



5-12-2020

WHEN LAWS GOVERN LAWS: A REVIEW OF THE 2018 DISCUSSIONS OF THE GROUP OF GOVERNMENTAL EXPERTS ON THE IMPLEMENTATION AND REGULATION OF LETHAL AUTONOMOUS WEAPONS SYSTEMS

Mitchell, Caitlin

Follow this and additional works at: <https://digitalcommons.law.scu.edu/chtlj>



Part of the [Intellectual Property Law Commons](#), and the [Science and Technology Law Commons](#)

Recommended Citation

Mitchell, Caitlin, *WHEN LAWS GOVERN LAWS: A REVIEW OF THE 2018 DISCUSSIONS OF THE GROUP OF GOVERNMENTAL EXPERTS ON THE IMPLEMENTATION AND REGULATION OF LETHAL AUTONOMOUS WEAPONS SYSTEMS*, 36 SANTA CLARA HIGH TECH. L.J. 407 (2020).

Available at: <https://digitalcommons.law.scu.edu/chtlj/vol36/iss4/4>

This Case Note is brought to you for free and open access by the Journals at Santa Clara Law Digital Commons. It has been accepted for inclusion in Santa Clara High Technology Law Journal by an authorized editor of Santa Clara Law Digital Commons. For more information, please contact sculawlibrarian@gmail.com, pamjadi@scu.edu.

**WHEN LAWS GOVERN LAWS: A REVIEW OF THE 2018
DISCUSSIONS OF THE GROUP OF GOVERNMENTAL EXPERTS
ON THE IMPLEMENTATION AND REGULATION OF LETHAL
AUTONOMOUS WEAPONS SYSTEMS**

By Caitlin Mitchell¹

In 2017, nearly 100 CEOs, CTOs, and other professionals, including Elon Musk, co-founder and CEO of Tesla Motor, addressed an Open Letter to the United Nations Conference of the Convention on Certain Conventional Weapons in an attempt to implore countries to protect innocent populations from the horror that may ensue without proper regulation and security of lethal autonomous weapons systems. In 2018, roughly 3,000 Google employees signed a letter protesting the company's involvement in a Pentagon program that uses artificial intelligence to interpret video imagery and which could be used to improve the targeting of drone strikes. In 2019, the United Nations Chief warned that lethal autonomous weapons systems are "politically unacceptable, morally repugnant and should be prohibited by international law." While these pleas for regulations governing lethal autonomous weapons systems are being heard, the United Nations is slow to act on assuaging these fears due to the lack of consensus among countries on what LAWS really are or how best to govern them. This article seeks to provide clarity regarding the discussions that occurred during the 2018 Conference of the Convention of Certain Conventional Weapons (the "Conference") as requested by the United Nations. Primarily, this article will analyze the likely success of the proposals put forward by Countries pertaining to the creation of regulations to govern the development and use of LAWS under the values of International Humanitarian Law.

¹ Third-year Law Student, Santa Clara University School of Law, Managing Editor for the High Technology Law Journal, Vol. 36; B.A. earned from the George Washington University; M.B.A. earned from the University of Portland, with a concentration in Operations and Technology Management. A huge thank you to my parents and brother for supporting me throughout law school and to all of the professors in my life who have devoted their time and energy to teaching me to always keep learning. Also, thank you both to Justin Hartley and Jamie Amentler for their support as incredible editors and even better friends. A special thanks to the Board of the High Technology Law Journal, Volume 36, for their edits, hard work, and time, including Nayef Andrabi, Varun Kukreja, Alexandra Green, and Ying Julie Zhu.

CONTENTS

INTRODUCTION.....	409
I. WHAT ARE LETHAL AUTONOMOUS WEAPONS SYSTEMS?	410
II. THE LEGAL HISTORY SURROUNDING WEAPONS USED IN WAR	413
A. <i>Fundamental International Humanitarian Law Principles</i>	414
B. <i>Additional Clauses Establishing Weapons Reviews Under IHL</i>	416
C. <i>The Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects</i>	418
III. ANALYSIS OF THE PRIMARY ISSUES REGARDING THE GOVERNANCE OF LAWS BY IHL AS ADDRESSED BY THE 2018 DISCUSSIONS OF THE GGE	419
A. <i>The Characterization of LAWS</i>	419
B. <i>The Human Element in the Use of Lethal Force</i>	421
IV. ANALYSIS OF PROPOSED SOLUTIONS TO REGULATION OF LAWS BY COUNTRY IN CONNECTION WITH IHL AND CONVENTION PRINCIPLES	422
A. <i>Venezuela</i>	423
B. <i>The United States</i>	425
C. <i>The Russian Federation</i>	427
D. <i>The People's Republic of China</i>	429
CONCLUSION	431

INTRODUCTION

In 2017, nearly 100 CEOs, CTOs, and other professionals, including Elon Musk, co-founder and CEO of Tesla Motor, addressed an Open Letter to the United Nations Conference of the Convention on Certain Conventional Weapons in an attempt to implore countries to protect innocent populations from the horror that may ensue without proper regulation and security of lethal autonomous weapons systems.² This letter specifically stated that lethal autonomous weapons systems “threaten to become the third revolution in warfare” and “once developed, they will permit armed conflict to be fought at a scale greater than ever, and at timescales faster than humans can comprehend.”³

In 2018, roughly 3,000 Google employees signed a letter protesting the company’s involvement in a Pentagon program that uses artificial intelligence to interpret video imagery and which could be used to improve the targeting of drone strikes.⁴ In the letter, the employees specifically stated, “we believe that Google should not be in the business of war,” a concern developed due to the contract Google currently has with the pentagon to develop improvements to analysis of drone video which would be used on autonomous weapon systems in the future. These specific improvements could be used to pick out human targets for strikes and better protect civilians to reduce the accidental killing of innocent people.⁵

This article seeks to provide clarity regarding the discussions that occurred during the 2018 Conference of the Convention of Certain Conventional Weapons (the “Conference”) as requested by the United Nations. Primarily, this article will analyze the likely success of the proposals put forward by Countries pertaining to the creation of regulations to govern the development and use of LAWS under the values of International Humanitarian Law. Although this article was written prior to the 2019 Conference, many of the opinions contained within still apply now. The 2019 Conference yielded no decisive relief either in terms of legal provisions or policy goals⁶, and prompted the United Nations Chief, António Guterres, to

² An Open Letter to the United Nations Convention on Certain Conventional Weapons, to the United Nations (August 21, 2017) (on file with author); *An Open Letter to the United Nations Convention on Certain Conventional Weapons*, FUTURE OF LIFE INSTITUTE (last visited May 25, 2020), <https://futureoflife.org/autonomous-weapons-open-letter-2017/?cn-reloaded=1>.

³ An Open Letter to the United Nations Convention on Certain Conventional Weapons, to the United Nations (August 21, 2017) (on file with author).

⁴ *The Business of War: Google Employees Protest Work for the Pentagon*, N.Y. TIMES (April 4, 2018), <https://www.nytimes.com/2018/04/04/technology/google-letter-ceo-pentagon-project.html>.

