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A Study on Lethal Autonomous Weapons System under International Humanitarian Law with Special Focus on Killer Robots

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ABSTRACT

Through the rapid development and introduction of robotic systems for artificial intelligence, robots are starting to replace humans on the battlefield. Some military and robotics experts have speculated that, as they may be called, 'killer robots' are primarily regarded as lethal autonomous weapons which are capable of picking and engaging targets with minimal or any human interference at all. Even though the rapid implementation of such automated systems seems highly necessary for research and other exponents of automated systems, their creation has given rise to substantial concern among diplomats, human right activists, scientists, arms-advocates and others who dread that deploying lethal autonomous weapons in the battlefield will significantly diminish human control over war operations, conceivably resulting in grave violations of various laws, thereby weakening the barriers that have been built to refrain moving from traditional to nuclear wars. As per certain experts, Lethal Autonomous Weapons Systems (LAWS) are capable of creating a "Third Revolution" in warfare system, following nuclear weapons. The lethal autonomous weapon system, like any weapons system, must be planned and operated in compliance with international law. The paper examines the context of lethal autonomous weapons and the global trends around the notion of lethal autonomous weaponry. It also assesses the validity under International Humanitarian Law of this kind of warfare method and evaluates the feasibility of such warfare systems while highlighting the recent developments and contemporary issues with respect to the warfare system. It is imperative to understand these issues as warfare systems like killer robots, if implemented, pose a grave threat to humanity and the foundation of laws protecting human dignity and life.

Keywords: *Lethal autonomous weapons, civilians, war, violations, artificial intelligence.*

I. INTRODUCTION

Artificial Intelligence (AI) is an artificial machine building, science and engineering discipline,

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one that can perform a specific task in a dynamic and unpredictable environment.³ The use of Artificial Intelligence in a broad range of activities such as research, public care, education, science missions, etc. is increasing at an extremely rapid rate. Military purpose is no such exception from the string of uses, with many developing nations, seeing the potential and investing heavily in Artificial Intelligence's production and armed use. In 2008, the United States engaged in extensive research and heavy investment pertaining to strategic use of artificial intelligence in order to gain sustainable military advantages through its National Defense Strategy Policy.⁴ In July 2017, China released an Artificial Intelligence Development Plan detailing the national strategy of being the front runner in AI war technology by the end of 2030, including its application to improve national defense and security.⁵ Russia's military industrial program aims to incorporate artificial intelligence into 30% of its combat hardware by 2025.⁶

The use of lethal autonomous weapons has been the focus of controversy about armed conflict and violations of international humanitarian law for years now. International Humanitarian Law treaties do not explicitly govern autonomous weapons systems, as described. However, it is undisputed that any autonomous weapons device must be used in compliance with International Humanitarian Law. Therefore, the primary responsibility for ensuring this fall on each State creating, deploying and using such autonomous weapons.

The aim of this paper is to study Lethal Autonomous Weapons System under International Humanitarian Law with added focus on killer robots. The authors focus on the viability and implications of such a warfare system and analyse the same. This paper will be divided into six sections. The first section will provide a background behind the concept of lethal autonomous weapons. The next section will deal with arguments regarding the feasibility, viability and potential of the concept under International Humanitarian Law. The third section will provide an overview of the key elements to be considered while drafting a treaty for the development and regulation of autonomous lethal weapons. The fourth section discusses the question of accountability that arises with the development of such a warfare system. The fifth section outlines the concerns that revolve around the use of killer robots, followed by the last segment which highlights the recent developments and contemporary issues regarding lethal autonomous weapons along with the researcher's conclusive argument, recommendations and

³ 59 Alan Turing, 'Computing Machinery and Intelligence' *Mind Quarterly Review* (October 1950)

⁴ US National Defense Strategy, *Sharpening the American Military's Competitive Edge* (2018)

⁵ People's Republic of China, *New Generation Artificial Intelligence Development Plan* (2017)

⁶ Alina Polyakova, 'Weapons of the Weak: Russia and AI-Driven Asymmetric Warfare', *BROOKINGS* (15 November, 2018) < <https://www.brookings.edu/research/weapons-of-the-weak-russia-and-ai-driven-asymmetric-warfare/> > accessed 28 April 2020

suggestions.

