



The challenges of increased autonomy in weapon systems: In search of an appropriate legal solution

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Declaration of originality

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Dedications

I dedicate this thesis to my family and friends who were all in my support through the journey of writing this thesis. I pray that God richly blesses you for your kind hearts and above all, for believing in me. In some cases, this thesis caused me to sacrifice a considerable amount of time which was meant to be spent with you; I thank you for your understanding. To Aj, there is nothing in this world you cannot achieve. With God, everything is possible!



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Acronyms and Abbreviations

ACHPR	African Charter on Human and Peoples' Rights
AP	Additional Protocol
AWS	Autonomous Weapon Systems
CCF	Continuous Combat Function
CIA	U.S Central Intelligence Agency
GC	Geneva Convention
IAC	International armed conflict
ICC	International Criminal Court
ICCPR	International Covenant on Civil and Political Rights
ICCPR	International Covenant on Civil and Political Rights
ICJ	International Court of Justice
ICTR	International Criminal Tribunal of Rwanda
ICTY	International Criminal Tribunal of the Former Yugoslavia
IHL	International Humanitarian Law
IHRL	International Human Rights Law
NIAC	Non-International armed conflict
U.S	United States of America
UDHR	Universal Declaration on Human Rights
UN	United Nations
VCLT	Vienna Convention on the Law of Treaties



Summary of Thesis

Autonomous Weapon Systems (AWS) – sometimes called killer robots – are robotic weapons which, once activated, can decide when to release force (including lethal force) and against whom; without further human intervention. In this thesis I seek to deal with the challenges presented by AWS – in particular, those without ‘Meaningful Human Control’ – both in peace time and in armed conflict. Throughout this thesis and unless specifically mentioned, reference to AWS means those without ‘Meaningful Human Control’.

AWS present many advantages which include but are not limited to the following: AWS can potentially save the lives of soldiers as they can do the dull, dirty and dangerous work; AWS do not suffer human weaknesses such as getting tired, acting out of anger, malice, frustration etc. therefore implying they can potentially save the lives of civilians too. AWS can help in keeping a digital trail of events which can help in bringing perpetrators to book. More so, AWS will not wilfully commit crimes.

On the other hand, however, AWS present serious threats to rights such as the right to life, dignity and victims’ right to remedy and may make it all too easy for states to go to war. AWS may not be able to comply with international laws that govern the use of force, and may be unacceptable in terms of the right to dignity that a machine decides who lives and who dies. Furthermore, AWS without ‘Meaningful Human Control’ may create an accountability gap which affects victims’ right to a remedy as protected in international law.

To determine an appropriate legal response to AWS, I examine the obligation of states to conduct legal review of new weapons in terms of Article 36 of Additional Protocol I to the Geneva Conventions and how AWS measure up to the established standards. Article 36 provides that new weapons must be reviewed to establish whether they are indiscriminate weapons or those that cause unnecessary suffering or otherwise unacceptable in terms of other standards such as those found under the human rights regime. To start with, I argue that AWS



without ‘Meaningful Human Control’ or those with full autonomy may not be *weapons* in the strict sense of the word, and the international community must be wary of accepting ‘robot combatants’. When the standards enunciated in Article 36 are properly understood, I argue and conclude that AWS without ‘Meaningful Human Control’ are unacceptable.

I also measure AWS against important rules of International Humanitarian Law such as the rules of humanity, distinction, proportionality, precaution and military necessity. Now that these rules were initially drafted for human combatants with the ability to make legal and moral judgments, machines which are incapable of human judgment will in most cases violate the rules. Furthermore, I take note of the imprecise definitions of IHL terms and the limitations of the current technology which makes it impossible to translate the said definitions into computer programs.

Under the Human Rights Law regime, I take note of the rules that govern the use of force such as those provided by the UN Basic Principles on the use of firearms in law enforcement. Just like in the case of IHL, most of these rules require human judgment, something that machines are incapable of. Moreso, within the Human Rights Law framework, I consider in detail the implications of AWS on the right to dignity. After discussing what the right to dignity entails and its importance in international law, I then get to the conclusion that AWS without ‘Meaningful Human Control’ are inconsistent with the right to dignity which is the ‘mother right’ to all other rights.

I further observe that AWS create an accountability gap that adversely affects victims’ right to a remedy as there may be no one to hold responsible for particular violations. In this regard, I discuss various forms of accountability in international law such as state, corporate, individual and command responsibility noting the challenges presented by AWS. It examines solutions that have been proposed so far; such as the notion of split responsibility and the suggestion to adopt command responsibility to AWS, before concluding that such suggestions are faulty and unworkable.



I concur with scholars who suggest that the newly emerging notion of ‘Meaningful Human Control’ can be the workable solution to the challenges that are posed by AWS. Since this term is not defined yet in international law, I set out to define it as guided by the jurisprudence on the notion of ‘control’ as a form of establishing responsibility. To this purpose, considered are tests such as the ‘effective control test’ and the ‘strict control test’- which explore notions of ‘control’ and ‘dependence’ as the crux of establishing responsibility. To this end, I conclude that ‘Meaningful Human Control’ over a weapon system can only be there where a human controller controls the ‘critical functions’ of a weapon systems – those that relate to the selection and decision to kill a target – to the extent that the weapon system *depends* on the human input in real time to execute the ‘critical functions’. In other words, without the human input, the weapon system should not be able to complete the ‘critical function’.

Key Terms

Autonomous Weapon Systems, lethal autonomous robots, killer robots, ‘Meaningful Human Control’, human in the loop, human out of the loop, artificial intelligence, international humanitarian law, international human rights law, accountability, use of force, dignity, right to life, robot- combatant.



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Chapter 1: Introduction

‘The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom’.¹

1. Introduction

The development of unmanned systems that are remotely controlled and those with increased autonomy in making the decision to target or kill humans has been a worry to the international community for more than a decade now. The idea to develop Autonomous Weapon Systems (AWS) – machines that, once activated, are able to make the decision to kill humans without further human intervention – has sparked heated debates across the globe. The old adage, ‘technology is a double-edged sword’² has never, in the history of weapon development, been more pertinent than it is with AWS. On the one hand, AWS clearly promise a potential to save lives – to make a change to the unacceptable current state of affairs in armed conflict and elsewhere – where force is used. On the other hand, however, AWS pose potential threats to the right to life, dignity and other important rights. With the technology still in the preliminaries of development and yet to be deployed, it is as difficult to ascertain whether AWS are legal or illegal weapons as it is to brand their deployment ethical or unethical, moral or immoral when they become available. It is these uncertainties that have left scholars, organisations, states and the international community at large divided on how to respond to AWS.

In this research, I seek to find an appropriate legal response to Autonomous Weapon Systems by determining whether they are illegal weapons and if they are not, whether

¹ I Asimov & JA Shulman *Isaac Asimov’s Book of Science and Nature Quotations* (1988) 281.

² ‘We have to realize that science is a double-edged sword. One edge of the sword can cut against poverty, illness, disease and give us more democracies, and democracies never war with other democracies, but the other side of the sword could give us nuclear proliferation, bio-germs and even forces of darkness.’ See Michio Kaku available at <http://www.brainyquote.com/quotes/keywords/sword.html> (accessed 28 August 2014).



their use in certain circumstances may violate the law, establishing if the current legal regimes are adequate to regulate such use. Such a determination is fundamental because whatever the decision states are going to make concerning Autonomous Weapon Systems, it has implications on saving or destroying lives. Toward that end, this Chapter will introduce the subject matter and define the important terms used in this research. Chapter 2 focuses on the obligation of state parties to conduct legal reviews of new weapons and how Autonomous Weapon Systems measure up to the standards established in Article 36 of Additional Protocol I to the Geneva Conventions on the legal review of new weapons. Chapter 3 discusses, whether AWS are capable of complying with international humanitarian law rules of humanity, distinction, proportionality, military necessity and precaution, whereas Chapter 4 examines whether AWS are capable of complying with international human rights law norms on the protection of the right to life and other rights. I will also consider the potential impact of AWS to other forms of protection of the right to life like the *jus ad bellum* norm on the use of force which in most cases help in the protection of the right to life. Chapter 5 focuses on the implications of AWS for legal accountability, especially the international criminal law norms of individual and command responsibility and international human rights law norm of state responsibility. In Chapter 6, I examine whether AWS are acceptable in view of the moral, ethical implications of deploying them as measured against the dictates of public conscience and elementary principles of humanity as enunciated in the Martins clause. In Chapter 7, I assess what is meant by the emerging notion of ‘Meaningful Human Control’ over weapon systems, before drawing conclusions and recommendations in Chapter 8.

1.2.1 Definition of Terms

The debate on AWS relies on terms that are imprecise to the extent that in some cases the debate is permeated with confusion. The absence of common vocabulary right from naming of the technology up to the terms used when discussing AWS both at domestic



and international level, risks acute terminological cognitive dissonance– debaters speaking past each other– that may upset debaters if not leave them in antipathy.

i) Naming the Technology

Before defining the technology and terms that are associated with it, it is important to note the various terms that are used to refer to it. For example, the technology is called lethal autonomous robots, killer robots, lethal autonomous weapon systems (LAWs) or simply autonomous weapon systems (AWS).

It has been argued that the use of terms such as ‘killer-robots’ brings an idea of ‘terminator’ or Robocop-like robots with human intelligence and the ability to act just like humans which is far from the truth since at present there are no robots with such artificial intelligence.³ Thus, commentators have cautioned against such terminology as it can potentially ‘lure the international community into misplaced trust in its abilities’⁴ or influence debaters to make decisions against it based on unfounded fears.⁵ More so, Christof Heyns, the United Nations Special Rapporteur on extrajudicial, summary or arbitrary executions, notes that in the context of international human rights, naming the technology as *lethal* autonomous robots or *lethal* Autonomous Weapon Systems unnecessarily limits the discussion– concerns on this technology run deep to any use of force by a machine without human involvement, whether it is lethal or not. For the convenience of covering all the relevant discussions, in this research I will use the term Autonomous Weapon Systems (AWS).

³ PW Singer *Wired for War: The robotics revolution and conflict in the 21st century* (2009) 101.

⁴ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 8.

⁵ However, Human Rights Watch and other organisations may, to a certain extent, be justified in referring to the technology as killer robots. The point might not necessarily be to paint a ‘terminator’ Robocop-like picture but to point to the crux of AWS, their ability to make a kill decision without a human being involved – their autonomy.



ii) Definition of terms

a) *Unmanned weapon system*

An unmanned weapon system can be a ground or an aircraft system, remotely controlled or autonomous. It is ‘a powered physical system with no human operator aboard the principal platform’ and is capable of carrying and delivering a lethal or non-lethal pay-load.⁶

b) *Autonomous Weapon Systems*

Although there is no internationally standardised definition of AWS,⁷ the generally working definition is that they are unmanned ‘robotic weapon systems that, once activated, can select and engage targets without further intervention by a human operator’.⁸ Autonomous Weapon Systems are different from remotely controlled unmanned systems which have no human physically on board but are controlled by a human from a distance.⁹ In the case of Autonomous Weapon Systems, there is no one on board of the weapon platform, the system has a computer on board that controls the systems’ navigation, tracking, targeting and making of many important decisions. There are different kinds of Autonomous Weapon Systems: Semi-autonomous Weapon Systems, Supervised Autonomous Weapon Systems and Fully-autonomous Weapon Systems.¹⁰ For the purposes of this thesis, the concern is with those Autonomous Weapon Systems that are able to make a decision as to who to kill or target a human

⁶ See US Department of Defence Dictionary of military and associated terms (2001) 579.

⁷ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 30 June 2014).

⁸ See A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 7. The report cites almost similar definitions provided by the US Department of Defence and Human Rights Watch; See also the US Department of Defense autonomy in weapon systems, directive 3000.09 (2012) available at <http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf> (accessed 3 January 2013).

⁹ An example is a combat drone, sometimes called an Unmanned Aerial Vehicle (UAV) or Unmanned Air System (UAS) which is ‘an unmanned aerial aircraft [or ground system] that does not carry a human operator but is piloted remotely and [carries] a lethal payload. See US Department of Defence *Dictionary of military and associated terms* (2001) 579.

¹⁰ US Department of Defense autonomy in weapon systems, directive 3000.09 (2012) available at <http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf> (accessed 3 January 2013).



being and implement the decision without any further human intervention once they are activated. Such weapon systems do not have what is currently referred to as ‘Meaningful Human Control’.

c) *‘Meaningful Human Control’*

This term is not yet defined in international law. It is a recent formulation by Article 36, a Non-Governmental Organisation. In this thesis, I define ‘Meaningful Human Control’ with reference to a degree of control exercised by a fighter over a weapon system’s ‘critical functions’ to the extent that he is potentially responsible for all ensuing acts in that the weapon system is unable to execute the ‘critical functions’ without his or her input in real time.¹¹

d) *‘Critical functions’*

‘Critical functions’ are defined as those functions in weapon systems that relate to the tracking, selection of the target and making of the decision to kill the target.¹²

e) *‘Autonomy’ and ‘automation’ in weapon systems*

In the definitions given above, there are apparent varied forms of autonomy – there are weapon systems that will need no further human intervention while others have increased autonomy but are still supervised. It may even be paradoxical for one to talk of autonomy in weapon systems yet still refer to the involvement of humans. This serves to show the need for a specialised understanding of what is meant by autonomy in weapon systems. According to W.C. Marra, in the context of machine and weapon systems:

¹¹ I discuss the notion of ‘Meaningful Human Control’ in Chapter 7.

¹² See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva, available at <http://www.icrc.org/eng/assets/files/2014/expert-meeting-autonomous-weapons-icrc-report-2014-05-09.pdf>



Autonomy is a function of three variables of independence, adaptability and discretion. A system is autonomous when it acts *with infrequent operator interaction*, when it is able to function successfully in unfamiliar environments, and when it achieves mission objectives with a high level of assertiveness. As a result, like intelligence and consciousness, *autonomy is best conceived of as existing on a spectrum*.¹³ Some machine systems would clearly lie on the automated end, while other systems might be closer to autonomous.¹⁴ (Emphasis mine)

The difference between *autonomous* and *automated* should be understood right from the onset. In the context of weapon systems, ‘automated weapon systems’ refers to those that are programmed to function in a structured environment and they work in a predictable and prescribed manner. On the other hand, autonomous weapon systems can function in an unstructured environment and will often be unpredictable.

By using the term ‘infrequent operator interaction’, W.C. Marra implies that while a machine may have some form of interaction with a human, it may still be termed autonomous if it has increased autonomy in certain functions. Thus, in the view of the International Committee of the Red Cross, Autonomous Weapon Systems are those with increased levels of autonomy. In other words, they do not have any ‘Meaningful Human Control’¹⁵ on the ‘critical functions’ like tracking, selecting and targeting.¹⁶ The levels of autonomy differ with those with less autonomy at the beginning of the spectrum, while those with increased levels of autonomy like semi-autonomous, supervised autonomy and fully autonomous are at the far end of the continuum.

¹³ OG Clark et al ‘Mind and autonomy in engineered bio-systems’ 12 *Engineering Applications of Artificial Intelligence* (1999) 10 available at [http://dx.doi.org/10.1016/S0952-1976\(99\)00010-X](http://dx.doi.org/10.1016/S0952-1976(99)00010-X) (accessed 19 March 2014).

¹⁴ WC Marra et al ‘Understanding “the loop”: regulating the next generation of war machines’ (2013) 36 *Harvard Journal of Law and Public Policy* 1155; See also US Department of Defense *Unmanned Systems Integrated Road Map FY2011-2036* (2011)44. Available at <http://www.acq.osd.mil/sts/docs/Unmanned%20Systems%20Integrated%20Roadmap%20FY2011-2036.pdf> (accessed 28 June 2014).

¹⁵ There is not as yet agreed definition as to what is meant by this term and the content there. Part of this research will attempt to give it meaning. For the purposes of this Chapter it means the absence of the actual human control in the real time of the making of the decision to use force.

¹⁶ See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva, available at <http://www.icrc.org/eng/assets/files/2014/expert-meeting-autonomous-weapons-icrc-report-2014-05-09.pdf>



Therefore, when used in the context of weapon systems, the term autonomy, a term usually associated with humans¹⁷ - referring to a situation by which a rational being acts out of free will or choice¹⁸ - should not be understood in philosophical terms of having 'free will or moral agency as used to describe human decision-making'.¹⁹ Rather, autonomy in weapon systems refers to the independence, adaptability and assertiveness of the system when executing a task *initially assigned to it by humans*.²⁰

f) *Human in the loop, on the loop, out of the loop*

When defining autonomous systems, terms like human *in, on* and *out* of the loop are used. It is necessary to understand what is meant by these terms. The term *human in the loop* and consequently *human out of the loop* started being used in the military²¹ and other computing fields after John Boyd put forward a theory on the human decision-making processes.²²

According to Boyd, in making decisions, human beings 'observe, orient, decide and act'.²³ This has come to be known as the OODA loop²⁴ wherein a person observes his/her surroundings through his/her human senses, orient themselves to the information observed, weighs possible reactions before deciding a course of action.²⁵

¹⁷ G Dworkin *The theory and practice of autonomy* (1988) 6.

¹⁸ See generally R Wolf *In defence of anarchism* (1970)14.

¹⁹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013,p 8, para 43.

²⁰ See US Department of Defense *Defense Science Board, Task Force Report* 21. See also C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 Harvard Journal of Law and Public Policy 1144.

²¹ Used by USA Marine Corps even today. At page 40, The Marine Corps' War fighting Manual states that the party that completes the OODA loop cycle faster than the other gains the military advantage. Available at http://www.dtic.mil/doctrine/jel/service_pubs/mcdp1.pdf (accessed 18 March 2014).

²² S McIntosh 'The wingman-philosopher of MiG alley: John Boyd and the OODA loop' 58 *Air Power History* (2011) 26.

²³ See generally R Coram *Boyd: The fighter pilot who changed the art of war* (2002); FPB Osinga *Science, strategy and war: The strategic theory of John Boyd* (2006); GT Hammond *The mind of war: John Boyd and American security* (2001).

²⁴ B Brehmer 'The dynamic OODA loop: Amalgamating Boyd's OODA and the cybernetic approach to command and control' (2005) *Remarks at the 10th international command and control research and technology symposium, Department of War Studies, Swedish National Defence College 2*.

²⁵ B Brehmer 'The dynamic OODA loop: Amalgamating Boyd's OODA and the cybernetic approach to



Machines and robots' think-act paradigm follow the OODA loop as they do information acquisition, analysis, decision selection and action implementation.²⁶ In the case of machines or robots, if faulty or incorrect information is taken in at the observe stage, it affects the rest of the loop.²⁷ For this and other reasons, human beings have remained *in the loop*— that is, present in the linear of the OODA loop— for the purposes of monitoring and verification of decisions made by machines or robots. This has been the case especially where life and death decisions are involved.

The level of any robot or machine's autonomy has thus been measured by the extent to which it is dependent on humans when performing the OODA loop.²⁸ Where an unmanned system interacts with humans to complete the OODA loop, then humans are said to be in the loop and consequently where it does not, humans are considered to be out of the loop.

In summary, therefore, determination of whether an unmanned system is autonomous or not is based on three factors. Firstly, the rate at which an unmanned system requires a *human in loop* in executing its 'critical functions' points to the extent it can be termed autonomous. If an unmanned system is largely independent once activated— requiring no further human intervention— the more the machine is considered to be autonomous.²⁹ Secondly, the ability or inability of an unmanned system to function successfully in an unstructured and unpredictable environment points to its level of autonomy. Where an unmanned system is able to adapt to an environment which was

command and control' (2005).

²⁶ See for example E Sholes 'Evolution of a UAV autonomy classification taxonomy' Remarks at the IEEE Aerospace Conference Digest, *Aviation and Missile Research, Development and Engineering Centre*; G Coppin & F Legras 'Autonomy spectrum and performance perception issues in swarm supervisory control' (2012) 100 *Proceedings of the IEEE* (2012) 590-2; R Parasuraman et al 'A model for types and levels of human interaction with automation' (2000) 30 *IEEE Transactions on systems, man, and cybernetics* 286-8. All available at <http://ieeexplore.ieee.org/> (accessed 18 March 2014).

²⁷ C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1148.

²⁸ PW Singer *Wired for war: The robotics revolution and conflict in the 21st century* (2009)74; C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1150.

²⁹ A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010) 4.



not predicted in the laboratory or at the time of activation, it largely passes as autonomous.³⁰ Thirdly, the level at which an unmanned system can assert its operational decisions when executing its functions also determines whether it is autonomous or automated. An unmanned system that has the capacity to exercise discretion in executing its task is more fully autonomous. Such an unmanned system may even independently alter the means by which it was supposed to complete a certain task but still achieving the same end. Thus, an autonomous system is not only capable of executing its core mission without human intervention³¹ but has the capacity to make and assert its own decision notwithstanding environmental uncertainties.³²

The definitions of AWS provided above categorically state that once the system is activated there is no further human intervention. This is what has formed the crux of the debate regarding the technology with questions being asked whether when discussing AWS, humans are *in the loop*, *on the loop*, *in the wider loop* or *out of the loop*.³³ Leading roboticists like Ron Arkin maintain that human beings will always be involved in the operation of autonomous systems. Likewise, the US has for long now maintained that notwithstanding the advanced stage of autonomous systems, humans will always remain in the loop.³⁴ The US has subsequently designed a policy that provides that ‘autonomous and semi-autonomous weapon systems shall be designed to allow commanders and operators to exercise appropriate levels of human judgment

³⁰ C William et al ‘Understanding “the loop”’: regulating the next generation of war machines’ (2013) 36 *Harvard Journal of Law and Public Policy* 1154.

³¹ A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010) 5; See also US Department of Defense *Defense Science Board, Task Force Report*, 1; US Department of Defense *Unmanned Systems Integrated Roadmap* (2013) 66-67.

³² TB Jones & MG Leammukda ‘Requirements-driven autonomous system test design: Building trust relationships (2011) 1. Available at http://www.itea-wsmr.org/ITEA%20Papers%20Presentations/2010%20ITEA%20Papers%20and%20Presentations/itea_lvcc_2010_uast_track2_draper_jones_leammukda_paper.pdf (accessed 19 March 2014).

³³ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 8, para 39.

³⁴ PW Singer ‘In the loop? Armed robots and the future of war’ (2009) 1 quoting a US Air force Captain. Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014). Some military people, it is argued, maintain that there ‘will always be a need for the intrepid souls to fling their bodies across the sky’ in armed conflict.



over the use of force'.³⁵ Likewise, the UK has also come up with a policy that state that 'autonomous release of weapons will not be permitted' and that 'operation of weapon systems will always be under human control'.³⁶

On the other hand, some commentators have argued that this is mere rhetoric since for a long time; humans have been slowly moving out of the loop. US Colonel Thomas Adams has, for example noted that despite a great deal of lip service that humans will remain in the loop, AWS may be 'too fast, too numerous and will create an environment too complex for humans to direct'.³⁷ Commenting on the US government's insistence that humans will always be in the loop, an editor of the US Military *Wired* Magazine, Noah Shachtman, has this to say:

[That] sounds more like brainwashing than actual analysis. Their mantra is a bit like the line they repeat again and again in the movie *The Manchurian Candidate*. Sergeant Shaw is the kindest, bravest, warmest most wonderful human being... [Saying humans will always be in the loop] helps keep people calm that this isn't the Terminators.³⁸

1.2.2 Conceptualising the problem of autonomy in weapons systems

When discussing the issue of AWS, it should be understood that the problem is of the autonomous release of force by machines– lethal or non-lethal, in armed conflict or in law enforcement operations– without 'Meaningful Human Control'. Therefore, in this research I will use the term AWS to refer to fully Autonomous Weapon Systems or those without 'Meaningful Human Control' in the 'critical functions' of selecting, targeting and release of force against humans. Before setting out the framework of the debate, it is necessary to take stock of the current state of the technology.

³⁵ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 30 June 2014).

³⁶ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 30 June 2014).

³⁷ Quoted in PW Singer 'In the loop? Armed robots and the future of war' (2009) 4 Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014).

³⁸ Quoted in PW Singer 'In the loop? Armed robots and the future of war' (2009) 2 Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014).



1.3 Current state of the technology

Distancing oneself from harm, albeit being the projector of it, has been and remains an inherent attribute of human beings. The desire to project harm while being unsusceptible to it has largely shaped the development of weapons over the years. Currently, unmanned weapon systems are the epitome of that desire as states have been allocating huge budgets³⁹ for the development of various sophisticated unmanned weapon systems and increasing their operational autonomy.⁴⁰

States are developing – and their military forces increasingly relying on – unnamed weapon systems with increased autonomy in their military operations⁴¹ because these systems are not only technically faster, smarter and better than humans, but they offer a number of military advantages like force multiplication and tremendous capacity to do the dirty, dull, dangerous work thereby reducing risk to the lives of one’s own soldiers. It is not surprising, therefore, that at present over 70 states are estimated to be in possession of unmanned systems⁴² with the United States of America (US) for example, in possession of over 20 000 unmanned systems.⁴³

³⁹ See <http://military.discovery.com/weapons-technology> (accessed 29 November 2013).

⁴⁰ See United States Air Force ‘UAS Flight Plan 2009-2047’ (2009) 41. Available from <http://www.scribd.com/doc/17312080/United-States-Air-Force-Unmanned-Aircraft-Systems-Flight-Plan-20092047-Unclassified> (accessed 29 November 2013).

⁴¹ PW Singer *Wired for War: The robotics revolution in the 21st century* (2009); P Rogers ‘Unmanned Air Systems: The future of air & sea power?’ (2014)⁴⁹ *Institut Français des Relations Internationales (IFRI) Focus Stratégique*; J Gertler *US Unmanned Aerial Systems, Congressional Research Service* (2012)³; US Department of Defense *Unmanned Systems Integrated Roadmap FY2013-2038* (2013)¹⁹ <http://www.defense.gov/pubs/DOD-USRM-2013.pdf> (accessed 20 January 2014).

⁴² See US Department of Defense *Unmanned systems integrated roadmap FY (2013-38)* 6 available at <http://www.defense.gov/pubs/DOD-USRM-2013.pdf> (accessed 5 March 2014); US Department of Defence *Dictionary of military and associated terms* (2001) 579; S Joshi & A Stein *Emerging drone nations’ survival* (2013) 53–78; R O’Gorman & C Abbott ‘Remote control war: Unmanned combat air vehicles in China, India, Israel, Iran, Russia and Turkey’ *Open Briefing* (2013)² available at http://issuu.com/openbriefing/docs/remote_control_war; G Taylor ‘US intelligence warily watches for threats to US now that 87 nations possess drones’ available at <http://www.washingtontimes.com/news/2013/nov/10/skys-the-limit-for-wide-wild-world-of-drones/?page=all> (accessed 28 June 2014).

⁴³ PW Singer ‘The predator comes home: a primer on domestic drones, their huge business opportunities, and their deep political, moral, and legal challenges’ (2013) available at



The use of these unmanned weapon systems, however, has been subject of intense debate both at domestic and international level. Since 2001, commentators⁴⁴, human rights organisations⁴⁵ and United Nations special rapporteurs⁴⁶ have questioned, for example, the legality of the use of combat drones in countries like Pakistan, Afghanistan, Yemen, Somalia and Gaza area by the US and other states. Although the use of drones is contested, there is wide agreement amongst scholars that drones are not illegal weapons *per se*.⁴⁷ This is not the case with AWS; not only is the legality of AWS challenged,⁴⁸ but scholars also question the ethics and morality of deploying such kind of weapon systems.⁴⁹ AWS may be viewed as a further development of drones. Unlike

<http://www.brookings.edu/research/papers/2013/03/08-drones-singer> (accessed 10 December 2013); US Department of Defense 'Defense science board, task force report: the role of autonomy in DoD systems' (2012)78 available at <http://www.acq.osd.mil/dsb/reports/AutonomyReport.pdf> (accessed 8 February 2013).

⁴⁴ See C Heyns & S Knuckey 'The long term international law implications of targeted killing practices' (2013)54 *Harvard International Law Journal*; P Alston 'The CIA and targeted killings beyond borders' (2011)2 *Harvard National Security Journal*; RP Barnidge 'A qualified defense of American drone attacks in Northwest Pakistan under international humanitarian law' (2012) *Boston University International Law Journal*; R Chesney 'Who may be killed? Anwar Al-Awlaki as a case study in the international legal regulation of lethal force' (2011)26 *Yearbook of International Humanitarian Law* 26; JC Dehn & K Heller 'Targeted killing: The case of Anwar Al-Aulaqi' (2011)159 *University of Pennsylvania Law Review* 90-191; JK Heller 'One hell of a killing machine: Signature strikes and international law.'(2013) 11 *Journal of International Criminal Justice*.

⁴⁵ Human Rights Watch 'Losing Humanity: The case against killer robots' (2012) available at <http://www.hrw.org/reports/2012/11/19/losing-humanity-0> (accessed 9 July 2013); Amnesty International 'United States of America targeted killing policies violate right to life' (2012) <http://www.amnesty.org/en/library/info/AMR51/047/2012/en> (accessed 9 July 2013).

⁴⁶ See UN A/HRC/14/24/Add.6 Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Philip Alston, 28 May 2010; A/68/30532; Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013; A/68/389 Report of the Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism, Ben Emmerson, 18 September 2013.

⁴⁷ Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013, para 13 p.7.

⁴⁸ See A Krishnan *Killer Robots: Legality and ethicality of autonomous weapons* (2013); G Marchant et al 'International governance of autonomous military robots' (2011) XII *Columbia Science and Technology Law Review* 280.

⁴⁹ See RC Arkin *Governing lethal behavior: Embedding ethics in a hybrid deliberative/reactive robot architecture. motivation and philosophy* (2007); A Finn & S Scheduling *Developments and challenges for autonomous unmanned vehicles: A compendium* (2010); P Lin et al *Robot ethics: the ethical and social implications of robotics* (2011); PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009); Springer PJ *Military robots and drones* (2013); P Asaro 'How just could a robot war be?' in P Brey et al (eds) *Current Issues in Computing And Philosophy* (2008); K Anderson & M Waxman 'Law and



drones that have a human being on the controls, AWS will have the capacity to execute 'critical functions' like tracking, selecting and targeting without the involvement of a human. At present, AWS 'with full autonomy have not yet been deployed' and do not exist.⁵⁰ There are, however, advanced developments of the technology. The US, the UK, Israel and North Korea possess robots that already function semi-autonomously.⁵¹ One of the well-known lethal robotic systems with some large degree of autonomy in selection of targets is the one that has been developed by Samsung Techwin and 'deployed in the demilitarized zone between North and South Korea'.⁵² The robotic system functions like security guards, detecting targets using infrared sensors and can switch to an automatic firing mode upon sensing an intruder. However, human beings are still involved in their operations.⁵³

Israel also has an Autonomous Weapon System known as the 'Harpy' which is 'designed to detect, attack and destroy radar emitters'.⁵⁴ Likewise, the UK is developing an autonomous combat drone called Taranis. It is modelled after fighter-jets and has capacity to 'autonomously search, identify and locate enemies and defend itself against the same'.⁵⁵ Discharging lethal force is however, still reserved to the mission command of the Taranis.

ethics for robot soldiers' (2012)32 *American University WCL Research* 18; N Sharkey 'The inevitability of autonomous robot warfare' (2012) *International Review of the Red Cross*.

⁵⁰ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p. 8 para 45.

⁵¹ Semi-autonomous systems are defined as 'a weapon system that, once activated, is intended to only engage individual targets or specific target groups that have been selected by a human operator.'- US Department of Defense *Autonomy in Weapon Systems, Directive 3000.09* (2012)14 available at <http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf> (accessed 3 January 2013).

⁵² J Ebbesson et al *International law and changing perceptions of security: Liber Amicorum Said Mahmoudi* (2014)167.

⁵³ See <http://singularityhub.com/2010/07/25/armed-robots-deployed-by-south-korea-in-demilitarized-zone-on-trial-basis> (accessed 17 February 2013).

⁵⁴ See <http://www.israeli-weapons.com/weapons/aircraft/uav/harpy/harpy.html> (accessed 17 February 2013).

⁵⁵ See http://www.baesystems.com/product/BAES_020273/taranis (accessed 17 February 2013).



The US Navy is also currently developing a drone called the X-47B through the Northrop Grumman Company. This is one of the most advanced forms of a robot with autonomous launch, landing, navigation and lethal functions.⁵⁶ What is clear from these developments is that states are continuously engaged in increasing autonomy of unmanned weapon systems – steps towards fully autonomous weapon systems.

1.4 Framing the issues

For many years, the idea of robots that have the ability to independently make decisions to kill without the help of humans has been restricted to the fictitious world of novels⁵⁷ and movies.⁵⁸ Humans' wariness about lethal robots that can autonomously decide to kill is often depicted in story lines that involve terrifying situations where robots massacre humans or robots initially designed to assist humans turn against them. Until recently, scholarly discussions on such kind of robots could not be taken seriously as many people believed and hoped that they would remain the art of fiction and never see the light of the day.⁵⁹ That hope is, however, fading away since autonomous weapon systems are looming on the horizon of the real world. As noted above, military semi-autonomous robots are already in the employ of some states. Malfunctioning of military robots and some turning against their own users has already been experienced in the real world.⁶⁰ For example, in 2007, during a training session in South Africa, one of the robot cannons mysteriously started firing on its own, killing nine South African soldiers and wounding 14.⁶¹ In the Iraq war in 2008, ground kill-droids were reported to

⁵⁶ See http://www.as.northropgrumman.com/products/nucax47b/assets/X-47B_Navy_UCAS_FactSheet.pdf (accessed 17 February 2013).

⁵⁷ See novels like *I, Robot* (1950), *The Caves of Steel* (1953), *The Naked Sun* (1955), *The Robots of Dawn* (1983) and *Robots and Empire* (1985).

⁵⁸ See for example 'Star wars: a new hope', 'The Terminator', 'Robocop' and 'Forbidden Planet'.

⁵⁹ A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010)1.

⁶⁰ S Weinberger 'Charity battles imaginary killing machines' (2008) available at <http://www.wired.com/2008/03/charity-will-ba/> (accessed 14 January 2013).

⁶¹ N Shachtman 'a Robot cannon kills 9, wounds 14' (2007) available at <http://www.wired.com/dangerroom/2007/10/robot-cannon-ki/> (accessed 27 February 2014).



have ‘turned on their fleshy masters almost at once [leading to the] rebellious machine warriors [being] retired from combat pending upgrades’.⁶²

Yet, despite all these worries and bad experiences, AWS and increasing autonomy in weapon systems at large offer potential advantages– not only to the state or entity that possesses them– but to the civilians also, who, in the current armed conflicts and situations where force is used, suffer the most.⁶³

1.4.1 Perceived advantages of AWS

There are several reasons why states are investing much in the development of AWS. The following are some of the advantages and drivers of the technology:

i) AWS can do the dirty, dull and dangerous work

The state has an obligation to protect its citizens even in times of armed conflict and other dangerous situations.⁶⁴ Arguably, that obligation is more pronounced when individuals lawfully act on behalf or representation of the state. It is a legitimate cause for a state to develop AWS that have the potential of saving the lives of state agents by doing all ‘the so-called dirty, dull and dangerous work’.⁶⁵ For example, instead of sending in a human soldier in an unpredictable dangerous environment – either arm bushed, booby-trapped or set up with other ruses – AWS may be sent in first to scout

⁶² L Page ‘US war robots in Iraq ‘turned guns’ on fleshy comrades: kill-droid rebellion thwarted this time’ (2008). Available at http://www.theregister.co.uk/2008/04/11/us_war_robot_rebellion_iraq/ (accessed 27 February 2014).

⁶³ RC Arkin ‘Lethal Autonomous Weapon Systems and the plight of the non- combatant’ (2014) p. 1 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 25 June 2014).

⁶⁴ R Arkin ‘Governing Lethal Behavior: Embedding Ethics in a Hybrid Deliberative/Reactive Robot Architecture’ Technical Report GIT-GVU-07-11 p.3 available at <http://www.cc.gatech.edu/ai/robot-lab/online-publications/formalizationv35.pdf> (accessed 28 June 2014); See also L May *et al The morality of war: classical and contemporary readings* (2005) 5.

⁶⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 51.



the area, penetrate behind enemy lines, identify and deal away with the possible threats. Without doubt, that capability of AWS will save the lives of one's own soldiers.⁶⁶

ii) AWS will not suffer human weaknesses and may offer better performance than humans

The fact that AWS are not fallible to human weaknesses such as fatigue⁶⁷ is not only advantageous to the state or entity that possesses them but to civilians and those not taking direct part in hostilities.⁶⁸ As noted by Ron Arkin, 'the status quo with respect to innocent civilian casualties is utterly and wholly unacceptable'.⁶⁹ From a humanitarian point of view, the development of AWS may be welcome because robots, unless programmed to do so, will not cause intentional unnecessary suffering or direct attack on civilians since they do 'not act out of revenge, panic, anger, spite, prejudice or fear'.⁷⁰ AWS, for example, will not rape.⁷¹ It is sometimes argued that combatants act out of fears which make them take certain measures that are detrimental to innocent civilians.⁷² This will not be the case with AWS which do not need any self-preservation and can be designed to act conservatively or in self-sacrificing manner.⁷³ For example,

⁶⁶ US Department of Defense *Unmanned Systems Integrated Roadmap* (2013)68; GE Marchant et al 'International governance of autonomous military robots' (2011) XII *The Columbia Science and Technology Law Review* 288.

⁶⁷ P Lin et al 'Robots in war: issues of risk and ethics' in R Capurro & M Nagenborg (eds) *Ethics and Robotics* (2009) 1; A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010)39-42.

⁶⁸ R Arkin *Governing Lethal Behavior in Autonomous Robots* (2009) 29-30; M Walzer *Just and Unjust Wars* (1977) 251; GE Marchant et al 'International governance of autonomous military robots' (2011) XII *The Columbia Science and Technology Law Review* 280.

⁶⁹ RC Arkin 'Lethal Autonomous Weapon Systems and the plight of the non-combatant' (2014)1 available at

[http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 25 June 2014).

⁷⁰ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 54; See also GE Marchant et al 'International governance of autonomous military robots' (2011) XII *The Columbia Science and Technology Law Review* 280.

⁷¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 54.

⁷² M Walzer *Just and Unjust Wars* (1977) 251

⁷³ GE Marchant et al 'International governance of autonomous military robots' (2011) XII *Columbia Science and Technology Law Review* 280.



where there is uncertainty regarding the status of the target, AWS may hold fire and only return it when they are fired upon.⁷⁴

iii) AWS may monitor the conduct of human soldiers on the battlefield

In addition to the unlikelihood of AWS committing crimes that human soldiers would, they may also be equipped with recording cameras that create a trail of events. Thus, if deployed alongside human soldiers, AWS 'have the potential capability of independently and objectively monitoring ethical behavior in the battlefield by all parties and reporting infractions that might be observed'.⁷⁵ Where individual soldiers are aware that their conduct is on camera, this may reduce incidents of intentional violations of the laws of war or use of force.

iv) Faster and arguably accurate delivery of force

Owing to various developments in military technology that are increasing speed in the means and methods of warfare, humans have become 'the weakest link' in military operations.⁷⁶ Now that 'the decision-making processes of robots are often measured in nanoseconds'⁷⁷, involvement of humans in their operation not only slow down the process but also makes it undesirable and impractical.⁷⁸ The advantage of AWS is that

⁷⁴ P Singer *Wired for war the robotics revolution and conflict in the 21st century* (2009) 398.

⁷⁵ RC Arkin 'Lethal Autonomous Weapon Systems and the plight of the non-combatant' (2014)9 available at

[http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 25 June 2014).

⁷⁶ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 53; See also UK Ministry of Defence *Development, concepts and doctrine centre, joint doctrine note* (2011) 5-10; G. Marchant et al 'International governance of autonomous military robots' (2011) XII *The Columbia Science and Technology Law Review*; US Air Force *Report on technology horizons: a vision for air force science & technology during 2010–2030* (2010)59 available at <http://www.flightglobal.com/assets/getasset.aspx?ItemID=35525> (accessed 28 June 2014).

⁷⁷ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p.8 para 41.

⁷⁸ TK Adams 'Future warfare and the decline of human decision making, parameters' (2001) *United States Army War College Quarterly* 57-58; See also Defense Advanced Research Projects Agency (DARPA) *Broad agency announcement 07-52, scalable network monitoring, strategic technology office* (2007) available at <https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=b524ff8d8f7390061d4c5d5444c9e620&tab=documents&tabmode=list> (accessed 28 June 2014).



their ‘speed of response from the moment of sighting a target to the swift delivery of deadly force’⁷⁹ which increases accuracy in targeting and decreases unintended deaths.⁸⁰ For that reason, AWS become attractive, not only for their speed but their operation can also continue ‘even if communication links have been broken off behind enemy lines’.⁸¹

1.4.2 Concerns

In as much as AWS attribute some of the advantages noted above, they also raise issues which the law and the international community are seemingly not yet prepared for.⁸² Most of such concerns resonate from the fact that no matter how advanced and advantageous AWS may be, they can never have human qualities like ‘common sense, appreciation of the larger picture, understanding of the intentions behind people’s actions, and understanding of values and anticipation of the direction in which events are unfolding’ which are very important in the use of lethal force and compliance with international law.⁸³ Some of the major concerns are the following:

i) The moral and ethical implications of giving AWS power over life and death

Questions have been raised by commentators on whether it is moral or ethical to give machines the power over life and death.⁸⁴ The idea of machines making such important

⁷⁹ The same is true about drones, see A/68/389, Report of the Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism, Ben Emmerson, 18 September 2013, p.6 para 25.

⁸⁰ GE Marchant et al ‘International governance of autonomous military robots’ (2011) XII *The Columbia Science and Technology Law Review* 280.

⁸¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 53; See also See UK Ministry of Defence *Development, concepts and doctrine centre, joint doctrine note* (2011)3-13; US Department of Defense, *Unmanned systems integrated road map* (2011)45.

⁸² See N Paumgarten ‘Here’s looking at you: should we worry about the rise of drone?’ (2012) available at http://www.newyorker.com/reporting/2012/05/14/120514fa_fact_paumgarten (accessed 10 March 2014).

⁸³ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 55.

⁸⁴ See for example R Sparrow ‘Robotic Weapons and the Future of War’ in J Wolfendale & P Tripodi (eds)



decision invokes some sense of revulsion within some humans; not the least because it comes with the scary imagery of the movie *The Terminator* or other Sci-Fi fiction, but because it impacts on the humanity, morality and ethics of those deploying such machines⁸⁵ and the dignity of those who are targeted.⁸⁶

ii) AWS may lower the threshold on the use of force and create an arms race

For a long time, the difficulties and ugliness of war have, to some extent, discouraged states or individuals from going to war.⁸⁷ However, AWS will potentially make it easier to use force with limited consequences to the one employing them.⁸⁸ For that reason, there is a legitimate concern that AWS may lower the threshold of use of force as states and non-state actors may often rely on force rather than other methods of resolving disagreements which have a potential of upsetting the *jus ad bellum* norm that force must always be the last resort and in self defense.⁸⁹ In the same realm of lowering the threshold of using lethal force, there are also peace and security concerns. If AWS are deployed, it may lead to an undesirable AWS arms race as other states may consider it unwise to exercise any form of restraint on their arms policy. If constraints on the use of

New wars and new soldiers: military ethics in the contemporary world (2011) 11; A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 94; AM Johnson 'The Morality of Autonomous Robots' (2013) 134 *Journal of Military Ethics* 134.

⁸⁵ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.

⁸⁶ See for example R Sparrow 'Robotic Weapons and the Future of War' in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011) 11.; A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 94; AM Johnson 'The Morality of Autonomous Robots' (2013) 134 *Journal of Military Ethics* 134.

⁸⁷ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013, p 18 para 96.

⁸⁸ PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 323.