⁵ *Id.*

⁶ Hayley Evans and Natalie Salmanowitz, *Lethal Autonomous Weapons Systems: Recent Developments*, LAWFARE (March 7, 2019, 3:28 P.M.), <https://www.lawfareblog.com/lethal-autonomous-weapons-systems-recent-developments>; Alexandra Brzozowski, *No Progress in UN talks on regulating lethal autonomous weapons*, EURACTIV (November 22, 2019),

state, “autonomous machines with the power and discretion to select targets and take lives without human involvement are politically unacceptable, morally repugnant and should be prohibited by international law.”⁷

Contrary to popular belief, the greatest threat to the future of warfare is not the image of the terminator, but the use of fully autonomous lethal weapon systems that are hyper efficient, hyper accurate, and capable of independently deciding to attack and kill a combatant during battle. While many may not grasp the full understanding of what a lethal autonomous weapon system (“LAWS”) is on reading this phrase, this emerging technology is the subject of roughly four years of tumultuous discussion between countries who are parties to the Geneva Convention and additional treaties.⁸ However, at the conclusion of the most recent meetings in August of 2018, these countries are still no closer to regulating such weaponry due to one fundamental problem: there is no universally agreed upon definition of what a LAWS is or would be capable of because they have yet to be created.⁹

This article will first provide a brief summarization of the classifications of levels of autonomy for weapon systems which will create a foundation of knowledge regarding the technology involved in later discussion. Next, the following section provides the relevant tenets of International Humanitarian Law that currently govern weapons and applies to the creation of new weapons, such as lethal autonomous weapon systems. After this review, the current, overarching issues with lethal autonomous weapon systems, as discussed in previous meetings of the Conference, are described as a foundation for the analysis of the country positions from 2018. Finally, each country’s position at the conclusion of the 2018 Conference are analyzed to determine their respective success under the tenets of International Humanitarian Law.

I. WHAT ARE LETHAL AUTONOMOUS WEAPONS SYSTEMS?

There is no uniform definition as to what constitutes a Lethal Autonomous Weapon System because there is a lack of understanding regarding what technology is utilized in the creation of LAWS or what they are capable of.¹⁰ The primary reason for this, as of February 2019, is that there is no publicly known instances of a fully autonomous LAWS having been

<https://www.euractiv.com/section/global-europe/news/no-progress-in-un-talks-on-regulating-lethal-autonomous-weapons/>.

⁷ *Autonomous weapons that kill must be banned, insists UN chief*, UN NEWS (March 25, 2019), <https://news.un.org/en/story/2019/03/1035381>.

⁸ *Losing Humanity: The Case against Killer Robots*, HUM. RTS. WATCH (November 19, 2012), <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots>.

⁹ *Lethal Autonomous Weapons Systems at the First and Second U.N. GGE Meetings*, LAWFARE (April 9, 2018), <https://www.lawfareblog.com/lethal-autonomous-weapons-systems-first-and-second-un-gge-meetings>.

¹⁰ *Id.*

completed.¹¹ While many active participants in the discussion surrounding LAWS, both proponents and critics, have much to say on what LAWS will *likely* be capable of, the uncertainties pose significant issues when attempting to regulate this particular weapon using the traditional strategies of International law.¹²

Therefore, this section provides a brief understanding of the definitions used by the international community to differentiate between levels of autonomy in weapons and examples of the varying degrees of autonomous weapons available to the military today. By defining these levels, a distinction emerges between the most common level of autonomy in weapons used by the military and fully autonomous weapons that will require new laws to ensure careful management of their use in wars.

Due to the complexity of the concept of autonomy, many scholars state it is preferable to think of the autonomy of machines on a spectrum.¹³ While several attempts have been made to define a primary, or universally understood, spectrum, the most commonly used version, and the version that this paper chooses to implement, is titled the Boyd Cycle, or “OODA Loop.”¹⁴ Created by Air Force Pilot and Military Strategist John Boyd, the OODA Loop provides insight into the complicated process of decision-making while using language shared by engineers, the military, and the general public.¹⁵

The OODA Loop evaluates human decision-making based on the following steps: Observe, Orient, Decide, and Act.¹⁶ As a demonstration of these steps, the following is an explanation of how a person may use the above steps to make a decision:

A person first *observes* the world around her, gathering data about her environment through the array of human senses. Second, she *orients* herself, or interprets the information she has gathered. Third, she weighs the potential courses of action based on the knowledge she has accumulated and *decides*

¹¹ *Id.*; Throughout the later years of 2019, it appears that there were still no fully autonomous LAWS that were complete and operational. However, multiple countries, including the United States and Russia, are attempting to solidify the use of and are currently investing in the creation of these weapons. See Damien Gayle, *UK, US and Russia among those opposing killer robot ban*, THE GUARDIAN (March 29, 2019, 7:25 P.M.), <https://www.theguardian.com/science/2019/mar/29/uk-us-russia-opposing-killer-robot-ban-un-ai>.

¹² Interview by the Stockholm International Peace Research Institute (SIPRI) with Ambassador Amandeep Singh Gill, Chairman, Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (September, 2017), <https://www.youtube.com/watch?v=OoenCZZKtdU>.

¹³ Alan L. Schuller, *At the Crossroads of Control: The Intersection of Artificial Intelligence in Autonomous Weapon Systems with International Humanitarian Law*, 8 HARV. NAT'L. SEC. J. 379, 392 (2017).

¹⁴ *Id.*

¹⁵ William C. Marra & Sonia K. McNeil, *Understanding “the Loop”: Regulating the Next Generation of War Machines*, 8 HARV. J.L. & PUB. POL'Y. 1139, 1145 (2013).

¹⁶ *Id.*

how to act. Fourth and finally, she *acts*, or executes the decision she has made.¹⁷

Although this model is an oversimplification of the overall complexity of this thought process, it offers clear delineations in the process of decision-making that can be applied to technological systems based on their ability to follow these steps and, eventually, make decisions.¹⁸ Therefore, when considering the OODA Loop, this indicates that an autonomous weapon, generally, is a machine capable of sensing and manipulating its surroundings with limited to no human control by observing the conditions around it, orienting itself with internal programming and incoming data, and deciding on the appropriate course of action.¹⁹

Scholarly works use the OODA Loop as a way to distinguish between how much interaction humans have with varying weapons, and rely on the following phrases to describe differing levels of autonomy: (i) "In the Loop" refers to a situation where the human operator plays an integral role in the operation of the machine – the machine cannot accomplish its task without human involvement;²⁰ (ii) "On the Loop" refers to a situation where the human monitors the system and can intervene before the system takes action;²¹ and (iii) "Out of the Loop" refers to a situation where the human plays no role in the machine's execution of its task.²²

In addition to using the terminology specified above, several definitions have been supplied that informally adopt the OODA Loop, but do not explicitly use Boyd's terminology.²³ For instance, the United States Department of Defense has defined an *autonomous* weapon system as:

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.²⁴

This specific definition would be considered a system with a human "on the loop" because the weapon can perform the target selecting process, but still be superseded by a human operator prior to any action on the part of the machine.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ ARMIN KRISHNAN, KILLER ROBOTS: LEGALITY AND ETHICALITY OF AUTONOMOUS WEAPONS 5 (Ashgate Publishing Limited et al., 2009).