II. BACKGROUND

Over the last five years, the question of legality and feasibility of the Lethal Autonomous Weapon System (LAWS) has gained traction. As Artificial Intelligence advances at a faster pace each day, complexity is increasing in discussions about the feasible, legal, and ethical implications of Lethal Autonomous Weapon Systems. Despite questions about the use of LAWS in armed conflict, States are at present divided by opinion about the development and utility of lethal weapons, with majority of the States calling for a specific prohibition, some calling for discussions on a legislative treaty, and others lobbying for the use of such arms as the United States, which envisages LAWS as a potential technical advancement to meet International Humanitarian Law standards. Without a standardized definition given in LAWS, the frequently accepted definition is the one used by the U.S. Department of Defense provided in Directive No 3000.09, a directive on Autonomy in Weapon Systems, *i.e.*,

*“A weapon system that, once activated, can select and engage targets without further intervention by a human operator. This includes human-supervised autonomous weapon systems that are designed to allow human operators to override operation of the weapon system, but can select and engage targets without further human input after activation.”*⁷

To put it another way, lethal autonomous weapons are the ones that can track, engage and strike targets with limited to no human interference. The advent of LAWS has called for the need for international consultations to govern their production on the use of such arms and the norms. As a result, in 2016, the United Nations Group of Governmental Experts (UN GGE) was formed under the Convention on Certain Conventional Weapons (CCW)⁸.

Military advantages and cost reduction are the core arguments in support of autonomous weapons system as these weapons would help in creating a strategic gain since less war fighters would be required due to which the combat zone can be extended to areas that were unreachable previously and fewer casualties would occur by eliminating people and replacing them with automated machines for risky operations.⁹ In addition, robots lack the intellectual or physiological constraints human possesses. Therefore, feelings would not affect their

⁷ Department of Defense, Autonomy in Weapon Systems, Directive No 3000.09, United States (21 November 2012)

⁸ Coley Felt, ‘Autonomous Weaponry: Are Killer Robots in Our Future?’, University of Washington (14 February, 2020) < <https://jsis.washington.edu/news/autonomous-weaponry-are-killer-robots-in-our-future/> > accessed 28 April 2020

⁹ Gary E. Marchant and others, ‘International Governance of Autonomous Military Robots’ (2011) Columbia Science and Technology Law Review 272–76 < <http://stlr.org/download/volumes/volume12/marchant.pdf> > accessed 27 April 2020

judgements. Statistics from the US Department of Defense show that for every combatant in Afghanistan it outlays the Pentagon about four times higher per annum as compared to a minor rover with weapons.¹⁰

The main reasons in contrast to the production of autonomous arms include compliance with international humanitarian law, morality and transparency. In terms of IHL, it is contended that the notions of differentiation, proportionality as well as vigilance at least require the lowest degree of human oversight and control.¹¹

Lethal Autonomous Weapons Systems (LAWS)'s self-learning and automation capabilities pose an undefined degree of human interference, potentially in violation of such principles. In addition, Article 36 of Additional Protocol I to the Geneva Convention includes examination of weapons prior to their legitimate usage.¹² Although these reviews have criteria, applying practical human control is an ambiguous field that has sparked controversy among many States. While a few States believe that autonomous weapons may be established within the limits of International law, others contend that, because of the complexity of human control, this is unlikely.

Additionally, the outsourcing of life-or-death actions to algorithms is a moral question. AI and robotics experts from thirty-seven countries released the "Scientists' Call to Ban Autonomous Lethal Robots" in 2013, contending that the "decisions on the use of violent force must not be entrusted to computers".¹³ The above idea addresses the ambiguous accountability that applies to LAWS. If a slightest mistake happens, it is hard to say who is responsible. There is a direct line of responsibility for conventional soldiers at the battlefield from who pulled the trigger, who ordered the order, and other factors. On another note, when assigning accountability, lethal weapon systems which operate by themselves pose a grave risk. Furthermore, autonomous weapons systems can make self-governing decisions and would not be vulnerable to retribution unlike warfare fighters. The responsible line of people involved such as developers,

¹⁰ David Francis, 'How a new army of robots can cut the defense budget', THE FISCAL TIMES (April 2013) <<http://www.thefiscaltimes.com/Articles/2013/04/02/How-a-New-Army-of-Robots-Can-Cut-the-Defense-Budget>> accessed 27 April 2020

¹¹ Hayley Evans, 'Lethal Autonomous Weapons Systems as the First and Second U.N. GGE Meetings' Lawfare, (April 2018) < <https://www.lawfareblog.com/lethal-autonomous-weapons-systems-first-and-second-un-gge-meetings> > accessed 28 April 2020

¹² *ibid*

¹³ Tom Kutsch, 'Leading scientists call for ban on killer robots', ALJAZEERA AMERICA (28 July, 2015) <<http://america.aljazeera.com/articles/2015/7/28/leading-global-scientists-call-for-ban-on-killer-robots.html>> accessed 28 April 2020

commanders, and many others in charge of the formation and usage of these weapons leaves it near to unreasonable to keep one person accountable.¹⁴

Talking about the ambiguity in holding someone accountable, a crucial factor is studying the definition of the war algorithm. According to a study by Harvard Law School, a “war algorithm is any algorithm expressed in computer code, performed via a built system and capable of operating in armed conflict”¹⁵. The line extends from states and their armed forces, including creators, managers, attorneys, business bodies and more while connecting the war algorithm to accountability. With the advancement of these algorithms, they continue to challenge few basic principles that underlie the regulation of armed conflicts.¹⁶

Although China has not taken a clear position on the advancement of autonomous weapons, countries such as Russia, the United Kingdom and the US have opposed the ban arguing that it would be too early to evaluate the implications of such a method of warfare¹⁷. The private sector plays a critical role in the debate, since they are the ones who will be responsible for producing such weapons. Several movements have been initiated, principally warning people of the threats that could arise as a result if the laws surrounding such weapons are not in effect. In addition, other experts including scientists have also shared their opinions, emphasizing the importance of this global debate.