⁸⁹ See AK Krishnan *Killer Robots: legality and ethicality of autonomous weapons* (2009)150; P Asaro 'How just could a robot war be?' in P Brey et al (eds) *Current issues in computing and philosophy* (2008) 7; Report of the Secretary-General on the role of science and technology in the context of international security and disarmament A/53/202, para 98; PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 323; PW Khan 'The paradox of riskless warfare' (2002)326 *Faculty Scholarship Series 4* available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).



force are lowered and the use of force is made easy, the protection of the right to life is threatened.⁹⁰

iii) AWS may be incapable of complying with various rules of international law

The fact that AWS lack the human qualities mentioned above – qualities that are paramount in making intricate legal decisions on today’s complex and changing battlefield – is a huge concern as to whether AWS will be able to comply with rules of international humanitarian law such as distinction, proportionality, military necessity and precaution.⁹¹ In the event of them being used by states outside armed conflict, the concern is whether AWS are capable of complying with international human rights law cardinal principles of the protection of the right to life such as necessity which, first and foremost, requires the use of lethal force as a last resort and for the purposes of saving another life.⁹² AWS and all other forms of increased autonomy in the use of force, whether lethal or non-lethal may, in addition to the right to life, also violate important rights like the right to dignity.⁹³

⁹⁰ A/68/30532, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013, p. 31, para 80-94.

⁹¹ See P Asaro ‘On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making’ (2013) 94 *International Review of the Red Cross* 11; AK Krishnan *Killer Robots: legality and ethicality of autonomous weapons* (2009) 98-99; N Sharkey ‘Grounds for discrimination: autonomous robot weapons’ (2008) *RUSI Defence Systems* 88-89 available at <http://rusi.org/downloads/assets/23sharkey.pdf> (accessed 11 January 2013); N Sharkey ‘Automated killers and the computing profession’ (2007) 40 *Computer* 122. Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012) 31 available from <http://www.hrw.org/reports/2012/11/19/losing-humanity-0> (accessed 2 January 2013); M Wagner ‘The dehumanization of international humanitarian law: legal, ethical, and political implications of autonomous weapon systems’ (2012) available from http://robots.law.miami.edu/wp-content/uploads/2012/01/Wagner_Dehumanization_of_international_humanitarian_law.pdf (accessed 28 June 2014).

⁹² See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014) available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 28 June 2014).

⁹³ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014) available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 28 June 2014); A/HRC/23/47 p 17 para 94; R Sparrow ‘Robotic weapons and the future of war’ in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011)



iv) AWS may create a vacuum for legal accountability of violations

Where lethal or non-lethal force is used and a violation of law or crime is committed, the remedy has always been to hold the violating state or individual accountable for their wrongful act in line with the long established accountability principles.⁹⁴ Such accountability mechanisms have not only acted as an incentive for states and individuals to ensure that the use of force is within the confines of the law but also victims of unlawful use of force expect to see the offender punished and receive reparations.⁹⁵ Now that AWS operate autonomously, the concern is who is legally responsible or accountable where AWS act unlawfully. There are many potentially culpable individuals in the operation of AWS, from the manufacturers of the various sensors, mechanical apparatuses and computing components to the programmer and the commander responsible for its deployment. This obfuscates clarity as to how responsibility can be computed which gives rise to the fear that AWS may create an accountability gap.⁹⁶ In the event of the robot being in the control of a non-state actor, investigating and tracing the individual who activated it may be difficult if not next to impossibility as AWS may be successfully deployed in non-attributable ways.

v) AWS are susceptible to mal-functioning, hacking and spoofing

Lastly, concerns about the development of AWS or any increased form of autonomy in weapon systems that does not have any 'Meaningful Human Control' is further aggravated by the fact that such weapons are susceptible to hacking and other forms of

11; AM Johnson 'The Morality of Autonomous Robots' (2013) 134 *Journal of Military Ethics* 134; J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.

⁹⁴ M Walzer *Arguing About War* (2004) 287.

⁹⁵ M Walzer *Arguing About War* (2004) 287.

⁹⁶ A/HRC/23/47 p 14; 6 Perri 'Ethics, regulation and the new artificial intelligence, part II: autonomy and liability' (2001) *Information, Communication and Society* 406-434; KE Himma 'Artificial agency, consciousness, and the criteria for moral agency: what properties must an artificial agent have to be a moral agent?' (2007) *7th International Computer Ethics Conference*; R Sparrow 'Killer robots' (2007) 24 *Journal of Applied Philosophy* 73-74.



cyber warfare attacks.⁹⁷ These concerns loom as a threat to the right to life and other rights mentioned above.

1.4.3 Status of debate on AWS and proposed solutions

It is some of the above advantages and concerns that have led researchers, governments, NGOs, United Nations Special Rapporteurs, among others, to publish articles and reports on the dangers of AWS and questioning their legality, morality and ethics of deploying them. The following paragraphs refer to some of the major events in the AWS debate.

i) *Call for a pre-emptive ban*

In recent years, human rights organisations have not only advocated for rights of victims; but have also been involved in the formulation of preventative measures such as regulation of weapons. Human Rights Watch, for example, is a founding member of the International Campaign to Ban Landmines (ICBL); an organisation that advocated for the ban of anti-personnel landmines arguing that they ‘cannot distinguish between a soldier during conflict and a civilian stumbling upon one even decades later’.⁹⁸ In 1997, ICBL received the Nobel Peace Prize for its efforts to bring about the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on the Destruction (Mine Ban Treaty).⁹⁹

In April 2013, Human Rights Watch and other human rights NGOs¹⁰⁰ came together to form the ‘Campaign to stop Killer robots’ (CKR)¹⁰¹ – a non-governmental organisation whose mandate is to crusade ‘for a pre-emptive and comprehensive ban on the

⁹⁷ A/HRC/23/47 p 18; P Singer *Wired for war: The robotics revolution and the conflict in the 21st century* 261-263; B Kastan ‘Autonomous Weapon Systems: A Coming Legal Singularity?’ (2013) *University of Illinois Journal of Law, Technology and Policy* 8.

⁹⁸ See <http://www.hrw.org/topic/arms/landmines> (accessed 28 June 2014).

⁹⁹ Available at <http://cns.miiis.edu/inventory/pdfs/apl.pdf> (accessed 28 June 2014).

¹⁰⁰ Article 36, Association for Aid and Relief Japan, International Committee for Robot Arms Control, Mines Action Canada, Nobel Women’s Initiative, IKV Pax Christi Pugwash Conferences on Science & World Affairs, Women’s International League for Peace and Freedom.

¹⁰¹ All the major activities of the CKR are available on their website, see <http://www.stopkillerrobots.org>.



development, production, and use of fully autonomous weapons, also known as lethal autonomous robots'.¹⁰² Human Rights Watch has also published a number of reports outlining the concerns in the ever increasing autonomy in weapon systems.¹⁰³

The call to ban AWS has been supported by the European Parliament (EP). The EP adopted Resolution 2014/2567(RSP) which in part calls for a ban on 'the development, production and use of fully autonomous weapons which enable strikes to be carried out without human intervention'.¹⁰⁴

ii) Opposition to the call for a pre-emptive ban

At the same time, there are other commentators who argue that there is no basis in terms of the law to ban AWS and in fact a ban may be prejudicial in light of the possible positive advantages that AWS may bring.¹⁰⁵ Ron Arkin, for example, argues that 'a ban ignores the moral imperative to use technology to reduce the persistent atrocities and mistakes that human war fighters make'.¹⁰⁶ To Arkin, a ban is, at the very least, premature.¹⁰⁷

¹⁰² See <http://www.stopkillerrobots.org/call-to-action/> (accessed 30 May 2013).

¹⁰³ Losing Humanity, available at http://www.hrw.org/sites/default/files/reports/arms1112ForUpload_0_0.pdf (accessed 11 January 2014); Human rights implications of killer robots, available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf

¹⁰⁴ Resolution available at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+MOTION+P7-RC-2014-0201+0+DOC+PDF+V0//EN> (accessed 5 March 2014).

¹⁰⁵ See generally, M Waxman & K Anderson 'Law and ethics for autonomous weapon systems: why a ban won't work and how the laws of war can' (2013) *Columbia Public Law Research Paper*.

¹⁰⁶ RC Arkin 'Lethal Autonomous Weapon Systems and the plight of the non-combatant' (2014) p. 5 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 25 June 2014).

¹⁰⁷ RC Arkin 'Lethal Autonomous Weapon Systems and the plight of the non-combatant' (2014) p. 5 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 25 June 2014).



iii) *Call for a moratorium on the development and deployment of AWS*

In May 2013, the United Nations Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, submitted a report on AWS to the Human Rights Council (HRC) wherein he notes the advantages and concerns on AWS noted above. Heyns compiled his report after holding expert consultation meetings on AWS earlier in 2012 and 2013 with roboticists, military experts, philosophers and international lawyers.¹⁰⁸ In his 2013 report, Heyns called for an international moratorium on 'the testing, production, assembly, transfer, acquisition, deployment and use of AWS until such time as an internationally agreed upon framework on the future of AWS has been established'.¹⁰⁹

Not only did Heyns' 2013 report on AWS introduce the subject matter in the HRC, but it also sparked serious debate on the issue amongst states and has since become one of the basic references whenever and wherever the issue of AWS is discussed. Less than a month after Heyns' presentation in the Human Rights Council, on 17 June 2013; the United Kingdom's House of Commons tabled the issue of AWS.¹¹⁰ As will be discussed below and largely in response to Heyns report, state parties to the Convention on Conventional Weapons took up the matter in late 2013 and held a meeting on lethal Autonomous Weapon Systems in May 2014 and subsequently in April 2015.

iv) *The International Committee of the Red Cross and AWS*

The International Committee of the Red Cross (ICRC) has also seized the matter of AWS. From 26 to 28 March 2014, the ICRC held an expert meeting on Autonomous Weapon Systems. The meeting was attended by 21 states and 13 independent experts amongst

¹⁰⁸ The expert consultation meetings were held in South Africa, at the Institute for International and Comparative Law in Africa of University of Pretoria and at the European University Institute in Florence, Italy, organised by the New York University Law School.

¹⁰⁹ See http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf (accessed 19 March 2014).

¹¹⁰ See <http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130617/debtext/130617-0004.htm> (accessed 23 September 2013).



them jurists, ethicists, roboticists, and representatives of non-governmental organisations and the United Nations. The major aim of the meeting was ‘to better understand the issues raised by autonomous weapon systems and to share perspectives among government representatives, independent experts and the ICRC’.¹¹¹ This meeting followed the ICRC’s earlier publication entitled ‘New Technologies and Warfare,’ which discusses ‘new weapons, means and methods of warfare to help governments fulfil their obligation to ensure that the use of new weapons, means or methods of warfare comply with the rules of [international humanitarian law]’.¹¹² The ICRC presented a report of the March meeting to the May 2014 CCW Meeting on Lethal Autonomous Weapon Systems.¹¹³

v) *The CCW Meetings on Lethal Autonomous Weapon Systems*

In November 2013, at the 2013 Convention on Conventional Weapons (CCW) Meeting of High Contracting Parties, a new mandate on Lethal Autonomous Weapon Systems (LAWS) was agreed on.

According to the mandate;

A Chairperson will convene in 2014 a four-day informal Meeting of Experts, from 13 to 16 May 2014, to discuss the questions related to emerging technologies in the area of lethal Autonomous Weapon Systems, in the context of the objectives and purposes of the Convention. He will, under his own responsibility, submit a report to the 2014 Meeting of the High Contracting Parties to the Convention, objectively reflecting the discussions held.¹¹⁴

¹¹¹ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 27 June 2014).

¹¹² ICRC ‘Humanitarian debate: law, policy and action: New technologies and warfare’ (2012)94 *International Review of the Red Cross* 886; See also ICRC’s Guide to the Legal Review of New Weapons, Means and Methods of Warfare (2006).

¹¹³ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 28 June 2014).

¹¹⁴ See

<http://www.unog.ch/80256EE600585943/%28httpPages%29/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument> (accessed 27 June 2014).



From 13 to 17 May 2014, the CCW held an expert meeting on Lethal Autonomous Weapon Systems which was attended by independent experts amongst them jurists, ethicists and roboticists to discuss the ‘technical issues; ethics and sociological issues; international humanitarian law (IHL); other areas of international law; and operational and military aspects’ of lethal autonomous weapon systems.¹¹⁵

At the end of the CCW meeting, delegations highlighted that although the meeting had to some extent formed common understandings in certain aspects, some of the important questions and concerns noted above still remained unanswered. It was therefore agreed that the issue must be taken further during the next meeting of High Contracting Parties to the CCW in 2014 and the debate must be continued.¹¹⁶ The material containing the positions of member states and the presentations of experts is available on the CCW website.¹¹⁷ A follow up meeting was recently held in April 2015 wherein various experts, organisations and states made their presentations on the issue of AWS.¹¹⁸

vi) *Summary of proposed solutions*

In most of the meetings on the AWS debate, various solutions have been proposed, both legal and non-legal. First, there are commentators who find AWS to be illegal weapons, immoral and unethical. They propose a ban which can be imposed both at domestic¹¹⁹ and international level.¹²⁰ Secondly, there are those who do not find AWS

¹¹⁵ See Report of the 2014 informal Meeting of Experts on Lethal Autonomous Weapon Systems (LAWS), available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/\\$file/Report_AdvancedVersion_10June.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/$file/Report_AdvancedVersion_10June.pdf) (accessed 27 June 2014).

¹¹⁶ See Report of the 2014 informal Meeting of Experts on Lethal Autonomous Weapon Systems (LAWS), available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/\\$file/Report_AdvancedVersion_10June.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/$file/Report_AdvancedVersion_10June.pdf) (accessed 27 June 2014).

¹¹⁷ See <http://bit.ly/1jSiCro> (accessed 27 June 2014).

¹¹⁸ See 2015 Expert Meeting on LAWS available at <http://www.unog.ch/80256EE600585943/%28httpPages%29/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument> (accessed 20 May 2015).

¹¹⁹ States have an international obligation to review the legality of every new weapon in terms of Article



illegal weapons but worry that their use in certain circumstances may be illegal. Amongst these commentators is a group that argues that existing international law is adequate to govern and restrict the use of AWS. The other group, however, argues that the current form of international law may be inadequate to govern this new technology; therefore the need to come up with new rules.

1.6 Conclusion

Autonomy in weapons systems – in particular autonomy in the release of force – will continue to increase, with the current developments of weapon systems such as the US's X47B moving towards full autonomy. In as much as developments of such weapon systems appear to be the ultimate game changer by offering unmatched advantages to the state or entity that possesses them, they have far reaching consequences on the protection of the right to life and other important rights. In the light of the concerns that have been raised in this Chapter, the international community should take seriously the issue of AWS. The debate on AWS should be understood in its broad context, to cover all those weapon systems that do not have any 'Meaningful Human Control' on the use of force whether lethal or non-lethal, in law enforcement or armed conflict situations.

As highlighted in this Chapter, determination of whether AWS are acceptable or unacceptable requires an examination of the impact of AWS on some of the important rules of international law. The first port of call in relation to the regulation of AWS is the law of armed conflict – international humanitarian law; in particular Article 36 of Additional Protocol I to the Geneva Conventions on the legal review of new weapons. In the following Chapter I focus on Article 36 of Additional Protocol I on the review of new weapons.

36 of Additional Protocol I to the Geneva Conventions. Where a state find a new weapon incompatible with international law, it may choose ban the use of that weapon by its agencies or stop its development.

¹²⁰ The international community has so far banned a number of weapons for their lack of compliance with international law, for example the ban on anti-personnel landmines.



Chapter 2: AWS and Legal Review of New Weapons

‘If man does not master technology, but allows it to master him, he will be destroyed by technology’.¹

2. Introduction

States have an obligation to conduct legal review of all new weapons to ascertain the legality of the weapons and also to determine whether their use will be in all or some circumstances violate international law. In this Chapter, I seek to answer two main questions: Firstly, I ask whether fully Autonomous Weapon Systems are *stricto sensu* weapons for the purposes of conducting legal review as required by Article 36 of API to the Geneva Conventions.

Secondly, I ask whether fully Autonomous Weapon Systems are within the confines of the basic rules of weapons law – that is, the rule proscribing weapons that are indiscriminate in nature and weapons that cause superfluous harm or unnecessary suffering. I also seek to draw the important distinction between the basic rules of international weapons law listed above and the targeting rules of international humanitarian law as applicable to combatants. Understanding that difference and answering the two questions referred to above is important as a first step towards finding an appropriate response to AWS technology.

2.1 The legal obligation to conduct legal review of new weapons

The state obligation to conduct legal review of new weapons exists both in customary and treaty law.

¹ Jean de Preux et al ICRC Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949 427-428.



i) *Customary law*

The obligation to conduct legal review of new weapons to ascertain whether they are in compliance with international law is considered to be a customary obligation.² Treaty law on the obligation to conduct legal review of new weapons is argued to have only codified a pre-existing customary obligation.³ Even states like the US that have not ratified treaties that provide for this obligation, acknowledge that the obligation reflects customary international law.⁴ Thus, with the aim of ensuring that a new weapon and its intended use is in line with customary international law,⁵ the US reviews all new weapons in line with the customary law requirement⁶ as codified in its military instructions, manuals and regulations.⁷

The International Court of Justice also recognised the customary nature of the obligation to conduct legal review of any weapon that a state intends to acquire or develop, noting that the obligation is applicable to ‘all kinds of weapons...those of the

² GH Todd ‘Armed attack in cyberspace: deterring asymmetric warfare with an asymmetric definition’ (2009) 64 *Air Force Law Review* 65, 80; WH Parks Conventional Weapons and Weapons Reviews (2005)8 *Year Book of International Humanitarian Law* 55; MJ Matheson The United States Position on the Relation of Customary International law to the 1977 Protocols Additional to the 1949 Geneva Conventions (1987)2 *Amsterdam University Journal of International Law and Policy* 419, 420; Royal Australian Air Force ‘Operations law for RAAF commanders’ (2004) *Publication 1003* para 9.5; D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 163.

³ WH Parks Conventional Weapons and Weapons Reviews (2005)8 *Year Book of International Humanitarian Law* 57; See also D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 164.

⁴ The US and Sweden already had legal review mechanisms as early 1974 before Additional Protocol I to the Geneva Conventions came into force, which in Article 36 requires legal review of new weapons. See also GH Todd ‘Armed attack in cyberspace: deterring asymmetric warfare with an asymmetric definition’ (2009) 64 *Air Force Law Review* 80; WH Parks Conventional Weapons and Weapons Reviews (2005)8 *Year Book of International Humanitarian Law* 55; D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 164.

⁵ WH Parks ‘Joint service shotgun program’ (1997) *Army Law* 16.

⁶ WH Parks ‘Joint service shotgun program’ (1997) *Army Law* 16.

⁷ US DoN ‘Implementation and operation of the defense acquisition system and the joint capabilities integration and development system’ (2004) *Secretary of the Navy Instruction 5000.2c* para. 2.6.2; US DoD ‘The defense acquisition system’ (2003) *Dir. 5000.01* para e1.1.1; US DoF ‘Weapons review’(1994) *Instruction 51-504*; US DoA ‘Review of legality of weapons under international law’ (1979) *Regulation 27-53* para 3.a .



present and those of the future'.⁸ As far back as 1964, the Tokyo District Court held that the United States' nuclear bombing of Hiroshima and Nagasaki not only violated IHL, in particular targeting rules, but also the customary obligation to conduct legal review of weapons before their use.⁹

ii) *Treaty Law*

Treaty obligation to review legality of new weapons dates back as far as 1868 when the International Military Commission adopted the St. Petersburg Declaration which, in regard to the development of new technologies noted as follows:

The Contracting or acceding parties reserve to themselves to come hereafter to an understanding whenever a precise proposition shall be drawn up in view of future improvements which science may effect in the armament of troops in order to maintain the principles which they have established, and to conciliate the necessities of war with the laws of humanity.¹⁰

The modern form of the obligation is found in Article 36 of Additional Protocol I to the Geneva Conventions. Article 36 advocates for a preventative approach when it comes to weapons which states may use in armed conflict. It provides as follows:

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. (My emphasis)

This obligation is fundamental especially in the current age where military technology continues to proliferate. Noting the rapid developments in military technologies and how some of the technologies end up causing harm to civilians and unnecessary suffering to combatants, in both the 27th and 28th International conferences of 1999 and 2003 respectively, the Red Cross and the Red Crescent called on states to establish

⁸ *Legality of the threat or use of nuclear weapons, Advisory Opinion* (1996) ICJ 226,254, 259, 262.

⁹ *Shimoda v State of Japan* (1964) 8 Japan Ann. International Law 242.

¹⁰ Declaration Renouncing the 'Use, in time of war, of explosive projectiles under 400 grammes weight, St. Petersburg, 29 November / 11 December 1868.



within their jurisdictions, mechanisms and procedures that allow them to conduct legal reviews of new weapons and ascertain their legality beforehand.

According to the ICRC, Article 36 of API ‘implies the obligation to establish internal procedures for the purposes of elucidating the issue of legality, and other contracting parties can ask to be informed on this point’.¹¹ There are very few states that currently have these mechanisms to date. Amongst the ones that have are the US¹², Norway¹³, Belgium¹⁴, Sweden¹⁵, Australia¹⁶ and the Netherlands.¹⁷ This however, does not detract from the binding nature of Article 36 which is deemed to apply to *all* states irrespective of them being party or not to Additional Protocol I – as noted above.¹⁸

iii) Article 36 scope of application

It has been pointed out that Article 36 only relates to the *employment* of weapons and that ‘mere possession does not technically trigger Article 36 requirements’.¹⁹ However, such arguments may not be valid because Article 36’s scope of application is considered

¹¹ Y Sandoz et al ‘Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949, ICRC, Geneva, 1987’ para 1470 and 1482.

¹² The US 2004 Department of Navy, Secretary of the Navy Instruction 5000.2C on Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System; The 2003 US Department of Defense Directive 5000.1 on the Defense Acquisition System; The US 1996 Department of Defense Directive Policy for Non-Lethal Weapons (3000.3); The US 1994 Weapons Review, US Department of Air Force Instruction (51-402); The US 1979 Department of Army Regulation 27-53, Regulation Legal Services: Review of Legality of Weapons under International Law and The US 1974 Review of Legality of Weapons under International Law, US Department of Defense Instruction (5500.15).

¹³ The 2003 Norway Ministry of Defence Directive on the Legal Review on Weapons, Methods and Means of Warfare (Direktiv om folkerettslig vurdering av vapen, krigforingsmetoder og krigforingsvirkemidler).

¹⁴ The Belgian 2002 Committee for the Legal Review of New Weapons, New Means and New Methods of Warfare (La Commission d’Evaluation Juridique des nouvelles armes, des nouveaux moyens et des nouvelles méthodes de guerre. Défense, Etat-Major de la Défense, Ordre Général - J/836).

¹⁵ The Swedish Ordinance on international law review of arms projects, Swedish Code of Statutes, SFS 1994:536. (Förordning om folkrättslig granskning av vapenproject).

¹⁶ The 2005 Australian Department of Defence Instruction on Legal review of new weapons (OPS 44-1).

¹⁷ The 1978 Directive of the Minister of Defence (nr. 458.614/A) establishing the Committee for International Law and the Use of Conventional Weapons. (Besikking van de Minister van Defensie, Adviescommissie Internationaal Recht en Conventioneel Wapengebruik).

¹⁸ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006) International Review of the Red Cross Vol 88 Number 864 p.933.

¹⁹ D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 168.



broad; it applies to the research, development, modification, procurement or purchase of weapons or weapon systems and how it is to be used whether it is lethal or non-lethal, anti-personnel or material.²⁰ Where a state enters into a new treaty that may have implications for weapons in its possession, it is obliged to conduct a legal review. In practice, that legal review 'should be conducted when [a] weapon is being studied or acquired'.²¹

Now that Article 36 is found in Additional Protocol I, which is applicable to international armed conflicts, questions have also been raised as to whether the obligations in Article 36 are applicable to weapons designed to be used in non-international armed conflict. The acceptable argument is that the obligation to review new weapons as enunciated in Article 36 is applicable even for weapons that are meant to be used in non-international armed conflict. In the Weapons case, the judges observed that 'what is inhumane, and consequently proscribed, in international wars, cannot but be inhumane and inadmissible in civil strife'.²² As far back as 1899, with the exception of the British delegate, during the negotiation of the Hague Declaration concerning expanding bullets, states in attendance made it clear that it would be 'contrary to the humanitarian spirit' to ban the expanding bullets in international armed conflict while allowing them in non-international armed conflict.²³ Likewise, the ICRC has observed that 'most of the [IHL] rules apply to all types of armed conflict'.²⁴ This consideration is important to most

²⁰ ICRC 'A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977' (2006) *International Review of the Red Cross* Vol 88 Number 864 p.937.

²¹ JD Fry 'Contextualized legal reviews for the means and methods of warfare: Cave combat and international humanitarian law' (2006) 44 *Columbia Journal of Transnational Law* 453.

²² *Prosecutor v Tadic Case No IT-94-1-I Decision on Defence Motion for Interlocutory Appeal on Jurisdiction*, para 119, 127 (ICTY) (2 October 1995).

²³ William Crozier, Report to the United States' Delegation to the First Hague Conference on the Proceedings of the First Commission and its Sub-Commission, July 31, 1899, referred to in R Coupland & D Loye 'The 1899 Hague Declaration concerning expanding bullets: A treaty effective for more than 100 years faces complex contemporary issues' (2003) 849 *International Review of the Red Cross* 135, 137.

²⁴ ICRC 'A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977' (2006) *International Review of the Red Cross* Vol 88 Number 864.



unmanned systems whose application in the foreseeable future is more likely in non-international armed conflict, in pursuit of terrorists for example.

In as much as it is paramount to conduct legal review of new weapons, it does not mean that any material in the possession of the state or which a state intends to possess must be subjected to Article 36 review. To this end, D. Blake and J.S. Imburgia observe that the first and foremost consideration is whether a particular piece of material qualifies as a weapon or means of warfare for the purposes of Article 36 assessment.²⁵

2.2 Are AWS *stricto sensu* ‘weapons’ for the purposes of Article 36 review?

The ICRC has anticipated situations where a state is not clear as to whether the capability under consideration is a weapon for the purposes of a new weapons legal review.²⁶ As a result, experts have long expressed their concerns and doubts as to whether some of the ‘future arms’ would be properly reviewed,²⁷ urging nations to properly determine whether such ‘future arm’ qualifies as a ‘weapon, means or method of warfare’.²⁸ As a solution, the ICRC suggests that the state in doubt should consult with the weapons review authority.²⁹ This solution is limited since, as noted above, not so many states have such an authority.

As back as 1999, the US Department of Defence Office of General Counsel also highlighted the uncertainties that existed regarding the use of the term ‘weapon’ and its applicability to certain types of operational cyberspace capabilities for example.³⁰ Many

²⁵ D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 168.

²⁶ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross* Vol 88 Number 864 p.937.

²⁷ Jean de Preux et al *ICRC Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* 427.

²⁸ Jean de Preux et al *ICRC Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* 428.

²⁹ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006)88 *International Review of the Red Cross* 864.

³⁰ US DoD Office of General Counsel *An assessment of international legal issues in information operations* (1999) 8.



years later, this uncertainty still exists,³¹ and it is unfortunate that fully autonomous weapons or weapon systems with increased autonomy may present the same legal ambiguity as to whether they can be described as ‘weapons’ for the purposes of Article 36 legal review or not. In my view, the question as to whether or not fully autonomous weapon systems or those with increased autonomy should be considered as weapons or means of warfare is fundamental because that categorisation has far reaching implications.

To understand whether a thing qualifies as a weapon for the purposes of Article 36 legal review, it is important to understand what ‘weapon’ or ‘means and methods of warfare’ are. Although Article 36 uses the terms ‘weapon, means or method of warfare’, no definition is provided for them in the Protocol.

2.2.1 Definition of weapon, means and method of warfare

The meaning of a *weapon* as provided for in the dictionary is that it is ‘a thing designed or *used* for inflicting bodily harm or physical damage; a means of gaining an advantage or defending oneself’.³²

International law, however, does not offer any definition for a weapon and the term ‘is unclear across the international community, as each state tends to have its own definition’.³³ The following are some of the definitions that have been provided by states.

Australia refers to a ‘weapon as an offensive or defensive instrument of combat *used* to destroy, injure, defeat or threaten. It includes weapon systems, munitions, sub-

³¹ D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’ (2010) 66 *Air Force Law Review* 159.

³² *Concise Oxford Dictionary* (2006).

³³ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006)88 *International Review of the Red Cross* 47.



munitions, ammunition, targeting devices, and other damaging or injuring mechanisms'.³⁴

Belgium defines a 'weapon' 'as any type of weapon, weapon system, projectile, munition, powder or explosive, designed to put out of combat persons and/or materiel'.³⁵ *Norwegia* defines the word 'weapons' 'as any means of warfare, weapons systems/ project, substance, etc. which is particularly suited for use in combat, including ammunition and similar functional parts of a weapon'.³⁶

Within the various US departments, there is no single overarching definition of a weapon. For example, the following definitions exist: *The United States Navy* defines a 'weapon' as 'all arms, munitions, materiel, instruments, mechanisms, or devices that have an intended effect of injuring, damaging, destroying or disabling personnel or property'.³⁷ *The US Army* refers to weapons as 'chemical weapons and all conventional arms, munitions, materiel, instruments, mechanisms, or devices which have an intended effect of injuring, destroying, or disabling enemy personnel, materiel, or property'.³⁸ While explicitly excluding electronic warfare devices, the US Department of *Air force* defines a weapon 'as devices designed to kill, injure, or disable people, or to damage or destroy property'.³⁹ *The US DoD Directive on Legal Review of non-lethal Weapons* 'defines non-lethal weapons as *weapons* that are explicitly designed and primarily *employed* so as to incapacitate personnel or materiel, while minimizing fatalities,

³⁴ Subsection 3(a) of the Australian Instruction.

³⁵ Subsection 1(a) of the Belgian General Order.

³⁶ Subsection 1.4 of the Norwegian Directive.

³⁷ US Department of Navy 'Implementation and operation of the defense acquisition system and the joint capabilities integration and development system' (2004) *Secretary of the Navy Instruction 5000.2c* para 2.6.2; See also WH Parks 'Office of The Judge Advocate General of the Army, Weapons Review Programme of the United States' presented at the Expert Meeting on Legal Reviews of Weapons and the SirUS Project, Jongny sur Vevey, Switzerland, 29–31 January 2001 (on file with the ICRC).

³⁸ US Department of Army 'Review of legality of weapons under international law' (1979) *Regulation 27-53* para 3.a.

³⁹ US Department of Air force 'Weapons review' (1994) *Instruction 51- 504* at 1.



permanent injury to personnel, and undesired damage to property and the environment'.⁴⁰

The US also expressly provides that even weapon systems must be subjected to a weapons review⁴¹ and define them as the 'weapon itself and those components required for its operation, including new, advanced or emerging technologies which may lead to development of weapons or weapon systems and which have significant legal and policy implications. [Weapon] systems are limited to those components or technologies having *direct injury* or damaging effect on people or property (including all munitions and technologies such as projectiles, small arms, mines, explosives, and all other devices and technologies that are physically destructive or injury producing)'.⁴²

The inclusion of weapon systems under the scope of Article 36 has been justified by the ICRC and a number of commentators. This is more acceptable where it can be noted that the language in Article 36 of Additional Protocol I is broader if compared to the preceding Article 35 of the same protocol. While Article 35 the terms 'weapons, projectiles and material and methods of warfare' are used, Article 36 uses 'weapons, means and method of warfare'.⁴³ Arguably, by using such language, the drafters of Article 36 intended it to 'encompass more than just material, projectiles, or kinetic kill vehicles' in that case encompassing weapon systems.⁴⁴

There are also a number of commentators who have attempted to define a weapon. Justin McClelland observes that deciding whether a particular thing constitutes a weapon is 'a relatively straightforward process. The term connotes an offensive

⁴⁰ US DoD *Policy for non-lethal weapons Directive 3000.3* para 5.6.2

⁴¹ See ICRC 'A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977' (2006) *International Review of the Red Cross*.

⁴² See WH Parks 'Office of The Judge Advocate General of the Army, Weapons Review Programme of the United States' presented at the Expert Meeting on Legal Reviews of Weapons and the SIRS Project, Jongny sur Vevey, Switzerland, 29–31 January 2001 (on file with the ICRC).

⁴³ See Article 35 and 36 of Additional Protocol I.

⁴⁴ D Blake & JS Imburgia 'Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons' (2010) 66 *Air Force Law Review* 171.



capability that can be *applied* to a military [objective] or enemy combatant'.⁴⁵ According to W.H. Boothby, the means by which such an offensive is applied to a military objective or enemy is what constitutes a weapon and may be in the form of '...a device, implement, substance, object or piece of equipment'.⁴⁶

The Humanitarian Policy and Conflict Research (HPRC), a non-profit organisation, has defined a weapon as 'a means of warfare *used* in combat operations, including a gun, missile, bomb or other munitions, that is capable of causing either (i) injury to, or death of, persons; or (ii) damage to, or destruction of, objects'.⁴⁷ The HPRC therefore highlights that a weapon and 'means of warfare' refer to the same thing.

W.H. Boothby, an expert in weapons law, has pointed out that the term 'weapon' means the same thing as 'means of warfare' but is however different from 'methods of warfare'. His definition of 'means of warfare' is that they are 'all weapons, platforms [and] associated equipment *used* directly to deliver force during hostilities' while 'methods of warfare' is 'the way in which weapons are used in hostilities'.⁴⁸ Thus, means of warfare refers to weapons like munitions, implements, projectiles, objects, pieces of equipment etc. while methods of warfare refers to **how** such weapons are used in warfare.⁴⁹ This formulation is supported by the HPRC referred to above, which also gives the definition of 'means of warfare' to refer to 'weapons and weapons systems or platforms employed for purposes of attack'⁵⁰ while 'methods of warfare consists of the various general categories of operations, such as bombings, as well as the specific tactics used for attack, such as high altitude bombing'.⁵¹

⁴⁵ J McClelland 'The review of new weapons in accordance with Article 36 of Additional Protocol I (2003)850 ICRC 397.

⁴⁶ HW Boothby *Weapons and the law of armed conflict* (2009) 4.

⁴⁷ HPRC *Manual on international law applicable to air and missile warfare* (2009) 6.

⁴⁸ HW Boothby *Weapons and the law of armed conflict* (2009) Oxford University Press 4.

⁴⁹ HW Boothby *Weapons and the law of armed conflict* (2009) 4.

⁵⁰ HPRC *Manual on international law applicable to air and missile warfare* (2009) 4.

⁵¹ HPRC *Manual on international law applicable to air and missile warfare* (2009) 5.



Likewise, the ICRC Commentary on the Additional Protocols notes that the ‘term “means of combat” or “means of warfare” generally refers to the weapons being *used*, while the expression ‘methods of combat’ generally refers to the way in which weapons are used’.⁵² The International Institute of Humanitarian Law has also made the distinction noting that ‘means or methods’ is a term of art in the law of armed conflict. Means of combat are the instruments used in the course of hostilities, specifically weapons. By contrast, methods of combat are the techniques or tactics for conducting hostilities’.⁵³

Although most of the definitions given by states and commentators do not adequately define the term ‘weapon’ as they repeat the term ‘weapon’ in their definitions, they provide three important entry points. Firstly, the definitions point to one of the critical components of a weapon – the capability to directly cause harm or to defend. Secondly, the constant use of the verbs ‘used’, ‘employed’ and ‘applied’ in the definitions of a weapon implies that a weapon is the ‘object’ that is used by an agent who is the ‘subject’ in those definitions. Thirdly, the existing definitions both from states and some commentators also categorically state that weapon systems are ‘weapons’ themselves.

However, the third observation has been contested by other commentators and rightly so. Strictly speaking, weapon systems are not weapons but rather delivery platforms of weapons. From time immemorial, weapons have been delivered by humans. To a limited extent, it is agreeable and understandable why certain weapon systems may constitute a weapon itself. This is where, like the US points out, the weapon system has a ‘direct injury or damaging effect on people or property’ for example.

⁵² Y Sandoz et al *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949 ICRC (1987)* 1957.

⁵³ MN Schmitt et al ‘The Manual on the Law of Non-International Armed Conflict’ (2006) International Institute of Humanitarian Law 12. There is a question as to whether there exists an obligation to review ‘methods of warfare.’ See MN Schmitt Tallinn manual on the international law applicable to cyber warfare (2013).



Nevertheless, stakes are different and should be considered differently, in the case of autonomous weapon systems. As noted in Chapter 1, autonomy in weapon systems exists on a continuum. The more the systems increasingly gain autonomy on the spectrum towards the point of being fully autonomous, with the capability to execute the ‘critical functions’ without human intervention – for example being able to search, track, select, target and decide when to kill or target – the more the questions arise as to whether or not such systems should still be categorised as a ‘weapon’ for the purposes of legal review under Article 36.

2.2.2 Call a spade a spade

The fact that an object is capable of causing harm or has an offensive capability does not automatically make it a ‘weapon’ that is subject to Article 36 review. Human soldiers for example, are capable of causing harm – they are in fact considered the military’s oldest ‘weapon’ – yet they are not subject to the Article 36 review.

Weapon systems with an increased form of autonomy or those that are fully autonomous are not the first kind of an ‘offensive or defensive capability’ to raise the question whether they fully fall within the parameters of Article 36. Space and cyberspace capabilities for example, have raised questions as to whether they can be considered as ‘weapons and means of warfare’ for the purposes of Article 36.⁵⁴

When conducting legal review, Justin McClelland points to the importance of understanding the **concept** of a weapon. A reviewing state must first and foremost ‘assess what the “capability gap” is that they wish to fill, i.e what [is] it that the military

⁵⁴ D Blake & JS Imburgia ‘Bloodless weapons? The need to conduct legal reviews of certain capabilities and the implications of defining them as weapons’(2010) 66 *Air Force Law Review* 161; See also MJ Sklerov ‘Solving the dilemma of state responses to cyber-attacks: a justification for the use of active defenses against states who neglect their duty to prevent’ (2010) 201 *Michigan International Law Review* 1.4.



wants to do that its current equipment does not allow it to do'.⁵⁵ Precisely in relation to unmanned systems, he notes as follows:

The digitization of the battle space will further enhance the networked capability that such technology allows for. In deciding upon the application of Article 36 it is necessary to understand how the communications systems actually work. This involves not just an understanding of the science but of the military use of that science. Only then will it be possible to establish whether the system possesses an offensive capability and, if so, the manner in which it is intended to be used. ***Will the system for instance be used to analyse target data and then provide a target solution or profile?*** If so, the role of the system would reasonably fall within the meaning of 'means or method of warfare' as it would be providing an integral part of the targeting decision process. However, if it simply collates data in such a way as to configure a graphic representation of the locations of military formations without altering the nature or content of the data, or if it simply passes the data from one location to another, then it would not be considered as falling within the scope of 'means or methods of warfare'.⁵⁶ (My emphasis).

What is important from McClelland's observation is the significance of understanding the capability of a system before categorising it as falling within the scope of Article 36. There is no doubt that autonomous weapon systems provide an 'offensive capability'. The question, however, goes further; if there is increased or full autonomy in providing that 'offensive capability', does the system still remain a weapon subject to Article 36? The quote above from McClelland also points to a scenario where there is a human involvement or a human in or on the loop in the making of the decision on who to target as the system's main function is to 'analyse target data and then provide a target solution or profile' for example. This is a different situation to weapons with increased autonomy or those that are fully autonomous.

As already pointed out, in all the definitions of weapons given above, there is either an express or implied, direct or meaningful involvement of humans in the real-time

⁵⁵ J McClelland 'The review of new weapons in accordance with Article 36 of Additional Protocol I (2003)850 ICRC 397, 401.

⁵⁶ J McClelland 'The review of new weapons in accordance with Article 36 of Additional Protocol I (2003)850 ICRC 397, 401-406.



operation of the ‘capability’. For the purposes of categorising a capability as a weapon, I therefore argue that unless there is ‘Meaningful Human Control’ of the ‘capability’, the ‘capability’ ceases to be a weapon or means of warfare, at least for the purposes of Article 36. The consequential question that comes to the reader’s mind is what then becomes of a ‘capability’ that has no ‘Meaningful Human Control’ – where there is increased or full autonomy in the ‘critical functions’ of making the decision as to who dies and who lives? Below I argue that such a ‘capability’ is more of a *robot-combatant*.

Patrick Lin has considered one of the interesting questions as far as legal review of new weapons is concerned. He has posed the question whether ‘enhancement technologies - which typically do not directly interact with anyone other than the human subject – be nevertheless subject to a weapons legal review? That is, is there a sense in which enhancements could be considered as ‘weapons’ and therefore under the authority of certain laws?’⁵⁷

Lin’s question comes in the light of some of the US military projects which are at various stages of development that are geared towards human enhancements. Such technologies, for example, would use the knowledge in ‘biology, neuroscience, computing, robotics, and materials to hack the human body, reshaping it in our own image’.⁵⁸ The question he considers is at what point does the human cease to be human due to the enhancement and become subject to Article 36 assessment. In this Chapter, I am asking the reverse of the question; with the ever increasing autonomy in weapon systems especially in the ‘critical functions’; at what point does the machine or robot cease to be a ‘weapon’ and transform into a ‘robo-combatant’ that should **not** be subject to Article 36 assessment but to other rules of international law?

⁵⁷ P Lin ‘Could human enhancement turn soldiers into weapons that violate international law? Yes’ (2013) available at <http://www.theatlantic.com/technology/archive/2013/01/could-human-enhancement-turn-soldiers-into-weapons-that-violate-international-law-yes/266732/> (accessed 29 April 2014).

⁵⁸ P Lin ‘Could human enhancement turn soldiers into weapons that violate international law? Yes’ (2013) available at <http://www.theatlantic.com/technology/archive/2013/01/could-human-enhancement-turn-soldiers-into-weapons-that-violate-international-law-yes/266732/> (accessed 29 April 2014).



Lin notes that from the beginning, it should be understood that ‘the war-fighter is undeniably a weapon or instrument of war’, ‘perhaps a military’s best and oldest weapon’.⁵⁹ Yet, human soldiers are not subject to Article 36 review of new weapons for the obvious reasons. Lin considers, however, that where one’s body parts are replaced with robotic parts, ‘the organism becomes less human and more robotic... [that] if we want to say that robots are weapons [subject to Article 36 review] but humans are not [therefore not subject to article 36 review], then we would be challenged to identify the point on that spectrum at which a human becomes a robot or a weapon’.⁶⁰

Lin clearly points out that at a certain point of the spectrum; an enhanced human warfighter may become a weapon that should be subject to Article 36 review. I align myself with that kind of observation. He articulates the spectrum as follows:

On one end of the spectrum would stand a normal, unenhanced human. One step toward the path of being fully enhanced may be a warfighter who drinks coffee or pops amphetamines (‘go pills’ in military-speak) as a cognitive stimulant or enhancer. Another step may be taking drugs that increase strength, erase fear, or eliminate the need for sleep. At the far, more radical end may be a warfighter so enhanced that s/he no longer resembles a human being, such as a creature with four muscular arms, fangs, fur, and other animal-like features.⁶¹

This same spectrum exists for autonomous weapon systems. The more a robot’s autonomy increases, the more it gains human-like qualities. The more a robot performs ‘critical functions’ that have been the preserve of human combatant – like making the decision as to who to kill, the more the robot is more of a combatant than a weapon.

⁵⁹ P Lin ‘Could human enhancement turn soldiers into weapons that violate international law? Yes’ (2013) available at <http://www.theatlantic.com/technology/archive/2013/01/could-human-enhancement-turn-soldiers-into-weapons-that-violate-international-law-yes/266732/> (accessed 29 April 2014).

⁶⁰ P Lin ‘Could human enhancement turn soldiers into weapons that violate international law? Yes’ (2013) available at <http://www.theatlantic.com/technology/archive/2013/01/could-human-enhancement-turn-soldiers-into-weapons-that-violate-international-law-yes/266732/> (accessed 29 April 2014).

⁶¹ P Lin ‘Could human enhancement turn soldiers into weapons that violate international law? Yes’ (2013) available at <http://www.theatlantic.com/technology/archive/2013/01/could-human-enhancement-turn-soldiers-into-weapons-that-violate-international-law-yes/266732/> (accessed 29 April 2014).