²⁰ Lieutenant Colonel Christopher M. Ford, *Autonomous Weapons and International Law*, 69 S.C. L. REV. 413, 423-24 (2017).

²¹ *Id.*

²² *Id.*

²³ U.S. Dept. of Def., Directive 3000.09, AUTONOMY IN WEAPON SYSTEMS, 13-14 (Nov. 21, 2012, incorporating Change 1, May 8, 2017),

<https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/300009p.pdf>.

²⁴ *Id.*

Overall, the fundamental difference between semi-autonomous, autonomous, and fully autonomous²⁵ weapon systems is the ability for the weapon, without human initiation or intervention, to identify, target, and attack a person or object.²⁶ For example, United States forces in 2013 implemented Aegis, an autonomous weapon at sea, which is designed to defend against short notice ballistic missile attacks.²⁷ The difference between Aegis and a fully autonomous weapons system is that Aegis is supervised by a human with the ability to override the systems capabilities, if necessary, and would be classified as a system with a human “on the loop.”²⁸

While this is a condensed version of the technological explanation the reader deserves with regard to this topic, this article is primarily focused on the international legal discussion surrounding fully autonomous weapon systems, or weapon systems where a human is “out of the loop.” Before broaching the analysis regarding this fundamental question, a brief summary of the international laws applicable to this discussion is contained within the following section and reviews their relation to autonomous weapons, rather than the full autonomous capabilities foreshadowed to be included in the creation and implementation of LAWS.

II. THE LEGAL HISTORY SURROUNDING WEAPONS USED IN WAR

Although International Humanitarian Law (“IHL”) is a well-established body of law, the basic principles and guidance provided by the Geneva Convention as well as subsequent international treaties governs all weapons created since its inception.²⁹ Article 52 of Additional Protocol I to the Geneva Convention states, “In so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time,

²⁵ Michael N. Schmitt & Jeffrey S. Thurnher, “*Out of the Loop*”: *Autonomous Weapon Systems and the Law of Armed Conflict*, 4 HARV. NAT’L. SEC. J. 231, 236 (2013) (There is discussion about whether a fully autonomous system is ever *entirely* human interaction free. Either the system designer or an operator would theoretically at least have to program it to function and an operator would have to decide to employ it in a particular battlespace; but if technology continues to improve the initial system designer interface may be the only aspect still required and a fully autonomous system would be able to both turn itself on and off as well as conduct its normal military operations).

²⁶ *Id.* at 235.

²⁷ Lockheed Martin, Aegis Combat System, (last visited May 25, 2020), <http://www.lockheedmartin.com/us/products/aegis.html>.

²⁸ *Id.*

²⁹ *Geneva Conventions*, LEGAL INFORMATION INSTITUTE, CORNELL LAW SCHOOL (last visited May 25, 2020), https://www.law.cornell.edu/wex/geneva_conventions_and_their_additional_protocols.

offers a definite military advantage."³⁰ As stated under this definition, 'objects' includes a wide range of weapons, such as knives, guns, landmines, and, eventually, LAWS.³¹

As a result, despite the lack of new regulations specific to the use and nature of LAWS as weapons of war, the current legal structure established by existing IHL applies to their implementation until new laws are established by the international community. Therefore, this section begins with the current understanding of IHL and what concepts apply to LAWS if they were to be created tomorrow. Next, this section will review additional components of IHL that are relevant to the legal discussion surrounding LAWS. Finally, prior to delving into the ongoing discussions among the international community in 2018, this section will review primary concerns regarding LAWS and possible violations of IHL, which are necessary for a discussion of the proposed solutions to the lack of regulations specifically created for LAWS.

A. *Fundamental International Humanitarian Law Principles*

To begin, the Geneva Convention, and subsequent additional amendments, are the primary documents governing international war.³² The purpose of the Conventions is to provide minimum protections, standards of humane treatment, and fundamental guarantees of respect to individuals who become victims of armed conflicts.³³ As a whole, the Geneva Conventions espouse four fundamental principles which govern both military weapons used and conduct in war: Humanity, Distinction, Proportionality, and Military Necessity.³⁴

Article 35 of the Additional Protocol to the Geneva Conventions of August 1949 and relating to the Protection of Victims of International Armed Conflict ("Additional Protocol I"), provides an interpretation of the principle of Humanity by prohibiting the use of "weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering."³⁵ The International Court of Justice further interpreted the principle of humanity, stating that weapons are "prohibited to cause

³⁰ *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, 1125 U.N.T.S., Art. 52.

³¹ Tallinn Manual on the International Law Applicable to Cyber Warfare, International Group of Experts at the Invitation of the NATO Cooperative Cyber Defence Centre of Excellence, Chps. 4-5 and accompanying commentary (2013).

³² Geneva Conventions, LEGAL INFORMATION INSTITUTE, CORNELL LAW SCHOOL (last visited May 25, 2020), https://www.law.cornell.edu/wex/geneva_conventions_and_their_additional_protocols.

³³ *Id.*; For this article, we are primarily concerned with Additional Protocol I to the Geneva Convention, passed in 1977, which specifically provided increased protection for civilians, military workers, and others that may find themselves involved in International Armed Conflict.

³⁴ *Id.* at 21 (Art. 35).

³⁵ *Id.*

unnecessary suffering to combatants” and that countries are “accordingly prohibited to use weapons causing them such harm or uselessly aggravating their suffering.”³⁶ As an example, weapons such as poison/poisonous gas violate the principle of humanity by causing unnecessary suffering outside that required to ‘disable the enemy.’³⁷ A weapon system is properly categorized as one that inflicts unnecessary suffering “only if it is inevitably or in its normal use has a particular effect, and the injury caused thereby is considered by governments as disproportionate to the military necessity for that effect.”³⁸

Article 48 of Additional Protocol I to the Geneva Convention embodies the principle of distinction by stating, “in order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives.”³⁹ In addition, according to the International Court of Justice, States must never make civilians the object of attack and must consequently never use weapons causing them such harm or uselessly aggravating their suffering.⁴⁰ Ultimately, the principle of Distinction requires military forces to respect and protect civilians and civilian objects regardless of what they believe is necessary to accomplish their military objectives.⁴¹

The next principle, Proportionality, is set forth in Articles 51(5)(b) and 57(2)(a)(iii) of Additional Protocol I, and prohibits “an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be *excessive*⁴² in relation to the concrete and direct military advantage anticipated.”⁴³ ‘Excessive,’ as referred to in the Articles above, is considered to be a case-by-case assessment that is evaluated in terms of its reasonableness given the attendant circumstances.⁴⁴ To lawyers and law students, it is similar to the legal standard for negligence in Tort law, and resembles the standard of care that a reasonably prudent person would observe under a given set of circumstances.⁴⁵ The larger conclusion to be gained from Proportionality is

³⁶ 1996 I.C.J. 95.