III. INTERNATIONAL HUMANITARIAN LAW PROVISIONS

The regulatory system of International Humanitarian Law is based on the concept of *Jus In Bello*, which rests its substance on a few fundamental concepts that are the very foundation of its legitimacy in affecting the workings of the States.

As a central concern under the International Humanitarian Law, an ongoing dialogue among internationalists continues to find plausible ways of reconciling military necessity and humanitarian considerations in line with the goals and objectives of the International Humanitarian Law, which seeks to diminish the misery of armed conflicts and the victims of such conflicts to any degree. By definition, robots, computers and weapons are not human, and

¹⁴ Noel Sharkey, ‘The inevitability of autonomous robot warfare’ University of Pennsylvania Law School (2012) < <https://www.law.upenn.edu/live/files/3399-sharkey-n-the-inevitability-of-autonomous-robot> > accessed 28 April 2020

¹⁵ Dustin A. Lewis and others, ‘War-Algorithm Accountability’ Harvard Law School (August 2016) < <http://blogs.harvard.edu/pilac/files/2016/09/War-Algorithm-Accountability-Appendices-Only-Searchable-August-2016.pdf> > accessed 28 April 2020

¹⁶ *ibid*

¹⁷ Elsa Kania, ‘China’s strategic ambiguity and shifting approach to lethal autonomous weapons systems’ *Lawfare* (April 2018) < <https://www.lawfareblog.com/chinas-strategic-ambiguity-and-shifting-approach-lethal-autonomous-weapons-systems> > accessed 28 April 2020

their presence cannot call into question the legitimacy of the long-established legal and theoretical framework of International Humanitarian Law, vociferously developed in favour of persons, with the intention of protecting them in armed conflict. Respect for International Humanitarian Law values, however, would require a minimum degree of human control and oversight in order to still keep open the possibility of interfering in a specific military context after enabling the system to be used.

Article 36 of Additional Protocol I (1977) of the 1949 Geneva Conventions describes what institutes as a legal weapon under IHL.¹⁸ Article 36 states:

“In the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party”¹⁹

In other words, Article 36 allows each nation to regulate if international law forbids any new "weapon, means, or method of warfare" that it seeks to use, in any or all surroundings. This legislation is by its nature multidisciplinary, "including military, legal, environmental and health-related considerations," which helps prevent spending on arms or functions in money and manpower that may later be found to be forbidden by international law regime.

(A) PRINCIPLES UNDER WEAPONS LAW

Under International Humanitarian Law, legitimate arms are evaluated under discrete parts. The first section, known as "arms rule," analyses a weapon in three skills that are – the architecture allows objectively striking legitimate targets (combatants, military goals) and illegitimate targets (civilians, civilian objects) without distinction; if its only purpose is to cause "unnecessary suffering;" and if it meets the idea of military necessity.²⁰ If a weapon violates any of these things, it is illegal in itself, because there is no guarantee that violations would not occur during an armed conflict.²¹

A weapon lacks the ability to differentiate between legitimate targets and illegitimate ones. The evaluation factors include its targeting accuracy and precision, the sort of ammunitions used and the protected zone. This concept of discrimination includes banning weapons systems

¹⁸ Protocol (I) Additional to the Geneva Conventions of August 12, 1949, and Relating to the Protection of Victims of International Armed Conflicts, art. 36, Jun. 8, 1977, 1125 U.N.T.S. 3

¹⁹ *ibid*

²⁰ Bonnie Docherty, "Losing Humanity: The Case Against Killer Robots", HUMAN RIGHTS WATCH (19 November 2012) < <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots> > accessed 28 April 2020

²¹ *ibid*

which have overpowering outcomes given their capability to accurately attack a target. In this manner, biological and chemical weapons are branded as indiscriminating because their consequences cannot be managed willingly as well as the potency of these weapons can harm unlawful targets, such as civilians, sick or wounded combatants.²²

Prohibition also covers the weapons that cause “*unnecessary suffering or superfluous injury.*”²³ The idea of gratuitous suffering aims to restrict adversaries' ability to follow other "means of wounding the enemy"²⁴ It is also mandatory to examine whether earlier agreements or similar treaty prohibitions forbid the newly developed weapon in any way. For example, the 1980 Treaty of Certain Nuclear Weapons forbids certain booby traps, blinding lasers, and fragments not observable in combat. In addition, the production, manufacture and hoarding of biological and chemical weapons is strictly banned by the Biological Weapons Convention and the Chemical Weapons Convention (CWC).²⁵

Moreover, the principle of military necessity, manifested by Article 52(2) of the Additional Protocol I²⁶, instructs that arms should be designed in a way that they use only that amount of force which is required to accomplish the military purpose, in consonance with the military objective spoken about and the benefit it presents in overcoming the military opponents.²⁷ This is correlated with the "unnecessary suffering" aspect of the arms rule, as both include deciding whether an effect on weapons will result in a military advantage.