Of course human soldiers have been termed the oldest military ‘weapon’ but their legal review is not in Article 36; the legal review of human soldiers lies in the international humanitarian law rules and norms of who can be a combatant – rules such as the legal age for conscription into the army and aspects of mental capacity. Belligerents are, for example, prescribed from conscripting children into the army. The same rules exist that people with mental impairment may not be conscripted as soldiers. The rationale for the prohibition of conscription of these two categories of persons is twofold: firstly, it is to protect the human rights of the child or the mentally impaired person since they cannot give a valid consent to the conscription, for example. Secondly, it is to protect the remedial rights of those against whom force may be used. Where one’s rights are violated, holding accountable of those responsible – for example through prosecution – is a cornerstone of victims’ remedies. As will be fully explored in Chapter 5, weapon systems with increased autonomy or those that are fully autonomous – without proper human control – pose serious challenges to this second consideration.

Therefore, understanding what a weapon is and distinguishing it from a combatant or fighter in terms of functions they are allowed to perform in international law is fundamental for the correct application of rules of international humanitarian law. In the debate on whether Autonomous Weapon Systems can comply with international law as provided for in Article 36, arguments have generated into whether AWS can perform better than humans when it comes to IHL rules of distinction and proportionality. I argue that in as much as that consideration is relevant, it may be that an important initial hurdle regarding AWS has been jumped. On the one hand, there is a push to consider AWS as weapons yet on the other – when it comes to the assessment of their legality – rules that are supposed to govern combatants – who, from time immemorial have been human beings – are invoked without proper deliberation of the implications thereof. Such an approach is tantamount to attempting to have the cake and eat it at the same time.



I propose that both states and the international community must carefully consider whether AWS are entering the battlefield as weapons or as combatants. As I have already pointed out above, the definition of a weapon as provided for by states and commentators has an implied requirement within it – the requirement that the weapon be used and meaningfully controlled by a human. A weapon has never – in the history of mankind – be allowed to perform the critical combatant function of making the decision on who to kill, on making proportionality calculations and other human considerations before such a kill. The NGO Article 36 has observed as follows:

The linking of ‘Meaningful Human Control’ to individual attacks is significant because it is in relation to individual attacks that existing rules of international humanitarian law apply – *it is over individual attacks that commanders must make legal judgements...States should be very wary of adopting a line of thinking that sees weapons as making legal judgements...it must be clearly acknowledged that the responsibility for legal judgements remains with the person or person(s) who plan or decide upon an attack.*⁶² (Italics are mine)

I argue that there can never be meaningful or proper human control of the use of force where the decision to use lethal force is made by a machine with no human being in the real time. Thus, for a weapon system to remain a weapon that is reviewable under Article 36, it should be under direct, meaningful human involvement and effective control. The terms ‘Meaningful Human Control’ and effective control are discussed in Chapter 7.

Therefore, my proposition is that if a capability does not squarely fall within the acceptable definition or description of a weapon, then it should not be assessed under Article 36 on the review of new weapons.⁶³ In the debate on AWS, it has been pointed out that AWS are not indiscriminate in nature and will not cause superfluous harm. Assuming without agreeing that this is true, I argue that the fact that AWS may meet the

⁶² Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 4 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).

⁶³ Art 36 of AP I to GCs.



Article 36 standard of discrimination and not causing superfluous harm would not matter if they should not be assessed under that regime in the first place – that is – if AWS go beyond the traditional designs and notions of what constitutes a weapon.

Conventionally, assessments of the legality of a weapon start and end with whether the weapon can be used – by a human combatant– in a discriminate manner and not cause unnecessary suffering. The moment one starts asking whether the supposedly ‘new weapon’ can be able to distinguish and make proportionality calculations, rules that traditionally – and rightly so – have been consistently applied to human combatants, then what is at stake might as well be falling outside the pure scope of a weapon. In that case, call a spade a spade.

It should be noted that a weapon can satisfy the Article 36 standard but can still be used unlawfully by the weapon bearer – that is – indiscriminately, disproportionately or both. This is where the customary IHL rules of distinction and proportionality have been formulated, developed and hardened to regulate the conduct of combatants or fighters, the bearers of the weapons. These IHL rules are not the subject of discussion in this Chapter but will be discussed fully in Chapter 3.

On the one hand, there are two basic rules of international weapons law: the rule on the prohibition of weapons that are indiscriminate in nature and the rule on the prohibition of weapons that cause unnecessary, superfluous harm. On the other hand, there are five basic principles of international humanitarian law applicable to combatants: rules of humanity, distinction, proportionality, military necessity and precaution. While the International Weapons Law rules are geared towards the regulation of the weapon itself, the International Humanitarian Law rules regulate combatants or fighters’ behaviour and how they use such weapons. Thus, in as much as there is a link between the two sets of rules, they are not the same.⁶⁴

⁶⁴ This idea was developed through an in-office discussion with Dr. Thomas Probert (University of Cambridge), whose expertise is in politics of human rights.



The international humanitarian law rules of targeting such as distinction and proportionality – rules that are applicable to human combatants – may not be transposed and be applied to robots without an ultimate mutiny to the laws of war. I therefore argue that to invoke and apply the rules of distinction and proportionality to autonomous weapon systems is otherwise to elevate and accept them as combatants or fighters – which may be a dangerous leap. The first question therefore should be: Can machines or robots be ‘combatants’ under international law and does the international community want *robo-combatants*?

Under international law, the answer to the above question is in the negative. International law requires any use of force to be by a human of sound mind and legal age, capable of taking responsibility of their actions. The fact that someone can fight – even so in compliance with the law – does not necessarily make them legitimate and lawful fighters. Child soldiers, for example, can be able to comply with the laws of war but their conscription into armies and participation in armed conflict is prohibited. Likewise, rebels in non-international armed conflict can be able to fight in accordance with the laws of war yet the international community still agrees that states retain the right to prosecute them as criminals for mere participation in that armed conflict.

If weapons with increased autonomy or those that are fully autonomous do not fulfil the criteria of who can be a combatant, then rules applicable to combatants or fighters may not be invoked in justifying their acceptance or otherwise. The idea, I argue, must neither be to fit in AWS within the framework of weapons at all cost nor to accept them as combatants through the back door. A trough must be called a trough. For that reason, there is justification as to why the Campaign to Stop Killer Robots refer to the technology as ‘Killer Robots’ where robots assume the ‘critical functions’ of deciding whom to kill – functions that have been reserved for human combatants.⁶⁵

⁶⁵ See <http://www.stopkillerrobots.org/> (accessed 18 July 2014).



As stated above, pronouncements have been made that AWS are not indiscriminate in nature and will not cause any superfluous harm.⁶⁶ There is, however, no detailed consideration of what exactly the international weapons law rules on the prohibition of weapons that are indiscriminate in nature and what those that cause superfluous harm entail – and how AWS in fact measure up to those rules. I am going to consider these rules with an intention to distinguish weapons law rules and international humanitarian law targeting rules.

2.3 AWS and the basic principles of International Weapons Law

International Humanitarian Law seeks to protect those who are not directly taking part in hostilities by limiting the means and methods of warfare. For centuries, limitations on the means and methods of warfare – for example the ones that were provided in the codes of chivalry – have existed.⁶⁷ Weapons have been banned because they were contrary to the basic principles of international weapons law. The last 150 years have seen the adoption of a number of treaties on weapons, banning or restricting the use of certain weapons in armed conflict.⁶⁸

In terms of Article 35(1) of API to the Geneva Conventions, ‘in any armed conflict, the right of parties to the conflict to choose methods or means of warfare is not unlimited’. Article 35 is not only the ‘basic tenet of international humanitarian law’⁶⁹ but contains the grand norms in international weapons law. From this grand norm springs three basic principles of international weapons law; the prohibition of weapons that cause superfluous harm and suffering, the prohibition of weapons that cause damage to the environment and the prohibition of weapons that are indiscriminate in nature. In this

⁶⁶ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 35.

⁶⁷ L Oppenheim *International law, A Treatise* (1955) 226.

⁶⁸ See <http://www.icrc.org/eng/war-and-law/weapons/new-weapons/overview-review-of-new-weapons.htm> (accessed 1 July 2014).

⁶⁹ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross* Vol 88 Number 864 p.931.



chapter, I will only consider the rules that are relevant to autonomous weapon systems: the rules on the prohibition of weapons that cause superfluous harm, unnecessary suffering and weapons that are indiscriminate in nature.

It is difficult to apply these rules of international weapons law to Autonomous Weapon Systems because as noted above, these systems are not a weapon in themselves but weapon delivery systems. Scholars like M.N. Schmitt thus observe the following:

Autonomous weapon systems are not unlawful *per se*. Their autonomy has no direct bearing on the probability they would cause unnecessary suffering or superfluous injury, does not preclude them from being directed at combatants and military objectives, and need not result in their having effects that an attacker cannot control.⁷⁰

His argument is that the rule on the proscription of weapons that cause unnecessary suffering is meant to address ‘a weapon system’s effect on the targeted individual, not the manner of engagement (autonomous)’.⁷¹ Schmitt however agrees that the combination of a weapon systems platform with an unlawful weapon can ‘render the autonomous weapon system unlawful *per se*’.⁷² He nevertheless concludes that such a ‘possibility is not a valid basis for imposing an across-the-board pre-emptive ban on the systems’.⁷³ Thus, to Schmitt, the aspect of autonomy alone has no bearing on the lawfulness or otherwise of the system. In as much as Schmitt’s argument may hold water, he seems to unnecessarily separate the lethality of the system from autonomy – something which somewhat obfuscates the problem at hand.

It is agreeable that autonomous weapon systems are platforms that can carry all kinds of weapons, from stones, bombs, grenades, missiles to nuclear weapons. As weapon

⁷⁰ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 35.

⁷¹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 9.

⁷² MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 9.

⁷³ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 9.



systems, they can carry legal and illegal weapons. It is possible that if these weapon systems fall in the wrong hands, there is a huge likelihood that they may be caused to deliver illegal weapons – for example if they fall in the hands of terrorists.⁷⁴

However, for the purposes of this chapter, I will proceed from an optimistic supposition that these weapon systems will be caused to deliver legal weapons. The issue that I probe in this section is whether these weapon systems, by virtue of their increased autonomy or full autonomy, can be unlawful weapons *per se*. In other words, can weapon systems with increased autonomy or full autonomy, albeit carrying legal weapons on board, cause superfluous harm or be indiscriminate by virtue of that autonomy? The rule on the prohibition of weapons that cause superfluous harm is, after all, applicable to ‘lawful means that have been altered in order to exacerbate suffering or injury’ for example.⁷⁵ The increase in autonomy may not necessarily be to exacerbate suffering but it may have a potential to alter lawful means into unlawful.

In that regard, the weapon systems and the weapons that they are carrying are viewed as a ‘complex whole’, a set of ‘related hardware units or programs or both’ ‘working together as parts of a mechanism’ geared towards a single goal.⁷⁶ If the answer is in the positive, then autonomous weapon systems with increased autonomy or those that are fully autonomous may not comply with the basic principles of international weapons law.

2.3.1 Prohibition of weapons that cause superfluous harm and unnecessary suffering

Article 35 (2) of API and Article 23(e) of the Hague Regulations provides for the rule on the prohibition of using weapons that cause superfluous harm and unnecessary suffering. As mentioned above, this rule is different from the targeting rule of

⁷⁴ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 9.

⁷⁵ MN Schmitt et al *Tallinn Manual on International Law applicable to Cyber warfare* (2013)144.

⁷⁶ See <http://www.oxforddictionaries.com/definition/english/system> (accessed 22 July 2014).



proportionality as applicable to combatants. The international weapons law rule on the prohibition of weapons that cause superfluous suffering applies to legitimate targets and is inapplicable to persons who, *ab initio*, are immune from attack.⁷⁷ Any incidental harm to protected persons is ‘governed by the rule of proportionality and the requirement to take precautions in attack’.⁷⁸ Thus, ‘superfluous injury and unnecessary suffering are not to be equated with the notion of incidental injury to civilians’ but rather ‘refers to a situation in which a weapon aggravates suffering [to targeted individuals] without providing any further military advantage to [the] attacker’.⁷⁹

When assessing whether a weapon under review complies with the rule, only the normal use of the weapon or means should be considered since the ‘purpose is to judge its lawfulness *per se*’.⁸⁰ Weapons that cause superfluous injury or unnecessary suffering are prohibited. Throughout history, belligerents have shunned weapons that cause unnecessary suffering. Thus for example, it was prohibited to use spears with a barbed head⁸¹; serrated-edged bayonets⁸²; poison and poisoned weapons.⁸³

As early as 1868, treaties were adopted prohibiting the use of exploding projectiles which weigh less than 400 grams⁸⁴ and ‘bullets that flatten upon entering the human body’.⁸⁵ Using poisonous gas in war was banned in 1925 as it was considered to cause unnecessary suffering on the enemy.⁸⁶ In 1980, the Convention on Certain Conventional

⁷⁷ MN Schmitt et al Tallinn Manual on International Law applicable to Cyber warfare (2013)143.

⁷⁸ MN Schmitt et al Tallinn Manual on International Law applicable to Cyber warfare (2013)143.

⁷⁹ MN Schmitt et al *Tallinn Manual on International Law applicable to Cyber warfare* (2013)143; See also Nuclear Weapons Case, para 78.

⁸⁰ MN Schmitt et al *Tallinn Manual on International Law applicable to Cyber warfare* (2013)144.

⁸¹ See for example the military manuals of New Zealand p73; South Africa p 80; United Kingdom p 85; United States p 87; see also UN Secretariat, Existing rules of international law concerning the prohibition or restriction of use of specific weapons, Survey p 227.

⁸² See the military manuals of the Netherlands p 71–72.

⁸³ See ICRC ‘A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross*.

⁸⁴ Declaration of Saint Petersburg (1868).

⁸⁵ Hague Declaration (1899).

⁸⁶ Geneva Protocol on Chemical weapons (1925). The treaty was later updated in the Biological Weapons Convention (1972) and the Chemical Weapons Convention (1993) which prohibits ‘the development, production, acquisition, stockpiling, retention and transfer of biological and chemical weapons.’



Weapons was adopted to regulate a number of conventional weapons.⁸⁷ For example, use of munitions whose fragments are not detectable by X-ray and employing blinding laser weapons was banned as they were deemed to cause unnecessary suffering.⁸⁸ The same convention restricts the use of incendiary weapons, mines against personnel.⁸⁹

After witnessing the effects of chemical and biological weapons in the First World War, the international community outlawed them and subsequently prohibited ‘the development, production, stockpiling and transfer of these weapons’. States did not only agree that personnel land mines are non-discriminative in nature but that their use largely leads to permanent disability which is unnecessary. Thus in 1997, governments adopted the 1997 Mine Ban treaty outlawing landmines.⁹⁰

On account of unnecessary suffering caused by cluster munitions, they were banned in 2008 through the Convention on Cluster Munitions which prohibits ‘the use, production, stockpiling and transfer of cluster munitions’.⁹¹ The International Committee of the Redcross continues to urge states to move forward with an aim of banning chemical weapons.⁹²

To ascertain whether Autonomous Weapon Systems with increased autonomy or those that are fully autonomous are contrary to the rule on the prohibition and use of weapons of a nature that cause superfluous injury or unnecessary suffering, it is important to understand what that rule entails. Before considering what the rule entails, it is equally important to outline the status of this rule in international law.

⁸⁷ Poison and poisoned weapons Hague Regulations (1907); Convention on the prohibition of chemical weapons (1993); Convention on the prohibition of biological weapons (1972); Protocol II, as amended (1996), to the Convention on Certain Conventional Weapons on Incendiary weapons Mines, booby traps and ‘other devices’; Protocol V (2003) to the Convention on Certain Conventional Weapons on Explosive Remnants of War; Protocol III (1980) to the Convention on Certain Conventional Weapons.

⁸⁸ As above.

⁸⁹ See Protocol IV (1995) to the Convention on Certain Conventional Weapons.

⁹⁰ Convention on the Prohibition of Anti-Personnel Mines (Ottawa Treaty) (1997).

⁹¹ Convention on Cluster Munitions (2008).

⁹² See <http://www.icrc.org/eng/war-and-law/weapons/> (accessed 11 December 2013).



i) *Customary International Law*

The prohibition of weapons that cause unnecessary suffering is a customary international law rule that applies both in IAC and NIAC.⁹³ Thus, even if a state is not party to Additional Protocol I, it is bound by customary international law not to develop or deploy weapons that cause superfluous or unnecessary suffering. I argue, therefore that if the nature of the weapon system – its autonomy in ‘critical functions’ for example – would cause otherwise lawful weapons to cause unnecessary suffering or superfluous harm, then that particular weapons system violate one of the important rules of international weapons law.

ii) *Treaty Law*

There are various treaties that provide for the prohibition of weapons that cause unnecessary suffering or superfluous harm. In some of the treaties, this rule was the basis for the banning of the particular weapon. Examples of treaties that either set forth this rule or were motivated by it are the St. Petersburg Declaration and the Hague Declarations and Regulations; the Geneva Gas Protocol; Additional Protocol I, II and Amended Protocol II to the Convention on Certain Conventional Weapons; the Ottawa Convention banning anti-personnel mines and the Rome Statute.⁹⁴ When adopting Amended Protocol II to the Convention on Certain Conventional Weapons, states indicated that this rule is applicable to NIAC.⁹⁵ There are also other instruments that contain this rule⁹⁶ and it has been referred to in many international conferences.⁹⁷

⁹³ See Rule 70 of the ICRC Study on Customary International Humanitarian Law.

⁹⁴ See also the ICRC ‘A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross*.

⁹⁵ See ICRC ‘A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross*.

⁹⁶ See Oxford Manual of Naval War, Article 16(2) p 21; ICTY Statute, Article 3(a) p 27; San Remo Manual, p 42(a); UN Secretary-General’s Bulletin, Section 6.4 p30; UNTAET Regulation No. 2000/15, Section 6(1)(b)(xx) p31; See also UN General Assembly, Res. 3076 (XXVIII) , Res. 3102 (XXVIII) , Res. 3255 (XXIX), Res. 31/64, Res. 32/152, Res. 33/70, Res. 34/82, Res. 35/153, Res. 36/93.

⁹⁷ See for example the 22nd International Conference of the Red Cross; 26th International Conference of



iii) *State Practice*

There is consistent state practice that supports the existence of the rule against the use of weapons that cause superfluous harm and unnecessary suffering. The rule is contained in many states' military manuals⁹⁸ and its violation constitutes a criminal offense.⁹⁹ State practice also clearly shows that this rule is applicable in both IAC and NIAC.¹⁰⁰ The prohibition of certain kinds of weapons or means of warfare is no longer dependent in which type of armed conflict or against whom they are employed. As highlighted above, 'what is inhumane, and consequently proscribed, in international wars, cannot but be inhumane and inadmissible in civil strife'.¹⁰¹

iv) *Case Law*

The rule against using weapons that cause unnecessary suffering has been relied upon in case-law.¹⁰² For example, in the Nuclear Weapons case, the judges observed that this rule is part of the 'cardinal principles' of IHL.¹⁰³ Numerous parties to this case also heavily relied on the rule.

v) *Defining 'superfluous injury or unnecessary suffering'*

Notwithstanding the broad consensus on the existence of the rule, there are different views on how to determine whether a particular weapon causes unnecessary

the Red Cross and Red Crescent.

⁹⁸ See ICRC 'A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977' (2006) *International Review of the Red Cross* referring to the military manuals of Netherlands, New Zealand, Nigeria, Romania, Russian Federation, Senegal, South Africa, Spain, Sweden, Switzerland, Togo, United Kingdom, United States.

⁹⁹ As above.

¹⁰⁰ See <http://www.icrc.org/eng/war-and-law/weapons/new-weapons/overview-review-of-new-weapons.htm> (accessed 1 July 2014).

¹⁰¹ *Prosecutor v Tadic* IT-94-1 (1995) ICTY Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction (Appeals Chamber), para 119 and 127.

¹⁰² *Ryuichi Shimoda et al v The State Japanese Annual of International Law* (1964) 8 p 212; *Military Junta case, Judgement, Argentina, National Court of Appeals*.

¹⁰³ Nuclear Weapons case, Advisory Opinion p 238.



suffering.¹⁰⁴ This is particularly important in relation to Autonomous Weapon Systems whose use and performance is highly unpredictable. From the beginning it should be understood that the rule on the prohibition of weapons that cause superfluous injury or unnecessary suffering concerns itself with how a weapon is designed especially where the weapon is redesigned specifically to enhance the pain it inflicts when targeting.¹⁰⁵

Without doubt, injury and suffering of both fighters and civilians is a component that characterise war.¹⁰⁶ It is also conceivable that all instruments of war cause suffering yet injury and suffering caused must not be needless and superfluous for such is illegitimate.¹⁰⁷ Superfluity of suffering is however not present simply because a belligerent has caused 'a great deal of suffering on enemy troops',¹⁰⁸ for it to be unlawful, the suffering caused must be of no military purpose at all.¹⁰⁹ There are elements that have been articulated to point to whether a weapon is in the category of those that are prohibited. The following are some of the major ones.

vi) *Disproportionate suffering*

In principle, there is agreement that any suffering that does not serve any military purpose violates the rule on the prohibition of employing means and methods of warfare that cause unnecessary suffering or superfluous harm.

¹⁰⁴ RM Coupland 'Towards a determination of which weapons cause superfluous injury or unnecessary suffering' (1997) *The IIRUS Project*, ICRC, 7.

¹⁰⁵ MN Schmitt et al 'The Manual on the Law of Non-International Armed Conflict' (2006) *International Institute of Humanitarian Law* 12.

¹⁰⁶ BM Carnahan 'Unnecessary suffering, the Red Cross and tactical laser weapons' (1996) 18 *Loyola International & Comparative Law Review* 73 Available at: <http://digitalcommons.lmu.edu/ilr/vol18/iss4/2>

¹⁰⁷ MS McDougal & FP Feliciano *Law and minimum world public order* (1961) 616 quoting a distinguished US commentator.

¹⁰⁸ BM Carnahan 'Unnecessary suffering, the Red Cross and tactical laser weapons' (1996) 18 *Loyola International & Comparative Law Review* 713 Available at: <http://digitalcommons.lmu.edu/ilr/vol18/iss4/2>; See also C Greenwood 'Battlefield Laser Weapons in the Context of the Law on Conventional Weapons' (1993) 71 in DB Louise (ed) *Blinding weapons, reports of the meetings of experts convened by the International Committee of the Red Cross on battlefield laser weapons* 1989-1991 (1993).

¹⁰⁹ MS McDougal & FP Feliciano *Law and minimum world public order* (1961) 616.



The rule requires the striking of a balance between the anticipated military gain as measured against the harm caused. The rule is deemed to be violated where there is disproportionate injury or suffering to the military advantage sought.¹¹⁰ Thus the definition of unnecessary suffering was given in the Nuclear case as that ‘harm [which is] greater than that unavoidable to achieve legitimate military objectives’.¹¹¹ However, as pointed above, the ‘suffering’ referred to in this instance is that to the targeted individuals, not incidental harm to protected persons like civilians.

The suggestion from other research on this issue is that what determines superfluous injury and unnecessary suffering is ‘design-dependent’.¹¹² In other words the focus must be on the weapon itself *per se*. When interpreting this approach in face of Autonomous Weapon Systems, one needs to be careful. Firstly, it cannot be ignored that both the superfluity and indiscriminateness of a weapon may largely be as a result of user-dependent factors.¹¹³ In this case, the user is the autonomous system. Level of autonomy therefore becomes an important factor when discussing the lawfulness of the system.

The point I am stressing here is that traditionally, many weapons have been accepted as in compliance with the rule on the prohibition of weapons that cause superfluous harm largely because of the contribution of rules that govern the user of that particular weapon. The point is, in as much as the rule may focus on the design of the weapon, it cannot be denied that a weapon that is lawful may be used to cause disproportionate, superfluous suffering to the combatant targeted. An example would be of a combatant who uses an ordinary sniper rifle to blow an enemy combatant arm by arm, leg by leg and leave him to bleed to death or sustain permanent disability. In any event, a human

¹¹⁰ See for example the military manuals of Germany p 58, New Zealand p 73, United States para 88–89 and 93 and Yugoslavia p 94; the legislation of Belarus p 97.

¹¹¹ Nuclear Weapons case, Advisory Opinion p 238.

¹¹² RM Coupland ‘Towards a determination of which weapons cause superfluous injury or unnecessary suffering’ (1997) The SIrUS Project, ICRC, 8.

¹¹³ RM Coupland ‘Towards a determination of which weapons cause superfluous injury or unnecessary suffering’ (1997) The SIrUS Project, ICRC, 11.



combatant would not continue firing at the enemy combatant if it is apparent that the enemy combatant is incapacitated by virtue of wounds. It has also been argued that a human combatant would desist from causing unnecessary further harm if by the general assessment of the situation or larger picture, it is apparent that the enemy combatant is due to surrender as a result of fatigue or other factors. This notation of desisting from causing unnecessary harm or suffering even to legitimate targets stems from the general principle of humanity. After all, enemy combatants are not enemies at personal level, but in their capacity as representatives of belligerences. As was long and rightly observed by one philosopher:

War is in no way a relationship of man with man... individuals are enemies only by accident; not as men, nor even as citizens, but as soldiers . . . since the object of war is to destroy the enemy state, it is legitimate to kill the latter's defenders as long as they are carrying arms; but as soon as they lay them down and surrender, they cease to be enemies or agents of the enemy, and they again become mere men and it is no longer legitimate to take their lives.¹¹⁴

Taking the lives of those who are wounded or continuously wounding them would undeniably constitute unnecessary suffering. Such conduct, such method of combat would surely serve no purposes and is calculated to cause superfluous harm. Of course, the aspect of causing 'unnecessary suffering or superfluous harm' will be at the instance of the human combatant as the bearer of the weapon, as the one who has to exercise responsible use of the weapon. The human combatant has arguably contributed much on weapons' capability of causing superfluous harm or otherwise by virtue of the control he exercises over the weapon. To refer for example to the classic control and relationship between the combatant and the weapon, 'My Rifle: The Creed of a US Marine' by the retired Major General William H. Rupertus reads as follows:

This is my rifle. There are many like it, but this one is mine. My rifle is my best friend. It is my life. I must master it as I must master my life. My rifle, without me, is useless. Without my rifle, I am

¹¹⁴ JJ Rousseau, quotation from A Van Engeland *Civilian or combatant?: A challenge for the 21st Century* (2011) 13.



useless. I must fire my rifle true... My rifle is human, even as I, because it is my life. Thus, I will learn it as a brother. I will learn its weaknesses, its strength, its parts, its accessories, its sights and its barrel. I will ever guard it against the ravages of weather and damage as I will ever guard my legs, my arms, my eyes and my heart against damage. I will keep my rifle clean and ready. We will become part of each other. We will...Before God, I swear this creed.¹¹⁵

In the case of Autonomous Weapon Systems, it appears that this creed will have to be sworn by the machines with us humans hoping for the best. Thus, it should be borne in mind that stakes are different in the case of increasingly autonomous weapon systems or fully autonomous weapon systems when inquiring whether the rule on the prohibition of weapons that cause superfluous harm or unnecessary suffering. I argue that it is not enough that the weapons that are carried on board are legal weapons or they do not, by themselves cause unnecessary suffering or superfluous harm.

The method of warfare is different, there is no human being to exercise the responsible decision not to cause unnecessary suffering or superfluous harm to the enemy combatant – albeit them being legitimate targets. Now that the weapons are borne by an autonomous machine – the one I have referred to above as a robo-combatant – questions arise therefore, notwithstanding legal weapons on board, whether the combination of increased autonomy and lethality violate the weapon rule on the obligation not to cause superfluous and unnecessary suffering to the enemy combatants?

The above question stems from the consideration that machines, unlike human beings, may not have intuition, the same human consideration as espoused by the philosopher Rousseau; that combatants are only enemies by accident; they are not enemies at a personal level, that they know it is illegitimate to cause unnecessary suffering to those who are *hors de combat* by virtue of wounds, surrender or other causes for example.

¹¹⁵ See <http://usmilitary.about.com/od/marines/l/blriflecreeed.htm> (accessed 28 July 2014).



Of course arguments have been made that there are now robots which are capable of discerning whether a person is in pain or not. However, questions arise whether such technology will be programmed into Autonomous Weapon Systems in the first place and if it is, whether it would be able to effectively exercise the human discretion not to cause superfluous harm or suffering.

The argument being made here is that if lethal autonomous weapon systems are to be assessed as weapons, they should be assessed as an entity; that is, their increased or full autonomy and lethality put together. It should not, as Schmitt seems to imply, be assessed as separate things; autonomy on its own and then weapons they carry on their own. So the question should be whether **Lethal** Autonomous Weapon Systems may cause unnecessary suffering or superfluous harm and therefore be unlawful weapons *per se*.

The above question, therefore, is not answered by only looking at the design of the weapons on board but by also looking at how the Autonomous Weapon System uses them. In view of the requirement to make humanitarian considerations – a requirement that can only be fulfilled by humans – it can be pointed out that chances are high that Autonomous Weapon Systems may not be able to comply with this important rule of international weapons law.

vii) *Availability of alternative means*

Another factor that should be considered in ascertaining whether a weapon will violate this rule is the availability of alternative means that will achieve the same military advantage.¹¹⁶ This consideration when ascertaining whether the rule on the prohibition of causing superfluous harm against those targeted shows that the rule considers both the design factors and user factors. Thus where for example, a combatant is in possession of two kinds of weapons that can harm the enemy combatant and achieve the same military objective, he or she must choose the one that will not cause

¹¹⁶ See the military manual of the United States p 88.



unnecessary suffering to the enemy combatants. Of course it has been emphasised that the alternative weapon must be readily available, for combatants cannot act like golfers; moving around with a golf bag full of different kinds of clubs and waiting for the right moment to use one of them.¹¹⁷ Thus according to Carnahan, a weapon can be deemed to be one that causes superfluous suffering if ‘...it is deliberately altered for the purpose of increasing the suffering it inflicts..., its military advantages are marginal..., [if it is] deliberately selected for the suffering that it inflicts when other, equally effective means are readily available’.¹¹⁸

The case in point however, is more to do with the method of warfare, a situation where a belligerent has a choice to use either a human combatant to deliver weapons or to use autonomous weapon platforms. To this end, the ICRC has implored states to consider whether the use of Autonomous Weapon Systems with increased or full autonomy is necessary in the strict sense of the word.¹¹⁹

Various reasons have been given as to why states may prefer the use of autonomous systems. Amongst the reasons is that increased autonomy in weapon systems is inevitable and that the systems are generally faster and safe to deliver force.¹²⁰ Some of these reasons, however, may not be compelling enough especially where they risk violation of important rules of weapons law like the prohibition of weapons that would cause superfluous or unnecessary suffering. As Noel Sharkey has pointed out, the argument that these systems are fast must not be overemphasised; there should be no ‘rush to kill each other’ and it cannot be true that increased autonomy and full

¹¹⁷ BM Carnahan ‘Unnecessary suffering, the Red Cross and tactical laser weapons’ (1996) 18 *Loyola International & Comparative Law Review* Available at: <http://digitalcommons.lmu.edu/ilr/vol18/iss4/2>.

¹¹⁸ BM Carnahan ‘Unnecessary suffering, the Red Cross and tactical laser weapons’ (1996) 18 *Loyola International & Comparative Law Review* Available at: <http://digitalcommons.lmu.edu/ilr/vol18/iss4/2>

¹¹⁹ ICRC paper to the CCW Meeting (2014).

¹²⁰ This is the view mainly supported by roboticist Ron Arkin, see ‘Lethal autonomous systems and the plight of non-combatants’ (2015) 2 available at <http://www.cc.gatech.edu/ai/robot-lab/online-publications/aisbqv4.pdf> (accessed 9 November 2015).



autonomy in weapon systems is inevitable because the international community can decide on the issue.¹²¹

viii) Weapons that render death inevitable

As pointed out above, and notwithstanding that in armed conflict combatants are licensed to kill each other, the ‘use of weapons that render death inevitable’ is considered contrary to the laws of humanity and cause superfluous harm.¹²² The aspect of rendering death inevitable was one of the prime considerations when states decided to prohibit the use of poison, expanding, exploding and ‘dum-dum’ bullets.¹²³ The existence of many official documents prohibiting and condemning weapons that render death inevitable¹²⁴ clearly show states’ revulsion against the idea of causing unnecessary suffering. For good reasons, it is legitimate, for example, to kill enemy combatants as long as they are actively participating in hostilities.¹²⁵ If enemy combatants become incapacitated by virtue of wounds or surrender, it is no longer legitimate to kill them.¹²⁶ This is where the human consideration is fundamental. Yet, a scrutiny of how Autonomous Weapon Systems will select their targets fundamentally threatens abundance by this rule.

Questions have been raised as to whether AWS can have human situational awareness to read the general picture and unfolding of events. Firstly, it may be argued that where an autonomous robot is going to target an individual on the basis of facial recognition, the moment it is deployed, the death of that particular individual has been rendered

¹²¹ Noel Sharkey’s presentation at the 2014 UN Expert Meeting on Lethal Autonomous Weapon Systems, audio accessible at [http://www.unog.ch/_80256ee600585943.nsf/\(httpPages\)/a038dea1da906f9dc1257dd90042e261?OpenDocument&ExpandSection=1#_Section1](http://www.unog.ch/_80256ee600585943.nsf/(httpPages)/a038dea1da906f9dc1257dd90042e261?OpenDocument&ExpandSection=1#_Section1) (accessed 7 November 2015).

¹²² The preamble to the St. Petersburg Declaration states that the use of such weapons ‘would be contrary to the laws of humanity.’

¹²³ See the preamble of the St. Petersburg Declaration; see also United States, Air Force Pamphlet p 88; Ecuador, Naval Manual p 52 and United States, Air Force Commander’s Handbook p 89.

¹²⁴ See for example the military manual of Belgium p 36, Ecuador p52 and United States p 93.

¹²⁵ A Van Engeland *Civilian or combatant?: A challenge for the 21st Century* (2011) 13.

¹²⁶ C Pilloud *Commentary on the Additional Protocols: of 8 June 1977 to the Geneva Conventions of 12 August 1949* (1987)482.



inevitable. This will be the case even if there is change of circumstances for that particular individual – say he chooses to renounce his participation in conflict.

Secondly, weapon systems with increased autonomy or full autonomy potentially threaten the important rule of sparing the lives of those placed *hors de combat* by wounds or other conditions. It has been pointed out that AWS may make it difficult if not impossible for the rule to spare the lives of those surrendering.¹²⁷ In those circumstances, once the weapon systems are deployed, it may be argued that the death of those who are targeted has been rendered inevitable. Thus, the weapons system itself may be unlawful *per se*.

ix) *Inevitability of serious permanent disability*

A weapon that causes serious permanent disability is also considered to violate the rule.¹²⁸ It is on account of this consideration that blinding lasers and anti-personnel landmines are banned¹²⁹ and the employment of incendiary weapons against personnel that necessitated their prohibition.¹³⁰ As argued above, weapons that by nature would not cause permanent disability may be able to cause such permanent disability if the user so chooses. When considering conventional weapons, those that did not have to make decision as to who, when and where to target, it made sense that the assessment focused mainly on the design of the weapon. However, where you have such conventional weapons being borne and used by an autonomous system, I argue that the consideration must be wider than that. Unpredictability becomes the fundamental concern here. One cannot tell whether or not the autonomous system in the employ of

¹²⁷ See <http://www.hrw.org/ru/node/111291/section/7> (accessed 13 April 2015); MN Schmitt & JS Thurnher 'Out of the loop: autonomous weapon systems and the law of armed conflict' (2013) *Harvard National Security Journal* 258.

¹²⁸ See the United States, Air Force Pamphlet p 88.

¹²⁹ See for example Sweden's Declaration made upon acceptance of Protocol IV to the Convention on Certain Conventional Weapons and the military manuals of France para 55–56; See also the preamble of the Ottawa Convention.

¹³⁰ See Commentary to Rule 85 of ICRC Study on Customary IHL Rules.



the otherwise legal weapons would cause permanent disability when operating in unpredictable environments.

2.3.2 Prohibition of weapons which are indiscriminate in nature

The other question that needs an answer is how AWS measure up to the international weapons law rules on the prohibition of weapons that are indiscriminate in nature. Article 51(4) of API provide for this rule. As have been highlighted above, although there are similarities, the rule on the prohibition of weapons that are by nature indiscriminate is not the same as the targeting rule of distinction applicable to combatants. Of course, for a combatant to comply with the targeting rule of distinction, he or she must employ a discriminate weapon.¹³¹ Like the other rule discussed above, it is fundamental to appreciate the nature of this rule and what it stands for.

i) Customary law

The rule on the prohibition of weapons that are by nature indiscriminate is part of customary international law.¹³² For that reason, whether a state is part to Additional Protocol I, or not, becomes immaterial. A state may not develop or deploy AWS if they fail to pass the international customary rule that prohibits indiscriminate weapons.

ii) Treaty law

There are a number of treaties that prohibit the use of weapons that are indiscriminate in nature. Amongst other instruments¹³³, the most notable ones are Additional Protocol I to the Geneva Conventions¹³⁴ and the Rome Statute.¹³⁵ The rule was also the

¹³¹ See Rule 11 and 12 on the general prohibition of indiscriminate attacks in the ICRC Study on IHL Customary rules.

¹³² See Rule 71 of the ICRC Study of Customary IHL Rules.

¹³³ See for example the San Remo Manual para 42(b)).

¹³⁴ Article 51(4) of Additional Protocol I to the Geneva Conventions.

¹³⁵ Article 8(2)(b)(xx) of the ICC Statute.



reasoning behind the negotiating and adopting of treaties like the Amended Protocol II to the Convention on Certain Conventional Weapons¹³⁶ and the Ottawa Convention.¹³⁷

A number of weapons have either been banned or their use restricted as they were found to be indiscriminate in nature. These include chemical, biological and nuclear weapons; poison, anti-personnel landmines, mines, explosives discharged from balloons, V-1 and V-2 rockets, Katyusha rockets, Scud missiles, cluster bombs, booby-traps, incendiary weapons, and environmental modification methods.

iii) State practice

There is consistent practice in support of the rule against use of indiscriminate weapons. Various military manuals¹³⁸, including of states not party to Additional Protocol I¹³⁹, prohibit the use of indiscriminate weapons and make it a criminal offence to use the same.¹⁴⁰ Many states have publicly condemned the use of such weapons whether in IAC or NIAC.¹⁴¹ Evidence of state practice against weapons which are by nature indiscriminate is also found in many UN General Assembly resolutions against such weapons.¹⁴² This rule has also been repeatedly reaffirmed in many international meetings noted above.

iv) Case law

The Nuclear Weapons case is one of the cases¹⁴³ that largely considered the issue of weapons that are indiscriminate in nature. Not only did the Court affirm that the rule against use of weapons that are indiscriminate in nature is one of the 'cardinal

¹³⁶ Article 1(2) of Amended Protocol II to the Convention on Certain Conventional Weapons.

¹³⁷ See the preamble of the Ottawa Convention.

¹³⁸ See for example the military manuals of Australia, Colombia, Republic of Korea, Sweden and Nigeria.

¹³⁹ See for example the military manuals of France and Israel.

¹⁴⁰ See for example the legislation of Canada, Congo, Georgia, Mali, New Zealand and United Kingdom.

¹⁴¹ See for example the statements of China, Egypt, Japan, Lesotho, Malaysia, Netherlands and Zimbabwe.

¹⁴² See for example UN General Assembly, Resolution 1653 (XVI), Resolution 3032 (XXVII), Resolution 3076, Resolution 3255 A (XXIX) and Resolution 1565 (XXVIII-O/98).

¹⁴³ See also the Review of the Indictment in the ICTY Martić case, available at <http://www.icty.org/x/cases/martic/ind/en/mar-2ai030909e.pdf> (accessed 8 November 2015).



principles' of IHL, but that states must never use such weapons.¹⁴⁴ Many states who made submissions in this case also emphasised the importance of the rule on the prohibition of indiscriminate weapons.¹⁴⁵

v) *Defining indiscriminate weapons and understanding the rule*

The rule on the prohibition of indiscriminate weapons deals only with the lawfulness of a weapon, in this case the lawfulness of Autonomous Weapon Systems. In other words, the issue with this rule is whether Autonomous Weapon Systems are inherently indiscriminate. Schmitt in discussing this rule in the context of cyber warfare has argued that the 'rule does not prohibit imprecise weapons'; rather, it prohibits weapons that are basically 'shots in the dark'.¹⁴⁶ He further observed that indiscriminate effects in a particular attack that are a result of 'unforeseeable system malfunctioning or reconfiguration does not violate this rule'.¹⁴⁷

However, just like the other rule above, a careful consideration must be made when subjecting autonomous weapon systems to this rule. Compliance with this rule in terms of conventional weapons is also user-dependent. Where the user and the weapon are combined to make a weapon, the level of autonomy in a weapon becomes a critical issue to consider.

vi) *Elements of indiscriminate weapons*

There are two elements that are consistently referred to when deciding whether or not a weapon is indiscriminate in nature. These are:

- a) The capability of directing a weapon against a specific legitimate target;¹⁴⁸ and

¹⁴⁴ ICJ, Nuclear Weapons case, Advisory Opinion.

¹⁴⁵ See for example the oral pleadings and written statements in the Marshall Islands, Nauru and United States.

¹⁴⁶ MN Schmitt et al Tallinn Manual on International Law applicable to Cyber warfare (2013)145.

¹⁴⁷ MN Schmitt et al Tallinn Manual on International Law applicable to Cyber warfare (2013)146.

¹⁴⁸ Article 51(4)(b) of Additional Protocol I to the Geneva Conventions.



b) The capability to limit the effects of the weapon.¹⁴⁹

These elements form part of the definition of indiscriminate attacks under customary international law.¹⁵⁰

vii) The capability of directing a weapon against a specific legitimate target

This first element succinctly points out that compliance of a weapon with this rule is also user dependent. By asking whether it is possible to direct a weapon against a specific legitimate target, it points to humans as the users or ‘directors’ of the weapon. In the case of Autonomous Weapon Systems with increased autonomy or those that are fully autonomous, the user and the weapon are combined.

In light of the above it would make sense, therefore, to expand the question into two: Firstly, whether it is possible to direct a weapon on board against a specific legitimate target and secondly, whether the ‘weapon system platform’ is capable of directing the ‘lawful weapon’ or payload at military objectives. Many official state documents provide that a weapon that cannot be directed against a specific legitimate target is an indiscriminate weapon.¹⁵¹ Case law has also cited this criterion in deciding whether a weapon is indiscriminate.¹⁵² In order to answer the second question in the affirmative, the weapon system will have not only to understand fully international humanitarian law rules of targeting but also the dynamics of today’s armed conflict. As has been noted above, the IHL rules of targeting cannot be applied to Autonomous Weapon Systems without giving them some combatant status. Therefore, this consideration will depend on whether the international community wants to accept them as combatants in the first place.

¹⁴⁹ Article 51(4) (c) of Additional Protocol I to the Geneva Conventions.

¹⁵⁰ Rule 12 of the ICRC Study on IHL Customary rules.

¹⁵¹ See for example the military manuals of Australia, Canada, Ecuador, Israel, New Zealand and United States.

¹⁵² See Dissenting Opinion of Judge Higgins in the ICJ *Nuclear Weapons case*, 583, accessible at <http://www.icj-cij.org/docket/files/95/7525.pdf> (accessed 9 November 2011).



viii) *The IHL requirement to limit the effects of a weapon*

It goes without saying that the conduct of the user of the weapon has a bearing on the limitations on the effects of a particular weapon – albeit its lawfulness. Thus many official state documents¹⁵³ and case law¹⁵⁴ provide for this criterion. States have long argued that where a weapon ‘has uncontrollable effects’, such a weapon is deemed to be indiscriminate.¹⁵⁵ It is for that reason that in 1969 the General Assembly passed a resolution against biological and chemical weapons noting that they ‘are inherently reprehensible because their effects are often uncontrollable and unpredictable’.¹⁵⁶

In the case of Autonomous Weapon Systems, there is a huge challenge in ascertaining the implications of the ‘indiscriminateness’ of the weapon. With this kind of technology, I would argue that the concept of ‘indiscriminateness’ should not be limited to the weapons on board. It should extend to the actual use of the weapons by the Autonomous Weapon Systems. Boothby observes that almost all weapons are capable of having indiscriminate effects¹⁵⁷ while on the other hand the fact that a weapon can be used discriminately is not conclusive of its lawfulness.¹⁵⁸ An example is that of nuclear weapons that can arguably be used in such a way that would not affect civilians. The ICRC Guide on weapons review makes it clear that the acceptability of a weapon is not solely dependent on its design but how it is used and other considerations.¹⁵⁹ Thus

¹⁵³ See for example the military manuals of Colombia, New Zealand, Switzerland and Yugoslavia.