³⁷ JUDITH GARDAM, NECESSITY, PROPORTIONALITY AND THE USE OF FORCE BY STATES 36 (James Crawford & John S. Bell eds., 2004).

³⁸ ALAN APPLE ET AL., OPERATIONAL LAW HANDBOOK 14 (William Johnson & Wayne Roberts eds., 2013).

³⁹ Protocol I, *supra* note 26 at Art. 48.

⁴⁰ *Id.*

⁴¹ 1996 I.C.J. 95.

⁴² *Id.*

⁴³ Emphasis provided by the Author.

⁴⁴ Protocol I, *supra* note 26 at Arts. 51 and 57.

⁴⁵ Schmitt, *supra* note 21 at 16.

⁴⁵ Reasonable, LEGAL INFORMATION INSTITUTE, CORNELL LAW SCHOOL (last visited May 25, 2020), <https://www.law.cornell.edu/wex/reasonable>.

that the greater the probability of an anticipated military advantage likely to accrue from an attack, the more the law of armed conflict will tolerate the expected collateral damage.⁴⁶

Finally, the principle of Military Necessity permits measures which are necessary to accomplish legitimate military objectives and are not otherwise prohibited by IHL.⁴⁷ As discussed by many international law scholars, the only legitimate purpose is to weaken the military capacity of the other parties to the conflict and, therefore, requires a balance between military necessity and humanitarian exigencies.⁴⁸ As an example, a weapons strike lacking military advantage but causing harm to civilians or civilian objects would be considered an outright violation of this principle.⁴⁹

These four principles form the foundation of IHL and should be heavily considered in the implementation of new solutions to regulate LAWS. In addition to these fundamental values, there are additional clauses that are mentioned in international discussion regarding the legality of LAWS which are discussed in further detail below.

B. Additional Clauses Establishing Weapons Reviews Under IHL

While the fundamental principles of IHL are provided above, there is an important procedural component of IHL upon the creation of a new weapon. Without a review of whether the weapon would be likely to violate IHL (known commonly as a “weapons review”), there is no stop-gap between the implementation of a new weapon and the possibility of military actions that violate IHL principles.⁵⁰ As a result, additional clauses provided by Additional Protocol I establish weapons reviews that should be conducted by States to determine the legality of new weapons.

Article 36 of Additional Protocol I provides that, “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.”⁵¹ To further clarify, a LAWS is a means of warfare and if a foreign government uses such a weapon during the course of combat, it would then become a method of warfare. In summary, Additional Protocol I requires that any entity that creates or plans to use new weapons in war is

⁴⁶ Schmitt, *supra* note 21 at 16. Note: there is a large problem with this conclusion given that autonomous weapon systems may not be capable of this calculation (like determining what military advantage there is, etc.).

⁴⁷ Military Necessity, Glossary, INT’L COMM. OF THE RED CROSS, (last visited January 27, 2019), <https://casebook.icrc.org/glossary/military-necessity>.

⁴⁸ *Id.*

⁴⁹ Protocol I, *supra* note 26 at Arts. 51(5)(b) and 57(2)(iii).

⁵⁰ Losing Humanity, *supra* note 5 at 21; Tallinn Manual, *supra* note 27 at 128.

⁵¹ Protocol I, *supra* note 26 at Art. 36.

required to consider the applicability of and likelihood that the weapon in question, a means of warfare, will violate IHL.

States which have agreed to abide by Additional Protocol I must conduct the above reviews of any weapon developed, but non-abiding states are not required to conduct such reviews.⁵² Despite this, many in the international community agree it is in the best interest for all countries to conduct such reviews and promote compliance with the fundamental principles of IHL.⁵³ However, previous investigations into State compliance were disappointing since many non-abiding states have not formally created a procedure for these reviews and indicated that they rarely occur.⁵⁴

The Martens Clause further expands upon the weapons review standard provided by Article 36 of Additional Protocol I by providing application even in the absence of relevant treaty law.⁵⁵ The Martens Clause states, “in cases not covered by this Protocol or by other international agreements, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity *and from the dictates of public conscience*.”⁵⁶ As a result of the combination of the Martens Clause and Article 36 above, it is highly unlikely that a weapons system, including autonomous ones, would not violate applicable treaty and customary law, but nevertheless be unlawful based on the Martens Clause.⁵⁷

To briefly summarize the rules stated above, weapons reviews should begin in the early stages of development, address all configurations of the weapons, consider such key principles as those mentioned in subsection (a), and conclude by reviewing whether the weapons’ use is contrary to the dictates of public conscience prior to implementation to establish that a weapon meets the legal requirements necessary for implementation in war.⁵⁸ Finally, in addition to the rules and clauses stated above, LAWS are governed by treaties passed that supported the implementation of IHL and provided new guidance on weapons with improved technology since the creation of the Geneva Convention and Additional Protocols.

⁵² Tallinn Manual, supra note 27, at 128.

⁵³ Report of the 2018 Session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2018/3 (April 9-13, 2018 and August 27-31, 2018).

⁵⁴ *Id.*

⁵⁵ Protocol I, supra note 26 at Art. 1.

⁵⁶ *Id.* (The text of the clause refers to “cases not covered by this Protocol or by other international agreements.”); Emphasis added by the author.

⁵⁷ *Id.*

⁵⁸ Losing Humanity, supra note 5; Int’l. Comm. of the Red Cross, Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949 39, (last accessed May 25, 2020), <http://www.icrc.org/ihl.nsf/COM/470-750004?OpenDocument> (According to the ICRC, the Martens Clause “should be seen as a dynamic factor proclaiming the applicability of the principles mentioned regardless of subsequent developments of types of situation or technology.”)

C. *The Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects*

The purpose of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons, etc. (the “Convention”) is to ban or restrict the use of specific types of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately.⁵⁹ The Convention only contains general provisions because the Additional Protocols prohibit or restrict specific weapons or weapon systems.⁶⁰

As originally adopted, the Convention contained three protocols prohibiting the use of weapons that employ fragments not detectable in the human body by X-ray (Protocol I); regulating the use of landmines, booby-traps and similar devices (Protocol II); and limiting the use of incendiary weapons (Protocol III).⁶¹ New protocols and amendments have recently been added to expand the scope of and strengthen the Convention as a response to the increasing human toll by specific weapons as well as to apply the Convention in situations of non-international armed conflict.⁶² The sample changes described above are two of many that demonstrate the dynamic nature of the Convention because the document takes into account future developments in the nature and conduct of armed conflict.⁶³

In the 2017 session of the Group of Governmental Experts related to emerging technologies in the area of LAWS (the “GGE”), the group stated that the CCW, in particular, offers an appropriate framework for dealing with LAWS.⁶⁴ According to the report issued at the conclusion of proceedings, “the Convention’s modular and evolutionary character, the balance it seeks to strike between humanitarian considerations and military necessity as well as the opportunity it offers to engage multiple stakeholders make it an ideal platform for reaching a common understanding on this complex subject.”⁶⁵

Despite this affirmative belief that the Convention and IHL principles are the most effective solution to regulate LAWS, there are various substantial apprehensions concerning both the application of existing laws and the

⁵⁹The Convention on Certain Conventional Weapons, the United Nations Office, Geneva, (last accessed May 25, 2020), [https://www.unog.ch/80256EE600585943/\(httpPages\)/4F0DEF093B4860B4C1257180004B1B30?OpenDocument](https://www.unog.ch/80256EE600585943/(httpPages)/4F0DEF093B4860B4C1257180004B1B30?OpenDocument)

⁶⁰*Id.*

⁶¹ Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed To Be Excessively Injuries or to Have Indiscriminate Effects, Int’l. Comm. of the Red Cross 6 (November 28, 2003).