Proportionality is another essential concept which is regulated by law. It talks about the degree of force which should be applied while attacking a target, with the minimal amount of collateral damage required to obtain a valid military advantage. Unlike necessity, which is almost a qualitative assessment of whether force against a target can achieve a military advantage, proportionality requires a more objective assessment of the exact amount of force needed to achieve little more than the military advantage sought.²⁸ An automated system should by virtue be restricted to make life endangering verdicts. The algorithm cannot be relied upon to take

²² Christopher P. Toscano, “*Friend of Humans*”: *An Argument for Developing Autonomous Weapons Systems*, (2015) < <https://jnsplp.com/wp-content/uploads/2015/05/Friend-of-Humans.pdf> > accessed 28 April 2020

²³ *Supra* note 6 at Art. 36

²⁴ Benjamin Kastan, *Autonomous Weapons Systems: A Coming Legal “Singularity”?* (2013) < <http://illinoisjltlp.com/journal/wp-content/uploads/2013/05/Kastan.pdf> > accessed 28 April 2020

²⁵ Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, Apr. 10, 1972, 26 U.S.T. 583; Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Jan. 13, 1993, 32 I.L.M. 800 (1993)

²⁶ *Supra* note 6 at Art. 52(2)

²⁷ *Supra* note 13 at p.55

²⁸ *Supra* note 11 at p.211

such decisions. This runs counter to human dignity principles and the basic idea of right to life.

(B) PRINCIPLE OF HUMANITY

In the non-existence of an explicit treaty law, the Martens Clause offers a standard of security for civilians and soldiers. The clause also sets out a framework for the evaluation of emerging conditions and innovations not previously envisaged.

Completely autonomous weapons, occasionally called "killer robots," without significant human control can identify and engage targets. Beyond the current armed drones, the autonomous weapons would be a risky move, as the absence of human intervention would turn out to be a major obstacle in deciding when to shoot and whom to target. While there are no completely automated weapons yet, States like China, Russia, Israel, South Korea and the United States have been attempting to advance the development of such weapons. The prospect that completely automated weapons might soon come in practice makes it imperative that certain countries and others enforce the Martens Clause and determine if the innovation will offend basic morality and public consciousness. Our review concludes that on both counts, fully automated weapons are likely to fail the test.

The Martens Clause history demonstrates it as a basic principle of International Humanitarian Law which stems in the Hague Convention of 1899, its variants exist in all the four Geneva Conventions and Additional Protocol I. Issues raised by virtue of the principles enshrined in the Martens Clause prompted countries to announce a preventive ban on blind lasers in 1995.²⁹

The principle of Humanity values fair treatment of all, and consideration for human life and dignity. This basic criterion is not being fulfilled by completely autonomous weapons for the sole reason that they are not capable of feeling compassion, which is a necessary emotion on the battlefield since it encourages one to mitigate suffering. Automated weapons such as killer robots will at the same time lack ethical judgment in order to guarantee the protection of civilians in dynamic and unpredictable circumstances of conflict.³⁰

Furthermore, such weapons, as inanimate machines, cannot really comprehend the importance of human life ending up turning their algorithms into arithmetical values for assessing the importance of human lives.³¹ Their deduction of the human targets – be it civilians or combatants – to objects by making lethal decisions based on these algorithms, violates human

²⁹ Carnahan BM and Robertson M, "The Protocol On 'Blinding Laser Weapons': A New Direction for International Humanitarian Law" 90 *American Journal of International Law* 484 (1996)

³⁰ 'Making the case: The dangers of killer robots and the need for a pre-emptive ban' HUMAN RIGHTS WATCH (December 2016) < <https://www.hrw.org/report/2016/12/09/making-case/dangers-killer-robots-and-need-preemptive-ban> > accessed 28 April 2020

³¹ *ibid*

dignity.

(C) DICTATES OF PUBLIC CONSCIENCE

Increasing opposition to autonomous warfare indicates the clash with public consciousness. Governments, scholars, and the public at large together have opposed the danger of losing control of these weapons by commanders, mostly on the basis of moral grounds. There has been explicit support from twenty-six countries for a ban, including China.³² Almost all of the countries that were speaking at the U.N. Conventional arms meetings have advocated for basic form of practical regulation on the usage of any force to be maintained³³. Requiring this kind of a power is basically the same as prohibiting arms that do not function without an individual determining when to attack.