¹⁵⁴ See for example the oral pleadings and written statements in the Nuclear Weapons case of Egypt, Japan and Zimbabwe.

¹⁵⁵ See Hackerts, Doswold Becks & Alverman Customary International Humanitarian Law Vol 1 p 248 on Rule 71 regarding Weapons That Are by Nature Indiscriminate. See also https://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule71 (accessed 27 October 2015).

¹⁵⁶ See UN General Assembly, Resolution 2603 A (XXIV).

¹⁵⁷ HW Boothby *Weapons and the law of armed conflict* (2009) Oxford University Press 83.

¹⁵⁸ HW Boothby *Weapons and the law of armed conflict* (2009) Oxford University Press 72.

¹⁵⁹ ICRC ‘A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977’ (2006) *International Review of the Red Cross* Vol 88 Number 864 p.938.



‘consideration of the law of weaponry must...be set against the background of the law that regulates how those weapons are used’.¹⁶⁰

The fact that in certain circumstances Autonomous Weapon Systems with increased autonomy or those that are fully autonomous are unpredictable, it can be argued that their effects may be difficult to contain in violation of the rule on prohibition of indiscriminate weapons.

2.3.3 Findings of Domestic Legal Review versus International Findings

As has been pointed out, legal review of new weapons is a domestic process that has been largely left to states to carry out. However, as noted in Chapter 1, the aspect of Autonomous Weapon Systems has sparked debates at the international level. The issue is being considered by the CCW. The question arises as to which findings will take precedence, those of a national review authority or those of the CCW for example. Generally, in international law, domestic legislation may not be used to justify infraction of international law.¹⁶¹ However, all this will depend on whether the findings of the international organisation will have the force of law. In the event of the CCW deciding to adopt an instrument outlawing Autonomous Weapon Systems with increased autonomy but without proper human control or those that are fully autonomous, then the findings of a national review authority may not be used to justify the development or deployment of such technology.

2.4 Conclusion

There are several factors which need to be taken into consideration when conducting a legal review of Autonomous Weapon Systems in terms of Article 36 of Additional Protocol I to the Geneva Conventions. Firstly, it is important to ascertain whether what

¹⁶⁰ HW Boothby *Weapons and the law of armed conflict* (2009) Oxford University Press 41; See also K Lawand ‘Reviewing the Legality of new weapons, means and methods of warfare’ (2006) *International Review of the Red Cross* Vol 88, Number 846 p927.

¹⁶¹ See *Inspector-General of Police v All Nigeria Peoples Party and Others* (2007) AHRLR 179 (NgCA 2007) para 37 See also *Abacha v Fawehinmi* (2000) 6 NWLR pt 660 228.



is being put under review is a weapon or means of warfare. Autonomous Weapon Systems with increased autonomy or full autonomy in critical function of deciding who to kill and making legal calculations on the legality of each individual kill are outside the scope of the traditional weapon. A weapon must be under proper and meaningful control of a human.

Secondly, it is fundamental to understand and keep the line between international weapon rules on the prohibition of weapons that are indiscriminate in nature, those that cause superfluous harm and the international humanitarian law targeting rules of distinction and proportionality as applicable to combatants. There is a relationship between these rules but they are not the same. IHL rules of distinction and proportionality must only be applied to machines if the international community takes the conscious decision of accepting these weapons as *robo-combatants* because decisions as to who to kill and calculation of the legality of an attack are the preserve of human combatants.

Thirdly, for a long time, the international weapons law rules of prohibition of indiscriminate weapons and those that cause superfluous harm has been interpreted to mean assessment of the lawfulness of a weapon by considering the design of the weapon alone. As rightfully observed by Boothby, with today's technologies, especially Autonomous Weapon Systems, it is paramount to consider user-factors in determining the lawfulness of a weapon. In AWS there are two critical things that are combined – the harmful capability/lethality of the weapons and the autonomy of system in the 'critical functions'. To decide whether an autonomous system is unlawful *per se*, the autonomy and lethality of the system must be considered as an entity. When considered as an entity, Autonomous Weapon Systems with increased autonomy or those that have full autonomy may not be able to comply with the international weapon customary rules on the prohibition of weapons that are indiscriminate in nature and those that cause superfluous harm. In this Chapter I have discussed the international weapon laws rules



as distinct from IHL targeting rules. In Chapter 3, I will discuss the IHL rules of humanity, distinction, precaution, proportionality and military necessity.



Chapter 3: AWS and International Humanitarian Law

3. Introduction

Across the globe, the debate on AWS has focused more on the ramifications of AWS on International Humanitarian Law than on other branches of international law. This is so because the general expectation is that AWS will be deployed in the context of armed conflict; thus International Humanitarian Law being the applicable regime. To this end, scholars have grappled with the question whether AWS are capable of complying with important and customary IHL rules of humanity, military necessity, distinction, proportionality and precaution. This is an important question because to many people it may be that the acceptability or otherwise of this technology depends on AWS' capability to comply with the aforementioned rules – at least in the context of armed conflict. This, however, is not to forget the argument made in Chapter 2 that IHL rules to be discussed below were meant to be applied by human combatants not by autonomous robots.

In the context of armed conflict, there are at least three camps of thought on whether AWS are capable of complying with IHL rules of humanity, necessity, distinction, proportionality and precaution. Firstly, there are commentators who opine that there is not enough material and knowledge on the technology to formulate a correct position on AWS' capability to comply with the aforementioned rules.¹ Such scholars contend that any form of action by the international community would be premised on a fallacious basis.² To that end, they consider the proposal for an outright ban to present a 'risk of failing to develop forms of automation that might make the use of force more

¹ See K Anderson & M Waxman 'Law and ethics for autonomous weapon systems: why a ban won't work and how the laws of war can' (2013) *American University Washington College of Law Research Paper 3*.

² K Anderson & M Waxman 'Law and ethics for autonomous weapon systems: why a ban won't work and how the laws of war can' (2013) *American University Washington College of Law Research Paper 3*.



precise and less harmful to civilians caught near it'.³ In face of the proposed ban, some commentators thus note the argument that the USA and other states involved in the development of AWS 'should not unnecessarily constrain themselves in advance to a set of normative commitments given the vast uncertainties about the technology and future security environment'.⁴ It seems such scholars want to adopt a wait and see approach – i.e. wait at least until the technology is available. The major problem of such an approach is that once the technology especially in terms of weapons is available, it may be too late to formulate correct and effective regulation.⁵ Worse still, it may be in fact an elegant way of buying time for the technology to be developed.

Secondly, there are scholars who argue that there is sufficient evidence to believe that AWS may do a better job as far as complying with the above IHL rules is concerned. Such arguments are centred on facts such as that AWS can never act out of panic, anger, frustration etc. and may not seek revenge.⁶ Unless specifically programmed to do so, AWS will not intentionally commit war crimes.⁷ The major argument in this regard is that AWS will not only enhance the quality of life of soldiers, but it will also address the plight of civilians – not to be victimised whenever and wherever there is an armed conflict.⁸

Thirdly, and in response to the above argument, there are commentators who argue that because a machine can never have human intelligence, a situational awareness to capture and understand a bigger picture – qualities which are extremely important on

³ K Anderson & M Waxman 'Law and ethics for autonomous weapon systems: Why a ban won't work and how the laws of war can' (2013)11 *American University College of War Research Paper* 1.

⁴ K Anderson & M Waxman 'Law and ethics for robot soldiers' (2012)32 *American University WCL Research* 18.

⁵ See A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013.

⁶ See A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 10, para 54; See also GE Marchant et al 'International governance of autonomous military robots' (2011) XII *The Columbia Science and Technology Law Review* 280.

⁷ Christof Heyns (note 8 above).

⁸ See RC Arkin Lethal autonomous systems and the plight of the non-combatant (2014) *Ethics and Armed Forces* 9.



the battlefield – they will never be able to comply with the above mentioned rules of international humanitarian law.⁹

The summary of arguments that I make in this chapter constitutes that when ascertaining whether or not AWS are capable of complying with international humanitarian law rules, such a question should not be generalised because the levels of autonomy of AWS differ as has been explained in Chapter 1.¹⁰ In this Chapter, I focus on those Autonomous Weapon Systems that have high levels of autonomy to the extent of being unpredictable or those with no ‘Meaningful Human Control’ after their activation.¹¹

Regarding autonomous systems that have high levels of autonomy or those that are not under ‘Meaningful Human Control’, if they are deployed in areas where there are civilians, protected persons and objects, such AWS may be incapable of complying with rules of IHL such as the rule of distinction and proportionality.¹² This is mainly because of technological limitations, the unpredictability of the battle field and the ever changing circumstances and status of fighters or combatants.¹³

Even if deployed in environments that are only occupied by combatants or fighters, AWS that are not under meaningful control of a human once activated may still violate some

⁹ See N Sharkey ‘Grounds for discrimination: autonomous robot weapons’ (2008) RUSI Defence Systems 88-89 available at <http://rusi.org/downloads/assets/23sharkey.pdf> (accessed 11 January 2013).

¹⁰ See WC Marra et al ‘Understanding “the loop”: regulating the next generation of war machines’ (2013) 36 *Harvard Journal of Law and Public Policy* 1155; See also US Department of Defense Unmanned Systems Integrated Road Map FY2011-2036 (2011)44. Available at <http://www.acq.osd.mil/sts/docs/Unmanned%20Systems%20Integrated%20Roadmap%20FY2011-2036.pdf> (accessed 28 June 2014).

¹¹ The term ‘Meaningful Human Control’ is discussed and explained in Chapter 7.

¹² On IHL rules see in general J Henckaerts *et al Customary international humanitarian law* (2005).

¹³ See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)1, 4, 8, 9, and 15; Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014)8 *Academy Briefing Number 24*; Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)1, 4, 8, 9, and 15; N Melzer ‘Human rights implications of the usage of drones and unmanned robots in warfare’ (2013) European Parliament Directorate-General for External Policies 39.



important rules of IHL such as those relating to the protection of those placed *hors de combat* by wounds or sickness or those that wish to surrender.¹⁴

In response to Ron Arkin's argument that robots can perform better than humans as far as complying with international humanitarian law rules is concerned, I argue that even if one were to assume for a moment that robots are better, that is not the end of the matter. Giving robots the power of life and death, even over legitimate targets may be incompatible with international human rights norms that continue to apply even in times of armed conflict.¹⁵

Furthermore, there are other roboticists like Noel Sharkey who argue that it may be technically impossible to create robots that can comply with rules of armed conflict, worse still, to be better than humans.¹⁶ As for the International Humanitarian Law rule of precaution, I note and agree to some extent that AWS may well comply with the rule of precaution; for example, where they can wait to be shot at first in cases where they are not sure whether or not one is participating in hostilities.¹⁷ However, the rule of precaution, just like the customary rules of proportionality and distinction, needs human judgment to be effectively complied with.¹⁸ Where humans are not involved once the system is activated, chances are high that these rules will be violated.

¹⁴ On *Hors de combat* protection see HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)222; A Clapham & P Gaeta *The Oxford Handbook of International Law in Armed Conflict* (2014) 308.

¹⁵ See G Oberleitner *Human rights in armed conflict* (2015) 1.

¹⁶ R Arkin 'Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture' (2011) *Technical Report GIT-GVU-07-11* p 61; See also R Arkin 'Governing Lethal Behaviour in Autonomous Robots' (2009) *International Committee of the Red Cross Press* 127; G Marchant et al, 'International governance of autonomous military robots' (2011) *XII Columbia Science and Technology Law Review* 280.

¹⁷ On robots acting in a conservative way see A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, para 69; Marchant (above) p 280; Singer (above), p 398.

¹⁸ On importance of human judgement see Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International



AWS that have high levels of autonomy to the extent of being unpredictable or those that are not under ‘Meaningful Human Control’ once they are activated may not be able to comply with important customary international law rules of International Humanitarian Law.

3.1 The importance of complying with the rules of IHL

There are several reasons why the issue of whether AWS are capable of complying with international humanitarian rules must be taken seriously. Firstly, compliance with International Humanitarian Law serves to promote and protect all persons that are protected in terms of the law during armed conflict like civilians, *hors de combatants*, medical personnel and employees of humanitarian organisations.¹⁹ Where AWS are unable to comply with the rules of IHL that are discussed below, it means the protection that is offered to these groups of people is severely diminished. Protection of those who are not taking part in hostilities is the core of international humanitarian law.²⁰

Secondly, compliance with rules of International Humanitarian Law is important especially in today’s armed conflict that involves non-state actors such as rebel groups.²¹ In most cases where non-state actors are involved, there is a lack of guidance and incentive as far as complying with IHL rules is concerned. In fact, ‘clandestine methods and means may be the predominant rule’.²² In such circumstances, states must ensure that the means and methods of warfare they use comply with the rules of International Humanitarian Law as a way to show and make known the standards that the non-state actor ought to abide by. In this sense, compliance with the law ‘furthers acceptance of

Humanitarian Law ‘Autonomous weapon systems under international law’ (2014)8 *Academy Briefing* 5.

¹⁹ See D Fleck ‘International humanitarian law after September 11: Challenges and the need to respond’ in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)63.

²⁰ See On the rational of protecting those not taking direct part in hostilities see in general I Primoratz & DW Lovell *Protecting civilians during violent conflict: theoretical and practical issues for the 21st century* (2013).

²¹ See F Angeli *Non-state actors and international humanitarian law: organized armed groups: a challenge for the 21st century* (2010).

²² See D Fleck ‘International humanitarian law after September 11: Challenges and the need to respond’ in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)66.



such rules and offers incentives to encourage the expectation of reciprocity' especially from the aforementioned non-state actors.²³

Along the same lines, compliance with rules of International Humanitarian Law contributes to discouraging belligerents involving themselves in reprisals – a situation where combatants or fighters wilfully violate the law on the basis that the other part to the conflict is not abiding to the same laws.²⁴ Of course this is not to say that compliance with the law on the part of non-state actors or other parties to a conflict is dependent on reciprocity of good behaviour²⁵, but it is a compelling argument that acceptable conduct of states in as far as conduct of hostilities is concerned not only gives them the standing to reprimand erring non-state actors but set a good example.

Thirdly, compliance with rules of International Humanitarian Law is of importance as far as peace is concerned. In general, complying with the law is the core of the rule of law which is what knits and binds the world community together. In the context of armed conflict, Dieter Fleck has noted that compliance with the rules of International Humanitarian Law 'is part of good governance even in times of crisis'.²⁶ Thus during armed conflict, the means and methods of warfare that a state chooses to use must comply with the law because this is important 'for the reestablishment and maintenance of peace'.²⁷

Fourthly, and related to the reestablishment and maintenance of peace argument, complying with rules of International Humanitarian Law serves to maintain military discipline.²⁸ Military discipline referred to herein is where combatants concentrate and

²³ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)65.

²⁴ See D Fleck & M Bothe *The handbook of international humanitarian law* (2013)228.

²⁵ See J Henckaerts *et al Customary International Humanitarian Law: Volume 1, Rules* (2005) on page 498 arguing that compliance with IHL is not dependent on reciprocity.

²⁶ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)65.

²⁷ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)65.

²⁸ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in



focus only on legitimate targets thereby serving time and resources in incapacitating the enemy.²⁹ The earlier the enemy is incapacitated the quicker the peace is regained. Peace is the ideal environment within which human rights are better protected.³⁰ For that reason, peace should be the norm and wars must be just a temporary short lapse.³¹ Arguably, military discipline and compliance with the law shortens wars.³²

Finally, and in view of the above, it is emphasised that when considering the question as to whether AWS are capable of complying with rules of International Humanitarian Law, commentators must understand the important issues that are implicated. This is an issue that involves matters of life and death, security and peace. Thus, in the development of weapons or designing methods of warfare, states must always seek to comply with the rules of International Humanitarian Law, even at an 'expense of short term disadvantages'.³³ There should generally be a culture to comply with the above mentioned rules and when states develop weapons, they must understand that they should 'not only act in the interest of their own state, but they should also consider themselves as guardians of the people in the area of conflict'.³⁴ As I will discuss in Chapter 6, it is important that when seeking to use certain weapons and 'in choosing the means and methods of their operations, they must consider public opinion in all the countries affected' by weapons they use.³⁵

T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)64.

²⁹ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)63.

³⁰ See A/68/382, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 13 September 2013, para 16.

³¹ See C Edmund *Sherman: merchant of terror, advocate of peace* (1992) 169.

³² See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)64.

³³ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)64.

³⁴ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)64.

³⁵ See D Fleck 'International humanitarian law after September 11: Challenges and the need to respond' in T McCormack & A McDonald (eds) *Yearbook of international humanitarian law* (2003)64.



A cutting edge example in regard of choice of weapons and compliance with rules of International Humanitarian Law is the use of drones by the US in countries like Pakistan, Yemen and Afghanistan.³⁶ Alleged failure to comply with international law has produced a backlash with other scholars claiming that drones are a vending machine for more terrorists against the US.³⁷ Such claims are supported by the general anti-American sentiment in most of the territories that are affected by drones.³⁸

For the above stronger reasons, compliance with the law, the choice of the means and methods of warfare is of paramount importance as far as guaranteeing the protection of those who are not participating in hostilities and the maintenance of peace in general is concerned. In as much as the first port of call is to consider whether a particular weapon is in line with the law, it is also important that the state considers the ramifications of using such a particular weapon especially in the wake of fighting against global terrorism. As observed by the former UN Secretary General Kofi Annan, when it comes to choosing means and methods of warfare against terrorism and other forms of today's armed conflict; 'there is no trade-off between effective action against terrorism and protection of human rights', rather, 'human rights, along with democracy and social justice, are one of the best prophylactics against terrorism'.³⁹

³⁶ See <http://www.thebureauinvestigates.com/category/projects/drones/drones-war-drones/> (accessed 12 April 2015).

³⁷ See S Ross 'The drone is the most feared and hated weapon in history' (2013) available at <http://beforeitsnews.com/eu/2013/05/the-drone-is-the-most-feared-and-hated-weapon-in-history-2520054.html> (accessed 12 April 2015).

³⁸ See S Ross 'The drone is the most feared and hated weapon in history' (2013) available at <http://beforeitsnews.com/eu/2013/05/the-drone-is-the-most-feared-and-hated-weapon-in-history-2520054.html> (accessed 12 April 2015).

³⁹ K Annan 'Address to the UN Security Council meeting on counterterrorism measures' (2002) available at <http://www.unis.unvienna.org/unis/pressrels/2002/sgsm8105.html> (accessed 15 October 2014). This same reference is found in my LL.M Thesis, T Chengeta 'Are US drone targeted killings within the confines of the law?' (2011) 41 *Unpublished LL.M Thesis*, available at [http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are\(2012\).pdf?sequence=1](http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are(2012).pdf?sequence=1) (accessed 13 July 2015).



Having articulated some of the important considerations that are at stake, I now turn to consider some of the important rules of International humanitarian law and how they relate to AWS.

3.2 IHL Rule of Distinction and AWS

The International Humanitarian Law rule of distinction is meant to protect those who are not taking part in hostilities, in particular civilians. It is also meant to protect fighters or combatants who have been placed *hors de combat* by sickness or wounds.⁴⁰ The rule of distinction was first provided for in the St. Petersburg Declaration which categorically stated that the aim of war is to weaken the enemy by attacking only its armed forces.⁴¹ The rule was further endorsed in the Hague Regulations which proscribed attacking ‘towns, villages, dwellings or buildings which are undefined’ therefore being ‘shots in the dark’ with possibility of killing civilians and combatants indiscriminately.⁴²

Today, the rule of distinction is codified in laws applicable both to international and non-international armed conflict.⁴³ For international armed conflicts, Additional Protocol I to the Geneva Conventions has a number of provisions for the rule of distinction:

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.⁴⁴

The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited.⁴⁵

⁴⁰ See Rule 47 Of ICRC study on customary international humanitarian law.

⁴¹ See the Preamble of the St. Petersburg Declaration.

⁴² See Article 25 of the Hague Regulations.

⁴³ J Henckaerts *et al Customary international humanitarian law* (2005)5.

⁴⁴ Article 48 of Additional Protocol I to the Geneva Conventions of 1949.

⁴⁵ Article 51 (2) of Additional Protocol I to the Geneva Conventions of 1949.



Attacks shall be limited strictly to military objectives. 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, offers a definite military advantage.⁴⁶

Similar provisions are also found in laws pertaining to the governance of non-international armed conflicts.⁴⁷ For that reason, it does not matter whether AWS will be used in non-international or international armed conflicts; the rule of distinction equally applies. During the negotiations of Additional Protocol I and II to the Geneva Conventions of 1949 as applicable to international and non-international armed conflicts respectively, the rule of distinction was considered a fundamental basic rule and no reservation was permitted and no state sought to enter a reservation.⁴⁸

The rule of distinction is part of customary international humanitarian law and is a *jus cogens* rule.⁴⁹ Rule 1 of the International Committee of the Red Cross study on customary international humanitarian law provides that it is a matter of customary international law as supported by state practice that ‘parties to a conflict must at all times distinguish between civilians and combatants’.⁵⁰ The term ‘combatant’ in this sense refers to both combatant as denoting legal status of a member of a state’s armed forces and fighters in general or those participating in hostilities.⁵¹

In contemporary armed conflicts where sophisticated weapons are used, the rule of distinction is the cornerstone and central to the protection of civilians.⁵² Some

⁴⁶ Article 52(2) of Additional Protocol I to the Geneva Conventions of 1949.

⁴⁷ See for example Article 13 (2) of Additional Protocol II to the Geneva Conventions of 1949 providing that ‘The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited.’

⁴⁸ See for example statements of the UK and Mexico in the Diplomatic Conference for the Adoption of the Additional Protocols to the Geneva Conventions of 1949.

⁴⁹ J Henckaerts *et al Customary international humanitarian law* (2005)3.

⁵⁰ See Rule of ICRC Customary international humanitarian law.

⁵¹ J Henckaerts *et al Customary international humanitarian law* (2005)3.

⁵² AV Engeland *Civilian or combatant?: A challenge for the 21st century* (2011) 16, Oxford University Press; N Melzer *Targeted killing in international law* (2008) 300, Oxford University Press; D Saxon *International humanitarian law and the changing technology of war* (2013) 107 Martinus Nijhoff Publishers.



commentators have thus referred to it as a ‘pillar of international humanitarian law’ and a ‘means to an end’ – i.e. protection of those not taking part in hostilities.⁵³ Thus, a belligerent deploying Autonomous Weapon Systems is bound by customary international law ‘to distinguish between military and civilian objects’.⁵⁴

In terms of Article 52(2) of Additional Protocol I to the Geneva Conventions, military objectives refer only to objects that have an ‘effective contribution to military action’ and whose neutralisation gives a belligerent a definite and real military advantage that must be offered ‘in the circumstances ruling at the time’.⁵⁵ There are a number of scholars who agree that the above definition is part of customary international law.⁵⁶ Therefore, in order to target legitimate targets, an Autonomous Weapon System must be able to understand and effectively implement the definition of a military objective.⁵⁷ The autonomous system needs to be taught to be able to make a difference between military advantage that is ‘tangible’ therefore necessitating an attack and military advantage that is ‘in abstract or general’ which may not justify an attack and likely to violate the rule of distinction.⁵⁸ Thus, in terms of the rule of distinction, an autonomous system’s decision to target and kill must give ‘direct and tangible military advantage’.⁵⁹ It is important, therefore, to understand who is a civilian in armed conflict and also other protected persons.

⁵³ T McCormack *et al* *Yearbook of international humanitarian law* (2003)6.

⁵⁴ Rule 1 and 7 of Customary International Humanitarian Law.

⁵⁵ See R Rayfuse *War and the environment: new approaches to protecting the environment in relation to armed conflict* (2014)18, Martinus Nijhoff Publishers; Y Dinstein *The conduct of hostilities under the law of international armed conflict* (2004)85 Cambridge University Press.

⁵⁶ J Henckaerts & L Doswald-Beck *Customary international humanitarian law* (2005)329-32.

⁵⁷ See A Jachec-Neale *The concept of military objectives in international law and targeting practice* (2014)170, Routledge.

⁵⁸ F Hampson ‘The principle of proportionality in the law of armed conflict’ (2010)46 in S Perrigo & J Whitman (eds) *The Geneva conventions under assault* (2010) 51.

⁵⁹ A Clapham *The Oxford Handbook of international law in armed conflict* (2014) 109, Oxford University Press; T McCormack & A McDonald *Yearbook of International Humanitarian Law* (2003) p.20, Volume 6, Cambridge University Press.



The weapons that a belligerent chooses to use in armed conflict have a direct impact on whether or not the rule of distinction will be complied with. Thus in international weapons law, the rule of distinction has also been emphasised. It is for that reason that the purpose of certain weapon treaties is identified as ‘to put an end to the suffering and casualties caused by anti-personnel mines that kill or maim hundreds of people every week, mostly innocent and defenceless civilians and especially children’.⁶⁰ Some treaties on conventional weapons also have in detail the rule of distinction:

It is prohibited in all circumstances to direct weapons to which this Article applies, either in offence, defence or by way of reprisals, against the civilian population as such or against individual civilians.⁶¹

The indiscriminate use of weapons to which this Article applies is prohibited. Indiscriminate use is any placement of such weapons:

- a) which is not on, or directed at, a military objective; or
- b) which employs a method or means of delivery which cannot be directed at a specific military objective; or
- c) 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 in relation to the concrete and direct military advantage anticipated.⁶²

These similar rules can also be found in Article 2(1) of Protocol III 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.⁶³

⁶⁰ See the Preamble of the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (1997).

⁶¹ Article 3 (2) of Protocol II 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.

⁶² Article 3 (3) of Protocol II 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.

⁶³ See also Article 3(7) of Amended Protocol II to the Convention on Conventional Weapons.



The rule of distinction is also incorporated in international criminal law where failure to abide by it leads to prosecutable war crimes, for example crimes against humanity or grave breaches of the Geneva Conventions of 1949.⁶⁴ Proscription of military conduct that fails to distinguish between civilians and combatants is found in many military manuals and national criminal legislation of many states.⁶⁵ Domestic and international courts have also considered the rule of distinction as a cardinal and intransgressible rule of international humanitarian law.⁶⁶

3.2.1 Complications of contemporary armed conflicts and rule of distinction

When the rule of distinction was initially formulated, it was done in view of conventional warfare and armed conflicts where it was easy to distinguish between combatants and civilians.⁶⁷ In most cases, wars were even fought outside villages or towns and combatants carried their arms openly and wore distinctive marks.⁶⁸

However, in contemporary armed conflicts, especially those involving terrorists, there is 'decivilianisation of civilians', civilians providing human shields to fighters, either willingly or unwillingly, thereby complicating the implementation of the rule of distinction.⁶⁹ Armed conflicts are brought to villages, towns and other dwellings of civilians.⁷⁰ Many fighters neither carry arms openly nor do they wear distinctive marks or uniforms.⁷¹ The role of civilians in some of the conflicts has become more and more confusing.⁷²

⁶⁴ See for example Article 8 (2) (b) (i) of the Rome Statute on the Establishment of the International Criminal Court; J Henckaerts *et al Customary international humanitarian law* (2005)4.

⁶⁵ See J Henckaerts *et al Customary international humanitarian law* (2005)4.

⁶⁶ See *Nuclear Weapons Case*, 434; See also *the Kassem case*, Israel Military Court at Ramallah, para 271.

⁶⁷ See F Bouchet-Saulnier *The practical guide to humanitarian law* (2013)390.

⁶⁸ See HH Dinniss *Cyber warfare and the laws of war* (2012) 148.

⁶⁹ See MO Mohamedou *Understanding Al Qaeda: The transformation of war* (2006) 26, Pluto Press.

⁷⁰ See T Bunnell *et al Cleavage, connection and conflict in rural, urban and contemporary Asia* (2012) 90.

⁷¹ See WH Boothby *Conflict law: the influence of new weapons technology, human rights and emerging actors* (2014)268.

⁷² See WH Boothby *Conflict law: the influence of new weapons technology, human rights and emerging actors* (2014)268.



On account of the foregoing, many commentators and even the fighters themselves have acknowledged the difficulties encountered on the battlefield as far as applying the rule of distinction is concerned.⁷³ This contributes to some of the high numbers of incidental harm that is suffered by civilians in contemporary armed conflicts.⁷⁴ Combatants and fighters have been called upon to be more careful and to apply due diligence and care when designating targets and targeting them.⁷⁵ This is because the mentioned complications do not mean that the rule of distinction loses its importance; in fact, it becomes more important than ever. Arkin argues that the current *status quo* on the battlefield is unacceptable and proposes that AWS may in fact perform better in as far as complying with the rule of distinction on this complicated battle field.⁷⁶ The question arises therefore, whether the advent of Autonomous Weapon Systems to operate on this complicated battle field is the solution or it will actually exacerbate the situation.

As noted above, the rule of distinction ‘was not drafted to rule on war, but rather to protect victims of war, in particular civilians’.⁷⁷ But who is the civilian, given some of the difficulties referred to above? Civilians, as a matter of law, are only entitled to protection when they do not directly participate in hostilities.⁷⁸

⁷³ WH Boothby *Conflict law: the influence of new weapons technology, human rights and emerging actors* (2014)268.

⁷⁴ See D Beswick & P Jackson *Conflict, security and development: An introduction* (2014)36.

⁷⁵ See D Beswick & P Jackson *Conflict, security and development: An introduction* (2014)36.

⁷⁶ See RC Arkin *Lethal autonomous systems and the plight of the non-combatant* (2014) *Ethics and Armed Forces* 9.

⁷⁷ A Engeland *Civilian or combatant? : A challenge for the twenty-first century* (2011)245 as referenced in T Chengeta ‘Are US drone targeted killings within the confines of the law?’ (2011) 41 *Unpublished LL.M Thesis*, available at

[http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are\(2012\).pdf?sequence=1](http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are(2012).pdf?sequence=1) (accessed 13 July 2015); See also R Geiss & M Siegrist ‘Has the armed conflict in Afghanistan affected the rules on the conduct of hostilities?’ (2011)93 *International Review of the Red Cross* 11-46.

⁷⁸ See F Bouchet-Saulnier *The practical guide to humanitarian law* (2013)61.



3.2.2 Definition of civilian, rule of distinction in IAC and NIAC

All persons who are not part of the armed forces belonging to a state or who are not members of an armed group participating in an armed conflict are considered to be civilians.⁷⁹ Membership to a state's armed forces or armed group is where an individual's function is to fight for that armed force or group.⁸⁰ In the context of international armed conflict, 'all organized armed forces, groups or units under a command responsible to a state party to the conflict' are not civilians while in NIACs it is only the 'organized armed groups who constitute the armed forces of a non-state party to the conflict'.⁸¹

As already indicated earlier, ascertaining who falls within the definition of a civilian is difficult in some of the armed conflicts that are witnessed currently. In some cases, the conduct of civilians especially in non-international armed conflict needs careful assessment as to whether they have lost their protection or they are still within the confines of protected persons.⁸²

It is not uncommon that civilians support a particular group or state in an armed conflict.⁸³ This is sometimes in a direct, 'spontaneous, sporadic or unorganized way'.⁸⁴ Questions arise as to whether such civilians can be considered to be members of a

⁷⁹ See Rule 5 of the ICRC Customary International Humanitarian Law; See also J Henckaerts *et al Customary international humanitarian law* (2005)17; ICRC's Interpretive Guidance on direct participation. The Interpretive Guidance is not legally binding. It is however, persuasive since it was influenced expert discussions and represents the views of the ICRC, 'a neutral and independent humanitarian organization that has been mandated by States to promote IHL and work for a better understanding of the law.'

⁸⁰ T Gill & Dieter Fleck *The handbook of the international law of military operations* (2010) 248; A Clapham & P Gaeta *The Oxford handbook of international law in armed conflict* (2014) 309; See also <https://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 23 February 2015).

⁸¹ T Gill & Dieter Fleck *The handbook of the international law of military operations* (2010) 248; A Clapham & P Gaeta *The Oxford handbook of international law in armed conflict* (2014) 309; See also <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

⁸² See F Bouchet-Saulnier *The practical guide to humanitarian law* (2013)61.

⁸³ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

⁸⁴ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).



particular armed group or they are still civilians entitled to protection.⁸⁵ In these circumstances, careful and considered human judgment as to who qualifies as a civilian is essential.⁸⁶

In a bid to make some clarifications as to when a civilian loses protection for participating in hostilities and also to make clear legitimate targets for the purposes of abiding by the rule of distinction, the ICRC compiled a guideline on direct participation in hostilities.

3.2.3 *Direct participation in hostilities*

The rule of distinction demands that civilians be distinguished from legitimate targets. Civilians are not legitimate targets and attacks may not be directed against them unless and until 'such time they are directly taking part in hostilities'.⁸⁷ Civilian protection can thus be lost when a civilian directly takes part in hostilities.⁸⁸ The rule of distinction does not protect such persons as they become lawful targets.⁸⁹ The fundamental question is: When is a person deemed to be directly participating in hostilities and will AWS be able to ascertain this complex standard?

⁸⁵ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014). The issue of continuous combatant function is discussed below.

⁸⁶ On importance of human judgement see Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 5.

⁸⁷ Article 51(3) of API; See also MN Schmitt *Tallinn Manual on the international law applicable to cyber warfare* (2013)118, Cambridge University Press; UC Jha *International humanitarian law: The laws of war* (2011)29.

⁸⁸ See D Fleck *The Handbook of international humanitarian law* (2013)517, Oxford University Press; K Dörmann 'The legal situation of unlawful/unprivileged combatants' (2002)85 *International Law Review of the Red Cross* 46; I Henderson *The contemporary law of targeting* (2009)95, Martinus Nijhoff Publishers.

⁸⁹ D Fleck *The Handbook of international humanitarian law* (2013)517, Oxford University Press; K Dörmann 'The legal situation of unlawful/unprivileged combatants' (2002)85 *International Law Review of the Red Cross* 46; I Henderson *The contemporary law of targeting* (2009)95, Martinus Nijhoff Publishers; M Schmitt 'Deconstructing direct participation in hostilities: the constitutive elements' (2010) 42 *NYU Journal of International Law and Policy* 699.



It is only where a person intends his or her actions to substantially cause harm to one of the belligerents that he or she is considered to be directly participating in hostilities.⁹⁰ While an individual who belongs to a state's or an organised group's armed forces is legitimate targets for the duration of his or her membership⁹¹ – that is as long as they do not surrender or 'placed *hors de combat* by wounds or sickness' – a civilian is *only* a legitimate target 'for such time as he or she directly participates in hostilities'.⁹²

The concept of 'direct participation in hostilities' is complicated, that is why commentators do not necessarily agree on how it should be interpreted.⁹³ On the one hand, there are scholars who note that there are several things that civilians may do on the battlefield⁹⁴ – actions that may not be anticipated but have a harming effect to one belligerent therefore justifying the argument that direct participation should be interpreted expansively.⁹⁵

The above is an acknowledgment that the nature of contemporary armed conflicts constantly needs human judgment and discretion, both for the protection of civilians and not unfairly militating against the rights of combatants. Autonomous Weapon

⁹⁰ C Pilloud et al *Commentary on the Additional Protocols: of 8 June 1977 to the Geneva Conventions of 12 August 1949* (1987) 619, Martinus Nijhoff Publishers; ICRC *Interpretive guidance on the notion of direct participation in hostilities under international humanitarian law* (2009)1016; C Finkelstein et al *Targeted killings: Law and morality in an asymmetrical world* (2012)68.

⁹¹ T Gill & Dieter Fleck *The handbook of the international law of military operations* (2010) 248; A Clapham & P Gaeta *The Oxford handbook of international law in armed conflict* (2014) 309; See also <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

⁹² See Article 51(3) of Additional Protocol I to the Geneva Conventions; F Hampson 'The principle of proportionality in the law of armed conflict' (2010)47.

⁹³ A Craig *International legitimacy and the politics of security: The strategic deployment of lawyers in the Israeli military* (2013)83, Lexington Books; J Römer *Killing in a gray area between humanitarian law and human rights: How can the National Police of Colombia overcome the uncertainty of which branch of international law to apply?* (2010)59, Springer Science & Business Media; B Wittes *Legislating the war on terror: An agenda for reform* (2010) 86, Brookings Institution Press.

⁹⁴ See above.

⁹⁵ F Pocar et al *War crimes and the conduct of hostilities: Challenges to adjudication and investigation* (2013) 135; R Otto *Targeted killings and international law: With special regard to human rights and international humanitarian law* (2011)532. See E Crawford *Identifying the enemy: Civilian participation in armed conflict* (2015) 70, arguing however, against such an expansive interpretation.



Systems may not have such human discretion and the ability to make human judgments – the quality judgment that is so fundamental if the rule of distinction is to be complied with in contemporary conflicts. On the other hand, while combatants and belligerents may benefit from the broad interpretation of what constitutes direct participation, it may threaten the protection of civilians.⁹⁶

Ascertaining whether a civilian is directly participating in an armed conflict is on a case by case basis – it is a subjective test.⁹⁷ When applying a subjective test, combatants and fighters must always remember that a civilian must be clearly involved in an armed conflict or military operation in order to be a legitimate target. It can be argued that subjective tests in most cases require human judgment.⁹⁸

The international Committee of the Red Cross defines a person as taking direct part in hostilities if the person is engaging in acts that ‘aim to support one party to the conflict by directly causing harm to another party’.⁹⁹ That harm may cause death, injury or destruction to the property belonging to another belligerent.¹⁰⁰ There are various examples of acts that would amount to direct participation in hostilities and they include some of the following:

⁹⁶ E Crawford *Identifying the enemy: Civilian participation in armed conflict* (2015) 70; E Christensen ‘The dilemma of direct participation in hostilities’ (2010)19 *Journal of Transnational Law and Policy* 281.

⁹⁷ D Jinks et al *Applying international humanitarian law in judicial and quasi-judicial bodies: International and domestic aspect* (2014) 79; See also MN Schmitt & L Arimatsu *Yearbook of International Humanitarian Law* (2011)166.

⁹⁸ On importance of human judgement see Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro ‘On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making’ (2012)94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014)8 *Academy Briefing* 5.

⁹⁹ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014.)

¹⁰⁰ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014.)



Capturing, wounding or killing military personnel; damaging military objects; or restricting or disturbing military deployment, logistics and communication, for example through sabotage, erecting road blocks or interrupting the power supply of radar stations, interfering electronically with military computer networks and transmitting tactical targeting intelligence for a specific attack.¹⁰¹

Furthermore, when assessing whether the actions of a person constitute direct participation in hostilities, combatants and fighters must always remember that there should be a direct link between those actions and the armed conflict, specifically designed to aid one belligerent to the disadvantage of the other. For that reason, it does not mean that every violent act in armed conflict establishes direct participation especially in cases where a civilian or an individual acts in personal self-defence.¹⁰² Thus if a person, not for the purposes of supporting any party to the conflict fires shots against some fighters abusing his family, purely in self-defence of his family, that person is not directly participating in hostilities.¹⁰³ The question which one will have to answer is whether Autonomous Weapon Systems will have the intelligence to understand such situations.

In order to understand and implement the concept of direct participation in hostilities as an element of the rule of distinction, Autonomous Weapon Systems will have to possess human-like capacity to give the qualitative judgement on which civilians are directly participating in hostilities and therefore targetable. Understanding the concept of direct participation in hostilities is important for the purposes of the rule of distinction because indirect participation in hostilities does not make a civilian a legitimate target.¹⁰⁴

¹⁰¹ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014.)

¹⁰² See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

¹⁰³ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

¹⁰⁴ See F Bouchet-Saulnier *The practical guide to humanitarian law* (2013)60.



In many cases, indirect participation in hostilities can potentially aid a belligerent's war effort but such participation does not lead to loss of protection on the part of the civilian.¹⁰⁵ Examples of indirect participation in hostilities would include someone involved in the production, sell, and transfer of weapons, provision of finances, administration, political support and other infrastructure.¹⁰⁶ AWS, especially those that have no 'Meaningful Human Control' after activation, will need artificial intelligence equivalent to that of humans in order to be able to distinguish between direct and indirect participation in hostilities which is a qualitative distinction.¹⁰⁷

More so, I have referred to the temporal limitation as to when a civilian may be targeted for direct participation in hostilities. As already mentioned, a civilian is only a legitimate target at 'such time as' he or she is involved in hostilities. An intense debate has resulted on account of this rule with two main arguments emerging. On the one hand, it is argued that this temporal limitation is unfair on fighters and combatants as it allows some unscrupulous civilians to be 'farmers by day and fighters by night' – escaping unfairly from legitimate use of force.¹⁰⁸ On the other hand, other commentators have argued that this can be solved by the doctrine of continuous combatant function to be discussed below.

The requirement to attack civilians only for 'such time as' they are participating in hostilities present challenges especially in the fight against terrorism.¹⁰⁹ This is so because in some cases terrorists qualify as civilians and because of the secrecy of their

¹⁰⁵ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

¹⁰⁶ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

¹⁰⁷ See Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) 7.

¹⁰⁸ J Römer *Killing in a gray area between humanitarian law and human rights: How can the National Police of Colombia overcome the uncertainty of which branch of international law to apply?* (2010) 62.

¹⁰⁹ See H Duffy *The 'war on terror' and the framework of international law* (2015) 369.



operations, it is difficult if not impossible to pin-point at which time one may say that they are directly participating in armed conflict.¹¹⁰

In the drone warfare against terrorism, targeting has not only been on the basis of direct participation in hostilities but also on the basis of membership or suspicion of membership to a terrorist organisation.¹¹¹ There are many scholars who criticize targeting of individuals on the basis that they are members or suspected members of a particular terrorist organisation or network as it is contrary to the rule of distinction.¹¹² It is not unforeseeable that AWS may be used in the fight against terrorism and that the same kind of designating targets that is currently used in drone targeting may be used when Autonomous Weapon Systems are finally deployed. For that reason, the objections that have been noted in as far as drone use and designation of targets is concerned must be repeated and cautioned against in the case of Autonomous Weapon Systems. Such selection of targets includes signature strikes and targeting on the basis of mere suspicion.¹¹³

3.2.4 Continuous Combatant Function

The concept of Continuous Combatant Function (CCF) is sometimes invoked when a person is targeted at a time when they were not involved in a military operation.¹¹⁴ CCF is an important concept that needs to be understood if the rule of distinction is to be complied with.¹¹⁵ Under this concept, an individual is targeted because of his or her

¹¹⁰ See generally, A Goppel *Killing terrorists: A moral and legal analysis* (2013); A Duyan *Defence against terrorism: Different dimensions and trends of an emerging threat* (2012).

¹¹¹ See N Melzer *Targeted killing in international law* (2008)411; A Plaw *Targeting terrorists: a license to kill?* (2013)1; R Otto *Targeted killings and international law: with special regard to human rights and international humanitarian law* (2011)482.

¹¹² G Lennon *Routledge Handbook of law and terrorism* (2015)58.

¹¹³ D Starr-Deelen *Presidential policies on terrorism: from Ronald Reagan to Barack Obama* (2014) 176; M Aaronson *et al Precision strike warfare and international intervention: strategic, ethico-legal and decisional implications* (2014)24.

¹¹⁴ GD Solis *The Law of armed conflict: International humanitarian law in war* (2010) 212.