⁶² *Id.*

⁶³ *Id.*

⁶⁴ Report of the 2017 Group of Governmental Experts on Lethal Autonomous Weapons Systems, CCW/GGE.1/2017/3 (November 13-17, 2017).

⁶⁵ *Id.*

effectiveness of new laws.⁶⁶ Therefore, in 2013 the United Nations tasked a subgroup of High Contracting Parties to the Convention, the Group of Governmental Experts (“GGE”), with exploring and agreeing on possible recommendations related to regulation of LAWS with a focus on IHL compliance.⁶⁷ Although these discussions have taken place for several years, the sessions held in 2018 began to solidify the issues related to LAWS under the overarching values of the Convention and Additional Protocols.

III. ANALYSIS OF THE PRIMARY ISSUES REGARDING THE GOVERNANCE OF LAWS BY IHL AS ADDRESSED BY THE 2018 DISCUSSIONS OF THE GGE

Scholars have suggested since 2012 several reasons why regulation of LAWS with current IHL regulations and values would be ineffective and unable to protect civilians and combatants.⁶⁸ Reviewing the extensive list of these proposed concerns would take several pages of material and vast amounts of technological knowledge not discussed in this article. Therefore, a narrow list of these issues will be discussed in the context of the agenda items proposed by the 2018 discussions from the Conference of the Convention on Certain Conventional Weapons Group of Government Experts on LAWS (the “Conference”).⁶⁹ These topics specifically include the following four central concepts, discussed in further detail below. While each of these topics had additional sub-parts not addressed here, the general understanding of each issue is described to facilitate later analysis.

A. *The Characterization of LAWS*

The GGE chose to make the characterization of LAWS a primary issue of discussions to promote a common understanding of concepts and characteristics relevant to the objectives and purposes of the CCW.⁷⁰ Although specific delegations believed that an agreed upon definition was essential to fully address the risks posed by these systems, countries such as the United

⁶⁶ *Id.*

⁶⁷ EU Statement Group of Governmental Experts Lethal Autonomous Weapons Systems Convention on Certain Conventional Weapons Geneva, 27-31 August 2018 (last accessed January 27, 2019), https://eeas.europa.eu/headquarters/headquarters-homepage/49820/convention-certain-conventional-weapons-group-governmental-experts-lethal-autonomous-weapons_en.

⁶⁸ Losing Humanity, *supra* note 5; Rebecca Crootof and Frauke Renz, *An Opportunity to Change the Conversation on Autonomous Weapon Systems*, LAWFARE (June 15, 2017).

⁶⁹ The third agenda item for the Conference, detailing the possible military applications of LAWS, is not discussed in this article due to the technical nature of the subject. Given the restriction on available pages to comprehensively explain this topic to the reader, the agenda item was removed. The fourth agenda item is also not discussed in detail in this section due to the overlap of previous IHL value review and discussion of the first and second agenda items.

⁷⁰ Report of the 2018 Session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2018/3 (April 9-13, 2018 and August 27-31, 2018).

States believe that the absence of such an agreement should not hinder progress on the determination of policy choices.⁷¹ Moreover, the technical characteristics related to the fully autonomous aspects of these systems, such as self-learning, should be further studied in conjunction with the spectrum of autonomy since different functions could have different degrees of autonomy.⁷²

Taking these considerations into account, the GGE focused on four broad approaches to weapon characterizations that were referred to over the course of discussions, including:

1. **The Separative approach:** Characteristics and concepts not relevant to the objectives and purposes of the CCW are set aside, while gathering the characteristics and concepts that are definitely relevant to the objectives and purposes of the CCW;
2. **The Cumulative approach:** Categories of characteristics are added to a master list and then evaluated against certain technical, legal-humanitarian or political-security criteria to assess their relevance to the objectives and purposes of the CCW;
3. **The Accountability approach:** Considers a set of characteristics related to the functions and type of decisions handed over to machines, and which avoids using levels of autonomy and other technical characteristics or categories related to the loss of human control;⁷³
4. **The Purpose oriented and effect-based approach:** Focuses on desirable and undesirable consequences of possible lethal weapons systems based on emerging autonomous intelligent systems and technologies.⁷⁴

In relation to those approaches, delegations wanted to reinforce that physical or technical attributes alone would not be sufficient to characterize LAWS and that the GGE should focus on the characteristics related to the human element in the use of force.⁷⁵ This was an attempt to build understanding about the human-machine interface throughout the lifecycle of weapons systems.⁷⁶

⁷¹ *Id.*

⁷² *Id.*

⁷³ This approach would depend rather on the context and scenario in which the systems under consideration would be used and would involve a combination of technical and human-interface evaluations centered on accountability of States and humans.

⁷⁴ Report of the 2018 Session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2018/3 (April 9-13, 2018 and August 27-31, 2018).

⁷⁵ *Id.*

⁷⁶ *Id.*

The approaches provided above are of paramount importance for the development of regulations because, without understanding the technology itself, traditional approaches to the application of International law would no longer work. As mentioned by the Chairman of the GGE, Amandeep Singh Gill, traditional weapons experts focus on the weapon itself, such as landmines or incendiary weapons, and draft what they believe to be appropriate in the context of the capabilities and characteristics of the weapon.⁷⁷ Without such information, Countries will be unable to provide solutions that will effect change and will only expose themselves to the risk of over or under-regulating LAWS prior to their use. Such over or under-regulation may hinder the ability for LAWS to be properly governed in their use or for the GGE to ensure the protection of civilians and combatants under the balancing between military action and civilian protection, provided by the Convention.