A huge number of scientists and specialists in the field of artificial intelligence have supported the ban and requested UN action on the issue. They made a commitment in July 2018 to deny any aid in the production or use of automated weapons. Big companies too have requested a ban.³⁴ Above 160 religious leaders and over twenty laureates of the Nobel Peace Prize likewise denounced the system and supported prohibition of the same.³⁵ Multiple public opinion polls at foreign and national level showed that a large percentage of citizens who replied rejected creating and using these weapons.³⁶

The “Stop Killer Robots Movement”, an alliance of seventy-five civil society groups from forty-two countries, has led dissent, co-founded and organized by Human Rights Watch, by non-governmental organisations.³⁷

IV. KEY ELEMENTS OF A TREATY ON FULLY AUTONOMOUS WEAPONS

(A) GENERAL OBLIGATION TO MAINTAIN MEANINGFUL HUMAN CONTROL OVER USE OF FORCE

³² Mattha Busby, ‘Use of killer robots in wars would breach law, say campaigners’ THE GUARDIAN (21 August, 2018) < <https://www.theguardian.com/science/2018/aug/21/use-of-killer-robots-in-wars-would-breach-law-say-campaigners> > accessed 28 April 2020

³³ ‘Autonomous weapons that kill must be banned, says UN Chief’, UN News (25 March 2019) < <https://news.un.org/en/story/2019/03/1035381> > accessed 28 April 2020

³⁴ Ian Sample, ‘Thousands of leading AI researchers sign pledge against killer robots’ THE GUARDIAN (18 July, 2018) < <https://www.theguardian.com/science/2018/jul/18/thousands-of-scientists-pledge-not-to-help-build-killer-ai-robots> > accessed 28 April 2020

³⁵ Charlotte Edwards, ‘Calls to ban autonomous killer robots after Nobel prize winners warn they could go rouge’ THE SUN (26 March 2019) < <https://www.thesun.co.uk/tech/8723349/killer-robots-nobel-prize-winners-go-rouge/> > accessed 28 April 2020

³⁶ ‘Killer Robots: new global poll shows growing public opposition to autonomous WEAPONS’, AMNESTY INTERNATIONAL UK (22 January 2019) < <https://www.amnesty.org.uk/press-releases/killer-robots-new-global-poll-shows-growing-public-opposition-autonomous-weapons> > accessed 28 April 2020

³⁷ ‘Killer Robots’, HUMAN RIGHTS WATCH (2010) < <https://www.hrw.org/topic/arms/killer-robots> > accessed 28 April 2020

The overriding clause will encourage enforcement with relevant legitimate and moral principles by obligating States members to retain de facto command on the usage of force by humans. Generalization of accountability will aim to deter pitfalls, also the theory it encompasses could guide understanding of the other provisions of the said treaty. As stated earlier, large number of States have shown approval for the establishment of human regulation. The overall responsibility would concentrate on the handling regulation ("use of force") and not particular technologies. This method will allow the treaty to be future proof by avoiding the necessity of predicting how technology would evolve.³⁸ The phrase "use of force" also allows the universal duty essential in armed conflict and law enforcement circumstances.

(B) PROHIBITION OF WEAPONS SYSTEMS WHICH BY THEIR NATURE CAN POSE FUNDAMENTAL, ETHICAL OR LEGAL PROBLEMS

For legal or moral purposes, the Treaty shall preclude the development, manufacture and usage of such weapon systems that aim to target objectives that are intrinsically not acceptable. The simplicity of the requirements would encourage monitoring and implementation, and their full presence would cause a clear infamy towards forbidden programs. The novel instrument would restrict weapons systems without significant human control that by their very nature pick and engage targets.³⁹ For instance, the ban should protect systems that are too difficult for human users to comprehend and therefore yield unforeseeable and unexplained results. These complex systems can employ strength which relies on earlier machinery knowledge or require essential device parameters to be modified without human authorization. Such warfare technology will constitute a violation of the general responsibility of the new instrument mentioned earlier. The exclusions may also be applicable to other weapons that pick and engage objects, that are troublesome in terms of architecture rather than mode of action. In general, it would forbid weapons systems that pick and engage people as objects, regardless of whether they function under effective human control.⁴⁰ Such technologies would be dependent on the data types, like weight, heat, or sound, to represent individuals or individual categories. Such systems might

³⁸ Daryl Caudle, 'Decision-Making Uncertainty and The Use of Force in Cyberspace: A Phenomenological Study of Military Officers Article' (October 2010)

<https://www.researchgate.net/publication/235202490_Decision-Making_Uncertainty_and_the_Use_of_Force_in_Cyberspace_A_Phenomenological_Study_of_Military_Officers> accessed 26 April 2020