¹¹⁵ 'The doctrine of continuous combat function posits that a civilian who is repeatedly involved in hostilities through persistent acts of direct participation maybe targeted even at the time he/she is not actively engaged. However, scholars also disagree on what constitutes CCF.' – See T Chengeta 'Are US



continued function of fighting for one of the belligerents.¹¹⁶ The CCF concept is a recent International Humanitarian Law formulation meant to be a solution to some of the challenges that are raised by the doctrine of direct participation in hostilities like the 'revolving door dilemma'.¹¹⁷ This is when a protected person regularly changes from civilian to combatant and back to civilian again.¹¹⁸ Proponents of the CCF argue that such a civilian may be viewed as assuming a continuous combatant function.¹¹⁹ This means that a civilian who regularly engages in hostilities is targetable even at a time he or she is not directly involved in hostilities.¹²⁰

There is however, a number of scholars who disapprove of the CCF concept because it weakens the protection of civilians and is inconsistent with the specific treaty language that targeting must only be 'for such time' that a civilian is engaged directly in hostilities.¹²¹ Further, they point out that the CCF concept has not been accepted by many states as there is an insistence that civilians must not be referred to as 'combatants' and may only be targeted when directly participating in hostilities.¹²² Thus, some scholars have specifically condemned the use of unmanned systems to targeted individuals on the basis of CCF.¹²³ The main reason is that there is no clarity as

drone targeted killings within the confines of the law?' (2011) 41 Unpublished LL.M Thesis, available at [http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are\(2012\).pdf?sequence=1](http://repository.up.ac.za/bitstream/handle/2263/18610/Chengeta_Are(2012).pdf?sequence=1) (accessed 13 July 2015).

¹¹⁶ See <http://www.icrc.org/eng/resources/documents/faq/direct-participation-ihl-faq-020609.htm> (accessed 29 July 2014).

¹¹⁷ N Melzer *Targeted killing in international law* (2008) 347; J Römer *Killing in a gray area between humanitarian law and human rights: How can the National Police of Colombia overcome the uncertainty of which branch of international law to apply?* (2010)62; F Francioni & N Ronzitti *War by contract: Human rights, humanitarian law, and private contractors* (2011) 213.

¹¹⁸ N Melzer *Targeted killing in international law* (2008) 347; N Melzer 'ICRC's interpretive guidance on the notion of direct participation in hostilities under international humanitarian Law' 1.

¹¹⁹ See GD Solis *The law of armed conflict: international humanitarian law in war* (2010)205.

¹²⁰ See GD Solis *The law of armed conflict: international humanitarian law in war* (2010)205.

¹²¹ See Article 13(3) of APII.

¹²² A Clapham & P Gaeta *The Oxford Handbook of international law in armed conflict* (2014) 321.

¹²³ SA Shah *International law and drone strikes in Pakistan: The legal and socio-political aspects* (2014) 183-5.



to whether targeted individuals were in fact members of a particular armed group or whether the terrorist group is an armed group in the first place.¹²⁴

A belligerent who chooses to target an individual on the basis of CCF doctrine carries an onerous burden to prove that the individual targeted was indeed assuming that role – a burden which the US has been reluctant to discharge as far as its targeting of suspected terrorists is concerned.¹²⁵ The targeting of persons on the basis of suspicion that they are members to terrorist groups is condemned in the strongest terms and such condemnation extends to all use of unmanned systems – AWS included.

To this end, in order to comply with the rule of distinction, autonomous systems should not, in the first place, be programmed to target individuals on the basis of suspicion alone. Such occurrence is likely since one of the ways by which AWS will identify their targets is through facial recognition that is coded into the computer of the system before it is deployed.¹²⁶ Before someone's facial features or identity is put into a robot, the rule of distinction would require at least that there should be a traceable record of that particular person's involvement in hostilities.¹²⁷

Further, it is emphasised that in order for Autonomous Weapon Systems to comply fully with the rule of distinction, they should not be programmed to target all 'associated forces and supporters of terrorists groups' as has been the case with drone targeted killings.¹²⁸ It goes without saying that targeting individuals on the basis of an 'abstract affiliation' is inconsistent with the rule of distinction.¹²⁹ Having discussed the status and

¹²⁴ SA Shah *International law and drone strikes in Pakistan: The legal and socio-political aspects* (2014) 183-5.

¹²⁵ M O'Connell 'Unlawful killing with combat drones a case study of Pakistan' (2010)2.

¹²⁶ See Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 11.

¹²⁷ This is in accordance with the rule on distinction.

¹²⁸ H Duffy *The 'War on Terror' and the framework of international law* (2015) 413.

¹²⁹ E Crawford *Identifying the enemy: Civilian participation in armed conflict* (2015) 123.



requirements of the rule of distinction, I now turn to consider whether AWS are capable of complying with the standard above.

3.2.5 Autonomous Weapon Systems' capability to comply with distinction

In view of the challenges faced on the battlefield when it comes to distinguishing those directly taking part in hostilities and those who are not, the question is whether or not AWS will be able to comply with the rule of distinction.¹³⁰ Of course, one of the fundamental and underlying considerations in this whole discussion is whether in the first place AWS should be allowed to make this legal calculation and judgment which has been the preserve of human combatants. To ask whether AWS can comply with the rule of distinction is like to 'approach the courts with dirty hands', it is like to question whether child soldiers are capable of complying with International Humanitarian Law – the case falls where it stands. As observed by Heyns, there are two questions to this matter: *Can they do it and should they do it?* As highlighted in Chapter 2, in my opinion the question *should they do it* takes precedence.

i) How AWS select their targets

In order to fully discuss the above question on whether AWS can be able to comply with the rule of distinction, it is important to start by understanding some ways by which AWS will select their targets. Correct identification of legitimate targets is the crux of the rule of distinction which in armed conflict demands belligerents to distinguish between combatants and civilians whilst in human rights law lethal force must only be directed against lawful targets.¹³¹

¹³⁰ A Clapham & P Gaeta *The Oxford Handbook of international law in armed conflict* (2014) 331, noting the difficulties in the practical application of the rule of distinction in contemporary armed conflicts; See also M Schmitt 'Deconstructing direct participation in hostilities: the constitutive elements' (2010) 42 NYU Journal of International Law and Policy 699; B Boothby 'And for such time as: the time dimension to direct participation in hostilities' (2010) 42 NYU Journal of International Law and Policy 758.

¹³¹ Art 48 of AP1 to the GCs.



As noted above, the rule of distinction is applicable both to natural persons and objects¹³² with the intention of minimising harm to civilians and their property.¹³³ Just like humans, AWS are expected to distinguish civilians from combatants. To discriminate between civilian and military objects and personnel, AWS are expected to use devices like ‘cameras, infrared sensors, sonars, lasers, temperature sensors, and radars’ etc.¹³⁴ AWS will have some form of *artificial intelligence*, equipping them with definite ‘human like capabilities such as a pattern recognition, text parsing and planning/problem solving’.¹³⁵

There is a concern however, as to whether the rule of distinction as discussed above can be sufficiently translated into a computer code when currently International Humanitarian Law does not provide an adequate definition of a civilian that could allow AWS to correctly and lawfully select their targets.¹³⁶ This is exacerbated by the complications and unpredictability nature of contemporary conflicts as highlighted above.¹³⁷

Notwithstanding the above concern, to make the sensory and visual discrimination in their targeting, AWS may rely on two aspects of identification. Firstly, the appearance of the target – this includes aspects such as facial recognition where the target is human – and other distinctive signs such as military uniforms.¹³⁸ In relation to appearance-based targeting, AWS are ‘programmed to recognize who the enemy is and what objects

¹³² D Stewart ‘New technology and the law of armed Conflict: technological meteorites and legal dinosaurs?’ in RA Pedrozo & P Daria (eds) *US Naval War College International Law Studies* (2011) 275.

¹³³ AZ Borda *International humanitarian law and the International Red Cross and Red Crescent Movement* (2013) 3.

¹³⁴ NE Sharkey ‘The inevitability of autonomous robot warfare’ (2012) *International Review of the Red Cross* 788-789.

¹³⁵ A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010) 5.

¹³⁶ Art 50(1) of AP1 defines a civilian in the negative sense as someone who is not a combatant whilst the GCs more fully require the use of common sense in ascertaining who is a civilian; See also NE Sharkey ‘The inevitability of autonomous robot warfare’ (2012) *International Review of the Red Cross* 788-789.

¹³⁷ See C Harvey *et al Contemporary challenges to the laws of war: essays in honour of Professor Peter Rowe* (2014)86.

¹³⁸ See P Finn ‘A future for drones: automated killing’ (2011) *Washington Post*; see also NE Sharkey & L Suchman ‘Wishful mnemonics and autonomous killing machines’ (2013) 14-22 *Proceedings of the AISB* 136.



belong to the enemy'.¹³⁹ In order to recognise this distinction in a consistent manner, AWS are expected to have advanced image recognition technology incorporated in them.¹⁴⁰

As far as selection of targets on the basis of facial recognition is concerned, targeting by AWS may be more precise.¹⁴¹ However, such criteria will be limited to targeted killings of known individuals as opposed to the general members of an armed force or group.¹⁴²

As regards to other appearance or forms such as military uniforms, military instalments and other distinctive marks, it remains to be seen whether it is possible technologically, for AWS and their sensors to distinguish military uniforms of its own soldiers – given that most uniforms worldwide are camouflage – and own military installations from those of the enemy. In essence, it may be very easy for the enemy to deceive AWS by for example, carrying marks that are considered friendly. One can imagine what an Autonomous Weapon System would do in a situation where it is deployed alongside human soldiers who then happen to be captured or become *hors de combat* in the hands of the enemy. Will AWS be able to distinguish its own soldiers from enemy soldiers who are all dressed in camouflage? Will the presence of their own soldiers amongst the enemy stop AWS from engaging the enemy soldiers? How about installations and armoured vehicles belonging to peace keeping missions?

More importantly, the rule of distinction demands that civilian objects should be distinguished from military objects.¹⁴³ It is not new that sometimes civilian objects may

¹³⁹ JS Thurnher 'No one at the controls: legal implications of autonomous targeting' (2012) 67 *Joint Force Q* 80.

¹⁴⁰ AK Killer *Robots: legality and ethicality of autonomous weapons* (2009)2.

¹⁴¹ See <http://www.e-ir.info/2013/05/27/autonomous-weapons-systems-and-the-future-of-war/> noting that 'an autonomous micro-drone could be sent to search for a particular individual using biometrical identification methods (e.g. facial recognition or DNA analysis) and kill this individual with high precision and with no collateral damage.' (Accessed 13 April 2015).

¹⁴² See <http://www.e-ir.info/2013/05/27/autonomous-weapons-systems-and-the-future-of-war/> (accessed 13 April 2015).

¹⁴³ B Cali *International law for international relations* (2010) 246.



have dual use or may be abused to a certain extent by fighters.¹⁴⁴ This is where a human soldier is required to make a value judgment, proportional calculations in order to comply with the rule of distinction.¹⁴⁵ If AWS without ‘Meaningful Human Control’ are going to be programmed to attack, the question is whether in some of these circumstances they will be able to make these value judgments to comply with the rule of distinction.

The second criterion for selection of targets is based on the patterns of behaviour or conduct of the targeted individual.¹⁴⁶ This type of selection of targets is more relevant in current armed conflicts especially non-international armed conflicts (NIAC), where in most cases fighters do not have uniforms.¹⁴⁷ In that regard, targeting—even by human soldiers—has been on the basis of one’s conduct, which is direct participation in hostilities as discussed above.¹⁴⁸

Ascertaining that a civilian is directly participating in hostilities is difficult. Like in the case of human combatants, it is expected that AWS will have difficulties ascertaining legitimate targets on the basis of conduct.¹⁴⁹ Carrying of arms alone does not make one a legitimate target.¹⁵⁰ There are many ways by which AWS may misconstrue a person’s conduct either to the detriment of the person or to their own detriment.¹⁵¹

To be fair, if AWS were to be deployed in certain environments for example where there are only combatants or fighters, they may be able to comply with the rule of distinction to some extent since in those circumstances the battlefield is less complicated.¹⁵² An

¹⁴⁴ I Henderson *The contemporary law of targeting* (2009) 59.

¹⁴⁵ On the assessing the degree of usage for a civilian object to be targetable see F Bouchet-Saulnier *et al The practical guide to humanitarian law* (2007)270.

¹⁴⁶ JS Thurnher ‘No one at the controls: legal implications of autonomous targeting’ (2012) 67 *Joint Force Q* 80.

¹⁴⁷ S Sivakumaran *The law of non-international armed conflict* (2012) 417.

¹⁴⁸ Art 51(3) of API.

¹⁴⁹ PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 402.

¹⁵⁰ T Kapitan *Philosophical perspectives on the Israeli-Palestinian conflict* (1997) 150.

¹⁵¹ Of course in the case of AWS the detriment is to the one who deploys them.

¹⁵² J Lewis ‘The case for regulating fully autonomous weapons’ (2015) *Yale Law Journal* 1311.



example is where a soldier in a desert would activate an Autonomous Weapon System to search for a particular individual or enemy. Now that they are no civilians or other protected persons in the desert hence no need for proportional calculations and other value judgments, it is likely that the system may not violate the rule of distinction.

It should be remembered nevertheless, that the rule of distinction does not only seek to protect civilians, but also fighters who surrender or who become *hors de combat* by virtue of wounds or sickness.¹⁵³ In the above example, a situation may arise that after activation of the Autonomous Weapon System to hunt for a specific person; the person may seek to surrender or may become *hors de combat* by virtue of sickness or wounds. The fundamental question becomes whether AWS have the technological advancement to take note of this and refrain from targeting. Failure to do so or attacking a surrendering fighter or one who is no longer participating in hostilities by virtue of wounds or sickness would be a violation of the rule of distinction.¹⁵⁴

Furthermore, in many situations, it can be argued that AWS may be incapable of complying with the rule of distinction.¹⁵⁵ This is so because of four major reasons: technological limitations of AWS,¹⁵⁶ lack of precise definitions in international humanitarian law¹⁵⁷, the nature of today's armed conflict that demands in many instances human judgement¹⁵⁸ and technical fault or possible malfunctioning of AWS.¹⁵⁹

¹⁵³ See GS Corn *et al Belligerent targeting and the invalidity of a least harmful means rule* (2015)585.

¹⁵⁴ See GS Corn *et al Belligerent targeting and the invalidity of a least harmful means rule* (2015)585.

¹⁵⁵ See <http://www.hrw.org/ru/node/111291/section/7> (accessed 13 April 2015).

¹⁵⁶ Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects', 26-28 March 2014, Geneva, p 7.

¹⁵⁷ JM Henckaerts *et al Customary international humanitarian law* (2005) 22; E Wilmshurst *International Law and the classification of conflicts* (2012) 106.

¹⁵⁸ See in general D Rothbart *et al Civilians and modern war: armed conflict and the ideology of violence* (2012).

¹⁵⁹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, para 90.



ii) *Technological limitations of AWS to comply with rule of distinction*

One of the major reasons noted as to why AWS will be unable to comply with the rule of distinction is that there are technological limitations of AWS which makes it impossible for them to be designed in a way that can comply with the rule of distinction.¹⁶⁰ We do not have the necessary or adequate technology to design AWS with sufficient artificial intelligence that would allow them to discriminate targets in accordance with the law.¹⁶¹

Scholars have articulated various situations within which AWS may fail to sufficiently discriminate in terms of the law. One of such examples is where AWS may fail to distinguish civilians from combatants due to failure to ascertain identity.¹⁶² This may be due to what roboticist Noel Sharkey notes as limitations of existing sensors to make proper identification.¹⁶³

During the 2014 CCW Meeting on AWS, Sharkey noted in his presentation that to program some of the simple software that would be needed for AWS to comply with rules of international humanitarian law would take several decades.¹⁶⁴ Another example is where AWS may fail to interpret conduct of an individual, as to whether one is directly participating in hostilities or not as noted above. In this regard, Noel Sharkey has referred to possible situations where an autonomous system may mistakenly gun down a child who is running around with a toy gun towards it.¹⁶⁵ In those cases, Sharkey

¹⁶⁰ Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects', 26-28 March 2014, Geneva, p 7.

¹⁶¹ Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects', 26-28 March 2014, Geneva, p 7.

¹⁶² N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica & Società* 2.

¹⁶³ N Sharkey 'Grounds for discrimination: autonomous robot weapons' (2008) *RUSI Defence Systems* 88-89. Available at <http://rusi.org/downloads/assets/23sharkey.pdf> (accessed 11 January 2013).

¹⁶⁴ See Noel Sharkey, presentation at the 2014 CCW Expert Meeting on Lethal Autonomous Weapon Systems audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/D11C3EF955B32937C1257CED0046204D/\\$file/1063.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/D11C3EF955B32937C1257CED0046204D/$file/1063.MP3) (accessed 7 September 2014).

¹⁶⁵ See 'Toy soldiers to killer robots: Prof Noel Sharkey at TEDxSheffield 2013' presentation accessible on YouTube at <https://www.youtube.com/watch?v=kjRV9FzdQnk&hd=1> (accessed 13 April 2015).



argues that human judgment is vital as a human combatant would understand such a situation while a robot cannot.¹⁶⁶

More so, as already noted above, it is doubted whether AWS will have sensors that are advanced enough to note that someone is about to surrender or is in pain due to wounds and therefore eligible for protection since the person is now *hors de combat*.¹⁶⁷ Of course there are current roboticists who claim that there are robots which are able to sense whether one is in pain or faking it.¹⁶⁸ Whether such software will be installed in AWS remains to be seen.

However, as far as a possible scenario of a fighter or combatant surrendering is concerned, there are two hurdles that may be impossible to overcome. Firstly, on the battlefield, to ascertain whether one is surrendering or is about to surrender requires the ability – at least to some degree – to be able to read human intention.¹⁶⁹ It is unlikely that AWS may be able to read human intention.¹⁷⁰ Secondly, the current form of AWS like the X47B and the Taranis are in the form of drones the only difference being that no one is at the controls. Since most of these AWS will be flying hundreds if not thousands of feet high, it is practically impossible to surrender to them.¹⁷¹ Rather, the opportunity to surrender is ultimately taken away – a situation almost equivalent to

¹⁶⁶ As above.

¹⁶⁷ HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)222.

¹⁶⁸ See <http://www.gizmag.com/computers-outdo-humans-detecting-expressions-pain/31338/> (accessed 13 April 2015).

¹⁶⁹ Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects', 26-28 March 2014, Geneva, p 12.

¹⁷⁰ See Human Rights Watch 'Losing Humanity' 31; MN Schmitt & JS Thurnher 'Out of the loop: autonomous weapon systems and the law of armed conflict' (2013) *Harvard National Security Journal* 248.

¹⁷¹ See International Human Rights Clinic 'Advancing the debate on killer robots: 12 key arguments for a pre-emptive ban on fully autonomous weapons' (2014) 5 available at hrp.law.harvard.edu/wp-content/.../05/Advancing-the-Debate_final.pdf (accessed 13 April 2015); see also <http://cs.stanford.edu/people/eroberts/cs181/projects/autonomous-weapons/html/argagainst.html> (accessed 13 April 2015).



giving an ‘order that there shall be no survivors’ which is prohibited under the laws of international humanitarian law.¹⁷²

Although this is related to technological limitation, the following argument is more of a programming and design limitation on AWS. The definition of AWS is that once they are activated they require no further human intervention.¹⁷³ If such AWS are deployed, it is highly likely that they may violate the rule of distinction at a certain stage. A legitimate target, I argue, can turn into an illegitimate target during the course of an attack for several reasons some of them I have already addressed above.¹⁷⁴ For that reason, if there is no one at the controls, when the status of the target changes to that which is protected by the laws of war, then the system will, from that stage henceforth, violate the rule of distinction.

iii) The challenge of definitional imprecision of IHL terms

As already noted, defining a civilian who is directly participating in hostilities, who can be designated with a continuous combatant function, who is a combatant or what is meant by a military objective is a daunting task. There remains a definitional deficiency or uncertainty of these International Humanitarian Law terms despite the International Committee of the Red Cross’s continued effort to give clarity to some of these terms.

The question at this stage becomes how to translate imprecise terms that are subject to case by case application into a computer. If anything, the basic rule of computers is precision, no wonder one of the basic lessons to a computer science learner is what have become to be known as ‘Garbage In, Garbage Out’ (GIGO).¹⁷⁵ This means that ‘if invalid data is entered in a computer program, the resulting output will also be

¹⁷² J Crowe & K Weston-Scheuber *Principles of international humanitarian law* (2013) 67; JM Henckaerts et al *Customary international humanitarian law* (2005) 163.

¹⁷³ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 38.

¹⁷⁴ For example if an individual becomes *hors de combat* by virtue of wounds or sickness.

¹⁷⁵ See <http://techterms.com/definition/gigo> (accessed 24 February 2015).



invalid'.¹⁷⁶ To the same end, if weapon systems are going to be programmed and coded with imprecise definitions, what we are going to get are imprecise outcomes – much to the violation of the rule of distinction. The question may be: How then are these definitions being used as they currently stand? The answer is simple: - humans on the battle field continue in every circumstance to use discretion, human judgment and deliberation which is most suited if not needed to make most of these definitions workable.¹⁷⁷

To this end, Asaro augmenting Sharkey, points out that the complexity and absence of clarity in terms that are used in International Humanitarian Law in particular as to who qualifies as a combatant or civilian makes it impossible for the definitions to be sufficiently translated into computers.¹⁷⁸ The end result is that AWS that will be programmed on the basis of the current definitions and subsequently unleashed without 'Meaningful Human Control' pose a high risk of not being able to comply with the rule of distinction.¹⁷⁹

iv) The nature of contemporary armed conflicts and impracticability of AWS

As I have already highlighted above, the nature of contemporary conflicts, where there is civilianisation of armed conflicts, requires that a human being, with all the situational awareness and discernment, be present at the point when force is deployed to ascertain

¹⁷⁶ See <http://techterms.com/definition/gigo> (accessed 24 February 2015).

¹⁷⁷ On importance of human judgement see Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 5.

¹⁷⁸ P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanisation of lethal decision-making' (2013) 94 *International Review of the Red Cross* 11.

¹⁷⁹ See N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica & Società* 2; N Sharkey 'Grounds for discrimination: autonomous robot weapons' (2008) RUSI Defence Systems 88-89. Available at <http://rusi.org/downloads/assets/23sharkey.pdf> (accessed 11 January 2013).



the correctness of targets.¹⁸⁰ This point has been noted by Human Rights Watch which notes that most cases of today's armed conflict have taken the form of asymmetric warfare.¹⁸¹

More often than not, it is difficult to distinguish who is directly participating in hostilities, therefore making human judgement enigmatically important in interpreting emotions and intentions for accurate identification of legitimate targets.¹⁸² Thus, the arguments that have been made by certain scholars that AWS should not be outlawed because there are certain circumstances where in a closed environment and removed from civilians AWS can be used legally, fails to appreciate the nature of contemporary conflicts.

Furthermore, not only does the above argument rick of the one that was being made in favour of nuclear weapons that they can be used in certain environments in accordance with the law, but also fails to appreciate the nature of contemporary armed conflicts wherein these AWS are likely to be used. It would be an error to fail to recognise that one of the major factors that have influenced the production of unmanned systems such as drones is the idea of using them against terrorist without risking one's personnel.¹⁸³ Terrorists' *modus operandi* is to blend in with civilians and fight from within the civilian population.¹⁸⁴ Therefore, to argue that states will spend billions of dollars to develop a state of the art weapon only to wait to use it in a highly improbable situation where they find a terrorist tottering alone in a lone desert is too theoretical and academic.

The ICRC has interpreted Article 36 of Additional Protocol 1 on the review of new weapons to the effect that when considering the lawfulness of new weapons, it is its

¹⁸⁰ As above.

¹⁸¹ WC Banks *New battlefields/old laws: critical debates on asymmetric warfare* (2013).

¹⁸² Human Rights Watch 'Losing humanity: the case against killer robots' (2012) 31. Available from <http://www.hrw.org/reports/2012/11/19/losing-humanity-0> (accessed 2 January 2013).

¹⁸³ See generally M Benjamin *Drone warfare: killing by remote control* (2013).

¹⁸⁴ See generally M Evangelista *Law, ethics, and the war on terror* (2013).



probable and normal use of the weapon that should be taken into consideration.¹⁸⁵ It is within reason that most of the Autonomous Weapon Systems like the X47B will be used in the war against terror just like their predecessor – armed drones.¹⁸⁶ The environment in which these high-tech weapons are likely to be used makes it difficult if not impossible to comply with the rule of distinction.

v) *Technical fault or malfunctioning of AWS and the rule of distinction*

Another fundamental issue that may threaten the rule of distinction is that these systems may malfunction and as a result violate this important rule. There are definitely several reasons why the said malfunction is possible. In Chapter 1, I highlighted situations where some of these unmanned autonomous systems malfunctioned; turning against the persons deploying them and in some cases actually killing individuals by mistake.¹⁸⁷

Of course the immediate response to the above argument is that humans make mistakes too. However, here I refer to the argument that is propounded by Heyns: where a belligerent chooses to use high-tech weapons, the standard should be raised higher.¹⁸⁸ If there is a possibility that these weapon systems may malfunction, then they should remain under human control – a human combatant or fighter who supervises them so that he or she may override, terminate or abort missions the moment it becomes clear that the system is malfunctioning.¹⁸⁹

¹⁸⁵ See ICRC Guide on the review of new weapons in terms of Article 36 of Additional Protocol I.

¹⁸⁶ See M Benjamin *Drone warfare: killing by remote control* (2013).

¹⁸⁷ N Shachtman 'Robot cannon kills 9, wounds 14' (2007) available at <http://www.wired.com/dangerroom/2007/10/robot-cannon-ki/>; L Page 'US war robots in Iraq 'turned guns' on fleshy comrades: kill-droid rebellion thwarted this time' (2008). Available at http://www.theregister.co.uk/2008/04/11/us_war_robot_rebellion_iraq/ (accessed 27 February 2014).

¹⁸⁸ Discussion between me and Professor Christof Heyns.

¹⁸⁹ N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica & Società* 11.



vi) *The argument that AWS can comply with distinction better than humans*

It would be an injustice to conclude this section without referring to some of the arguments that have been made that AWS are capable of complying with the rule of distinction and other rules to be discussed below – better than humans can.¹⁹⁰

Arkin is amongst the leading scholars postulating that it is possible not only to create AWS capable of complying with the rules of distinction and others, but even so – better than humans.¹⁹¹ He argues that it is possible to integrate ‘a moral faculty’ into AWS through components such as ‘a transformer/suppressor of system-generated lethal action’ (ethical governor) whose purpose is to ensure better compliance with the law.¹⁹²

According to Arkin, there are about four elements that can be coded into AWS to comply with the law namely; ‘(1) post facto suppression of unethical behaviour, (2) behavioural design that incorporates ethical constraints from the onset, (3) the use of affective functions as an adaptive component in the event of unethical action, and (4) a mechanism in support of identifying and advising operators regarding the ultimate responsibility for the deployment of such a system’.¹⁹³

A reading of Arkin’s article may give an idea that it is possible to create an ethical robot. Nevertheless, during a debate on AWS between him and Robert Sparrow, Arkin conceded that a robot can never be termed ethical, especially from a philosophical point of view.¹⁹⁴ Such a concession may not, however, mean that a robot cannot act ethically.

¹⁹⁰ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) Technical Report GIT-GVU-07-11 p 61; See also R Arkin ‘Governing Lethal Behaviour in Autonomous Robots’ (2009) *International Committee of the Red Cross Press* 127.

¹⁹¹ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) Technical Report GIT-GVU-07-11 p 61; See also R Arkin ‘Governing Lethal Behaviour in Autonomous Robots’ (2009) *International Committee of the Red Cross Press* 127.

¹⁹² R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* p 61; See also R Arkin ‘Governing Lethal Behaviour in Autonomous Robots’ (2009) *International Committee of the Red Cross Press* 127.

¹⁹³ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* p 1.

¹⁹⁴ See the debate here http://www.youtube.com/watch?v=nO1oFKc_-4A&feature=youtu.be.



Citing scholars like May and others who attribute war atrocities to human emotions such as ‘the passion for inflicting harm, the cruel thirst for vengeance, an unpacific and relentless spirit, the fever of revolt, the lust for power, and suchlike things’,¹⁹⁵ Arkin argues that because AWS are devoid of human emotions, they can do a better job in complying with international humanitarian law rules such as the rule of distinction.¹⁹⁶ He insists that the current state of affairs on the battlefield is unacceptable therefore making it imperative to develop AWS.¹⁹⁷

To this end, Schmitt argues that from the beginning it should be understood that AWS are not unlawful weapons *per se*, as their autonomy does not mean that they cannot comply with important rules like distinction and weapons law rules on the prohibition of those that cause unnecessary or superfluous injury.¹⁹⁸ For that reason, he argues that recommendations to ban Autonomous Weapon Systems are ‘insupportable as a matter of law, policy, and operational good sense’.¹⁹⁹

When I addressed the argument that there is possibility of AWS malfunctioning, I noted my concurrence with Heyns that if a state is to use these high-tech weapons, the standard must be higher.²⁰⁰ However, in support of Arkin’s proposals, Patrick Lin postulates that ‘scientists and engineers need not first solve the daunting task of creating a truly ‘ethical’ robot, at least in the foreseeable future; rather, it seems that they only need to program a robot to act in compliance’ with IHL which is ‘a low standard to satisfy’.²⁰¹ To that end, Lin argues that the question should not be whether robots should be infallible but whether they can perform better than humans as far as

¹⁹⁵ L May et al *The morality of war: classic and contemporary readings* (2005) 28.

¹⁹⁶ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* p 2.

¹⁹⁷ See http://www.youtube.com/watch?v=nO1oFKc_-4A&feature=youtu.be.

¹⁹⁸ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to critics’ (2013) *Harvard National Security Journal Features* 35.

¹⁹⁹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to critics’ (2013) *Harvard National Security Journal Features* 3.

²⁰⁰ Discussion between me and Professor Christof Heyns.

²⁰¹ P Lin et al ‘Robots in War: Issues of Risk and Ethics’ in R Capurro & M Nagenborg (eds) *Ethics and Robotics* (2009) 50.



compliance with the law is concerned.²⁰² Comparing humans to machines, Martin Cook states that ‘human beings fall short of [the already low] standard with depressing regularity’.²⁰³

vii) On whether the possibility of robots performing better than humans is the crux of the matter

State a moral case to a ploughman and a professor. The former will decide it as well, and often better than the latter, because he has not been led astray by artificial rules.²⁰⁴

As to whether AWS can be better than humans in when it comes to complying with the rules of International Humanitarian Law such as distinction, Marchant *et al* and relying on Arkin’s 2011 paper²⁰⁵, refer to a number of reasons why they can be better.²⁰⁶ According to these scholars, since AWS are created without emotions, they do not act out of anger, frustration, revenge fear or hysteria which in the battle field always influences human combatants to ‘press toward fearful measures’.²⁰⁷

More so, because AWS are non-human without need of self-preservation, they can act conservatively for example using lethal force only when they are fired upon.²⁰⁸ Furthermore, it is considered that AWS’ robotic sensors give them better ‘battlefield observations’ compared to humans and their advanced processors allow them to analyse information from different sources faster and more accurate than humans, who, in today’s technological warfare have considerably become the weakest link.²⁰⁹ Over

²⁰² As above p 50.

²⁰³ M Cook *The moral warrior: Ethics and service in the US military* (2004) 217.

²⁰⁴ Thomas Jefferson 1787, quoted by R Arkin in ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11*.

²⁰⁵ R Arkin in ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* p 6.

²⁰⁶ G Marchant et al, ‘International governance of autonomous military robots’ (2011) XII *Columbia Science and Technology Law Review* 280.

²⁰⁷ M Walzer *Just and unjust wars* (1977) 251.

²⁰⁸ G Marchant et al, ‘International governance of autonomous military robots’ (2011) XII *Columbia Science and Technology Law Review* 280.

²⁰⁹ G Marchant et al, ‘International governance of autonomous military robots’ (2011) XII *Columbia Science and Technology Law Review* 280.



and above, Marchant hints on the potential capability of AWS to ‘independently and objectively’ monitor the ‘ethical behaviour in the battlefield by all parties and reporting infractions that might be observed’.²¹⁰

If the above arguments pro-AWS hold water, Jonathan Herbach argues that there would be an obligation to use them²¹¹ since even the ICRC considers that ‘any weapon that makes it possible to carry out more precise attacks, and helps avoid or minimise incidental loss of civilian life, injury to civilians, or damage to civilian objects, should be given preference over weapons that do not’.²¹²

However, in as much as it is true that AWS will not act in self-preservation, waiting to be fired upon first thereby targeting only those who are immediately participating in hostilities, this argument again fails to take into account the realities of the form of the technology and the context within which it will be used. To start with, with AWS that may be used to hunt and kill perceived terrorists, it is highly unlikely that terrorists will see it and shoot at it. For that reason, it would be technologically redundant that billions of dollars will be spent on the development of a weapon whose offensive is only triggered upon it being shot at first. Above all things, if the enemy combatant will know that the robot only attacks after being attacked, why on earth would one risk their life by attacking it? Where one would choose to attack it, surely it will not be to ‘bruise’ it but to totally disable it. Are states willing to have billions of dollars put to waste through this way? It is unlikely.

Regarding the argument that AWS will be able to process information faster thereby making decisions quicker as far as targeting is concerned, it is agreeable that this may be advantageous when it comes to precision. Nevertheless, precision in targeting does not

²¹⁰ G Marchant et al, ‘International governance of autonomous military robots’ (2011) XII *Columbia Science and Technology Law Review* 280.

²¹¹ J Herbach ‘Into the caves of steel: precaution, cognition and robotic weapons systems under the international law of armed conflict’ (2012) 4 *Amsterdam Law Forum* 14.

²¹² ICRC ‘The use of armed drones must comply with laws’ (2013). Available at www.icrc.org/eng/resources/documents/interview/2013/05-10-drone-weapons-ihl.htm (accessed 11 October 2013).



necessarily mean that those targeted are lawful targets. This goes back to the argument I noted above: it all depends on the correctness of the information the AWS is processing faster than humans – garbage in garbage out.²¹³ If the sensors of an AWS are unable to correctly identify targets, then the information so gathered is erroneous and will lead to the violation of the rule of distinction and other rules.

More importantly as I have noted when I addressed the rule of humanity above and also as will be addressed further in Chapter 6 on the Martens Clause, the rules of International Humanitarian Law work in unison – they complement each other. The ultimate goal of these rules is not only to save lives of protected persons as is the main aim of the rule of distinction.²¹⁴ The purpose of International Humanitarian Law is also to protect the right to dignity of both protected persons and fighters.²¹⁵ That is where the rule of humanity comes into play. Thus, even if in certain situations AWS may be able to comply with the rule of distinction thereby satisfying the *can they do it* question, it still needs to be considered whether they *should do it* which falls under the rule of humanity articulated above.²¹⁶

To summarise the arguments I have made on the rule of distinction and whether AWS without ‘Meaningful Human Control’ can comply with this rule, I note that the rule of distinction is the corner stone for the protection of civilians and other protected persons. This rule has acquired the status of *jus cogens* and should be respected. Understanding the definition of a civilian, direct participation in hostilities and other terms is fundamental for the purposes of implementing the rule. The existing definitions are not clear cut and are delicate; they are subject to change depending on the conduct of the individual in a particular circumstance. Protection available to persons in terms of this rule is therefore fluid, changing depending on particular circumstances. For that

²¹³ See <http://techterms.com/definition/gigo> (accessed 13 April 2015).

²¹⁴ CFJ Doebbler *Introduction to international humanitarian law* (2005) 39.

²¹⁵ G Oberleitner *Human rights in armed conflict* (2015)102.

²¹⁶ Professor Christof Heyns in his forthcoming paper discusses the legal question can AWS do it and if they can do it the moral question should they do it.



reason, it is difficult if not impossible to translate these definitions sufficiently into AWS. Furthermore, the technological limitations of AWS, the uncertainties of the nature of contemporary conflicts, the confusing role played by civilians in these conflicts makes one conclude that AWS without ‘Meaningful Human Control’ will not be able to comply with the rule of distinction.

3.3 IHL rule of proportionality and AWS

Another important rule in International Humanitarian Law is the rule of proportionality. While the principle of distinction demands that a belligerent must distinguish between military and civilian objectives, it is common place that a strike on a military object may have an effect on civilian objects.²¹⁷ In International Humanitarian Law, incidental harm is acceptable but only when it complies with the rule of proportionality.

The rule of proportionality is a rule of customary international law²¹⁸ prohibiting attacks on military objectives that have cause extreme ‘incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof’ that cannot be justified by any ‘concrete and direct military advantage anticipated’.²¹⁹

The rule of proportionality is not a stand-alone rule but a critical element of the rule of distinction – in that an attack that causes disproportionate harm to a civilian may in certain circumstances be considered an indiscriminate attack. While the rule of distinction concerns itself with ‘*which* things may be attacked’, the rule of proportionality focuses on ‘*how* things may be attacked’.²²⁰ It thus prohibits a

²¹⁷ LC Green *The contemporary law of armed conflict* (1993) 152.

²¹⁸ See Rule 11-14 of Customary IHL.

²¹⁹ Article 51(5) of API; See J Crowe & K Weston-Scheuber *Principles of international humanitarian law* (2013) 55; D Fleck *The handbook of international humanitarian law* (2013) 160; E Crawford & A Pert *International humanitarian law* (2015) 174.

²²⁰ Y Dinstein ‘Collateral damage and the principle of proportionality’ in D Wippman & M Evangelista (eds) *New wars, new laws? Applying the laws of war in the 21st century conflicts* (2005)211; F Hampson ‘The principle of proportionality in the law of armed conflict’ (2010)46 in S Perrigo & J Whitman (eds) *The*



belligerent from choosing a means or method of warfare that will cause disproportionate harm to the military advantage anticipated.²²¹

In relation to weapons, a combatant is obliged to first consider the impact of a particular weapon in a particular context and only choose a weapon that has a higher degree of precision in order to minimise incidental harm. Fighters must choose means and methods of warfare that more fully save the lives of civilians.²²² This is the same consideration when complying with the rule on precaution.

3.3.1 Calculating proportionality

The calculation of whether certain collateral damage is excusable is on a case by case basis and in many circumstances requires human judgment that allows an all-round assessment of the situation.²²³ To that end, Heyns notes that 'proportionality assessments often involve qualitative rather than quantitative judgments'²²⁴ – assessments which at present can only be done by humans. It is for that reason that Sharkey insists that the lack of human judgement in AWS will make it impossible for

Geneva conventions under assault (2010)46.

²²¹ J Crowe & K Weston-Scheuber *Principles of international humanitarian law* (2013) 55; D Fleck *The handbook of international humanitarian law* (2013) 160; E Crawford & A Pert *International humanitarian law* (2015) 174.

²²² M Wells-Greco 'Operation Cast Lead: *jus in bello* proportionality' (2010)57 *Netherlands International Law Review* 397.

²²³ On importance of human judgement see Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 5.

²²⁴ C Heyns *Report on lethal autonomous robots to the Human Rights Council* (2013) A/HRC/23/47 p 14 citing M Wagner 'The dehumanization of international humanitarian law: legal, ethical, and political implications of autonomous weapon systems' (2012) available from http://robots.law.miami.edu/wp-content/uploads/2012/01/Wagner_Dehumanization_of_international_humanitarian_law.pdf.



them to comply with the rule of proportionality.²²⁵ Thus, Krishnan perceives situations where AWS may launch an attack based on misconceptions of the context.²²⁶

One scholar thus observes that ‘proportionality could be like an elephant, difficult to define but easy to recognise’.²²⁷ For the same reasons as have been cited concerning other rules, AWS will not be able to comply with the rule on proportionality if humans are out of the loop or not in ‘meaningful control’ of them once they are activated. The rule of proportionality is also linked to the rule of military necessity.²²⁸

3.4 IHL rule of precaution and AWS

The IHL rule of precaution is codified in Article 57 of API to the Geneva Conventions. The rule of precaution is part of customary international law.²²⁹ It is important to emphasize that this is a rule of customary international law because some states that are involved in the development of AWS such as the US and Israel are not party to Additional Protocol I.²³⁰

The ICRC’s Customary International Humanitarian Law Database provides that Article 57 of Additional Protocol I codified existing customary international law.²³¹ This supports the argument that in warfare, the rule of precaution has always existed even before the codification of International Humanitarian Law. The rule of precaution is closely related to the rule of distinction.²³² The objective of the rule of precaution is to make sure that

²²⁵ N Sharkey, ‘Automated killers and the computing profession’ (2007) 40 *Computer* 122.

²²⁶ AK Krishnan *Killer Robots: legality and ethicality of autonomous weapons* (2009) 98-99.

²²⁷ F Hampson ‘The principle of proportionality in the law of armed conflict’ (2010) 54.

²²⁸ J Crowe *et al Principles of international humanitarian law* (2013) 56.

²²⁹ JD Herbach ‘Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict’ (2012) *Amsterdam Law Forum* 8.

²³⁰ JD Herbach ‘Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict’ (2012) *Amsterdam Law Forum* 8.

²³¹ See Rules 16 to 18 of Customary International Humanitarian Law.

²³² JD Herbach ‘Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict’ (2012) *Amsterdam Law Forum* 5.



protected persons do not lose their protection as a result of error or irresponsible use of force.²³³

Some commentators observe that unlike in the past, the rule of precaution has become important on account of the nature of today's armed conflict. David Herbach observes that in 'the changing nature of 21st century armed conflict' it is difficult to target enemies who 'are more mobile, more difficult to identify, and often ensconced among the civilian population within populated areas, a situation in which the elements of precaution are of the highest importance'.²³⁴

The rule of precaution is codified in Article 57 of Additional Protocol I which provides as follows:

Article 57 — Precautions in attack

1. In the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects.
2. With respect to attacks, the following precautions shall be taken:
 - a) those who plan or decide upon an attack shall:
 - i) do everything feasible to verify that the objectives to be attacked are neither civilians nor civilian objects and are not subject to special protection but are military objectives within the meaning of paragraph 2 of Article 52 and that it is not prohibited by the provisions of this Protocol to attack them;
 - ii) take all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects;

²³³ Article 57 of API.

²³⁴ JD Herbach Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict (2012) *Amsterdam Law Forum* 4.



iii) refrain from deciding to launch any 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 in relation to the concrete and direct military advantage anticipated;

b) an attack shall be cancelled or suspended if it becomes apparent that the objective is not a military one or is subject to special protection or that the attack 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 in relation to the concrete and direct military advantage anticipated;

c) effective advance warning shall be given of attacks which may affect the civilian population, unless circumstances do not permit.

3. When a choice is possible between several military objectives for obtaining a similar military advantage, the objective to be selected shall be that the attack on which may be expected to cause the least danger to civilian lives and to civilian objects.

4. In the conduct of military operations at sea or in the air, each Party to the conflict shall, in conformity with its rights and duties under the rules of international law applicable in armed conflict, take all reasonable precautions to avoid losses of civilian lives and damage to civilian objects.

5. No provision of this Article may be construed as authorizing any attacks against the civilian population, civilians or civilian objects.

Understood in terms of Article 57, the rule of precaution thus refers to measures and actions 'taken in advance of a particular action in order to prevent or avoid harm foreseeable to be caused by that action'.²³⁵ Herbach suggests that the way the rule of precaution is understood in International Humanitarian Law is the same as in environmental law in the sense that 'the risk of harm or undesired results is the measuring stick rather than the certainty of outcomes'.²³⁶

²³⁵ JD Herbach Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict (2012) *Amsterdam Law Forum* 7.

²³⁶ JD Herbach Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict (2012) *Amsterdam Law Forum* 7.



Article 57 places an obligation to comply with the rule of precaution on planners of attacks or military operations. However, it seems the wording of Article 57 may raise challenges when it comes to autonomous systems. Questions arise as to whether those who assemble and programme Autonomous Weapon Systems are considered planners who are bound by the International Humanitarian Law rule of precaution. There is an extreme danger in ‘equating operation programming of a military combat robot with attack planning as it might draw civilian technicians into non-civilian roles, or in other words result in civilians taking direct part in hostilities’.²³⁷

Furthermore, planning of an attack is subject to re-planning during the course of the attack that may be necessitated by change of circumstances on the battlefield. In this sense, where autonomous systems are responsible for re-planning, do they become planners of the attack? My position at this stage is that given the intricacies of the rule of precaution and the need for its constant application throughout a military attack, AWS without ‘Meaningful Human Control’ are unlikely to comply with the rule of precaution.

Likewise, the rule of precaution provides that when planning attacks, there should be consideration of the effects of the attack.