B. The Human Element in the Use of Lethal Force

As part of discussions surrounding this particular issue, delegations agreed that further consideration of the human element in the use of lethal force, aspects of human-machine interaction in the development, deployment and use of emerging technologies in the area of LAWS was needed for effective and comprehensive regulation.⁷⁸ Moreover, the GGE underlined the need to apply a human-centric focus in discussing technical characteristics of LAWS due to the human-weapon interaction being necessary for compliance with IHL, despite the difficulties associated with human control.⁷⁹

Of substantial importance to the technological discussion of LAWS was the human control exerted in the research and development stage, including such activities as weapons reviews.⁸⁰ As noted during discussions, and for clarification, the research and development phase involves teams of software developers who jointly create algorithms, technical experts who design and/or “train” the software, and engineers responsible for the hardware and the integration of the software.⁸¹ In addition, the GGE posited that in future meetings additional attention should be paid to the feasibility of some measures of human control, supervision or judgment, keeping in mind the relevant qualitative requirements such as reliability, predictability and explainability, or auditability.⁸²

As briefly discussed in the IHL review under Section II above, the values posited by the Geneva Convention and Additional Protocols consider the ability for *humans* to conduct the balancing between all four factors in the heat

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

of combat. While countries do not fully comprehend whether LAWS will be independently capable of conducting this type of analysis, the GGE, in an attempt to retain a human element of the use of LAWS, is continuing the application of IHL principles. Weapons with various levels of autonomy up to this point all have at least an “on the loop” human component, one that can prevent the final stages of attack if a military use were to deviate from the proper course. As a result, it is imperative that a human aspect of the use of LAWS be retained, for the time being, for IHL to apply. As discussed later, the necessity for a human element to be retained in future applications of new International laws to LAWS is slightly more complex and merits additional analysis in the context of specific country positions.

As a result of the above concerns, some delegations reaffirmed that the regime of international responsibility and accountability for the use of force in armed conflict fully applies when emerging technologies are employed.⁸³ Other delegations viewed that new legally-binding provisions were necessary for addressing the humanitarian and international security challenges posed by these technologies.⁸⁴ Still other delegations supported the proposal from the 2017 discussions to establish a political declaration, which would state that humans would be responsible for any final decisions made by and maintaining control over LAWS.⁸⁵ Despite the diversity of proposed solutions to attempt to regulate LAWS, the majority of countries believe that not only are existing or new laws capable of regulating these technologies, but that they are necessary to ensure that they are properly used and controlled.⁸⁶

The agenda items stated above are only the beginning of the extensive issues which necessitate discussion on an international scale. However, based on the overarching themes of the discussions from the 2018 negotiations and presentations, each country supported a solution in an attempt to gain a deeper understanding of the laws required when addressing LAWS as a means of warfare. Each of these positions will be described and analyzed in turn to determine the likely success of the proposed solutions under the governing values of IHL, via the original Geneva Convention, Additional Protocols, and the CCW.

IV. ANALYSIS OF PROPOSED SOLUTIONS TO REGULATION OF LAWS BY COUNTRY IN CONNECTION WITH IHL AND CONVENTION PRINCIPLES

Despite a lack of consensus on the definition of LAWS and previous concerns established by both scholarly works and 2016 and 2017 discussions among world leaders, in 2018, the GGE began to finalize the possible solutions that would help address the foregoing concerns by countries as well

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

as effectively regulate the use of LAWS in the future.⁸⁷ This section will address country positions in the following order: Venezuela and associated countries of the Non-Aligned movement, the United States, the Russian Federation, and China.

A. Venezuela

On behalf of countries which are members of the Non-aligned movement (NAM), Venezuela believes that a legally binding instrument is necessary for the regulation of LAWS and, pending the conclusion of such a document, that all states should declare moratoria on the further development and use of LAWS.⁸⁸ As a foundation for this belief, Venezuela stated that it is of the view that LAWS raise a number of ethical, legal, moral and technical, as well as international peace and security related questions, which should be thoroughly deliberated and examined in the context of international law to identify concrete policy options for addressing them.⁸⁹

Venezuela further stated that it is pleased that a general consensus developed among High Contracting Parties stating that all weapons, including those with autonomous functions, must remain under the direct control and supervision of humans at all times, and must comply with international law.⁹⁰

Although IHL does not strictly discuss the moratoria of weapons in pursuit of effectively regulating them, this is not the traditional approach exercised by the United Nations when dealing with emerging technologies.⁹¹ Specifically, with the evaluation of several previous weapons that fall under the CCW and precede the discussion of LAWS, this does not often occur due to the weapon already being in active use in military combat.⁹² However, the fundamental question that should be considered is whether or not this is a sufficient way to regulate the ‘types’ of emerging technology that are being developed, not strictly including LAWS.

The foreshadowed use of evolution by LAWS to improve and better serve military goals is indicative of a new aspect of weapons that will need to

⁸⁷ *Id.*

⁸⁸ General Principles on Lethal Autonomous Weapons Systems, Submitted by the Bolivarian Republic of Venezuela on behalf of the Non-Aligned Movement (NAM) and Other States Parties to the Convention on Certain Conventional Weapons (CCW), CCW/GGE.1/2018/WP.1 (April 9-13, 2018).

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ Interview by the Stockholm International Peace Research Institute (SIPRI) with Ambassador Amandeep Singh Gill, Chairman, Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (September, 2017), <https://www.youtube.com/watch?v=OoenCZZKtdU>.

⁹² General Principles on Lethal Autonomous Weapons Systems, Submitted by the Bolivarian Republic of Venezuela on behalf of the Non-Aligned Movement (NAM) and Other States Parties to the Convention on Certain Conventional Weapons (CCW), CCW/GGE.1/2018/WP.1 (April 9-13, 2018).

be evaluated and regulated without denying its existence.⁹³ While this technology is new, the concept of programming and ‘teaching’ weapons to improve accuracy and performance is not.⁹⁴ As a result, the best approach to fully understanding the scope of LAWS is to allow for their development without condoning the use of LAWS in combat. Without a deeper understanding of what this technology could develop into and the scope of such autonomous capabilities as evolution, IHL will continue to apply only in theory and will not be able to encompass the full breadth of capabilities that LAWS will potentially retain.

Therefore, this solution, while ideally the best way to prevent atrocities from occurring due to illegal uses of LAWS in the field, will not allow for the GGE to create the most effective or comprehensive regulations pertaining to LAWS or even emerging technologies to come. While innocent lives were taken in previous instances of weapons, such as land mines, being evaluated during combat, this is an opportunity for the GGE to focus on allowing technology to continue to progress, but with limitations that will continue to balance the values espoused by the Convention. If the GGE develops LAWS keeping both military application and civilian protection in mind, they will effectively be performing the balancing required under current International laws and allowing themselves the best opportunity in the future to regulate emerging technologies properly.

In addition, this working paper specifically highlights the general consensus that LAWS must be under the direct control and supervision of humans while being used. While this requirement does provide some security that humans could intercede and prevent a LAWS from acting, this is not the primary focus of the values of international law and presents a distinction between the values as posited by the IHL and those created during the GGE Conference.

All the values described above under the IHL focus on the impact to those on the receiving end of the use of weapons such as LAWS. The IHL’s primary goal is to protect both combatants and civilian populations from unnecessary and excessive force used by weapons, and, while it is evident the GGE is attempting to enable those values by creating an interim consideration, mandating human control and supervision does not eliminate some of the primary reasons why these specific values were chosen.