³⁹ Daniel Moubayed, 'Clinic, Campaign To Stop Killer Robots Proposes Elements Of A New Treaty On Fully Autonomous Weapons', Harvard Law (9 April 2020) < <https://hrp.law.harvard.edu/arms-and-armed-conflict/clinic-campaign-to-stop-killer-robots-propose-elements-of-a-new-treaty-on-fully-autonomous-weapons/>> accessed on 29 April 2020

⁴⁰ Richard Moyes, 'Target Profiles: An initial consideration of 'target profiles' as a basis for rule-making in the context of discussions on autonomy in weapon systems', Article 36 (August 2019)

<<http://www.article36.org/wp-content/uploads/2019/08/Target-profiles.pdf>> accessed on 29 April 2020

interfere with the concept of human dignity and demonize violence in killing or impairing people built on these data. Constraints on this form of program can often involve programs that deliberately or unintentionally manipulate classes of individuals based on age, class, or other inequitable social identities.⁴¹

(C) CERTAIN POSITIVE OBLIGATIONS TO GUARANTEE THAT SIGNIFICANT HUMAN INTERVENTION IS SUSTAINED IN THE USE OF AUTONOMOUS WEAPONS SYSTEMS

Constructive expectations pertaining to the new instrument will include weapons systems which are not necessarily inappropriate, but which may also have the ability to pick and identify targets without significant human intervention. The responsibilities will allow States parties to guarantee that target-selecting and engaging weapons systems are only used with direct control of man. The nature of the constructive responsibilities should be focused on the principles of effective human regulation discussed above.⁴² The treaty, for example, may allow operators to grasp how a warfare system operates prior to activation. This may possibly establish the bare basic standards in terms of consistency and reliability. Moreover, the spoken treaty might restrict appropriate structures to those working inside such temporal or geographical limits. When doing it, constructive responsibilities will surely prove beneficial to maintain reasonable human command over the use of violence and create conditions to make the use of a device that operates as completely autonomous weapons illegal.⁴³

V. ACCOUNTABILITY OF RISKS AND FAILURE IF AUTONOMOUS SYSTEMS GO WRONG

Regulation and responsibility in relation to AI are two sides of the same coin for public welfare. Control is all about maintaining that AI systems are just as effective as possible; accountability is really about deciding who we should blame – or, specifically, seek legal redress from – when something goes wrong.

Firstly, neither can fully autonomous weapons act as a substitute for natural persons as defendants in a legal action which wants to attain warning and retribution. Secondly, lacking in accountability makes it more probable for commanders, developers as well as manufacturers to evade liability related to the distress triggered by the arms created and put to use by them.

⁴¹ *ibid*

⁴² Campaign to stop killer robots, 'Key elements of a treaty of fully autonomous weapons' (*Harvard Law School International Human Rights Clinic*, November 2019) < <https://www.stopkillerrobots.org/wp-content/uploads/2020/04/Key-Elements-of-a-Treaty-on-Fully-Autonomous-WeaponsvAccessible.pdf> > accessed on 28 April 2020

⁴³ *ibid*

Neither criminal law nor civil law provides sufficient responsibility to persons specifically or implicitly engaged in the usage of completely automated weapons.

The requirement intended for direct responsibility is consequential from the objectives of criminal law and the principles imposed by IHL and Human Rights Law. While Criminal Law aims to make the perpetrators and witnesses aware of the consequences and hold the perpetrator responsible as a retributive function, it also helps promote reconciliation. On the other hand, International Humanitarian Law requires strict responsibility for significant infringements including war crimes and Human Rights Violations, in turn, allows for the right of remedies through multiple ways of resolution, for example, it, places an duty on States to examine and prosecute serious abuses of human rights.⁴⁴

The current frameworks for regulatory oversight are obsolete and unable to resolve the danger of severe infringements by completely autonomous arms. Such devices have the ability to perform unethical actions which, if performed deliberately, may constitute a felony – for which no one will be held liable, although the fully automated system itself has not been found liable for the illegal activities it has conducted, since it may lack motive to do so.⁴⁵ In fact, a deadly automated device, such as a killer robot, does not come under the limits of a "normal human" for the reasons of judicial proceedings. Still if courts amended their jurisdiction to extend the same to a warfare weapon such as killer robots, the retributive purpose of society would remain unattended and unfulfilled because the killer robot can neither be deterred nor punished.⁴⁶

The main underlying issue remains the perspective based on a false premise. Solely because a human is not in control of particular acts of a lethal weapon such as a killer robot, does not release them of the liability of being accountable used for the functioning of the entire automated armament system which is at the end of it all, developed, programmed and controlled by them. Therefore, an alternative approach needs to be debated upon and strong mechanisms need to be established and executed to avoid or minimise the risks involved with the use of an automated warfare system.

