, ‘What makes human control over weapon systems meaningful?’ Aug. 2019, p.2.

¹⁹³ CCW/GGE.1/2019/3, *supra*, para. 16 (a).

regime on the review of new weapons when reviewing AWS and the legal accountability gap that arises when AWS are used exemplify why existing law is insufficient to properly regulate them. Furthermore, the fact that AWS raise grave ethical concerns that are not necessarily covered in existing law—but need to be covered—is proof that there is a lacuna. This lacuna can neither be cured by ignoring it, engaging in creative interpretations of existing law nor putting in place political declarations devoid of legal force to bridge the legal gap. It is, in this sense, fundamental to have a legally binding instrument on AWS. As has been noted by the ICRC, “new legally binding rules would offer the benefits of legal certainty and stability”¹⁹⁴ and “without such rules, further developments in the design and use of AWS may give rise to practices that erode the protections presently afforded to the victims of war under IHL, [IHRL, IWL] and the principles of humanity.”¹⁹⁵

¹⁹⁴ ICRC position on AWS, *supra*, 11.

¹⁹⁵ *Id.*