Each of these values focuses on the impact of the weapon’s attack, i.e., the extent of the damage to combatants or civilians if the weapon chooses or accidentally takes a life. While requiring a human to be “on the loop” limits the extent that these weapons will attack when not desired, this requirement

⁹³ *Id.*

⁹⁴ *Id.*

does not reduce the ultimate scope of harm to the enemy or innocent civilians during a war.

In particular, this was the concern of the CEOs and Engineers provided in the 2017 letter to the GGE – the result of the creation of this technology is not, at this moment, a concern that these weapons will attack various individuals without the operation of humans. Rather, the concern focuses on the weight of the eventual change to war as a larger concept. War is at risk of becoming increasingly faster, efficient, and, as previously discussed in scholarly articles and GGE discussions alike, inhumane. A human may not stop the attack of a LAWS when necessary, and the impact of such a weapon is what should most concern the GGE.

The International community has reached a consensus that LAWS must require human observation, and that a definition should be formulated to better understand what these weapons will be capable of. However, the focus of the position supported by Venezuela seeks only to halt the progress of technology in an attempt to better understand and eventually create international laws to govern it. This approach both ignores the speed with which technology develops and the central focus of international law – the values established by IHL center around the impact to combatants and civilians in times of war, not the weapon itself. This conclusion indicates that the likelihood of Venezuela's position successfully leading to the development of sufficient laws for the governance of LAWS is remote because, without a clear understanding of what the regulation seeks to accomplish, Venezuela will only be attempting to halt the inevitable.

B. The United States

According to the working paper submitted to the GGE, the United States' position on LAWS seeks to avoid any attempt to stigmatize or ban emerging technologies.⁹⁵ Rather, the U.S. argues that countries should encourage such innovation that furthers the objectives and purposes of the Convention and, because of this goal, there should be no restrictions on the development of such weapons from the GGE.⁹⁶ The primary reason the U.S. supports this unrestricted development is the pursuit of fully protecting civilians from unnecessary suffering, one of the main purposes of IHL.⁹⁷

Emerging technologies in the field of LAWS have the potential to improve quality of life as well as prove effective at saving lives during combat by improving the accuracy of military technology.⁹⁸ Moreover, the U.S. put

⁹⁵ Humanitarian Benefits of emerging technologies in the area of lethal autonomous weapon systems, submitted by the United States of America, CCW/GGE.1/2018/WP.4 (April 9-13, 2018).

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

forward several examples of ways in which emerging technologies could be used to reduce risk to civilians, including incorporating autonomous self-destruct, self-deactivation, or self-neutralization mechanisms and increasing awareness of civilians and civilian objects on the battlefield.⁹⁹ While these examples were discussed by the U.S. working paper with additional detail, there are fundamental technological and IHL related issues that accompany these suggestions.

As noted by the U.S. working paper, technology is often applied in innovative ways that are wholly unlike previous applications.¹⁰⁰ This is of the utmost concern for the U.S. position because, despite the ability to point to some benefits of LAWS that we believe may exist and help reduce unnecessary civilian suffering, the primary concern of the principle of humanity, these examples only deepen concerns that LAWS will not comply with IHL.¹⁰¹ For instance, the creation of a self-destruct mechanism further implicates the ability for LAWS to distinguish between civilians and combatants and would be considered under the principle of Distinction, a principle which has required several discussions among countries to conceptually understand. Therefore, the approach that the U.S. took in their working paper only creates a false sense of security when proposing regulations for LAWS because this strategy does not allow for the best regulations to be created.

Ultimately, the working paper focuses on the potential of emerging technologies in the area of LAWS without fully addressing the additional complications posed by the advanced technology in question and what LAWS will likely be capable of. Although countries do not have a full understanding of LAWS as technology, focusing on the benefits of LAWS without identifying key characteristics that will be associated with this specific weapon does not enable the GGE to effectively discuss or create legislation surrounding their use during war. Moreover, although the examples provided do relate to the balancing as proposed in the Convention as well as the traditional Additional Protocol values, these are only a small portion of the technology itself. Providing small safety mechanisms, while important, does not ensure that the full weapon meets the values of IHL, specifically values such as the balancing the weapon will have to perform itself. If a LAWS cannot grasp the concept of proportionality without assistance from a human, the safety mechanisms that will prevent final attack without approval will not justify the use of the weapon, regardless of the situation.

By saying that states should “encourage such innovation that furthers the objectives and purposes of the Convention,” the U.S. is only postponing the

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

need to address the fundamental problem of defining the values that should govern LAWS, or even defining LAWS themselves for the regulations to successfully apply, indicating that their approach to the regulatory framework is more deferential than other countries. Without active engagement with policy discussions and an in-depth discussion of what will allow this technology to sufficiently uphold the values of IHL, the U.S. position will be unsuccessful for lack of any real proposal related to the suggested approach by the GGE.

C. The Russian Federation

The working paper provided by the Russian Federation specifically takes a focus on the definition of LAWS prior to the implementation of a legal solution.¹⁰² This is primarily due to the Russian belief that the current high functioning weapons should not be classified as LAWS.¹⁰³ In addition, to aid in the development of technologies with improved accuracy due to higher levels of autonomy, States should rely on their own standards for critical functions such as aim identification and hit command, while maintaining significant human control.¹⁰⁴ Finally, the Russian Federation commented that the definition and basic functions agreed upon by the GGE should be guided by the ultimate goal of LAWS, but specific forms and methods of such control should remain at the discretion of States.¹⁰⁵

Although the initial approach taken by the Russian working paper resembles many other country policies, it should be noted that the suggestion of independent state standards and specific guidance by the ultimate goal of LAWS, rather than specific characteristics of LAWS themselves, are both interesting for the discussions that took place in 2018.

Until this portion of the article, the legal foundation for the relevant analysis has centered on the IHL values that govern all nations, including those that did not agree to abide by the Additional Protocols. Despite the ability to unilaterally refrain from agreeing to implement international policies that may not be aligned with country policy beliefs, the Geneva Convention, Additional Protocols, and the subsequent CCW all have priority in application for weapons used in warfare due to its impact on countries both in and out of combat. However, countries can choose to go “above and beyond” the call of the international regulations set forward and effectively establish their own standard of conduct for international conflicts, so long as the language and

¹⁰² Russia’s Approaches to the Elaboration of a Working Definition and Basic Functions of Lethal Autonomous Weapons Systems in the Context of the Purposes and Objectives of the Convention, submitted by the Russian Federation, CCW/GGE.1/2018/WP.6 (April 9-13, 2018).

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

goals of the policy do not conflict with previously recognized norms.¹⁰⁶ As discussed in Section II subpart to Article 36 and the Martens Clause, non-abiding countries are not required to conduct such reviews, but the International community as a whole suggests that voluntary completion of these weapons reviews is in the best interest of all nations.¹⁰⁷

While this presents an opportunity for larger countries such as Russia and the United States to structure their own standards of review, without input from the international community, it also allows for smaller countries, or those without the means to have reviews that are thorough, to avoid having to do so. This poses a significant risk to the international community because without a standardized approach to reviews, a country deciding to avoid an intricate review will increase the likelihood of unnecessary casualties or excessive force. Ultimately, it will be important to have both a standardized, international norm for the review of methods and controls of LAWS as well as discretion for states to improve upon those norms if need be. A baseline standard will provide the most stability for international negotiations regarding LAWS because, while many countries perform different tasks in various ways, an international agreement among countries will promote consistent application of laws and, hopefully, regular compliance with IHL.