VI. MAJOR CONCERNS WITH REGARDS TO THE USE OF KILLER ROBOTS

(A) ETHICS

⁴⁴ 'Mind the gap: The lack of accountability for killer robots', HUMAN RIGHTS WATCH (9 April, 2015) < <https://www.hrw.org/report/2015/04/09/mind-gap/lack-accountability-killer-robots> > accessed on 28 April 2020

⁴⁵ Tim McFarland and others, 'Mind the gap: Can developers of autonomous weapons systems be liable for war crimes?' (2014) 90 INT'L L. STUD.361, 378

⁴⁶ Neil Davison, 'A legal perspective: Autonomous weapon systems under international humanitarian law' (*International Committee of Red Cross*, January 2018)

A device may never be permitted to make choices on life and death. These judgments cannot be limited to algorithms. This is counter to the values of individual integrity and the basic freedom to live. As military systems across the globe race for the use and development of lethal automated weapons, the questions revolving around the ethical values imbibed in such a warfare system remain unanswered.⁴⁷ The robot has little comprehension or regard for the importance of human life. This ensures that a computer would not be willing to make a 'death call' that requires human values into consideration, indirectly or directly. It's about finishing the mission it's been trained to do. This undermines the judgment, which does not honour the importance that we put on human existence.⁴⁸

(B) PROLIFERATION

If built, lethal automated weapons would be fairly cheap and readily available and quick to clone. This raises the probability of dissemination to a wide range of actors, including rulers and non-sovereign actors. The Advocates of not banning the autonomous weapons puts emphasis on the short-term perks of using lethal automated weapons, but ignore the holistic view that such weapons might be used against their military and civilian populations.⁴⁹

(C) LEGALITY

Killer robots are questionable to be able to stick to the basic values of International Humanitarian Law (IHL), such as the basic differentiation between who is a person and soldier. A soldier will not simply be identified as a person having a sword. In certain nations, a person may hold a pistol for symbolic purposes at a wedding, and shepherds may be armed to defend their own livestock.

The proportionality calculation that measures civilian loss in comparison to the military benefit is much more complicated. It is difficult to clearly interpret international law, because it often relies on the understanding of the context.⁵⁰

⁴⁷ Melissa De Witte, 'In Drell Lecture, speaker calls for ethics and humanity as militaries expand autonomous weaponry', STANFORD NEWS (1 May, 2019) < <https://news.stanford.edu/2019/05/01/ethics-autonomous-weapons/> > accessed on 26 April 2020

⁴⁸ Janna Anderson and others, 'Solutions to address AI's anticipated negative impacts' (*Pew Research Centre*, 10 December, 2018) < <https://www.pewresearch.org/internet/2018/12/10/solutions-to-address-ais-anticipated-negative-impacts/> > accessed on 26 April 2020

⁴⁹ Kelsey Piper, 'Death by algorithm: the age of killer robots is closer than you think', VOX (21 June, 2019) < <https://www.vox.com/2019/6/21/18691459/killer-robots-lethal-autonomous-weapons-ai-war> > accessed on 26 April 2020

⁵⁰ Qiang Li and other, 'Legal regulation of AI weapons under international humanitarian law: A Chinese perspective', ICRC (2 May, 2019) < <https://blogs.icrc.org/law-and-policy/2019/05/02/ai-weapon-ihl-legal-regulation-chinese-perspective/> > accessed on 26 April 2020

(D) LOWER THE THRESHOLD FOR WAR

Some believe that deadly automated arms may lead to fewer casualties amongst the attacking armies. However, that may also contribute to a rise in violence by reducing the barrier for heading to war. Often, because there are less threats to the welfare of individuals, it could be safer to use deadly power. The idea of a risk-free war will contribute to a desire for military rather than peaceful negotiations.⁵¹

(E) ACCOUNTABILITY AND ARMS RACE

Lethal autonomous arms establish a vacuum in responsibility over who will be liable for an illegal operation. What should be liable for this: the supplier, the developer, the military officer or the robot itself? Gradual advances in the field of robotics and artificial intelligence introduced to military technologies could contribute to an international arms race that might have threatening outcomes and risk global peace and stability.⁵²

(F) UNPREDICTABILITY

The introduction of lethal automated arms could contribute to unintended wars and accelerated the outbreak of violence, as well as other unforeseen yet detrimental effects. It is not obvious how powerful automated arms developed and operated by competing forces can respond and engage with one another.⁵³ These arms may be extremely unstable, especially in their encounters with other automated systems, and if they are efficient of self-learning.