Article 58 — Precautions against the effects of attacks

The Parties to the conflict shall, to the maximum extent feasible:

- a) without prejudice to Article 49 of the Fourth Convention, endeavour to remove the civilian population, individual civilians and civilian objects under their control from the vicinity of military objectives;
- b) avoid locating military objectives within or near densely populated areas;
- c) take the other necessary precautions to protect the civilian population, individual civilians and civilian objects under their control against the dangers resulting from military operations.

²³⁷ JD Herbach Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict (2012) *Amsterdam Law Forum* 8.



The question that arises is whether AWS without ‘Meaningful Human Control,’ once activated, can be able to take precaution as far as the effects of the attack is concerned. In Chapter 2, I have already argued that the inability to control the effects of an attack may lead such an attack to be indiscriminate - which is contrary not only to the rule of precaution but also to the rule of distinction. Now that such AWS lack human judgement, it is unlikely that the rule of precaution will be complied with.²³⁸

For what it is worth, the rule of precaution demands that when Autonomous Weapon Systems exercise their selection of targets, precaution must be taken in verifying targets and also making sure that there is minimization of harm to innocent civilians. There are many forms of precautions that a belligerent should take. Many of them resonate from the provisions of the Geneva Conventions and their Additional Protocols. The following are some of the precautionary measures and considerations that a belligerent or combatants must take before initiating an attack:

i) *Uncertainties regarding the status of an individual*

It is common place in contemporary armed conflicts that the status of a particular individual as to whether they are a civilian or not, participating in hostilities or not may be difficult to ascertain. In those circumstances, the law demands that the following precautions be taken. Firstly, in terms of the rule of distinction, one must be certain of the status of the target and not only suspect such status.²³⁹ Secondly, where there is uncertainty as to whether an individual is a civilian or not, the individual must be presumed to be a civilian.²⁴⁰ Thirdly, in relation to uncertainties as to whether a particular civilian is directly participating in hostilities, a presumption must be held in favour of the individual that his or her actions do not amount to direct participation in

²³⁸ JD Herbach Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict (2012) *Amsterdam Law Forum* 17-19.

²³⁹ Article 50(1) of Additional Protocol I

²⁴⁰ Article 50(1) of Additional Protocol I.



hostilities.²⁴¹ Without doubt, these intricacies require human judgment, individual assessment of each case. It is unlikely that AWS can be able to make these assessments and take presumptions in line with the law.

ii) *Assessment of choices of weapons available to belligerent*

In terms of Article 57, the rule of precaution also demands that a belligerent assesses the choices of weapons at its disposal. It is the means or weapons that limit collateral damage to the greatest extent possible that the attacking state must choose.²⁴² Herbach suggests that this standard is subjective; it depends on the tools or weapons that are in the hands of a state.²⁴³ Where, for example, a state has advanced technology, the standard of precaution that the state must take before attacking is high.²⁴⁴ Most of unmanned systems like drones and Autonomous Weapon Systems have advanced surveillance capabilities and this should raise the bar for the kind of precaution that the possessor of this technology takes when targeting.²⁴⁵

iii) *Verification of the basis on which an individual is targeted*

In current armed conflicts where most targeting decisions are made on the basis of information gathered by intelligence, the rule of precaution would require belligerents first and foremost to gather reliable information.²⁴⁶ The information that is used as the basis for targeting an individual must be verified independently.²⁴⁷ Failure to thoroughly

²⁴¹ ICRC *Interpretative guidance on direct participation in hostilities* 75-76.

²⁴² Article 57 of Additional Protocol I; See also JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 7.

²⁴³ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 7.

²⁴⁴ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 7.

²⁴⁵ M Schmitt 'Precision attack and international humanitarian law' (2005) 87 *IRRC* 445.

²⁴⁶ Article 57(2) (a) (i) of API.

²⁴⁷ Article 57(2) (a) (iii) of API.



verify information concerning targets²⁴⁸ not only violates the rule of precaution but rules of distinction²⁴⁹ and proportionality.²⁵⁰

iv) *Assessment of the environment where the target is located*

After verifying a target as a military target²⁵¹, a belligerent must, as according to the rule of precaution, assess the location within which the target is situated.²⁵² Combatants and fighters must desist from attacking if the target is located where there are too many civilians.²⁵³ That assessment must be done in good faith and with a clear understanding of the law that ‘presence within the civilian population of individuals who do not come within the definition of civilians does not deprive the population of its civilian character’.²⁵⁴

v) *Warning civilians in the environment of impending attack*

Where there are civilians in the vicinity of a verified target, the rule of precaution would require a belligerent to inform or give civilians a warning of an imminent military operation. During war, such kinds of warnings have been considered by many scholars to be impractical.²⁵⁵ This brings one to the language that is used in Article 57 of Additional Protocol I. Belligerents are required to take all *feasible* precaution. Herbach has considered what is meant by feasible and has concluded that the term ‘does not denote a specific obligation of result but rather one of effort or due diligence in accordance with military objectives’.²⁵⁶ To that end, feasible precautions refer to those that are ‘practicable or practically possible, taking into account all circumstances

²⁴⁸ Henckaerts et al (above) 363,367.

²⁴⁹ Rule 6 of Customary International Humanitarian Law.

²⁵⁰ Article 51(5)(b) of API.

²⁵¹ Rule 55 of Customary International Humanitarian Law.

²⁵² Rule 55 of Customary International Humanitarian Law.

²⁵³ Rule 55 of Customary International Humanitarian Law.

²⁵⁴ Article 50(3) of Additional Protocol I.

²⁵⁵ See https://www.icrc.org/customary-ihl/eng/docs/v2_rul_rule20 (accessed 13 April 2015).

²⁵⁶ JD Herbach ‘Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict’ (2012) *Amsterdam Law Forum* 11.



including humanitarian and military considerations prevailing at the time that the plans or decisions are made or the actions undertaken'.²⁵⁷

3.4.1 AWS and the rule of precaution

Questions arise whether AWS, especially those without 'Meaningful Human Control' can be able to abide by the rule of precaution. To begin with, precaution starts right from the moment where a belligerent plans an attack. As already noted, in planning an attack, a belligerent must carefully choose the means to be employed in that attack.²⁵⁸ It may be questioned whether a belligerent who chooses to employ AWS without 'Meaningful Human Control' once activated can be said to be complying with the rule of precaution. For the reasons I have already referred to when I discussed the rule of humanity and distinction above, a belligerent who chooses to employ AWS without 'Meaningful Human Control' once they are activated is in fact throwing precaution out of the window. AWS are unpredictable, especially in unstructured environments; deploying them all the same is taking chances with the lives of protected persons. Where a belligerent chooses to gamble with the lives of protected persons, surely that is contrary to the essence of the rule of precaution.

Of course the rule of precaution demands that where a belligerent is in possession of weapons that are more precise and minimise civilian harm, such weapons must be used. The first question, as argued in Chapter 2 is that AWS are not weapons in the strict sense of the word. A belligerent who chooses to use child soldiers ignores the rule of precaution because children do not have moral responsibility which is an important element wherever force is used. The same argument can be invoked in the case of bloodless machine combatants.

²⁵⁷ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 11.

²⁵⁸ D Fleck *et al* *The Handbook of International Humanitarian Law* (2013) 214.



Arguments have been made that AWS will save lives; since unlike humans they will not act out of malice or the need to self-preserve. Some scholars have also noted the utility of robotic weapons especially in view of today's armed conflict where 'the time-lag from detection to engagement means that targets may slip away, eluding military action'.²⁵⁹ In this sense, it has been noted that AWS will be more precise.

However, it should be noted that 'precision is not a synonym of accuracy; accuracy in the military context refers to the ability of a weapon to strike a specific location at which it is aimed, while precision involves the ability of target and identification, the timely and accurate strike of said targets, and the determination of whether the desired effects have been accomplished or whether another strike is necessary'.²⁶⁰ To this end, precision is then understood to mean the operational strategies chosen by a belligerent when engaging the enemy which is meant to minimise risk to one's own forces while at the same time reducing collateral damage.²⁶¹

Schmitt has argued that military technological innovations are capable of enhancing precision and thereby reducing collateral damage.²⁶² It is in this sense that Article 9 of the 1956 Draft Rules for the Limitation of the Dangers incurred by the Civilian Population in Time of War demands that 'in towns and other places with a large civilian population...the attack shall be conducted with the greatest degree of precision'.²⁶³ Schmitt even suggests that where a belligerent is in possession of weapons that allow

²⁵⁹ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 5; See also B Gogarty & M Harger 'The laws of man over vehicles unmanned: The legal response to robotic revolution on sea, land and air' (2008) *Journal of Law, Information and Science* 79-81.

²⁶⁰ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 11-12.

²⁶¹ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 12.

²⁶² M Schmitt 'Precision attack and international humanitarian law' (2005) *International Review of the Red Cross* 446.

²⁶³ See the 1956 Draft Rules for the Limitation of the Dangers incurred by the Civilian Population in Time of War, ICRC.



precision in attack, it is obligatory to use such weapons.²⁶⁴ Thus, where AWS are deemed to be more precise, failure to use them in order to minimise harm to civilians 'would be in contravention of legal obligations under IHL'.²⁶⁵

There is no doubt that weapon systems may be more accurate in targeting. However, before one goes on to emphasise the accuracy and efficiency of AWS, such accuracy only matters if and only if they are able to correctly identify their targets in the first place. That is what precision is all about. In this sense, accuracy would mean nothing if the weapon systems are targeting wrong people or illegitimate targets.

As I have already indicated, on account of the uncertainties that are met on the battlefield, human judgment is needed for these weapons to comply with rules of International Humanitarian Law such as distinction and precaution. It is for that reason that Herbach has categorically stated that AWS as they are currently defined will not be able to comply with these important rules.²⁶⁶ Thus, while they may be accurate in most circumstances, AWS may not be precise as understood in International Humanitarian Law.

3.5 IHL Military Necessity Rule and AWS

The military necessity rule demands that belligerents only use force that is necessary to accomplish a specific and reasonable military objective.²⁶⁷ If Autonomous Weapon Systems are to operate within the confines of this rule, they must be programmed to understand what is meant by military necessity, to recognise it on the battlefield and only do that which achieves the military advantage. This rule is related to the rules of proportionality, distinction and humanity.

²⁶⁴ M Schmitt 'Targeting in operational law' in T Gill & D Fleck (eds) *The handbook of the international law of military operations* (2010)261.

²⁶⁵ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 14.

²⁶⁶ JD Herbach 'Into the caves of steel: Precaution, cognition and robotic weapon systems under international law of armed conflict' (2012) *Amsterdam Law Forum* 17-19.

²⁶⁷ Article 51(5)(b) of Additional Protocol I; Article 8(2)(b)(iv) of the Rome Statute.



For Autonomous Weapon Systems to comply with the military necessity rule, the force used will only be deemed to be necessary if it is proportional, targeted on a military objective and in line with the dictates of humanity.²⁶⁸ Put differently, ‘there can be no appeal to military necessity outside [the other] rules’.²⁶⁹ I have discussed the issue of superfluous injury in Chapter 2 and came to the conclusion that if there is no one at the controls, chances of AWS inflicting harm that is militarily unnecessary is high.

3.6 IHL Rule of Humanity and AWS

The origins and content of the rule of humanity is discussed in detail in Chapter 6 when I consider the Martens Clause and its principles of humanity and dictates of public conscience. Humanity should be understood to refer to the humaneness of humankind²⁷⁰ where humans, motivated by sentiments of goodwill like kindness, mercy, pity and gentleness accord fellow humans treatment that is befitting to a human being²⁷¹ in terms of human rights standards.²⁷²

²⁶⁸ Article 1(2) of AP I; Article 142 of GC III; Article 158 of GCIV.

²⁶⁹ F Hampson ‘The principle of proportionality in the law of armed conflict’ (2010)43 in S Perrigo & J Whitman (eds) *The Geneva conventions under assault* (2010) 46.

²⁷⁰ R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)180; R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 969; *Military and Paramilitary Activities in and against Nicaragua, Nicaragua v the United States of America* ICJ Reports 1986, pp. 143 and 146, Separate Opinion of President Nagendra Singh.

²⁷¹ See R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 972 referring to the dictionary meaning from the *Oxford English Dictionary* (1989).

²⁷² JS Pictet ‘Humanity’ (1995) *International Review of the Red Cross* 158, referring to the dictionary meaning; R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014); R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 978; N McCormick *Legal right and social democracy: essays in legal and political philosophy* (1982)154; A Barak *Human Dignity* (2015)104; Article 1 of UDHR; preamble to UN Charter; *Tyrer v UK ECHR* (1978)2; C McCrudden ‘Human dignity and judicial interpretation of human rights’ (2008)19 *European Journal of International Law* 655-77; J Raz *The morality of freedom* (1986)166; D Kretzmer & E Klein *The concept of human dignity in human rights discourse* (2002); E De Wet ‘The international constitutional order’ (2006) 55 *International and Comparative Law Quarterly* 51; R Jackson



According to some scholars, the rule of humanity and other basic principles of international humanitarian law have acquired the force of *jus cogens*.²⁷³ In many ways, the rule of humanity is the core and basis of International Humanitarian Law.²⁷⁴ Rules like distinction, proportionality and military necessity discussed above flow from the rule of humanity. These other rules are said to be geared towards preserving a sense of humanity and actualising it in armed conflict.²⁷⁵ Without the rule of humanity, chances of belligerences wanting to view and treat the enemy as non-human are high, the rule of humanity is there to maintain and remind fighters that even in the existence of a war, everyone is still human and worthy of respect and human dignity.²⁷⁶

The rule of humanity has been largely responsible for the codification of most of the international humanitarian laws.²⁷⁷ For example, the Geneva Conventions are said to have come into being after the horrors and suffering of soldiers on land at the battle of Solferino, the tragic events at sea at the battle of Tsushima, the suffering of prisoners of

The global covenant: human conduct in a world of states (2000) 186; H Brollowski 'Military robots and the principle of humanity' in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013)68; B Beers et al *Humanity across international law and biolaw* (2014)177; RG Teitel *Humanity's law* (2011); PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 5; R Kolb & G Gaggioli *Research handbook on human rights and humanitarian law* (2013)189; UN Doc. HRI/GEN/1/Rev.1, Human Rights Committee, General Comment 9, Article 10, para 3; UN Doc. HRI/GEN/1/Rev.1 at 33, Human Rights Committee, General Comment 21, Article 10, para 4; Article 17(1) of the Convention on the Protection of Migrant Workers; Article 5 of the African Charter on human and Peoples' Rights; Article 37(b) of the Convention on the Rights of the Child; Article 5 of the American Convention on Human Rights.

²⁷³ ME Connell 'Jus cogens: International law's higher ethical norms' in DE Childress (ed) *The role of ethics in international law* (2011); D Fleck & M Bothe *The handbook of international humanitarian law* (2013)13.

²⁷⁴ M Matthee et al *Armed conflict and international law: in search of the human face: Liber Amicorum in Memory of Avril McDonald* (2013)xvi.

²⁷⁵ JC Boogard 'Fighting by the principles: principles as a source of international humanitarian law' in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 4.

²⁷⁶ See C Schmitt *The concept of the political* (2007)54; W Schabas 'Hate speech in Rwanda: The road to genocide' (2000) *McGill Law Journal* 144; JC Joerden 'The promise of human dignity and some of its juridical consequences especially for medical criminal law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)217; A McDonald '*Hors de combat*: post-September 11 challenges to the rules' in HM Hensel (ed) *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2008)244.

²⁷⁷ See PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 3.



war in World Wars I and II.²⁷⁸ Today there are various treaties and legal documents in International Humanitarian Law that contain the rule of humanity.²⁷⁹

Furthermore, the International Humanitarian Law rule of humanity is important because it has influenced the Hague law on the governance of weapons.²⁸⁰ Since time immemorial, determination of whether a weapon is acceptable or not has been influenced by the rule on humanity.²⁸¹ Thus from long back, even before its inclusion in the Hague Law, the principle of humanity demanded that belligerents must not use means and methods of warfare that cause the enemy to suffer unnecessarily or in a superfluous way.²⁸²

The proscription against use of indiscriminate weapons is also motivated by the rule of humanity²⁸³ where various acts such as 'violence to life and person, in particular murder of all kinds, mutilation, cruel treatment and torture; taking of hostages; outrages upon personal dignity, in particular humiliating and degrading treatment' are proscribed.²⁸⁴ Any inhumane act, method or means of warfare that is inhumane is prohibited be it in

²⁷⁸ See JH Dunant *A Memory of Solferino* (2006); JG Gardam *Non-combatant immunity as a norma of international humanitarian law* (1993)16; Out of My Past *Memoirs of Count Kokovtsov* (1935) 550; Geneva Convention III for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea. Geneva, 12 August 1949; H Jones *Violence against prisoners of war in the First World War: Britain, France and Germany, 1914-1920* (2011) 29-44; Geneva Convention (IV) relative to the Protection of Civilian Persons in Time of War, Geneva, 12 August 1949.

²⁷⁹ See for example Article 76 of the Lieber Code (1863); Article 3 Common to the Geneva Conventions; Article 12 of Geneva Convention I; Article 12 of Geneva Convention II; Article 13 of Geneva Convention III; Article 27 of Geneva Convention IV; Article 75 (1) of Additional Protocol I; Article 4(1) of Additional Protocol II; See also the 1868 Saint Petersburg Declaration; the First Hague Peace Conference in 1899.

²⁸⁰ R Coupland 'Humanity: What is it and how does it influence international law?' (2001) *International Review of the Red Cross* 970-2.

²⁸¹ R Coupland 'Humanity: What is it and how does it influence international law?' (2001) *International Review of the Red Cross* 971.

²⁸² See the Laws of Manu, Rule 90-93 available at <http://www.sacred-texts.com/hin/manu.htm> (accessed 31 December 2014).

²⁸³ See G Bogaski *American protestants and the debate over the Vietnam War: Evil was loose in the world* (2014)12; See for example Convention on Certain Conventional Weapons in 1980.

²⁸⁴ Article 3 Common to the Geneva Conventions.



IAC or NIAC.²⁸⁵ Humanity is therefore the core in governing the means and methods of warfare.²⁸⁶ Even courts have recognised the importance of the rule of humanity in this regard.²⁸⁷

The rule of humanity does not prohibit the development and use of advanced technology. In fact, where technology can make compliance with the rules of International Humanitarian Law, it is encouraged.²⁸⁸ The question is only whether such advanced technology promotes the rules in question. There are three arguments that can be made in relation to AWS and how they relate to the rule of humanity: that giving AWS the power to decide who to kill is inhumane and an infraction on the dignity of fighters and civilian casualties alike; that the potential impossibility of a chance to surrender where AWS are used is inhumane and that in general, the use of AWS depersonalizes the use of force to the extent that all resulting deaths are meaningless and therefore inhumane. I now consider these three arguments in turn.

3.6.1 Giving AWS the power over life and death is inhuman and an infraction on the dignity of fighters and civilians alike

Dignity is very important in terms of International Humanitarian Law, and acts that impinge on the dignity and worth of the human being are proscribed.²⁸⁹ The right to dignity in armed conflict encompasses the prohibition against inhuman treatment.²⁹⁰ In

²⁸⁵ See for example Article 7 of the Rome Statute.

²⁸⁶ E/CN.4/1992/26, Report of the United Nations Special Rapporteur on the situation of human rights in Kuwait under Iraq occupation, Walter Kälin, 1992, para 36.

²⁸⁷ *Military and Paramilitary Activities in and against Nicaragua, Nicaragua v United States*, Merits, ICJ Reports (1986) para 218; the *Corfu Channel case, United Kingdom v Albania*, Merits, ICJ Reports (1949); See also Security Council Resolution 1067, para 6, 28 July 1996; Report of the UN Secretary General, Boutros Boutros-Ghali, UN Doc. S/25704 (1993) para 48.

²⁸⁸ This is in terms of the precaution rule; see https://www.icrc.org/customary-ihl/eng/docs/v2_rul_rule17 (accessed 12 April 2015).

²⁸⁹ International Committee of the Red Cross (ICRC) policy on torture and cruel, inhuman or degrading treatment inflicted on persons deprived of their liberty Policy adopted by the Assembly Council of the ICRC on 9 June 2011; S Sivakumaran *The Law of non-international armed conflict* (2012) 263.

²⁹⁰ See *Prosecutor v Aleksovski*, Case No IT-95-14/1-T, Judgment, 25 June 1999, para 49; SC Grover *The torture of children during armed conflicts: The ICC's failure to prosecute and the negation of children's human dignity* (2013)93.



the case of *Prosecutor v Aleksovski*, the court observed that the prohibitions in Article 3 Common to Geneva Conventions include outrages upon personal dignity as part of inhuman treatment.²⁹¹

In terms of Geneva law, acts infringing upon the dignity of both fighters and protected persons are prohibited.²⁹² To this end, courts have emphasised that acts that infringe human dignity are deplorable in terms of the laws of war.²⁹³ Likewise, Rule 90 of the ICRC Customary law study states that outrageous ‘acts upon personal dignity in particular humiliating and degrading treatment’ is prohibited as a matter of customary international law.²⁹⁴ Courts have also found that not only is the violation of the right to dignity a grave breach of the Geneva Conventions; it is prohibited by both conventional treaties and customary international law.²⁹⁵

The above acts are also punishable in terms of founding statutes of international courts and tribunals.²⁹⁶ Elements of war crimes that are ‘outrages upon personal dignity’ include those acts that humiliate and degrade the worth of a human being.²⁹⁷ Degrading treatment in this regard is prohibited even against a dead person.²⁹⁸

²⁹¹ *Prosecutor v Aleksovski*, Case No IT-95-14/1-T, Judgment, 25 June 1999, para 49, 51 and 54; E Crawford *The treatment of combatants and insurgents under the law of armed conflict* (2010)86.

²⁹² See Article 3 Common, GCs; Article 75(2) of API; Article 4(2) APII.

²⁹³ *Prosecutor v Aleksovski*, Case No IT-95-14/1-T, Judgment, 25 June 1999, para 49, 51 and 54; A Clapham *et al The Oxford handbook of international law in armed conflict* (2014)399.

²⁹⁴ See Rule 90 of ICRC Customary law Study; HM Hensel *The law of armed conflict: constraints on the contemporary use of military force* (2007)172.

²⁹⁵ *Prosecutor v Zejnir Delalic et al* Case No. IT-96-21-T paras 512 to 544; See also *Tyrer v the UK* (5856/72) ECHR 1978, *Ireland v the UK* (1978) 2 EHRR 25, para 162; *Selmouni v France* 1988 EHRLR 510, para 160; *Price v the UK* (1988) 55 DR 224; NA Shah *Islamic law and the law of armed conflict: The conflict in Pakistan* (2011)78; W Reisman *The quest for world order and human dignity in the twenty-first century: Constitutive process and individual commitment* (2013)424.

²⁹⁶ See for example Article 8(2)(c)(i) and (ii) International Criminal Court statute; Article 4(a) and (e) of the International Criminal Tribunal for Rwanda statute and Article 3(a) and (e) of the statute of Special Court for Sierra Leone.

²⁹⁷ *Prosecutor v Aleksovski*, Case No IT-95-14/1-T, Judgment, 25 June 1999, par 54; *Prosecutor v Aleksovski*, Case IT-95-14/1-A, Judgment, 24 Mar 2000, para 26; K Dörmann *Elements of war crimes under the Rome Statute of the International Criminal Court: sources and commentary* (2003)517.

²⁹⁸ Y Dinstein *Non-international armed conflicts in international law* (2014) 180.



The only way by which the life of a combatant can be taken in a dignified way is where the decision to take his or her life is made by human beings who appreciate the significance of taking someone's life. For it to be a dignified death, death must be meaningful.²⁹⁹ Death can only be meaningful when it comes at the instance of a human being who appreciates the gravity of the matter, not a machine.³⁰⁰ By the same token, in as much as collateral damage is allowed in armed conflict³⁰¹ it is only dignified if the calculations of whether it is proportional are taken by a human being.³⁰² For a robot, emotionless and without a moral sense of what it is about to do and to take the fundamental decision of ending human life is inhuman to the core.³⁰³

Thus, taking humans out of the loop and consequently giving machines the power over life and death 'risks taking humanity out of the loop'.³⁰⁴ Humanity, even in times of war, demands that human life be respected with utmost sanctity; allowing it to be taken away by a machine that does not have the qualitative human deliberation may be 'inherently arbitrary and all resulting deaths [constituting] arbitrary deprivations of life'.³⁰⁵ It does not matter that the person being killed is a legitimate target; even those who are condemned to death through death penalty are still entitled to a dignified death when it comes to the means by which they are killed.³⁰⁶

²⁹⁹ See P Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14.

³⁰⁰ See P Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14.

³⁰¹ NA Shah *Islamic law and the law of armed conflict: the conflict in Pakistan* (2011) 35; H Nasu & R McLaughlin *New technologies and the law of armed conflict* (2013) 209.

³⁰² On importance of human judgment see Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) pages 21,26,32,72; US Department of Defense, *Autonomy in Weapon Systems*, Directive 3000.09, November 21 2012; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012) 94 *International Review of the Red Cross*, 693, 696; Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 5.

³⁰³ See AM Johnson 'The morality of autonomous robots' (2013) 134 *Journal of Military Ethics* 134.

³⁰⁴ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 16 para 89.

³⁰⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 90.

³⁰⁶ I got this idea from a discussion I had with Professor Christof Heyns. See E Owens *Religion and the death penalty: a call for reckoning* (2004)115; JA Jenkins *The American Courts: a procedural approach* (2011)116; LM Chenwi *Towards the abolition of the death penalty in Africa: A human rights perspective*



In the same light of the humanity argument, Robert Sparrow espouses that to allow AWS ‘the power to kill seems a bit too much like setting a mousetrap for human beings; to do so would be to treat our enemies like vermin’³⁰⁷ – a situation that would be contrary to the important principle of humanity. The vivid mouse-analogy is fully expressed by Aaron Johnson who cites the fundamental right to dignity in objecting the idea of delegating the decision to kill to AWS.

A mouse can be caught in a mouse-trap, but a human must be treated with more dignity. A mouse-trap kills targets with certain characteristics based on certain behaviour, i.e. anything of sufficient mass eating or at least touching the bait. The trigger is designed to attack based on the mouse-trap’s perception of the target and its actions. The complexity of the trigger is not what we are concerned with – a mouse can be killed by a machine, as it has no inherent dignity. A robot is in a way like a high tech mouse-trap, it is not a soldier with concerns about human dignity or military honour. Therefore a human should not be killed by a machine as it would be a violation of our inherent dignity.³⁰⁸

In furthering the dignity argument, Jay Strawser states that ‘the user [of autonomous weapon systems] fails to express his own dignity likely because he fails to respect the victims’ dignity’³⁰⁹, ‘the idea that in turning these decisions over to machines, human persons fail to satisfy reflexive duties to respect their own rationality, autonomy or dignity, they fail to take responsibility for their own actions’.³¹⁰

Heyns echoes the same sentiments as he states that giving robots the power to decide who to kill paints an image of ‘AWS as some kind of mechanized pesticide’.³¹¹ To that end and notwithstanding whether robots can do better than humans, Heyns argues that

(2011)144; L Harees *The mirage of dignity on the highways of human 'progress': - the bystanders' perspective* (2012)422; Human Rights Watch *So long as they die: lethal injections in the United States* (2006)55.

³⁰⁷ R Sparrow ‘Robotic weapons and the future of war’ in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011) 11.

³⁰⁸ AM Johnson ‘The morality of autonomous robots’ (2013) 134 *Journal of Military Ethics* 134.

³⁰⁹ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.

³¹⁰ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 237.

³¹¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 95.



the overriding consideration may be whether it is acceptable to let machines decide whom to kill.³¹² In other words, the principle of humanity is an overriding consideration in armed conflict. If an act or weapon is unacceptable in the face of humanity considerations, then ‘no other consideration can justify deployment of AWS no matter the level of technical competence at which they operate’.³¹³

In view of the above arguments, it is my considered opinion and argument that allowing AWS to decide who to kill and take life without ‘Meaningful Human Control’ constitutes what has been referred to in case law as ‘a serious attack on human dignity’ as provided for in Article 3 Common to the Geneva Conventions.³¹⁴

3.6.2 It is inhumane to use weapons that make it impossible to surrender

War is in no way a relationship of man with man but a relationship between States, in which individuals are enemies only by accident; not as men, nor even as citizens, but as soldiers (...). Since the object of war is to destroy the enemy State, it is legitimate to kill the latter’s defenders as long as they are carrying arms; but *as soon as they lay them down and surrender, they cease to be enemies or agents of the enemy, and again become mere men, and it is no longer legitimate to take their lives.*³¹⁵ (Emphasis mine).

The history of surrendering and its implications have been changed and greatly shaped by the rule of humanity. Significant changes are evident from the 18th century where surrendering soldiers could be forced to fight on the side of the enemy, where surrendering no matter out of what conditions was a punishable offense by the sending state, where those ‘who surrendered still stood a good chance of being killed’ to the 19th century where international agreements started to emerge demanding that those

³¹² A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013p 17 para 92.

³¹³ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013p 17 para 93.

³¹⁴ *Prosecutor v Delalic and Others*, Case No 96-21-T, Judgment, 16 Nov 1998, para 543; *Prosecutor v Blaskic*, Case No IT-95-14-T, Judgment, 3 Mar 2000, pars 154-155.

³¹⁵ Jean-Jacques Rousseau, quoted by the ICRC, See <https://www.icrc.org/eng/resources/documents/misc/5kzfju.htm> (accessed 14 February 2015).



who surrender must not only be spared but ‘fed with plain and wholesome food whenever practicable and treated with a sense of humanity’.³¹⁶

Human nature is in general influenced and infused with ‘an absolute and natural necessity’ to save one’s own life.³¹⁷ It is that natural necessity that influences a fighter’s choice to flee or to surrender. In armed conflict, ‘fighting as well as flight or surrender aim at the same end; namely to the preservation of one’s life’.³¹⁸ Thus, where a fighter surrenders or is no longer capable of fighting because of wounds or sickness, it is only humane to spare his or her life.

Now that AWS are not humans with the ability to see or discern that a fighter is about to surrender or is wounded, sick or fatigued to the extent that surrendering is inevitable, it may be argued that AWS may violate the rule of humanity.³¹⁹ If Autonomous Weapon Systems will make it impossible for one to surrender or at least to be catered for when wounded or sick, they will defy the rule on humanity which demands that fighters be given an option to surrender.³²⁰ The law is clear that ‘under no circumstances, should a belligerent follow an approach in terms of which an offer to surrender will not be accepted. A belligerent may not give orders of ‘no quarter’ or ‘no survivor’ since such orders constitute war crimes’³²¹ and are inconsistent with the principle of humanity. AWS whose mission is to kill once it is deployed and will not stop until targets coded into its program are dead is the equivalent of a no quarter order which is inconsistent with the principle of humanity. Creating AWS that once activated require no further

³¹⁶ See H Afflerbach & H Strachan *How fighting ends: A history of surrender* (2012)222-3; JA English *Surrender invites death: Fighting the Waffen SS in Normandy* (2014); DP Forsythe *The politics of prisoner abuse: The United States and enemy prisoners after 9/11* (2011)261; See also the Third Geneva Convention of 1949.

³¹⁷ RF Hassing *Final causality in nature and human affairs* (1997)37.

³¹⁸ RF Hassing *Final causality in nature and human affairs* (1997)37.

³¹⁹ MN Schmitt & JS Thurnher ‘Out of the loop: autonomous weapon systems and the law of armed conflict’ (2013) *Harvard National Security Journal* 258. An example in the case of drones is that of Mehsud who, at the time he was targeted was severely sick. He was killed by a drone missile at the time he was receiving an intravenous transfusion. It cannot be ruled out that because of his sickness he might have surrendered, or at least put hors de combat by virtue of sickness.

³²⁰ ICRC Guide on DPH (2009)82.

³²¹ UN/A/66/330 para 72; Article 8(2) of Rome Statute.



human intervention is failure to recognise that on the battlefield, the status of a target can change in a split second from legitimate to illegitimate target. Constant human supervision is therefore required in this regard if the core of humanity is to be maintained.

Furthermore, humans not only have the capacity to adhere to the minimum set standard 'but they also hold the potential to adhere to higher values' unlike AWS 'which lack the capacity to rise above minimum standards' as persuaded by dictates of humanity.³²² Aspiring to adhere to higher standards or to rise above the minimum is not possible in the case of AWS with full autonomy which made one commentator to observe that the use of AWS is tantamount to 'giving up on hope for a better world'.³²³

3.6.3 AWS depersonalise the use of force to a point of inhumanity

It can be argued further that AWS, just like other unmanned systems distance the fighters from the point where force is delivered.³²⁴ Distancing of the fighter from where force is being projected has its advantages since the combatant or fighter is removed from harm's way.³²⁵ In terms of the obligations of the state to protect and promote the right to life of its citizens which includes armed forces, this can be considered to be a legitimate goal.³²⁶

However, distancing or removing fighters away from the harm they project to others leads to depersonalization of use of force where combatants or fighters may be

³²² A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 93.

³²³ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 97.

³²⁴ See P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross* 697.

³²⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, para 50.

³²⁶ See D Shelton *et al Regional protection of human rights* (2013) 742.



removed both physically and psychologically.³²⁷ Arguments have already been made in relation to other unmanned systems such as armed drones that they create a play-station mentality where drone operators may not take seriously the impact of their actions because they are removed from the point of impact.³²⁸ This depersonalisation of the use of force is taken to another level with AWS, where humans are no longer in the loop once the system is activated – that is in case of fully autonomous systems or where there is no ‘Meaningful Human Control’.³²⁹

This distancing of humans from the decision to kill or use of force and its impact may in the long run prove to be undesirable since the consequences and gravity of killing may become a distant factor for the state or fighter deploying these kinds of technologies.³³⁰ For these foregoing reasons, I argue that AWS without ‘Meaningful Human Control’ may be inconsistent with the customary IHL rule of humanity.

3.7 Conclusion

International Humanitarian Law rules of humanity, distinction, precaution, proportionality and military necessity are at the core of this body of law. These rules form the backbone of the law on the protection of all protected persons during armed conflict. It is important that all means and methods of warfare that states seek to adopt or introduce be consistent with these rules that have customary law status.

The rule of humanity compliments all the other rules – whatever parties to a conflict choose to do, it must be in line with the demands of humanity. I have argued and come to the conclusion that in as much as soldiers have the right to kill each other, giving or

³²⁷ See P Asaro ‘On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making’ (2012)94 *International Review of the Red Cross* 697.

³²⁸ UN Special Rapporteur on extrajudicial executions handbook (2010)57 available at <http://www.extrajudicialexecutions.org/LegalObservations> (accessed 13 June 2014).

³²⁹ See N Melzer ‘Human rights implications of the usage of drones and unmanned robots in warfare’ (2013) *Policy Department DG External Policies* 19.

³³⁰ See P Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.



delegating the decision to kill to machines is not in line with the demands of humanity as it violates the right to dignity of those targeted.

Most of contemporary armed conflicts occur in civilian populated areas. Further, there has been the civilianisation of armed conflicts to the extent that it is difficult to distinguish those who are directly taking part in hostilities and those who are not. As a result and more than before, human judgment and deliberation is critical when selecting targets in these unstructured environments.

AWS may not be able to comply with the customary rule of distinction due to a number of reasons: the nature of contemporary armed conflicts as already highlighted, the definitional deficiency in International Humanitarian Law that will make it impossible to translate the definitions and code them into the system of the robot and the technological limitations currently faced.

The same arguments are applicable to other rules such as proportionality, precaution and military necessity which all require human judgment. For this reason, AWS that do not have 'Meaningful Human Control' must not be allowed for their inconsistency with IHL rules of humanity, precaution, distinction, proportionality and military necessity.



Chapter 4: AWS and International Human Rights Law

4. Introduction

The debate on whether AWS are consistent with international law has largely focussed on International Humanitarian Law. This is so because AWS are considered military weapons - therefore meant to be used in armed conflict where international humanitarian law is the applicable regime.¹ However, other scholars emphasise that international human rights law is equally relevant in the AWS debate.² When the UN Special Rapporteur on extrajudicial executions first presented his report on AWS to the UN Human Rights Council in 2013, there was a number of states who felt that the issue of AWS is not within the mandate of the Human Rights Council because it concerns military weapons, a subject that is governed by International Humanitarian Law and belonging to the disarmament forum.³ In this Chapter, I consider the relevance of International Human Rights Law to the AWS debate and the question whether AWS are consistent with human rights norms that seek to protect important rights such as the right to life and dignity.

In summary, the arguments I make in this Chapter are that International Human Rights Law is relevant to the AWS debate and discussions should occur both in disarmament and human rights fora. This precisely because of three major points: firstly, when assessing the legality of new weapons, the Martens Clause specifically provides that principles of international law – of which human rights are part – must be taken into

¹ See Human Rights Watch 'Shaking the foundations: The human rights implications of killer robots' (2014)1; C Heyns 'Autonomous Weapon Systems and human rights law' (2014) 2 Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland.

² See C Heyns 'Autonomous Weapon Systems and human rights law' (2014) 2 Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland.

³ See <http://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=13384&LangID=E> (accessed 18 February 2015).



consideration.⁴ Secondly, International Human Rights Law continues to apply in armed conflict.⁵ Thirdly and finally, in most cases weapons that are initially made to be used only in the context of armed conflict always find their way to law enforcement situations because of their utility.⁶

In view of human rights standards, I argue that AWS, if used in law enforcement situations, may be incapable of complying with the right to life, dignity, remedy and due process rights.⁷ With regards to the right to life, the argument is that AWS may not comply with the ‘protect life principle’ which is a high standard as far as the protection of the right to life is concerned.⁸

As for the right to dignity, the argument is that just in as much as soldiers in armed conflict are entitled to dignity, so are suspected criminals and other people who may be caught up in a situation where law enforcement officials use force.⁹ Dignity to this end, may not allow that the decision to take life and the legal calculations to comply with the high standard of the ‘protect life principle’ or other norms pertaining the use of force against humans be taken by machines.¹⁰

⁴ See the Martens Clause.

⁵ See G Oberleitner *Human rights in armed conflict* (2015)1; S Sivakumaran *The law of non-international armed conflict* (2012) 84; L Doswald-Beck *Human rights in times of conflict and terrorism* (2011) 6; MA Babiker *Application of international humanitarian and human rights law to the armed conflicts of the Sudan: complementary or mutually exclusive regimes?* (2007); Human Rights Watch ‘Shaking the foundations: The human rights implications of killer robots’ (2014)1.

⁶ See C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) 4 Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland.

⁷ See Human Rights Watch ‘Shaking the foundations: The human rights implications of killer robots’ (2014) and C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland.

⁸ See C Heyns ‘Protect life’ during demonstrations’; C Zastrow & K Kirst-Ashman *Understanding human behaviour and the social environment* (2006)74.

⁹ See R Crawshaw *Police and human rights: A manual for teachers and resource persons and for participants in human rights programmes* (2009)24; J Ruiz & D Hummer *Handbook of police administration* (2007) 239; R Crawshaw *et al Human rights and policing* (2007) 31; HV Condă *A handbook of international human rights terminology* (2004)196.

¹⁰ See Human Rights Watch ‘Shaking the foundations: The human rights implications of killer robots’ (2014)23.



I also argue that if AWS are used in law enforcement scenarios, they are unlikely to comply with due process rights that should be accorded to suspects.¹¹ Furthermore, the protection of human rights is dependent on accountability of violations.¹² Now that AWS pose problems to responsibility mechanisms in international law, as will be discussed in more detail in Chapter 5, I note that their use threatens victims' right to remedy.¹³

I also discuss the use of AWS across state borders and how it is likely to raise the issue of extraterritorial application of human rights in the case of armed drones.¹⁴ Similarly, I observe that the use of AWS is likely to be met with lack of transparency as has been the case with armed drones.¹⁵

4.1 Relevance of International Human Rights Law to the AWS Debate

4.1.1 Applicability of human rights in armed conflict

The applicability of human rights law in armed conflict is a settled matter. In as much as international humanitarian law is the *lex specialis* of armed conflict, human rights still apply and more importantly shape some of the rules in armed conflict.¹⁶ As regards

¹¹ See RV Carmen & JT Walker *Briefs of leading cases in law enforcement* (2014) 173.

¹² See United Nations *Good governance practices for the protection of human rights* (2007) 6 noting that 'accountability of public officials is an important contributor to human rights protection.'

¹³ See Human Rights Watch 'Shaking the foundations: The human rights implications of killer robots' (2014)25.

¹⁴ See SA Shah *International law and drone strikes in Pakistan: the legal and socio-political aspects* (2014) 121; M Aaronson *et al Precision strike warfare and international intervention: strategic, ethico-legal and decisional implications* (2014)159; Great Britain: Parliament: House of Commons: Defence Committee House of Commons *UK armed forces personnel and the legal framework for future operations - HC 931* (2014) EV16; AMS de Frías *et al Counter-terrorism: international law and practice* (2012) 39; M Milanovic *Extraterritorial application of human rights treaties: law, principles, and policy* (2011)120; N Lubell *Extraterritorial use of force against non-state actors* (2010) 256.

¹⁵ See D Brenner-beck *et al The war on terror and the laws of war: a military perspective* (2015)90; S Casey-Maslen *The war report: armed conflict in 2013* (2015)241; P Bergen & D Rothenberg *Drone wars* (2014) 31; BJ Strawser *Opposing perspectives on the drone debate* (2014) 79; K Boon *et al The drone wars of the 21st century: costs and benefits* (2014) 145; A Bianchi & A Peters *Transparency in international law* (2013)348.

¹⁶ See in general G Oberleitner *Human rights in armed conflict* (2015); WH Boothby *Conflict law: The influence of new weapons technology, human rights and emerging actors* (2014)326; GD Solis *The law of armed conflict: International humanitarian law in war* (2010) 24.



some of the problems that are encountered in contemporary conflicts, some scholars have argued that there is a clear need for both IHL and IHRL when determining whether the use of force in a particular scenario is lawful.¹⁷ To this end, it would be an error to argue that the human rights fora should not deal with the issue of AWS on the basis that they are military weapons to be used in the context of armed conflict.

The Human Rights Council and its predecessor have dealt with issues of human rights within the context of armed conflict on several occasions.¹⁸ Various special rapporteurs have reported to the Human Rights Council on issues occurring in the context of armed conflict.¹⁹ Thus in as much as the issue of AWS more fully sits well in the disarmament forum of the United Nations, this does not oust the competence of the Human Rights Council – rather the two bodies may complement each other on this issue. In this sense, the complementarity of human rights and international humanitarian law can be seen through the working together of these bodies dealing with the two separate branches of law.

4.1.2 Probability of AWS being used in law enforcement

Another argument in support of consideration and discussions of AWS in the human rights forum is that these weapons, just like other weapons before, may end up being used in contexts that are outside armed conflict. In most of the contemporary conflicts, there have been difficulties in qualifying conflicts as to whether the required threshold of violence is met.²⁰ As a result, there have been arguments from many commentators that the means and methods of warfare by states ‘straddle the law enforcement and

¹⁷ R Arnold & N Quéniévet *International humanitarian law and human rights law: Towards a new merger in international law* (2008) 9; K Okimoto *The distinction and relationship between jus ad bellum and jus in bello* (2011)3.

¹⁸ See ‘International legal protection of human rights in armed conflict’ (2011) United Nations Publications available at http://www.ohchr.org/Documents/Publications/HR_in_armed_conflict.pdf (accessed 27 April 2015).

¹⁹ See ‘International legal protection of human rights in armed conflict’ (2011) United Nations Publications available at http://www.ohchr.org/Documents/Publications/HR_in_armed_conflict.pdf (accessed 27 April 2015).

²⁰ R Kolb & G Gaggioli *Research handbook on human rights and humanitarian law* (2013) 319.



armed conflict paradigms' where weapons initially meant to be used in armed conflict end up being used in law enforcement situations.²¹ For example, there have been arguments that use of armed drones by the US sometimes fall within the law enforcement situations.²²

It is unclear that one of the factors that have influenced development of unmanned system is the nature of the enemy – terrorists and the way they operate.²³ Some commentators have since observed that terrorists have 'situated themselves in an impossible place, located somewhere outside of the law'²⁴ and the means and methods used to fight such terrorists by states seem to 'pass over the parameters of warfare and into the realm of criminal conduct' where law enforcement agencies and human rights law is the more relevant.²⁵ Thus the continued overlapping makes it necessary for the legality of AWS to be also assessed under international human rights law.