Next, the Russian working paper focused on the characterization of LAWS by stating that the regulations implemented should focus on the ‘goals of LAWS’ rather than other aspects that have been discussed thus far. While the language used to describe this concept is different than previously reviewed, the fundamental statement centers around the idea of the purpose for the use of LAWS specifically, rather than just focusing on either the technology or the overarching military goals. As a point, it may be more effective for the military to use LAWS instead of a tank to provide a tactical advantage depending on the circumstances.

This is a valuable suggestion that should be considered in addition to the characteristics of LAWS because it will provide the GGE an added layer of reasoning for determining how the regulations should be written and structured. IHL provides that the principle of military necessity must be considered when declaring whether a weapon is legal for use in war.¹⁰⁸ Without consideration of what LAWS will eventually be used to achieve in combat, it will be more difficult for LAWS to abide by this legal standard. As briefly described by the United States, the GGE has discussed benefits of the use of LAWS, such as the ability to accurately identify a civilian when

¹⁰⁶ Schmitt, *supra* note 21 at 25; Protocol I, *supra* note 26 at Art. 36.

¹⁰⁷ Tallinn Manual, *supra* note 27, at 128.

¹⁰⁸ Protocol I, *supra* note 26 at Art. 36.

searching for an enemy combatant to avoid unnecessary civilian casualties.¹⁰⁹ These benefits are also the primary reason why military necessity of use will change – it will be not only easier, but safer, to use LAWS instead of previous weapons of choice that have the risk of human error.

While the removal of human control for the LAWS's decision to act is still a controversial issue under IHL, Russia poses an important and necessary addition to the characteristics of LAWS because the reasons for use will become evident due to the inherent facts about the operation and technology involved in LAWS. In addition to the other factors mentioned above, the discussion of the ultimate military purpose of LAWS will increase the successful application of the regulatory solutions to similar emerging technologies in the future and should be taken into consideration with each new weapon introduction.

D. The People's Republic of China

China began their working paper by summarizing their basic position and preliminary views, which included five basic characteristics which they believe should be included in the final, working definition of LAWS: (1) Lethality – sufficient payload and for means to be lethal; (2) Autonomy – absence of human intervention and control during the entire process of executing a task; (3) Impossibility for termination – once started there is no way to terminate the device; (4) Indiscriminate effect – the device will execute the task of killing and maiming regardless of conditions, scenarios and targets; (5) Evolution – meaning that through interaction with the environment, the device can learn autonomously, expand its functions and capabilities in a way exceeding human expectations.¹¹⁰

In addition, weapons reviews, including reviews on the research, development and use of new weapons, cause China concern because these policies and practices differ significantly among countries, as previously demonstrated by adherence to pre-existing weapons review standards.¹¹¹ It is also difficult to have a uniform standard to apply to these reviews, and this indicates that any initiative or proposal based on such reviews can hardly solve, in a fundamental way, the concerns that LAWS create.¹¹²

To begin, the success of regulations for LAWS centers around the factors provided by China and, in addition to the suggestions made by the Russian working paper, these suggestions from China provide the GGE the best chance to consider all the aspects of LAWS and emerging technologies of a similar

¹⁰⁹ Humanitarian Benefits of emerging technologies in the area of lethal autonomous weapon systems, submitted by the United States of America, CCW/GGE.1/2018/WP.4 (April 9-13, 2018).

¹¹⁰ Position paper, submitted by China, CCW/GGE.1/2018/WP.7 (April 9-13, 2018).

¹¹¹ *Id.*

¹¹² *Id.*

nature. The combination of the factors above – lethality, autonomy, impossibility for termination, indiscriminate effect, and evolution – provide a comprehensive description of the full capabilities and characteristics of LAWS by taking into account the likely issues with compliance under IHL. By considering each of these factors in turn, the GGE will be able to clearly articulate the concerns and possible illegal nature of LAWS if need be.

Moreover, these factors will provide a definitive analysis of the especially contentious values under IHL due to the presence of autonomy, impossibility for termination, and evolution. Each of these contributes to the concerns that arise under the IHL principles of distinction and proportionality because the level of autonomy in weapons, as well as LAWS being capable of evolution, limits the likelihood that LAWS will fully understand the balancing that takes place during a typical war decision-making process. By requiring that these factors be considered with every instance of emerging technology that resembles laws, the GGE will be able to fully evaluate the likely risks to IHL values and, therefore, whether the weapon itself is illegal.

In addition, the China working paper posed an additional concern regarding the position detailed in the Russian working paper regarding independent state decisions for the forms and methods of control of LAWS. China asks whether a uniform standard will enable consistent methods of control, such as weapons reviews, and whether these reviews will ultimately help solve IHL compliance issues. While China does not present a solution for what would qualify as an acceptable uniform standard for procedures such as weapons reviews, the list of characteristics of LAWS provided above as well as added consideration of what states would like to independently decide will provide the structure needed to develop a uniform standard that will encourage compliance and support. Moreover, as Article 36 and the Martens Clause already provide a rough framework for weapons reviews that have not proved effective in the past, the GGE may use this previous experience to modify and create better, more effective standards that will promote IHL compliance by all countries, including those that are non-abiding to the original Additional Protocol.

In their working paper, China presented many aspects of what this article believes will lead to a successful regulation of LAWS, including adapting to the key ideas behind the operation and use of LAWS, addressing previous concerns with weapons reviews which are utilized to determine IHL compliance, and asking whether such measures will address the concerns created by LAWS. By focusing on these pieces of information in the context of the values provided by IHL, the success of such a proposal in creating effective and promising legislation is more likely than previous proposals. While each country presented different concerns and a solution that directly related to that concern, China adapted to include all important concerns, all

important uncertainties, and attempt to consolidate them for the basis of regulation of LAWS. Knowing the boundaries of what LAWS must comply with under existing IHL, the GGE may determine what will need to be modified for compliance under new laws, whenever they are finalized.

CONCLUSION

The regulation of LAWS and the international community's disagreement over how best to address the issues above is a complex topic. While there may not be LAWS that exists at this moment in time, that is not to say the progression of technology will not produce one in the near future. The suggestions brought forward by countries at the end of the 2018 Conference are both promising and troublesome. Many countries are focusing on different pieces of a much larger problem and the GGE has yet to settle on a specific definition of what LAWS 'are.' Despite this, after four years of deliberations, the GGE identified in 2018 a small list of the potential core aspects of LAWS needed to regulate this type of technology in the future. Therefore, the proposals detailed above provide insight into the likely success of these determinations, and, under existing IHL principles, determining whether the eventual regulations for LAWS will be comprehensive in nature and effective at protecting civilians and combatants under International law.