The system established would also need to be versatile enough to take into account both local factors (the scale of own development versus the import of AI technologies in each country) and global factors (possible reciprocal acceptance of safety requirements and qualification between countries, the need to conform with any potential foreign treaties or conventions, etc.). So, when we're moving down the AI map of research and development, we really need to start developing the guidelines before it is too late.⁵⁴

VII. WAY FORWARD

The Lethal Autonomous Arms Program is not controlled differently from other arms under the

⁵¹ 'Killer Robots: what are they and what are the concerns?', PAX For Peace (April 2019)

< <https://www.paxforpeace.nl/publications/all-publications/killer-robots> > accessed on 27 April 2020

⁵² Michael T. Klare, 'Autonomous Weapons Systems and the Laws of War', Arms Control Association (March 2019) < <https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war> > accessed on 27 April 2020

⁵³ Rebecca Crootof, 'War Torts: Accountability for autonomous weapons' (2016) University of Pennsylvania Law Review < https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=9528&context=penn_law_review > accessed on 27 April 2020

⁵⁴ *ibid*

Armed Conflict Rule (LOAC) under the International Humanitarian Law. Although such systems are now being utilized by the United States in the form of helicopters, killer robots, etc., twenty-eight countries at the United Nations are pressing for a full moratorium on the program of lethal autonomous weapons, with Human Rights Watch and the Coalition to Stop Killer Robots taking the lead. Several studies have been published by Human Rights Watch asking for a comprehensive ban on such weapons as they prima facie violate the fundamental principles laid down by International Humanitarian Law, contravening The Martens Clause that focuses its mandate on two underpinning pillars – “Principle of Humanity” and “Dictates of Public Conscience”.

A statistical research undertaken by Human Rights Watch in 2019 showed that most countries resisted the creation of lethal automated arms, which gives an important glimpse into the opinion juris – a state's perception that it is constitutionally needed to evolve with regard to the military system in question.⁵⁵ Lethal automated arms were also debated at the 100th Paris Peace Conference. Besides these sites, Legislation has often attracted significant interest of private organizations. In the month of June 2018, Google employees signed and submitted a petition calling on the organization to avoid any sort of participation with the Defense Department in Project Maven aimed at using artificial intelligence to evaluate drone video, culminating in Google withdrawing from the deal.⁵⁶ However, there have been countries that advocates the usage of artificial intelligence in combat and have begun creating weapons in the garb of LAWS, including South Korea, the United States, China, Israel and Russia.

Although one question remains, why cannot the robots be liable? After all, there has been ongoing discussion about AI personhood and the anticipated criminal liability of AI systems. But would that approach make a lot of difference here? Apart from how AI applications may be prosecuted, AI designers and creators would definitely need to be brought back into the process. This can mean combining negligence with absolute liability – responsibility imposed without the need to show blame or negligence. Strict responsibility for faulty product statements also occurs in many countries. Alternatively, there may be no blame compensation arrangement for a pool of lawsuits submitted by the AI sector. On the regulatory side, it would be an essential to develop rigorous safety standards and determining safety certification procedures but constructing and managing an appropriate framework of different institutions

⁵⁵ ‘Six in Ten (61%) Respondents Across 26 Countries Oppose the Use of Lethal Autonomous Weapons Systems’ (*Ipsos*, 22 January 2019) < <https://www.ipsos.com/en-us/news-polls/human-rights-watch-six-in-ten-oppose-autonomous-weapons> > accessed on 28 April 2020

⁵⁶ Scott Shane and other, ‘The Business of War: Google Employees Protest Work for the Pentagon’, *THE NEW YORK TIMES* (4 April 2018) < <https://www.nytimes.com/2018/04/04/technology/google-letter-ceo-pentagon-project.html> > accessed on 28 April 2020

and processes will be a tricky task to accomplish.

Guidance from AI professionals would be required to develop some structure because of the scope of the field and the general lack of knowledge beyond the AI community which also ensures that advisory boards to legislators and governments must be set up as early as possible. Recognizing that there are potentially important benefits of AI, it must be an evolving tightrope walk to create, improve and implement requirements and procedures that optimize public welfare and security without suppressing progress or imposing undue pressures on enforcement.

In our view, lethal automated weapons have the ability to raise the danger to civilians during armed conflicts. Although refusing to conform with the fundamental values of International Humanitarian Law, they will still refuse to take blame for the injuries that arise. Since technology is quickly advancing and a few States are in support of this framework and have already started working on the production of such weapons, countries in favour of a pre-emptive prohibition need to take decisive measures to create legislation to prohibit such arms.

The analysis of completely autonomous arms under the Martens Clause highlights the need for a new legislation that is both comprehensive and solid, as popular consciousness has demonstrated universal support for a ban on autonomous weapons. Moreover, if international coordination is not accomplished soon, the implementation of these technologies could place the international community, nations and citizens at risk, therefore the international negotiations thus ought to find more consensus on the laws on autonomous arms. In fact, the private sector will collaborate with the policymakers to assure that the programs are completely constructed and regulated.

The authors would like to recommend the following –

1. States must prevent the creation, manufacture and usage of lethal autonomous weapons by means of a legally binding arrangement or treaty establishing a preventative ban on these weapons.
2. Research and development on lethal autonomous arms should be evaluated and monitored in a defined timeline, and an ethical code of ethics should be developed to address questions about the risks of such research and development.

States can enact national laws and policies banning the use of these weapons.