4.1.3 Unmanned systems already in use in law enforcement

To support the point that AWS are likely to be used in law enforcement situations if developed, I am going to briefly consider some of the pre-cursors of AWS that are already in use in law enforcement. There are various potential applications of unmanned and autonomous systems that are relevant to law enforcement; ranging from 'target tracking', 'inspection of expensive or safety critical infrastructure' and surveillance in search of intruders. In law enforcement, it has been noted that

²¹ WK Lietzau 'Combating terrorism: The consequences of moving from law enforcement to war' in D Wippman & M Evangelista (eds) *New wars, new I? Applying the I of war in the 21st century conflicts* (2005)31.

²² See

http://www.europarl.europa.eu/RegData/etudes/ATAG/2014/140759/EPRS_ATA%282014%29140759_EN.pdf (accessed 27 April 2015).

²³ D Maurice *New threats and countermeasures in digital crime and cyber terrorism* (2015) 67; S Gale et al *The war on terrorism: 21st-century perspectives* (2011).

²⁴ JN Maogoto & G MacCarrick 'Typology of conflict: terrorism and the ambiguity of the I of war' (2010)31 *Gujarat National Law University Law Review* 303.

²⁵ JN Maogoto & G MacCarrick 'Typology of conflict: terrorism and the ambiguity of the I of war' (2010)31 *Gujarat National Law University Law Review* 303.



unmanned and autonomous systems provide safety for police officers for example from 'the dangers of high-speed police chases'.²⁶ Unmanned and autonomous systems have been deemed highly appealing for the police especially for border patrolling and monitoring.²⁷

Currently, there are robotic companies and manufacturers that are producing unmanned systems, some of them semi-autonomous, specifically meant for law enforcement situations. For example, a South African company by the name Desert Wolf is manufacturing a drone called the 'Skunk' meant to be used by police during demonstrations.²⁸ The Skunk is armed with pepper-spray that would be directed at violent demonstrators.²⁹ There are also police drones that are designed to dispense teargas, rubber bullets or electrical shocks against violent demonstrators for example.³⁰

The executive of Desert Wolf has highlighted that the motivation behind production of the Skunk is to do away with situations where police officers use excessive force out of fear and in an attempt to preserve their own life.³¹ The Skunk in this regard will not act out of fear because the police officer operating it is far removed from harm's way.³² This argument by Desert Wolf leans towards the argument of Ron Arkin that AWS will save lives – both civilian life and that of state agents.³³

²⁶ See K Nonami *et al* *Autonomous control systems and vehicles: intelligent unmanned systems* (2013) 24.

²⁷ See A Hagedorn *The invisible soldiers: how America outsourced our security* (2014) 247.

²⁸ See <http://www.desert-wolf.com/dw/products/unmanned-aerial-systems/skunk-riot-control-copter.html> (accessed 18 February 2015).

²⁹ See <http://www.desert-wolf.com/dw/products/unmanned-aerial-systems/skunk-riot-control-copter.html> (accessed 18 February 2015).

³⁰ See S Watson 'Riot control drone to shoot pepper spray bullets at protesters' (2014) available at <http://www.prisonplanet.com/riot-control-drone-to-shoot-pepper-spray-bullets-at-protesters.html> (accessed 18 February 2015).

³¹ See <http://www.desert-wolf.com/dw/products/unmanned-aerial-systems/skunk-riot-control-copter.html> (accessed 18 February 2015).

³² See <http://www.desert-wolf.com/dw/products/unmanned-aerial-systems/skunk-riot-control-copter.html> (accessed 18 February 2015).

³³ See R Arkin 'Lethal autonomous systems and the plight of the non-combatant' (2014).



The Florida International University is currently developing a Telebot, a humanoid robot that is remotely controlled by a police officer from a distance.³⁴ It is estimated that in the US 'by 2016, there will likely be a 6-foot tall police robot patrolling the streets and handing out parking tickets'.³⁵ Thus, it has been observed that 'as robots become more agile, we may see an increase of an armed robotic police presence'.³⁶

Of course the above can be dismissed as belonging to the realm of science fiction. Nevertheless, assuming that this will turn out to be true, it poses various dangers to protected rights. Just like the questions that arise in armed conflict, it is asked what will happen where 'a police robot malfunctions and harms someone'?³⁷ One civilian commentator has already observed the following concerning such robots:

Don't fear the robot. This will backfire on them...literally! That thing will get hacked in the first month it's deployed! Cops are bullies, not scholars...certainly not scientist. They'll learn rudimentary skills and tactics...hacker community will control the thing.³⁸

If these robots continue to gain autonomy, to the point of being Autonomous Weapon Systems, they may present a challenge to some of the rights discussed below. Now that there is already a drive within the law enforcement community to use unmanned weapons and autonomous systems, it is not misplaced to seriously consider the potential use of AWS within contexts that are outside armed conflicts. In this regard, the question that is answered in part is whether AWS without 'Meaningful Human Control' can comply with human rights norms providing and protecting the right to life, bodily security, dignity, due process and other remedial rights whenever violations occur.

³⁴ See <http://thefreethoughtproject.com/early-2016-robot-cops-patrolling-streets-no/> (accessed 18 February 2015).

³⁵ See <http://thefreethoughtproject.com/early-2016-robot-cops-patrolling-streets-no/> (accessed 18 February 2015).

³⁶ See <http://thefreethoughtproject.com/early-2016-robot-cops-patrolling-streets-no/> (accessed 18 February 2015).

³⁷ See <http://thefreethoughtproject.com/early-2016-robot-cops-patrolling-streets-no/> (accessed 18 February 2015).

³⁸ Comment by Gary Gatewood available at <http://thefreethoughtproject.com/early-2016-robot-cops-patrolling-streets-no/> (accessed 18 February 2015).



4.2 The Right to Life and AWS

The right to life is protected in many international³⁹ and regional treaties.⁴⁰ At national level, the right to life is provided for in constitutions.⁴¹ The right to life is part of customary international law.⁴² It is a fundamental right that is applicable both in armed conflict and peace time.⁴³

The International Covenant on Civil and Political Rights provides that ‘every human being has the inherent right to life’ for which no one shall be arbitrarily deprived.⁴⁴ The term ‘inherent right to life’ should not be interpreted in a restrictive manner; rather, it demands that states should take positive measures towards the protection of the right to life.⁴⁵ This argument has been explored for example in relation to the duties of the state in reducing infant mortality rate.⁴⁶

In the field of law enforcement where many citizens die because of the misuse of force by state agents, it may be asked whether the development of AWS may be seen as a positive measure towards the protection of the right to life. This question is asked in view of those who say that AWS may save life both in the context of armed conflict and during law enforcement.⁴⁷

³⁹ See Article 3 of UDHR; Article 6 of ICCPR.

⁴⁰ See Article 4 of ACHPR; Article 4 of ACHR; Article 2 of ECHR.

⁴¹ See Constitutions of many states on the protection of the right to life.

⁴² JM Henckaerts & L Doswald-Becks *Customary international humanitarian law: Volume 2, Practice, Parts 1 and 2* (2005) 2087; BG Ramcharan *The right to life in international law* (1985) 15.

⁴³ See ‘International legal protection of human rights in armed conflict’ (2011) United Nations Publications available at http://www.ohchr.org/Documents/Publications/HR_in_armed_conflict.pdf (accessed 27 April 2015).

⁴⁴ Article 6 (1) of ICCPR; HRC General Comment 6, 30/04/82 No.6 (1982)3.

⁴⁵ R Crawshaw *Human rights and policing* (2007)121.

⁴⁶ R Crawshaw *Human rights and policing* (2007)121.

⁴⁷ On the argument that AWS can save lives see RC Arkin *Lethal autonomous systems and the plight of the non-combatant* (2014) *Ethics and Armed Forces* 9.



The manner in which the right to life is provided for in the African Charter on Human and Peoples' Rights may be indicative of something special in the way the right to life is perceived on the continent. The African Charter provides as follows:

Human beings are inviolable. Every human being shall be entitled to respect of his life and integrity. No one shall be arbitrarily deprived of this right.⁴⁸

By stating that human beings are inviolable, the Charter seems to suggest and combine the right to life and dignity of human beings. In this sense, not only are humans seen to have the right to life, they are inviolable, sacrosanct, a revered and sacred creation. The African Charter expressly combines the right to life and integrity. Thus below, under the right to dignity, I argue that it may be inconsistent with the right to life and dignity to let machines decide to take the life of this sacrosanct creation or to decide to cause them physical harm albeit the legitimacy of such decisions.⁴⁹

Various commentators have sought to explain the reasons of the importance of the right to life.⁵⁰ An individual can only be able to enjoy all the other rights when alive.⁵¹ Further, once taken, the right to life cannot be restored or given back in as much as relatives of the victim can be remedied.⁵² For this strong reason, whenever a state seeks to take one's life, there is need for precaution.⁵³

In as much as there are circumstances where a state is allowed to take away one's life lawfully⁵⁴, life may not be deprived in an arbitrary way.⁵⁵ Many commentators and

⁴⁸ Article 4 of the African Charter on Human and Peoples' Rights.

⁴⁹ See Human Rights Watch 'Shaking the foundations: the human rights implications of killer robots' (2014)23.

⁵⁰ See BG Ramcharan *The right to life in international law* (1985) 146.

⁵¹ CW Lewin *Real rights* (1995) 217, Oxford University Press.

⁵² CJ Ogletree & A Sarat *Life without parole: America's new death penalty?* (2012) 76.

⁵³ See I Kucuradi *Human rights: concepts and problems* (2013)153.

⁵⁴ See CA Erin & S Ost *The criminal justice system and health care* (2007)199.

⁵⁵ Article 6 of ICCPR; BG Ramcharan *The right to life in international law* (1985) 247.



courts have come to define arbitrary deprivation of the right to life⁵⁶ not only to be that which is ‘against the law’ but also to include circumstances where life is deprived unjustly, inappropriately or where the circumstances under which one may be deprived of the right to life are unpredictable.⁵⁷ Arbitrary deprivation of the right to life by police or other state agents is considered to be ‘a matter of the utmost gravity’.⁵⁸

It is in the above sense that a question may be asked whether, in the event that AWS are considered to be lawful weapons, taking away one’s life by means of a robot or letting a robot decide who lives or who dies is appropriate, just and in accordance with settled standards and predictable. As highlighted in Chapter 3, there are strong suggestions that it is inappropriate and unjust to let a machine decide whether a person lives or dies.⁵⁹

Autonomous Weapon Systems that are not under ‘Meaningful Human Control’⁶⁰ may threaten the right to life in two ways: Firstly and directly, they may not comply with the norms and parameters that are set to protect the right to life. Secondly, and in an indirect way, AWS may undermine other secondary means or layers by which the right to life is protected, for example, the general laws prohibiting state’s use of force against the territory of other states.⁶¹ It will be argued that the right to life is better protected in peace time than in armed conflict. Therefore, if AWS will encourage states to use force willy-nilly, the right to life may be undermined.

⁵⁶ See for example *John Khemraadi Baboeram et al v Suriname* UN Official Records of the General Assembly, 40th Session, Supp. Number 40/(A/40/40) Annex X, Communications Number 146 – 154/1983.

⁵⁷ See R Crawshaw *Human rights and policing* (2007)120; BG Ramcharan *The right to life in international law* (1985) 247.

⁵⁸ See R Crawshaw *Human rights and policing* (2007)120.

⁵⁹ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014) 3.

⁶⁰ The concept of ‘Meaningful Human Control’ is discussed in Chapter 7.

⁶¹ See A/68/382, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 13 September 2013, para 23.



4.2.1 *The parameters of taking life to protect life in law enforcement*

As indicated above, the right to life is subject to limitations; it is not an absolute right like freedom from torture, for example.⁶² The limitations must, however, not be arbitrary.⁶³ For example, life is taken arbitrarily when it is done unnecessarily, disproportionately or in violation of due process.⁶⁴ State agents may only kill to preserve the life of others.⁶⁵ Christof Heyns regards this as the protect life principle.⁶⁶ Ralph Crawshaw rightfully observes that ‘the legal protection of the right to life is enhanced by the lawful and expert use of force by police and it is undermined by unlawful and arbitrary police action’.⁶⁷

The UN Guiding Principles in law enforcement summarise the parameters that govern the use of force during law enforcement. They provide as follows:

Law enforcement officials shall not use firearms against persons except in self-defence or defense of others against the imminent threat of death or serious injury, to prevent the perpetration of a particularly serious crime involving grave threat to life, to arrest a person presenting such a danger and resisting their authority, or to prevent his or her escape, and only when less extreme means are insufficient to achieve these objectives. In any event, intentional lethal use of firearms may only be made when strictly unavoidable in order to protect life.⁶⁸

From the above, two major rules have been developed on the use of force in law enforcement situations: the rules of necessity and proportionality. The rules of necessity

⁶² See R Crawshaw *Human rights and policing* (2007)119; See Article 2 (2) of Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment.

⁶³ See above.

⁶⁴ Article 6(1) of ICCPR; Article 2 of ECHR.

⁶⁵ Basic Principles on the Use of Force and Firearms by Law Enforcement Officials UN Doc A/CONF 144/28/Rev 1 112 para 9 (1990) available at <http://193.194.138.190/html/menu3/b/h_comp43.htm> (accessed 20 August 2014).

⁶⁶ See A/HRC/26/36, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 1 April 2014, para 70.

⁶⁷ See R Crawshaw *Human rights and policing* (2007)119.

⁶⁸ As above.



and proportionality as understood in the law enforcement context are different from those under international humanitarian law.⁶⁹

i. Necessity

The rule of necessity, in particular where lethal force is used can be explained in terms of three elements: the objective in the use of force, temporal considerations and exhaustion of other possible means to achieve the same objective. In this regard, use of lethal force is only lawful if the objective is to save another life.⁷⁰ The individual targeted must be posing a threat to life of another person(s) therefore making his or her killing an absolute necessity.⁷¹ More importantly, it must be an impending threat that gives the concerned law enforcement official no time to think or pursue any other alternatives.⁷²

An example explaining the above is where a split-second decision to kill a terrorist posing danger to civilians is to be made – in particular where that terrorist is about to detonate a bomb.⁷³ There are a number of cases that have explained the immediacy requirement whenever lethal force is used.⁷⁴ The law enforcement official must only take a decision to kill or use lethal force ‘as near in time as is possible to the actual shot being fired’.⁷⁵ The rationale behind this is that there is always that window of opportunity that the suspect may change their mind and desist from their life

⁶⁹ See G Oberleitner *Human rights in armed conflict* (2015) 137.

⁷⁰ E Wicks *The right to life and conflicting interests* (2010) 138; See also SJ Barela *Legitimacy and drones: Investigating the legality, morality and efficacy of UCAVS* (2015).

⁷¹ *Nachova v Bulgaria* ECHR(16 June 2005) Ser A 42; *McCann v the United Kingdom*, 21 ECHR Ser B 148-150; *Barboeram-Adhin and Others v Suriname* Communication Number 146/1983 and 148 to 154/1983 UN Doc Supp No 40 (A/40/40) at 187 (1985)14.3; *Husband of Maria Fanny Suarez de Guerrero v Columbia* Communication Number R 11/45 UN Doc Supp No 40 (A/37/40) at 137 (1982)13.1-13.3.

⁷² KR Murray *Training at the speed of life, volume one: the definitive textbook for military and law enforcement reality based training*, Volume 1 (2004) 72; LE Sullivan et al *Encyclopaedia of law enforcement* (2004) 479.

⁷³ *McCann v the United Kingdom* (above) 187.

⁷⁴ *McCann v the United Kingdom* (above) 187.

⁷⁵ Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions’ (2011) UN/A/66/330 para 73.



threatening actions therefore making it unnecessary to take their life.⁷⁶ Thus ‘a threat to life cannot be considered to be grave if it lacks immediacy and enables preventative or protective action to be taken other than the use of firearms’ or lethal force.⁷⁷

The term ‘absolutely necessary’ when it comes to the use of lethal force is considered to be ‘a stricter and more compelling test of necessity’ than the ‘normally applicable when determining whether state action was necessary in a democratic society’.⁷⁸ In the case of *Stewart v United Kingdom*, it was held that the necessity standard is higher and more compelling than other standards of necessity in international law.⁷⁹

Furthermore, and as has already been highlighted, there should always be a graduated use of force in the sense that a police officer must pursue other avenues to neutralise the threat before resorting to lethal force.⁸⁰ The question is whether it is possible for an Autonomous Weapon System without ‘Meaningful Human Control’ to abide by this standard of necessity. The answer to this question is in the negative. AWS lack the human qualities and ability to exercise human judgment when it comes to ascertaining whether certain action is necessary or not.⁸¹ Machines have no capacity to read the intention of suspects, an element that is important when deciding to use certain force against the suspect.⁸²

⁷⁶ Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions’ (2011) UN/A/66/330 para 73.

⁷⁷ R Crawshaw *Human rights and policing* (2007)149.

⁷⁸ R Crawshaw *Human rights and policing* (2007)127.

⁷⁹ *Stewart v United Kingdom*, European Commission for Human Rights, Decisions and Reports, Number 39 (1984) p.162, Application Number 10044/82, Decision of 10 July 1984.

⁸⁰ *McCann v the United Kingdom* (above) 203.

⁸¹ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)17.

⁸² See M Guarini & P Bello ‘Robotic warfare: Some challenges in moving from non-civilian to civilian theatres’ in P Lin *et al* (eds) *Robot ethics: The ethical and social implications of robotics* (2012)138; N Sharkey ‘Killing made easy: From joysticks to politics’ in P Lin *et al* (eds) *Robot ethics: The ethical and social implications of robotics* (2012)118.



ii. Proportionality

The principle of proportionality requires that measures that are taken in response to a threat must be proportional to the threat posed.⁸³ The Human Rights Committee has found violations of the right to life where disproportionate force has been used by police officials.⁸⁴ If there is no evidence that the actions taken by the police officer were necessary to neutralise the specific threat posed, then such actions may be deemed to be disproportionate and unnecessary.⁸⁵

In the case of *Neira Alegria et al v Peru*, the court considered the question of proportionate use of force during law enforcement.⁸⁶ In this case, there was a demonstration by prisoners in an isolated prison. Security forces responded to the riot by demolishing prison cells using explosives. The prison cells were occupied and it resulted in the death of some prisoners. It was held in this case that the security forces had used disproportionate force.

In regards to proportionality when states use force, Crawshaw has noted that while security forces or state agents have a duty to maintain the security of the state, they cannot 'resort to any means to attain its ends'.⁸⁷ In fact, state agents are 'subject to law and morality' and 'disrespect for human dignity' cannot be justified in law enforcement.⁸⁸ Thus, in addition to the question whether AWS will be able to make proportional calculations, the question also remains whether or not it will be in line with the right to dignity.

⁸³ Human Rights Committee, General Comment Number 6.

⁸⁴ *Suarez de Guerrero v Columbia*, UN Document Number 40 (A/37/40), Communication Number 45/1979, 31 March 1982 ; *Stewart v United Kingdom*, European Commission for Human Rights, Decisions and Reports Number 39 (1984)p.162.

⁸⁵ *Suarez de Guerrero v Columbia*, UN Document Number 40 (A/37/40), Communication Number 45/1979, 31 March 1982

⁸⁶ See *Neira Alegria et al v Peru*, IACHR, Series C, No. 20 (1995), 19 January 1995.

⁸⁷ R Crawshaw *Human rights and policing* (2007)127.

⁸⁸ R Crawshaw *Human rights and policing* (2007)127.



Tactics and weapons that are used in law enforcement obviously play an important role in as far as force used will be proportional.⁸⁹ In the context of armed conflict, the operational rule as far as weapons are concerned is that the ‘means and methods of warfare are not unlimited’.⁹⁰ This same rule applies and more so strictly in the context of law enforcement.

Thus in line with the above, the means and methods that law enforcement agencies use in the use of force are not unlimited. In the case of *Gulec v Turkey*, the European Court of Human Rights held that the killing of a 15 year old boy was because of disproportionate use of force occasioned by the wrong choice of weapons by the law enforcement officials.⁹¹ In this case the law enforcement officials deployed an armoured vehicle armed with a combat machine gun to deal with a violent demonstration. While the machine gun sprayed bullets, one of the bullets hit a wall and ricocheted and killed the 15 year old boy. Choice of weapons has far reaching ramifications in law enforcement.

In view of the above, if AWS are ever to be used in law enforcement situations or those that fall outside the context of armed conflict, caution must be taken, first by asking the question whether these weapons, in the absence of ‘Meaningful Human Control’, can be able to make proportional calculations that are in line with the outlined standards on the use of force.

Proportionality is equally important when dealing with the use of force that is non-lethal. To comply with this principle, ‘care needs to be taken to avoid misuse of non-lethal incapacitating weapons’.⁹² I have already indicated above that some of the unmanned weapons that are being developed can deliver high voltage of taser or

⁸⁹ See I Henderson *The contemporary law of targeting* (2009) 236.

⁹⁰ See D Fleck & M Bothe *The handbook of humanitarian law in armed conflicts* (1999) 401.

⁹¹ See *Gulec v Turkey*, ECHR, (1968), Application Number 21593/93, 27 July 1998.

⁹² R Crawshaw *Human rights and policing* (2007)147.



release teargas. It has been observed that ‘some of these weapons may deliver such high levels of force that they are appropriate for use only in those situations where firearms may otherwise be lawfully deployed’. In those circumstances, the magnitude of electrical shocks delivered may cause severe pain that can even be ‘life threatening when used against some individuals and disproportionate in those circumstances’.⁹³

In the above sense, it can be noted that the use of less lethal or non-lethal force against an individual requires an individual assessment and is subjective.⁹⁴ For example, use of certain amount of force may be proportionate if used against an average adult and may not be proportionate if used against school children or teenagers. There are cases where children have been killed because of use of teargas in circumstances where adults would have probably survived.⁹⁵

Proportionality in cases where non-lethal force is used thus requires careful and due care by the law enforcement official, to reasonably assess and ascertain circumstances of the suspect before employing certain measures.⁹⁶ If someone has a special condition for example, use of certain methods or means to arrest them may turn out to be disproportionate.⁹⁷

An example of the above explanation is the 2014 US case of Eric Garner who was killed by a police officer who placed him on chokehold during arrest.⁹⁸ Eric Garner screamed for several times that he could not breathe and this was exacerbated by his health

⁹³ R Crawshaw *Human rights and policing* (2007)147.

⁹⁴ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)16.

⁹⁵ See <https://dearkitty1.wordpress.com/2013/01/27/regime-teargas-kills-bahraini-child/> (accessed 27 April 2015).

⁹⁶ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)16; T Gill & D Fleck *The handbook of the international law of military operations* (2010) 284.

⁹⁷ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)16; T Gill & D Fleck *The handbook of the international law of military operations* (2010) 284.

⁹⁸ See <http://www.theguardian.com/us-news/video/2014/dec/04/i-cant-breathe-eric-garner-chokehold-death-video> (accessed 27 April 2015).



situation and he subsequently died.⁹⁹ Reports from the responsible US police department indicated that Mr. Garner's health situation had contributed to his death indicating that an average healthy man would probably have not died of that chokehold.¹⁰⁰ The failure of the police officer to hear Mr. Garner's pleas that he could not breathe because of his health situation would make the use of chokehold method a disproportionate force.

The point being made here is that the use of less lethal force in many circumstances requires careful human judgment, something that AWS without 'Meaningful Human Control' may not possess thereby making it very unlikely for them to sufficiently comply with this rule in law enforcement. Thus, for example, a system that is designed to release doses of teargas if a suspect intrudes into a certain area may not know that the person has already collapsed at the first dose, the point at which a human police officer will stop and seek to take the suspect into custody. The system may continue releasing those doses to a point where force may be deemed to have been disproportionate.¹⁰¹

Thus in terms of Basic Principle 3, incapacitating weapons must be carefully evaluated in order for them not to cause disproportionate harm either to the person targeted or uninvolved persons.¹⁰² To this end, Ralph Crawshaw emphasises that whenever tasers or dart firing electro-shocks are used, it is important for the law enforcement official to consider the proportionality of such force because in certain circumstances such force may have far reaching consequences.¹⁰³ Such weapons may fire 'barbed darts up to a distance of 21 feet and are designed to penetrate up to two inches of the target's

⁹⁹ See <http://www.washingtonpost.com/blogs/the-fix/wp/2014/12/04/peter-king-blames-asthma-and-obesity-for-eric-garners-death-this-is-a-problem-for-the-gop/> (accessed 16 April 2015).

¹⁰⁰ See <http://www.washingtonpost.com/blogs/the-fix/wp/2014/12/04/peter-king-blames-asthma-and-obesity-for-eric-garners-death-this-is-a-problem-for-the-gop/> (accessed 16 April 2015).

¹⁰¹ See K Hess *et al* *Police operations: theory and practice* (2010) 101.

¹⁰² R Crawshaw *Human rights and policing* (2007)147.

¹⁰³ R Crawshaw *Human rights and policing* (2007)147.



clothing or skin and deliver high voltage, low amperage electric shock along insulated copper wires'.¹⁰⁴

For the above reasons, law enforcement officials are required in terms of Principle 5 to use force with 'restraint and act in proportion to the seriousness of the offense and the legitimate objective to be achieved'.¹⁰⁵ It is in this sense that killing a fleeing thief may be considered disproportionate.¹⁰⁶ It is unlikely that robots can be successfully taught to appreciate some of these concepts.

iii. Precaution

Just like belligerents in an armed conflict need to exercise precaution in their attacks, so does law enforcement agents in law enforcement situations. The case that largely dealt with the issue of precautions that commanders of law enforcement operations should exercise is that of *McCann et al v United Kingdom*.¹⁰⁷ In this case, a group of suspected terrorists who were suspected of intending to detonate a bomb on 8 March 1998 were killed on 6 March 1998. This led to speculations that they were probably killed while they were on surveillance, preparing for their mission.

In the above case, the court noted the importance of precaution that commanders who plan and control law enforcement operations must exercise. When planning law enforcement operations, it is the means and method that would minimise harm to bystanders that must be used.¹⁰⁸

¹⁰⁴ R Crawshaw *Human rights and policing* (2007)147.

¹⁰⁵ R Crawshaw *Human rights and policing* (2007)148.

¹⁰⁶ See A/HRC/26/36, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 1 April 2014, para 72.

¹⁰⁷ See *McCann et al v United Kingdom*, ECHR, Series A, Vol 324 (1996) Application Number 18984.91, Judgment of 27 September 1995.

¹⁰⁸ See H Nasu *New technologies and the law of armed conflict* (2013)34; QC. Thurman & JD Jamieson *Police problem solving* (2014) 58; L Siegel & J Worrall *Essentials of criminal justice* (2014); G Cole *et al Criminal justice in America* (2015).



Commanders must not plan law enforcement operations in such a way that makes the use of lethal force inevitable for example.¹⁰⁹ Thus, training law enforcement officials ‘to continue shooting once they open fire until the suspect is dead’ is contrary to the rule of precaution.¹¹⁰

There are many instances by which AWS without ‘Meaningful Human Control’ may contravene these precaution standards. To start with, precaution over a law enforcement operation is exercised right from the planning, through execution up to the final neutralisation of the threat preferably through arrest of suspects.¹¹¹

iv. The need for human control of weapons in law enforcement

Just like in the case of International Humanitarian Law rules of distinction, proportionality, precaution and humanity, the principles governing the use of force discussed above are apparently designed and developed with the idea that the use of force or deployment of weapons is done by *human* police officials. In order to comply with the principles of necessity, proportionality and precaution when force is used in law enforcement whether lethal or non-lethal, there is a clear need for human judgment.¹¹²

It is clear that most of the Basic Principles on the use of force anticipate a human agent being responsible for the delivery of force in law enforcement situations. For example, Basic Principle 18 and 19 require states to carefully select law enforcement agents especially those required to use firearms or lethal force.¹¹³ Special training is required of law enforcement agents who must be ‘tested in accordance with appropriate

¹⁰⁹ See I Cameron *National security and the European Convention on Human Rights* (2000)262.

¹¹⁰ R Crawshaw *Human rights and policing* (2007)134.

¹¹¹ See H Duffy *The ‘War on Terror’ and the framework of international law* (2015) 762.

¹¹² See H Duffy *The ‘War on Terror’ and the framework of international law* (2015) 762.

¹¹³ See also H Duffy *The ‘War on Terror’ and the framework of international law* (2015) 762.



proficiency standards in the use of force'.¹¹⁴ When being trained, emphasis is placed on 'behavioural and normative aspects of law enforcement' that require understanding the environment you are operating in as nuanced by practice of a particular society and culture.¹¹⁵

In this context, agents are expected to understand 'police ethics and human rights' and to learn skills such as persuasion as an alternative to use of force, thus reference to the human ability to negotiate 'peaceful settlement of conflicts, understanding of crown behaviour' and effect non-violent arrest through 'different methods of persuasion, negotiation and mediation'.¹¹⁶

In as much as one may argue that a robot may be programmed in a way to follow the graduated use of force - for examples, if programmed to give warnings to a suspect before using force - it can never do it better than a human being because it cannot fully appreciate the situation, understand the intentions of the suspect and above all may not possess negotiating capacity to persuade like a human being would do.

Another rule that may make it difficult or impossible for AWS to comply with law enforcement rules is Basic Principle 10. In terms of this principle, law enforcement officials are supposed to identify themselves and give clear and sufficient warning before resorting to use of force.¹¹⁷ Most of the AWS in their current form today may make it difficult for the law enforcement authority to sufficiently identify itself. It remains to be seen how an AWS like X47B can sufficiently identify itself as police if it were to be used in law enforcement situations.

¹¹⁴ R Crawshaw *Human rights and policing* (2007)147.

¹¹⁵ R Crawshaw *Human rights and policing* (2007)148.

¹¹⁶ R Crawshaw *Human rights and policing* (2007)148.

¹¹⁷ See M de Guzman *et al Strategic Responses to crime: thinking locally, acting globally* (2011)129.



In the context of assemblies and demonstrations, it is difficult to distinguish those who are posing a danger and those who are not. In such circumstances, human judgement and discretion is of fundamental value.¹¹⁸ Indiscriminate use of fire arms by law enforcement officials constitutes arbitrary deprivation of the right to life.¹¹⁹ Finally and as will be discussed below, Basic Principle 7 requires responsibility over police actions through investigations and prosecution of responsible individuals where there are alleged violations.¹²⁰ In the case of AWS that are not under ‘Meaningful Human Control’, this may not be possible.¹²¹

Over and above, Crawshaw notes that in ‘policing modern societies’, there is ‘unpredictability of human conduct’ which needs careful human judgment whenever force is used.¹²² This is a quality that AWS without ‘Meaningful Human Control’ cannot have. For the foregoing reasons, it is argued that if AWS are used in law enforcement situations, they may violate the fundamental right to life.

4.2.2 Lowering of the threshold to use force and the protection of the right to life

Although it is only indirectly linked to the protection of the right to life, the following argument is worth mentioning because it is related to the norms that have a bearing on the right to life. This point is not necessarily linked to law enforcement but the protection of the right to life in general. Many commentators have argued that if AWS are developed and deployed, they will lower the threshold on the lawful use of force and enhance the likelihood of states going to war.¹²³ It is argued that *jus ad bellum* rules

¹¹⁸ R Crawshaw *Human rights and policing* (2007)151.

¹¹⁹ R Crawshaw *Human rights and policing* (2007)152.

¹²⁰ See also A Collins *Shielded from justice: police brutality and accountability in the United States* (1998)33.

¹²¹ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)17-25.

¹²² R Crawshaw *Human rights and policing* (2007)139.

¹²³ See AK Krishnan *Killer Robots: legality and ethicality of autonomous weapons* (2009)150; P Asaro ‘How just could a robot war be?’ in P Brey et al (eds) *Current issues in computing and philosophy* (2008) 7; Report of the Secretary-General on the role of science and technology in the context of international



prohibiting the use of force is another layer on the protection of the right to life.¹²⁴ There is no doubt that the right to life is better protected in peace time since the rules of International Humanitarian Law are not as stringent as those of human rights.¹²⁵

P.W. Singer observes that AWS will make states become ever ready to use lethal force¹²⁶ because the technology makes it easy to project lethal force across borders.¹²⁷ Heyns suggests that one of the reasons why we are nearing a century without having another world war is because of the 'inter-generational effects of insisting on human responsibility for killing decisions'.¹²⁸ AWS may make war riskless or even 'mildly entertaining' as the state in possession of this kind of technology will not suffer any human cost.¹²⁹ To this end, Paul Khan notes that such 'riskless warfare can be a product of this kind of technological innovation' which undermines one of the important political considerations where states sometimes decide not to go on missions because they pose a serious risk to one's own soldiers.¹³⁰

In the above light, Heyns argues that in general, human beings have built in constraints against war emanating from 'unique human traits such as our aversion to getting killed, losing loved ones, or having to kill other people'.¹³¹ To that end, AWS may contribute to negative peace as the root causes of conflicts may be ignored with those who own AWS

security and disarmament A/53/202, para 98; PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 323; PW Khan 'The paradox of riskless warfare' (2002) 326 *Faculty Scholarship Series 4* available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

¹²⁴ See A/68/382, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 13 September 2013, para 23.

¹²⁵ See J Crowe & K Weston-Scheuber *Principles of international humanitarian law* (2013) 136.

¹²⁶ PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 323.

¹²⁷ The same argument can be said of other weapons; however, AWS takes the easiness in the use of force to another unprecedented level.

¹²⁸ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 96.

¹²⁹ PW Singer *Wired for war: the robotics revolution and conflict in the 21st century* (2009) 323.

¹³⁰ PW Khan 'The Paradox of Riskless Warfare' (2002) 4 *Faculty Scholarship Series. Paper 326*. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

¹³¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 11 para 57; Also see 2010 Report by P Alston, A/65/321 p 20 para 44.



being more inclined to the quick elimination of perceived ‘troublemakers anywhere in the world at the press of a button’.¹³²

Furthermore, other commentators consider that AWS may contribute negatively to democratic processes. According to Armin Krishnan, the decision to go to war may become undemocratic as politicians can decide to go to war without fear of public accountability as ‘the decision to use force becomes a financial or diplomatic question’.¹³³ Peter Asaro echoes the same sentiments when he says robots ‘will make it easier for leaders to take an unwilling nation into war’.¹³⁴ Reduction in national casualties is fundamental in the political propaganda to go to war.¹³⁵

It is in the same light that the UN Secretary General has noted that ‘the increased capability of autonomous vehicles opens up the potential for acts of warfare to be conducted by nations without the constraint of their people’s response to loss of human life’.¹³⁶ For these stronger reasons, the availability of AWS may make it easy to go and stay at war – a state of affairs that is not favourable to the protection of the right to life as already indicated above.¹³⁷

There are scholars, however, who point to the weaknesses of some of the arguments noted above. Kenneth Anderson and Matthew Waxman object to the argument that AWS lower the threshold to go to war because they consider it morally problematic as it suggests the ‘holding [of] innocent civilians and even combatants’ lives hostage’ as an

¹³² A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 97.

¹³³ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 11 para 58; see also AK Krishnan *Killer Robots: legality and ethicality of autonomous weapons* (2009)150.

¹³⁴ P Asaro ‘How just could a robot war be?’ in P Brey *et al* (eds) *Current issues in computing and philosophy* (2008) 7.

¹³⁵ P Asaro ‘How just could a robot war be?’ in P Brey *et al* (eds) *Current issues in computing and philosophy* (2008) 7.

¹³⁶ Report of the Secretary-General on the role of science and technology in the context of international security and disarmament A/53/202, para 98.

¹³⁷ See J Crowe & K Weston-Scheuber *Principles of international humanitarian law* (2013) 136.



acceptable situation¹³⁸ for the purposes of preventing war.¹³⁹ Asaro succinctly puts the objection as he notes that the argument brings out the idea that war must remain brutal so as to deter states from going to it.¹⁴⁰

Further, Arkin adds that the issue of lowering the threshold to go to war is not limited to AWS as it is 'typical for advent of any significant technological advance in weapon tactics'.¹⁴¹ As such, he does not consider it a compelling argument to outlaw AWS. In any event, other scholars argue that there is an ethical duty compelling states where possible to lessen the risk of harm to their own military forces.¹⁴²

There is no doubt that these counter arguments hold water. However, it should be noted that in as much as the availability of other types of weapons undermine peace, they may not do so to the extent AWS do on account of the very nature of this kind of technology that completely eliminates risk on the part of the state possessing them. Likewise, if states will not go to war on the fear that lives may be destroyed, then so be it. The philosophical argument asserted by Asaro and others makes sense, but not to the extent of invalidating the objective behind discouraging states from going to war: - peace, as Heyns puts it, must be the norm and war the exception because in war, the right to life is at risk.¹⁴³

In view of the foregoing, it can be argued that because of the incapability of AWS without 'Meaningful Human Control' to abide by the parameters that have been developed and hardened in human rights law as a way of protecting the right to life,

¹³⁸ K Anderson & M Waxman 'Law and ethics for robot soldiers' (2012) 176 *Policy Review* 13 available at <http://www.hoover.org/publications/policy-review/article/135336> (accessed 19 September 2013).

¹³⁹ For many years this has not succeeded in any meaningful way.

¹⁴⁰ P Asaro 'How just could a robot war be?' in P Brey *et al* (eds) *Current issues in computing and philosophy* (2008) 7-9.

¹⁴¹ R Arkin 'Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture' (2011) *Technical Report GIT-GVU-07-11* p 10.

¹⁴² PW Khan 'The paradox of riskless warfare' (2002) 326 *Faculty Scholarship* 2. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 19 September 2013).

¹⁴³ See A/68/382, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 13 September 2013, para 16.



their use in law enforcement will now and forever be illegal. For that reason, if states are to accept AWS in the context of armed conflict, they should surely proscribe their use during peace time. Strict conditions must hitherto be developed that expressly state that such kind of weapon must be used strictly in the context of armed conflict.

4.3 The Right to Bodily Integrity/Security and AWS

The other right that is at stake whenever force is used in law enforcement is the right to bodily security. Every person has a right to bodily security.¹⁴⁴ The right to bodily security entails that a person's physical integrity must not be interfered with; for example, through use of unlawful force on them, medical experiments or any such other interference.¹⁴⁵ The right to bodily security is linked to the right to life because some interference with bodily security can threaten the right to life itself.¹⁴⁶ There are circumstances where police have used less lethal force only meant to interfere with the right to bodily security but persons ended up losing their lives.¹⁴⁷

One of the major reasons why it is emphasised that there should be graduated use of force is the desire to preserve the right to bodily security. In as much as this right is not absolute, it can only be limited in terms of the parameters I have discussed above. To this end, in order for the right to bodily security to be respected during law enforcement, the interference with this right must be proportional. In the case of *Chongwe v Zambia*, it was held that the right to bodily security of the applicant who sustained a gunshot wound at the hands of state security agents had been violated.¹⁴⁸

¹⁴⁴ For a discussion on the use of fatal force and how it infringe the right to bodily integrity and security see M Punch *Shoot to kill: police accountability, firearms and fatal force* (2010)53.

¹⁴⁵ See DN Weisstub & GD Pintos *Autonomy and human rights in health care: an international perspective* (2007) 375.

¹⁴⁶ R Cruft *et al Philosophical foundations of human rights* (2014) 435.

¹⁴⁷ L Siegel & J Worrall *Introduction to criminal justice* (2015) 270; B Rappert *Non-lethal weapons as legitimising forces?: technology, politics and the management of conflict* (2004)18.

¹⁴⁸ See *Chongwe v Zambia*, Communication Number 821/1998, Views adopted on 25 October 2000; See also *Delgado Paez v Columbia* UN Doc. Number 40 (A/45/40), Vol II, Annex IX, Sect D, Communication 195/1985, 12 July 1990; R Crawshaw *Human rights and policing* (2007)137.



The arguments that I have made above in response to the question whether AWS without ‘Meaningful Human Control’ can be able to comply with the parameters on the use of force in order to comply with the protection of the right to life are repeated here.¹⁴⁹ In order to use force in a graduated and proportional way, human judgment is needed or else just as the right to life may be violated, the right to bodily security will also be violated.¹⁵⁰

4.4 The Right to Dignity and AWS

Human dignity is the humanity of a person. It is her humanity as a free being, with unbridled autonomy. It is her freedom to write her life story. This humanity expresses the conception of a person as an end, and rejects viewing her as a mere means. This humanity is the framework of society.¹⁵¹

There is a number of scholars who have written on dignity.¹⁵² Yale Law School Professor Aharon Barak has added to the literature on human dignity with his recent 2015 book titled *Human Dignity*, wherein he comprehensively discusses the origins of human dignity, its development through generations up to the modern day where it serves as the foundation of society.¹⁵³ In this section, I seek to discuss the relevance of human dignity in the AWS debate by considering first what human dignity entails and its status in international law. I then consider whether use of Autonomous Weapon Systems without ‘Meaningful Human Control’ is in line with human dignity.

¹⁴⁹ See in general Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014).

¹⁵⁰ See Human Rights Watch ‘Shaking the foundations: the human rights implications of killer robots’ (2014)16.

¹⁵¹ A Barak *Human dignity* (2015) xxiv.

¹⁵² See for example EJ Eberle *Dignity and liberty: Constitutional visions in Germany and the United States* (2002); J Waldron *Dignity, rank, and rights* (2012); M Meyer & W Parent *The Constitution of rights: Human dignity and American values* (1992); D Kretzmer & E Klein *The concept of human dignity in human rights discourse* (2002); RP Kraynak & GE Tinder *In defense of human dignity: Essays for our times* (2003); P Kanfranann *et al Humiliation, degradation, dehumanisation: Human dignity violated* (2011); C McCrudden *Understanding human dignity* (2003); M Duwell *et al The Cambridge handbook of human dignity* (2014).

¹⁵³ See A Barak *Human dignity* (2015) available at <https://books.google.com/books?isbn=1107090237> (accessed 3 March 2015).



It is important to seek to understand the content of human dignity because one of the challenges likely to be encountered when dignity is considered in the AWS debate is that there is no agreement as to what it entails.¹⁵⁴ The concept of human dignity is very old and dates back as far as 2 500 years ago.¹⁵⁵ It has appeared in many disciplines and has been the subject of debate in religion, theological teachings, philosophy, history and law, only to mention a few.¹⁵⁶

After the international community witnessed historical catastrophes such as the world wars and the Holocaust, the concept of human dignity started gaining traction as a constitutional value and right.¹⁵⁷ Thus, over the years, there has been what Aharon Barak calls ‘the constitutionalisation of human dignity as a value or as a right’.¹⁵⁸ In the following paragraphs, I am going to discuss the concept of human dignity first as a social value that is influenced by religion and philosophy and second as a constitutional value and right.

4.4.1 *Human dignity as a social value*

The concept of dignity has been largely discussed and explained by theologians and philosophers. According to these groups and disciplines, the concept of dignity is understood as a social value representing positive aspects of man such as respect, glory and honour.¹⁵⁹ When theologian Thomas Aquinas discusses dignity, he perceives it as a social value that has roots in the religious dictates of a particular society.¹⁶⁰ In this sense, dignity of the human person stems from the sacred nature of his creation by a

¹⁵⁴ See J Donnelly *Universal human rights in theory and practice* (2013) 132.

¹⁵⁵ A Barak *Human dignity* (2015) xvii; See also J Fischer ‘Human dignity and human rights’ in W Gräß & L Charbonnier (eds) *Religion and human rights: global challenges from intercultural perspectives* (2015).

¹⁵⁶ A Barak *Human dignity* (2015) xvii; N Jacobson *Dignity and health* (2012)6.

¹⁵⁷ A Barak *Human dignity* (2015) xvii; S Woolman *Constitutional conversations* (2008)171.

¹⁵⁸ A Barak *Human dignity* (2015) xvii; See also S Woolman *Constitutional conversations* (2008)171.

¹⁵⁹ See D Cornell ‘Bridging the span towards justice: Laurie Ackermann and the on-going architectonic of dignity jurisprudence’ (2008) *Acta Juridica* 18; A Barak *Human dignity* (2015) 3.

¹⁶⁰ A Barak *Human dignity* (2015) 21; See in general RP Joly *Saint Thomas Aquinas and contempt for human dignity as a cause of war* (1946).



supernatural being.¹⁶¹ The human body and soul must therefore not be transgressed on account of its sacredness; it is the image of God.¹⁶² There are Christian dictates, for example, stating that man must respect and handle their bodies in a dignified manner because it is a temple of God.¹⁶³

Courts have accepted the argument that dignity can in fact be understood from a religious or theologian point of view. The courts of Israel have referred many times to Bible verses when dealing with the issue of human dignity. For example, in the *Moshe Neiman case*, the court observed as follows:

A basic element in Judaism is the idea that man was created in the image of God. (Genesis 1: 27). From this (verse one) derives certain fundamental principles regarding the value of man – equality. There is also the crowning value in human relations: ‘And you shall love your neighbour as yourself’. (Leviticus 9:18). The supreme value in human relations is love of one’s fellow man and the equality of man since every man was created in the image of God.¹⁶⁴

This perception of human dignity as a social value in the religious discourse has also been supported by a number of philosophers. Philosopher Immanuel Kant described dignity as a social value that demands that each person be respected in the interest of peace and co-existence of human beings.¹⁶⁵ The difference between human beings and animals was thus highlighted as the ability of humans to treat each other with dignity, to recognise the worth of fellow human beings.¹⁶⁶

Likewise, in pointing to the differences between humans and animals, Stoics and Cicero emphasise that it is the ability of humans to think and reason that separates them from

¹⁶¹ P Garry *Conservatism redefined: a creed for the poor and disadvantaged* (2013)28.

¹⁶² A Barak *Human dignity* (2015) 6; See in general RK Soulen & L Woodhead *God and Human Dignity* (2006).

¹⁶³ See for example the Bible in 1 Corinthians 6:19 providing as follows: ‘Do you not know that your bodies are temples of the Holy Spirit, who is in you, whom you have received from God? You are not your own.’

¹⁶⁴ See EA 2/84 *Moshe Neiman et al v Chairman of the Central Elections Committee for the 11th Knesset*, 8 Israel Law Reports 83, 148 (1985).

¹⁶⁵ See J Malpas & N Lickiss *Perspectives on human dignity: a conversation* (2007) 95.

¹⁶⁶ See T Arppe *Affectivity and the social bond: transcendence, economy and violence in French social theory* (2014) 165.



all other creations.¹⁶⁷ In this sense, before a human engages in conducts that likely affect others, a reasonable human being would seriously deliberate of their actions. That moment of deliberation, is the moment when homage is paid to human dignity. It may not even matter that the person may go ahead with the wrongful act; the fact that they morally know wrong from right and know when they are doing wrong is an acknowledgment of human dignity. Machines on the other hand, can never have such moral awareness. Thus, the ability to think is important for the recognition of human dignity and humanity.¹⁶⁸

Our being all alike is endowed with reason and with that superiority which lifts us above the brute. From this all morality and propriety are derived, and upon it depends the rational method of ascertaining our duty.¹⁶⁹

Now that AWS may not have this human quality, the question is whether allowing a machine to make the decision to kill in armed conflict or in law enforcement is in line with the right to human dignity. Aharon Barak observes that ‘only humans have the ability to think and create concepts, be the subject to moral dictates and ethical responsibility’.¹⁷⁰ When making their decisions, humans take many things into consideration. This is due to the fact that humans, ‘not only live in the present but also in the past and in the future’.¹⁷¹ Whether we like it or not and notwithstanding technological developments, ‘only human beings constitute an ethical community of rational beings’ who have the capacity to respect and preserve human dignity.¹⁷²

There is thus a case why ‘Meaningful Human Control’ over weapon systems must be maintained: it is only ‘humans who are able to see the results of their actions,

¹⁶⁷ See SK Strange & J Zupko *Stoicism: Traditions and transformation* (2004).

¹⁶⁸ See in general I Dennis & P Tapsfield *Human abilities: their nature and measurement* (2013).

¹⁶⁹ See MT Cicero *De Officis* (1975)107.

¹⁷⁰ A Barak *Human dignity* (2015) 17.

¹⁷¹ A Barak *Human dignity* (2015) 17.

¹⁷² A Barak *Human dignity* (2015) 17; see also L Harees *The mirage of dignity on the highways of human ‘progress’: - the bystanders’ perspective* (2012) 251.



understand the connections between cause and effect, and thus control their lives'.¹⁷³

This is not the case with Autonomous Weapon Systems. For this stronger reason, Peter Asaro notes that robots cannot understand the meaning of their actions, therefore making death at the hands of a robot a meaningless, undignified and arbitrary death.¹⁷⁴

Thus, if human dignity is understood from religious teachings such as those of Judaism, Christianity, Islam, social values of togetherness like the spirit of Ubuntu or humanity, letting a machine or robot decide who lives and who dies becomes unacceptable.¹⁷⁵

It is important to note that in the early days of discussion of the concept of human dignity, it was only understood as a social value and not a human right mainly because back then there were no constitutions to talk of.¹⁷⁶ This is not to say, however, that the theological and religious understanding of human dignity as a social value is no longer important today in particular to this AWS debate. Both the theologian and philosophical understanding of human dignity is still relevant because even the constitutional understanding of human dignity that I discuss below gives reference to the social value of human dignity – human dignity is underpinned by morals and ethics that are 'entrenched in the culture of a society'.¹⁷⁷

Of course there is a challenge in explaining dignity in terms of societal values that are influenced by different cultures, customs and belief. In this regard, one commentator

¹⁷³ A Barak *Human dignity* (2015) 17; L Harees *The mirage of dignity on the highways of human 'progress': - the bystanders' perspective* (2012) 251.

¹⁷⁴ P Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14.

¹⁷⁵ On the demands of the spirit of Ubuntu or humanity see R English 'Ubuntu: The quest for an indigenous jurisprudence' (1996) 12 *South African Journal of Human Rights* 641; IJ Kroeze 'Doing things with value: The case of Ubuntu' (2002) 13 *Stellenbosch Law Review* 252; Y Mkgoro 'Ubuntu and the law in South Africa' (1998) 4 *Buffalo Human Rights Law Review* 15.

¹⁷⁶ A Barak *Human dignity* (2015) 4.

¹⁷⁷ A Barak *Human dignity* (2015)5; See also B Morris 'The dignity of man' (1946)57 *Ethics* 57; A Edel 'Humanist ethics and the meaning of human dignity' in P Kurtz (ed) *Moral problems in contemporary society: Essays in humanistic ethics* (1969)232; R Bayefsky 'Dignity, honour and human rights: Kant's perspective'(2013)41 *Political Theory* 809; TW Platt 'Human dignity and the conflict of rights' (1972)2 *Idealistic Studies* 174; N Lickiss 'Human dignity and human being' in J Malpas & N Lickiss (eds) *Perspectives on human dignity: A conversation* (2007)19; PC Carbonari 'Human dignity as a basic concept of ethics and human rights' in BK Goldwewijk *et al Dignity and human rights: The implementation of economic, social and cultural rights* (2002)35.



observes that if human dignity is understood in terms of culture, ‘human dignity in a western culture may not be the same as human dignity in a non-western culture, human dignity in one western culture may not be the same as human dignity in another western culture’.¹⁷⁸ It cannot be denied that the way one perceives human dignity is influenced by one’s background such as culture.

Another factor that also influences one’s perspective especially in relation to acceptability of certain weapons is the ‘age factor’ – the younger generation is inclined to accept high tech weapons even in circumstances where they may be viewed as immoral while the older generation may resist.¹⁷⁹ This was particularly the case with drones – within the military, some younger soldiers or pilots seemed to readily accept the use of armed drones while the older generation of fighters seemed to have reservations over their use.¹⁸⁰ In this sense, the content of human dignity when understood as a social value is ‘contextually dependent’; it is ‘a changing value in a changing world’.¹⁸¹ Thus in view of these considerations, Barak argues that human dignity is not ‘an axiomatic universal concept’; rather, ‘it is a relative concept dependent upon historical, cultural, religious, social and political contexts’.¹⁸²

Nevertheless, even if human dignity is viewed as relative, the core of human dignity is similar across the globe. This is so because the factors that influence the content of human dignity are the same. Human dignity is shaped by rule of law, democracy and

¹⁷⁸ A Barak *Human dignity* (2015)5; See also J Donnelly ‘Human rights and human dignity: An analytic critique of non-western conceptions of human rights’ (1982) 76 *American Political Science Review* 303; RS Manglapus ‘Human rights are not a western discovery’ (1978)21 *World View* 4; MYK Lee ‘Universal human dignity: Some reflections in the Asian context’ (2008)3 *Asian Journal of Comparative Law* 1932; S Angle *Human rights and Chinese thought: A cross cultural inquiry* (2002).

¹⁷⁹ See for example P Bergen & D Rothenberg *Drone wars* (2014) 233.

¹⁸⁰ P Bergen & D Rothenberg *Drone wars* (2014) 233.

¹⁸¹ A Barak *Human dignity* (2015)6.

¹⁸² A Barak *Human dignity* (2015)6; See also J Jones ‘Common constitutional traditions: Can the meaning of human dignity under German law guide the European Court of Justice?’ (2004) *Public Law* 167; H Botha ‘Human dignity in comparative perspective’ (2009) 2 *Stellenbosch Law Review* 171; D Weisstub ‘Honour, dignity and the framing of multiculturalists values’ in D Kretzmer & E Klein (eds) *The concept of human dignity in human rights discourse* (2002) 263; RE Howard ‘Dignity, community and human rights’ in A Ahmed (ed) *Human rights in cross-cultural perspectives – A quest for consensus* (1992)81; M Lebech ‘What is human dignity?’ in M Lebech (ed) *Maynooth philosophical papers* (2004)59.



human rights. Many societies are thus built on common foundations which make the content of what is dignified and what is not more the same.¹⁸³ This is even more the case if human dignity is understood as a constitutional value and a right.¹⁸⁴

The above is not to undermine the difficulties that are associated with unpacking the content of human dignity. It is surely a complex issue. However, its complexity does not mean that it is irrelevant to the AWS debate or wherever it is called for. In fact it is imperative that it be considered and given its due weight in this AWS debate. For that reason, Aharon Barak has categorically stated that ‘the complexity of human dignity is not sufficient reason to justify a negative approach toward human dignity’.¹⁸⁵ As already indicated above, many human rights are complex but that does not warrant their abandonment. Thus in emphasising the importance of human dignity as a basis of many aspects of international law and its interpretation, Aharon Barak states as follows:

This is the case regarding human dignity: Its complexity does not make it useless. Indeed, equality, liberty and life are concepts that have been with us for centuries, whereas human dignity is a new concept in constitutional law. This novelty passes quickly; society gets accustomed to the new concept, with all its problems. What in the past appeared vague and unclear becomes natural and accepted, what philosophers consider to be unclear and vague is not necessarily unclear and vague to jurists. Judges do not enjoy the extent of discretion granted to theologians and philosophers. They live in a legal framework, which determines rules on whose opinion is decisive and whose is not. The judge must give meaning to human dignity in a constitution does not have the freedom of the philosopher to agree with Kant or to reject his

¹⁸³ A Barak *Human dignity* (2015)7; See also J Waldron ‘The dignity of groups’ (2008) *Acta Juridica* 66; C McCrudden ‘Human dignity and judicial interpretation of human rights (2008)19 *European Journal of International Law* 655.

¹⁸⁴ See G Bognetti ‘The concept of human dignity: European and US constitutionalism’ in G Nolte (ed) *European and US constitutionalism* (2005)85; A Gewirth ‘Human dignity as a basis of rights’ in MJ Meyer & WA Parent (eds) *The constitution of rights: Human dignity and American values* (1992)10; Al Melden ‘Dignity, worth, and rights’ in MJ Meyer et al *The constitution of rights: Human dignity and American values* (1992)29.

¹⁸⁵ A Barak *Human dignity* (2015) 10.



approach. The original complexity of the concept disappears, replaced by concepts that must be implemented.¹⁸⁶

This leads me to the next step; discussion of human dignity as a constitutional value and as a right, the framework within which lawyers and judges may be confined.

4.4.2 *Human dignity as a constitutional value and right*

In recent years, human dignity has come to be understood not only as a social value but a protected right and of constitutional value.¹⁸⁷ Many constitutions across the globe contain the right to dignity.¹⁸⁸ In constitutions where the right to dignity is not specifically provided for in a constitution, it is implied in the constitutional value of human dignity.¹⁸⁹ In this sense, the constitutional value of human dignity is understood to be broader than the right to dignity itself.¹⁹⁰ In most cases, constitutions provide that every person has a right to dignity and no one shall be subjected to inhuman and degrading treatment. On the basis of this right, acts or conduct that is an outrage against personal dignity is unconstitutional.¹⁹¹ The right to dignity belongs both to the person and to the group.¹⁹²

The development of the concept of dignity and its transformation to a constitutional right can be traced back to the pre-World war era.¹⁹³ During and after the World Wars, the international community witnessed callous and horrendous outrages against human dignity.¹⁹⁴ Since then, many constitutions and courts – in particular those of Germany –

¹⁸⁶ A Barak *Human dignity* (2015) 10; See also C Foster *Human dignity in bioethics and law* (2011) 99.

¹⁸⁷ A Barak *Human dignity* (2015) 12.

¹⁸⁸ See for example the German Constitution; A Barak *Human dignity* (2015) 12.

¹⁸⁹ A Barak *Human dignity* (2015) 13; See also L Ackermann *Human dignity: lodestar for equality in South Africa* (2012) 97.

¹⁹⁰ A Barak *Human dignity* (2015) 13; See also M Häyry & T Takala *The future of value inquiry* (2001) 56; E Daly *Dignity rights: courts, constitutions, and the worth of the human person* (2012) xi.

¹⁹¹ S Woolman *Constitutional conversations* (2008) 223.

¹⁹² A Barak *Human dignity* (2015) 301-3; see also L Ackermann *Human dignity: lodestar for equality in South Africa* (2012) 136.

¹⁹³ A Barak *Human dignity* (2015) 49; L Ackermann *Human dignity: lodestar for equality in South Africa* (2012) 115.

¹⁹⁴ R Cryer *et al An introduction to international criminal law and procedure* (2014) 254.



started taking seriously the protection of the right to dignity.¹⁹⁵ In Germany, it is observed that the strong protection of the right to dignity was a response to the outrages committed by the Nazi regime during the Holocaust.¹⁹⁶ Thus in the German Constitution, the right to dignity is an absolute right.¹⁹⁷

From the 1950s up to the 1990s, the right to human dignity or dignity as an important part of the human rights discourse started appearing in many international human rights instruments and conventions.¹⁹⁸ It was around the same time that many African states started gaining their independence and including the right to dignity in their constitutions as many viewed colonialism and slavery as some of the worst outrages upon personal dignity committed on the continent.¹⁹⁹

When perceived as a constitutional value, human dignity plays an important role in the human rights discourse. According to Aharon Barak, human dignity can be perceived in three ways namely: human dignity as a tool for constitutional interpretation²⁰⁰, human dignity as a foundation for all rights²⁰¹ and human dignity as a constitutional value in the limitation of constitutional rights.²⁰²

To start with, human dignity is an essential tool when interpreting other rights as provided in a constitution or laws that have an impact on human rights.²⁰³ Now that the constitution is regarded as the supreme law of the land, the fact that human dignity is viewed as the ultimate tool of interpretation serves to highlight the importance of

¹⁹⁵ A Barak *Human dignity* (2015) 52; See also J Malpas & N Lickiss *Perspectives on human dignity: a conversation* (2007) 161.

¹⁹⁶ S Rubinfeld & S Benedict *Human subjects research after the Holocaust* (2014) 234.

¹⁹⁷ A Barak *Human dignity* (2015) 227; E Daly *Dignity rights: courts, constitutions, and the worth of the human person* (2012) xi.

¹⁹⁸ See for example the European Convention on the Protection of Human Rights and Fundamental Freedoms; the ICCPR; Genocide Convention; CEDAW; CAT.

¹⁹⁹ A Barak *Human dignity* (2015) 50-64, 139, 234. In South Africa, the right to dignity occupies a unique space as the South African Constitution was drafted after the Apartheid government where black people suffered much indignity.

²⁰⁰ A Barak *Human dignity* (2015) 105; See also R Arnold *The universalism of human rights* (2012) 158.

²⁰¹ A Barak *Human dignity* (2015) 104; See also M Freeman *The future of children's rights* (2014) 269.

²⁰² A Barak *Human dignity* (2015) 112; See also S Woolman *Constitutional conversations* (2008) 171.

²⁰³ See A Barak *Human dignity* (2015) 67; See also R Arnold *The universalism of human rights* (2012) 158.



human dignity in our time.²⁰⁴ When human dignity is used for purposes of constitutional interpretation, it is the interpretation that is in line with human dignity that should be adopted when interpreting human rights or other laws as it were.²⁰⁵ The ultimate objective of constitutions in this regard is understood to be the protection of individual persons.²⁰⁶

When understood as a foundation of all other rights, human dignity becomes a source of limitation to other constitutionally protected rights such as the right to life. In that sense, the argument is that all other rights are protected for the purposes of furthering the protection of human dignity.²⁰⁷ This would mean that in circumstances where dignity clashes with other rights, it is the preservation of human dignity that takes precedence.²⁰⁸

The above approach was taken by the German Constitutional Court when it considered the question of whether it would be constitutional to shoot down a civilian plane that is hijacked by terrorists to save the lives of people targeted.²⁰⁹ In this scenario, one would assume that taking the right to life of those on board is proportional to saving the lives of those targeted yet the German Court found that such an approach is tantamount to violating the right to dignity of civilians on board of the plane.²¹⁰

²⁰⁴ See A Barak *Human dignity* (2015) 69-84; See in general D Hicks & D Tutu *Dignity: Its essential role in resolving conflict* (2013).

²⁰⁵ See A Barak *Human dignity* (2015) 69; See I Merali V Oosterveld *Giving meaning to economic, social, and cultural rights* (2011) 41.

²⁰⁶ See A Barak *Human dignity* (2015) 98.

²⁰⁷ E Daly *Dignity rights: courts, constitutions, and the worth of the human person* (2012) 18.

²⁰⁸ R Alexy & J Rivers *A theory of constitutional rights* (2009) 64.

²⁰⁹ The 2005 German Aviation Security Act (*Luftverkehrsgesetz*) Chapter 14 Section 3 authorised the Minister of Defense to order the shooting down of a civilian plane if the plane was being used 'against human life'. The Court found the law to be unconstitutional as it violated the right to dignity; Bundesverfassungsgericht (BVerfG – Federal Constitutional Court), 59 Neue Juristische Wochenschrift (NJW) 751 (2006); See also O Lepsius 'Human dignity and the downing of aircraft: The German Federal Constitutional Court strikes down a prominent anti-terrorism provision in the new Air-transport Security Act' (2006) *German Law Journal* 761.

²¹⁰ Bundesverfassungsgericht (BVerfG – Federal Constitutional Court), 59 Neue Juristische Wochenschrift (NJW) 751 (2006); See also O Lepsius 'Human dignity and the downing of aircraft: The German Federal Constitutional Court strikes down a prominent anti-terrorism provision in the new Air-transport Security



In emphasising the right to dignity as a mother right that in certain circumstances takes precedence over other rights and legitimate concerns, the German Federal Constitutional Court observed as follows:

The hopelessness and inability to take evasive action which marks the situation of the passenger victims on the aircraft also extends to those who order and carry out the shooting down of the aircraft. The flight crew and passengers cannot evade this action by the state due to conditions outside their control but are helplessly at its mercy, with the consequence that they and the aircraft will be deliberately shot down and thus will almost certainly be killed. Such an action ignores the status of the persons affected as subjects endowed with dignity and inalienable rights. By virtue of their killing being used to save others they are treated as objects and at the same time deprived of their rights. Given that their lives are disposed of unilaterally by the state, the persons on board the aircraft who, as victims, are themselves in need of protection are denied the valuation which is due to a human being for his or her own sake.²¹¹

There are real life situations where the state can lawfully take life but out of the considerations of human dignity, life is saved. For example, there are cases where convicts have been lawfully sentenced to death but stayed on death row for too long a time that it constituted an outrage upon dignity to the extent that the state was forced to change sentence from death sentence to life imprisonment.²¹²

When perceived as a right, human dignity has various interpretations. In some jurisdictions, it is interpreted narrowly while other jurisdictions permit wide interpretation of the right.²¹³ German courts are largely credited for developing and mapping out the content of the right to dignity.²¹⁴ As already mentioned above, in terms of the German Basic Law, the right to dignity is considered an absolute right that cannot

Act' (2006) *German Law Journal* 761.

²¹¹ Bundesverfassungsgericht (BVerfG – Federal Constitutional Court), 59 *Neue Juristische Wochenschrift* (NJW) 751 (2006); See also O Lepsius 'Human dignity and the downing of aircraft: The German Federal Constitutional Court strikes down a prominent anti-terrorism provision in the new Air-transport Security Act' (2006) *German Law Journal* 761.

²¹² *McKenzie v Jamaica*, Case 12.023, Inter-American Commission on Human Rights, Report Number 41/00, OEA/Ser.L/V/II.106 doc.3 (2000); See also A Novak *The global decline of the mandatory death penalty: constitutional jurisprudence and legislative reform in Africa, Asia, and the Caribbean* (2014)62.

²¹³ A Barak *Human dignity* (2015) xx.

²¹⁴ E Daly *Dignity rights: courts, constitutions, and the worth of the human person* (2012) 178.



be subject to any limitation and any limitation by any means is considered unconstitutional.²¹⁵ The right to dignity is seen to be violated whenever ‘a person is seen as a mere means for fulfilling someone’s ends’.²¹⁶

Aharon Barak has emphasised that the right to dignity is an important right, it is ‘a framework right and a mother right’, and all the other rights are ‘daughter rights that gather together under its wings’.²¹⁷ The right to dignity is also considered a gap-filler, where there are no specific provisions providing for lawful treatment of persons, the right to dignity serves as a fall back.²¹⁸ Examples of human rights that are considered to be ‘daughter rights’ under the wings of dignity are the right to personality, dignified human existence and subsistence, reputation, family life, equality, freedom of expression, freedom of conscience and due process.

If due process is part of the daughter rights under human dignity, the question becomes whether allowing a machine to assess the need to use lethal or any force against a human being is in line with the demands of due process. Use of computers to decide the guilty or otherwise of accused persons in court has long been rejected.²¹⁹ By the same token, the use of an algorithm to decide whether a person lives or dies may as well be condemned.

As already noted above, a question may arise as to the correctness or efficacy of relying on the right to dignity in the AWS debate. This is mainly because many scholars argue that the right to dignity is not only fluid and flexible but vague.²²⁰ Owing to its flexibility and lack of precise definition, commentators may argue that the right to dignity gives judges too much power and discretion which is subject to abuse. More so, whoever

²¹⁵ See Section 1(1) of *Grundgesetz*; See also A Barak *Human dignity* (2015) xx.

²¹⁶ A Barak *Human dignity* (2015) xx; See also AR Monteiro *Ethics of human rights* (2014) 257.

²¹⁷ A Barak *Human dignity* (2015) xx, 156, 160, 252; E Daly *Dignity rights: courts, constitutions, and the worth of the human person* (2012) 18.

²¹⁸ A Barak *Human dignity* (2015) xxi; M Yee & K Lee *Equality, dignity, and same-sex marriage: a rights disagreement in democratic societies* (2010) 228.

²¹⁹ JL Gersting & MC Gemignani *The computer: history, workings, uses & limitations* (1988) 270.

²²⁰ A Barak *Human dignity* (2015) xxi; M Yee & K Lee *Equality, dignity, and same-sex marriage: a rights disagreement in democratic societies* (2010) 176.



wants to use the right to dignity may interpret it in a way that fits or supports their argument. For that reason, the right to dignity has been perceived as a ‘conversation stopper’.²²¹

However, it can be observed that the right to dignity is not the only right that is broad and vague. Other human rights such as the right to liberty and equality are equally broad if not vague yet this does not stop commentators and judges from relying on them. If anything, judges have experience and are accustomed to interpreting these rights as they are armed with many interpretation aids and tools. In this sense and in particular reference to the right to dignity, Aharon Barak argues that ‘what appears to the theologian and the philosopher as a limitless right appears to the judge as a right that is hemmed in the rules of interpretation’.²²² The essence of the argument is that the right to dignity is not incapable of meaning.

Aharon Barak has suggests three ways by which one can give content to the right to dignity: determining the content of human dignity through theological models, determination of the content through philosophical models and the constitutional models.²²³ If all these models are considered, the idea of what is dignified and what is not becomes clear. I have already given examples of Judaism, Christianity and Islam as religions that give content to human dignity. The human person is special, sacred and a living image of God and deserves utmost respect.²²⁴ To violate the dignity of the human person in this sense is to transgress against God himself.²²⁵ When a human being is viewed as an end, respect continues even after the soul departs from the body; that is why acts that are outrageous upon personal dignity can be committed even on a dead

²²¹ YM Barilan *Human dignity, human rights, and responsibility: the new language of global bioethics and biolaw* (2012) 2.

²²² A Barak *Human dignity* (2015) xxi.

²²³ A Barak *Human dignity* (2015) 114-120.

²²⁴ A Barak *Human dignity* (2015) 114; See KE Hiiboro *Human rights, the church, and post-war Sudan* (2008) 197.

²²⁵ A Barak *Human dignity* (2015) 114; See also KE Hiiboro *Human rights, the church, and post-war Sudan* (2008) 197.



body.²²⁶ It is for those reasons that there are laws in many jurisdictions giving relatives of condemned persons the right to accord their relative a proper burial.

As already highlighted above, for dignity to be preserved, force must only be used against a person by a human being since it is the human alone who is capable of reasoning. This is the position of scholars such as Dworkin, Margalit, Statman and Kant only to mention a few.²²⁷ Thus, before taking someone's life or using force against them – even legitimately so – there should be deliberation by a human being, assessment and evaluation of the reasons thereof.²²⁸ As I will discuss in Chapter 6, the content of human dignity is intrinsically linked to the notion of humanity. When viewed from the standpoint of humanity, dignity is where a person is seen as a human being, a being with 'autonomy of will'; in this sense 'humanity of the person is seen as the rejection of viewing a person as a mere means'.²²⁹ Something important is seen in every human being, something that deserves respect.²³⁰

4.4.3 Are AWS in line with human dignity?

In the same light of the humanity argument, Robert Sparrow espouses that to allow AWS 'the power to kill seems a bit too much like setting a mousetrap for human beings; to do so would be to treat our enemies like vermin'.²³¹ The vivid mouse-analogy is fully expressed by Aaron Johnson who cites the fundamental right to dignity in objecting the idea of delegating the decision to kill to AWS.

A mouse can be caught in a mouse-trap, but a human must be treated with more dignity. A mouse-trap kills targets with certain characteristics based on certain behaviour, i.e. anything of

²²⁶ See Practice relating to Rule 113 of ICRC Customary international humanitarian law on the treatment of the dead.

²²⁷ See A Barak *Human dignity* (2015) 116 -119.

²²⁸ See A Barak *Human dignity* (2015) 116 -119; YM Barilan *Human dignity, human rights, and responsibility: the new language of global bioethics and biolaw* (2012)161.

²²⁹ See A Barak *Human dignity* (2015) 130; AR Monteiro *Ethics of human rights* (2014) 257.

²³⁰ See A Barak *Human dignity* (2015) 130; L Harees *The mirage of dignity on the highways of human 'progress': - the bystanders' perspective* (2012) 87.

²³¹ R Sparrow 'Robotic weapons and the future of war' in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011) 11.



sufficient mass eating or at least touching the bait. The trigger is designed to attack based on the mouse-trap's perception of the target and its actions. The complexity of the trigger is not what we are concerned with – a mouse can be killed by a machine, as it has no inherent dignity. A robot is in a way like a high tech mouse-trap, it is not a soldier with concerns about human dignity or military honour. Therefore a human should not be killed by a machine as it would be a violation of our inherent dignity.²³²

In furthering the dignity argument, Jay Strawser states that 'the user [of AWS] fails to express his own dignity likely because he fails to respect the victims' dignity'²³³, 'the idea that in turning these decisions over to machines, human persons fail to satisfy reflexive duties to respect their own rationality, autonomy or dignity, they fail to take responsibility for their own actions'.²³⁴

Heyns echoes the same sentiments as he states that giving robots the power to decide who to kill paints an image of 'AWS as some kind of mechanized pesticide'.²³⁵ To that end and notwithstanding whether robots can do better than humans, Heyns argues that the overriding consideration may be whether it is acceptable to let machines decide whom to kill. If it is unacceptable, then 'no other consideration can justify deployment of AWS no matter the level of technical competence at which they operate'.²³⁶

Further, Heyns succinctly summarises the impact and undesirability of taking humans out of the loop in the use of lethal force: now that AWS 'lack morality and mortality'²³⁷, 'taking humans out of the loop risks taking humanity out of the loop'.²³⁸ Given that humans not only have the capacity to adhere to the minimum set standard 'but they

²³² AM Johnson 'The morality of autonomous robots' (2013) 134 *Journal of Military Ethics* 134.

²³³ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.

²³⁴ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 237.

²³⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 95.

²³⁶ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013p 17 para 93.

²³⁷ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 94.

²³⁸ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 16 para 89.



also hold the potential to adhere to higher values’ unlike AWS ‘which lack the capacity to rise above minimum standards’, giving robots the power to make decisions on who to kill leads to ‘a vacuum of moral responsibility’²³⁹ which is tantamount to ‘giving up on hope for a better world’.²⁴⁰ To that end, Heyns postulates that allowing a machine to make a decision to take life may be ‘inherently arbitrary and all resulting deaths [constituting] arbitrary deprivations of life’.²⁴¹

Ron Arkin reflects that if taking a human out of the loop is the crux of the matter, then one question needs to be answered; ‘what level is the human in the loop?’²⁴² He argues that several military robotics such as the Phalanx system for Aegis-class cruisers and the South Korean robot platform mentioned in Chapter 1 already operate with very limited human supervision.²⁴³ In an attempt to answer that question, Arkin seems to contradict the proposed definition of AWS, a definition which points to the important aspect of the decision to kill being made by a machine without human intervention. A close reading of most of Arkin’s works suggests that in as much as AWS may have the capability to make the decision to kill, that decision will be monitored and supervised by the human operator. The issue however, which has brought much concern is not whether it is possible for a human operator to supervise AWS. The concern is of creating machines which, albeit the possibility of human supervision, have a capability to make a decision to kill and execute it without a human intervention or contribution to that decision. The international community, arguably, cannot take solace at the mere fact that it is

²³⁹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 93.

²⁴⁰ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 97.

²⁴¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 17 para 90.

²⁴² R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* p 4.

²⁴³ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report GIT-GVU-07-11* 4-5.



technically possible for a human to monitor; a possibility which may dwindle to nothing once AWS become available and are deployed.

From the foregoing, it can be argued in summary that in addition to posing a threat to the right to life and bodily security, use of AWS may violate the important right to dignity. This means that even if AWS were to be technically capable of using force against legitimate targets, it may still amount to an affront to human dignity since only humans must make the decision on the use of force. This leads to the question as to when the decision to use force is made when it comes to Autonomous Weapon Systems. This question is considered in Chapter 7.

4.5 Due Process Rights and AWS

The other important right that is at risk if AWS without ‘Meaningful Human Control’ are used in the context of law enforcement is the right to due process. In terms of International Human Rights Law norms, every person must be allowed due process before his or her rights are interfered with.²⁴⁴ The origins of due process as an important norm of humanity can be traced as far back as the 13th Century where, in the Magna Carta it was inscribed;

No free man shall be seized or imprisoned, or stripped of his rights or possessions, or outlawed or exiled, or deprived of his standing in any other way, nor will we proceed with force against him, or send others to do so, except *by the lawful judgment of his equals* or by the law of the land.²⁴⁵

The Magna Carta makes it clear that if an individual person’s rights are to be interfered with, if force is to be used against a human person, there must be deliberation and a ‘lawful judgement of his equals’.²⁴⁶ Only fellow humans can be an equal to a human

²⁴⁴ Kretzmer ‘Targeted killing of suspected terrorists’ (2005) *European Journal of International Law* 178.

²⁴⁵ Text of Magna Carta (1215)

²⁴⁶ Text of the Magna Carta.



being not machines. From this reasoning, the starting point is that if due process is to be complied with, if it is to be seen to be complied with, judgments or decisions on the use of force must be taken by humans or at least seen to be taken by humans. One of the important elements of justice, after all, is not that justice must only be done; it must be seen to be done.²⁴⁷

When used in the context of law enforcement, AWS may violate the rights of suspects to be presumed innocent until proven guilty.²⁴⁸ This has been one of the major arguments made against the use of armed drones to target suspected terrorists outside the context of armed conflict.²⁴⁹ There is no doubt that terrorism presents challenges to state security; however, there are no circumstances that justify arbitrary use of force especially where it interferes with the right to life and due process.²⁵⁰

Furthermore, killing of suspects using AWS or the use of AWS to take life of suspects may be arbitrary because suspects are denied fair trial.²⁵¹ In the case of *Maria Fanny Suarez de Guerrero v Colombia*, it was held that the shooting of individuals who were suspected of kidnapping was a clear violation of the right to due process that is protected in Human Rights Law since the individuals were not only denied the right to be presumed innocent but also the right to fair trial.²⁵²

²⁴⁷ GA Cohen *Rescuing justice and equality* (2009) 324.

²⁴⁸ For the right to be presumed innocent until proven guilty see Article 11 of the Universal Declaration of Human Rights.

²⁴⁹ A Hehir *et al International law, security and ethics: policy challenges in the post-9/11 world* (2014) 13.

²⁵⁰ Human Rights Committee General Comment 29, States of Emergency UN Doc CCPR/C/21/Rev 1/Add11 (2001)15.

²⁵¹ As above.

²⁵² *Maria Fanny Suarez de Guerrero v Columbia*, un Official Records of General Assembly, 37th Session, Supp Number 40 (A/37/40) Annex XI, Communication Number 45/1979; See also R Crawshaw *Human rights and policing* (2007)126.



The right to due process is provided for in many states' constitutions.²⁵³ Targetting someone merely because they are 'suspected' to have committed certain crimes or to be part of a certain organisation violates the rights of the targeted individual while interfering with the interest of society in particular 'judicial determination of their guilt and punishment'.²⁵⁴

Thus, if AWS are to be used outside the context of armed conflict, the international community must take into consideration and emphasise the importance of due process to the accused persons and how it is ultimately threatened. It is unlikely that the use of AWS can be in line with the right to due process.

4.6 AWS and the Right to Remedy

In terms of Human Rights Law, any person whose right(s) is/are violated as a result of the actions or omissions of a state or non-state actor has a right to a remedy.²⁵⁵ The remedy must be effective, it must be prompt and accessible; there must be speedy and impartial investigation of any gross human right violation, adjudication and enforcement must be by an independent authority.²⁵⁶

²⁵³ The New York Ratification Resolution 1788 provides that no 'person ought to be taken imprisoned or diseased of his freehold, or be exiled or deprived of his Privileges, Franchises, Life, Liberty or Property but by due process of Law.'

²⁵⁴ *Tennessee v Garner* 471 US 1 (1985)9.

²⁵⁵ See C Ferstman *Reparations for victims of genocide, war crimes and crimes against humanity* (2010) 15.

²⁵⁶ General Comment No 31 on the Nature of the General Legal Obligation imposed on States Parties on the Covenant, 26 May 2004, CCPR/C/21/Rev.1/Add.13, para 15; Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law, adopted by the UN GA in 2006, See also Article 8 of the Universal Declaration of Human Rights; *Avena and other Mexican Nationals (Mexico v United States of America)* Judgment of 31 March 2004, paras 131, 138 and the La Grand Case (*German v the United States of America*) Judgment of 27 June 2001, ICJ Reports 2001 p514 para 125; *Caracazo v Venezuela* (Reparation), Judgement of 29 August 2002, Series C No 95, para 115.



The victims' right to a remedy²⁵⁷ comes in many forms which include access to justice, reparations and prosecution of offenders.²⁵⁸ In the case of the right to life, it has been observed that failure to remedy a violation of the right to life for example through non-investigation or prosecution is in itself a violation of the right to life.²⁵⁹ In this regard, the state has an obligation to remedy victims whenever their rights are violated.²⁶⁰ AWS pose grave challenges to international law accountability mechanisms that the victims' right to a remedy may be negated in most instances. This argument on the right to remedy and how it is threatened by potential lack of accountability when AWS are used is discussed in detail in Chapter 5 which is dedicated to the question of accountability.

Much of the development of AWS is covered in secrecy and just like drones; it is likely that the use of AWS will also be used without transparency. Lack of transparency is one of the criticisms against the use of armed drones because it obfuscates accountability

²⁵⁷ As for who qualifies as a victim see Principle 1 of UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power; Article 19 of the Declaration on the Protection of All Persons from Enforced Disappearances; Principle 2 of UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power; *Velasquez Rodriguez v Honduras* (Compensatory damages), Judgment of 21 July 1989, Series C No 7 paras 50 to 52.

²⁵⁸ See E/CN.4/2002/83, Report of Special Rapporteur on violence against women on cultural practices in the family that are violent towards women, 31 January 2002, para 124; General Comment Number 6 on Article 6, 30 April 1982, HRI/GEN/1/Rev 7, para 4; UN Principles on the Investigation of Torture, Principle 2; Principle 10 of the UN Principles on Extra-Legal Executions; UN Principles on the Investigation of Torture; Economic and Social Council's Resolution 2005/30 - Resolution on Basic Principles and Guidelines on the Right to a Remedy and Reparations for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law at para 19 to 23; Independent Study on Impunity, E/CN.4/2004/88, 27 February 2004 para 60; L Zegeveld 'Victims' reparations claims and International Criminal Courts' (2010) 8 *Journal of International Criminal Justice* 79; J Wemmers 'Victim reparation and the International Criminal Court' (2009) 16 *IRV* 123; *McCann v United Kingdom*, Judgment of 27 September 1995, Series A No 324, para 161; *Malawi African Association et al v Mauritania*, Communications 54/91 et al. (27th Ordinary Session, May 2000).

²⁵⁹ See R Crawshaw *Human rights and policing* (2007)135; *McKerr v United Kingdom*, Application Number 28883/95, Judgment of 4 May 2001 p.475.

²⁶⁰ See Article 2(2) ICCPR; Article 2 (c) and (d) of CERD; Article 2 (a) CEDAW; Article 4 CRC; Article 2(1) CAT; Article 1 ACHPR and Article 2 ACHR; See also Human Rights Committee General Comment Number 31 on Article 2 of the Covenant: The nature of the General Legal Obligation imposed on States Parties to the Covenant, 21 April 2004, CCPR/C/74/CRP.4; Article 34 of the Draft Articles on the Responsibility of States for Internationally Wrongful Acts; *Aksoy v Turkey*, Judgment of 18 December 1996, Reports 1996 VI, para 98.



which is essential for victims' right to remedy.²⁶¹ Lack of transparency has 'the potential of polarizing the international community, undermining the rule of law and, ultimately, of destabilizing the international security environment as a whole'.²⁶²

Accountability for violations of human rights and the right to remedy 'is not a matter of choice or policy; it is a duty under domestic and international law'.²⁶³ Accountability can only be possible where there is transparency. In any democratic state which respects the rule of law, transparency provides an effective and independent oversight of state policy.²⁶⁴ Where a state resorts to use of force outside its borders, there must be transparency and accountability of the use of such force.

In the use of armed drones by the US, there is no transparency as to how victims are chosen or placed on the kill list. Furthermore, there has been criticism of drone targeted killings on the basis of what are known as signature strikes. It is not unlikely that the manner in which AWS identify targets may also be after the fashion of drone targeted killings. For example, there may be no transparency in the 'facial recognition function'- as far as why and how a particular individual or suspected terrorist has been made a victim of an Autonomous Weapon System. To this end, it is important to emphasise that

²⁶¹ See Alston, *The CIA and Targeted Killings Beyond Borders*, p. 283; Report of the Special Rapporteur (Heyns), para 76-84; Report of the Special Rapporteur (Alston), *Targeted Killings*, para 87-92. See also, Stanford/NYU, 'Living under Drones', pp.122-124; Columbia Law School, 'The Civilian Impact of Drones', pp. 51-67; Zenko, *Reforming U.S. Drone Strike Policies*; Submission by the National Organization for Defending Rights and Freedoms, Alkarama, and the Center for Constitutional Rights on Drone Wars: The Constitutional and Counterterrorism Implications of Targeted Killing Hearing Before the Senate Judiciary Subcommittee on the Constitution, Civil Rights, and Human Right April 23, 2013 highlighting the 2010 case of *Al-Aulaqi v. Obama*, which challenged the authorization for the targeted killing of U.S. citizen Anwar Al-Aulaqi in Yemen and the case of *Al-Aulaqi v. Panetta* which seeks accountability for the killings of Al-Aulaqi and two other U.S. citizens, Samir Khan and 16 year-old Abdulrahman Al-Aulaqi, from U.S. drones strikes in Yemen in September and October 2011; Also John Brennan who, in his confirmation hearing before the Senate Intelligence Committee acknowledged that the United States should acknowledge its mistakes with respect to drone operations.

²⁶² Melzer N 'Human rights implications of the usage of drones and unmanned robots in warfare' (2013) European Parliament, Policy Department DG External Policies, EXPO/B/DROI/2012/12 at page 4.

²⁶³ Report of the Secretary-General's Panel of Experts on Accountability in Sri Lanka.

²⁶⁴ Melzer N 'Human rights implications of the usage of drones and unmanned robots in warfare' (2013) European Parliament, Policy Department DG External Policies, EXPO/B/DROI/2012/12 at page 4.



just like in the case of remotely piloted drones, when states use lethal force to deprive life they must articulate clear, legitimate, enforceable and accepted rules within internationally recognized legal standards which is marked by a sufficient degree of transparency.²⁶⁵

In the case of AWS being accepted as legal weapons, it is suggested that their use, just like drones also, must remain in institutions which are able to publicise and be transparent of their operations. Concerns have been raised, for example, of US's drone program under the CIA which is argued to be shrouded in secrecy.²⁶⁶ If the CIA were to use Autonomous Weapon Systems, similar objections must be noted.

4.7 AWS and Extraterritorial Application of Human Rights

Just like in the case of drones, it is likely that AWS will raise the issue of extraterritorial application of human rights. The use of armed drones across international borders has intensified debates on the extraterritorial application of human rights.²⁶⁷ On the one hand there are scholars, some from the US, who express doubt on the extraterritorial application of human rights pointing that there is not enough state practice in support of such application.²⁶⁸ However, there is enough literature in support of the position

²⁶⁵ Report of the Special Rapporteur (Alston), Targeted Killings, pp. 26-27. Wilmshurst, Principles on the Use of Force in Self-Defence, p. 9; Melzer N 'Human rights implications of the usage of drones and unmanned robots in warfare' (2013) European Parliament, Policy Department DG External Policies, EXPO/B/DROI/2012/12 at page 37.

²⁶⁶ This is notwithstanding Senior US Government officials making public statements attempting to explain the rationale, legal bases of drone targeting, standards and procedures applied to individual targeting decisions and oversight exercised by Congressional Committees - See: US Department of State, Speech Koh (2010); US White House, Speech Brennan (2012); US Department of Justice, Speech Holder (2012); US Department of Defense, Speech Johnson (2012); CIA, Speech Preston (2012). However, there have been some hints that the US intends to move the drone strike program from CIA to the US military with the aim of improving transparency and accountability- See <http://www.hrw.org/news/2013/03/21/us-move-drone-strike-program-military>.

²⁶⁷ SA Shah *International law and drone strikes in Pakistan: the legal and socio-political aspects* (2014) 121.

²⁶⁸ On this debate see in general M Milanovic *Extraterritorial application of human rights treaties: law, principles, and policy* (2011).



that use of force by one state in the territory of another, even so through AWS, invokes the human rights of the former.²⁶⁹

Thus, as a matter of law one state may not disregard the rights of the subjects of another state simply because it is operating outside its borders when the same rights are protected in its own domestic laws.²⁷⁰ For this stronger reason, it is convincingly argued that whenever a state engages in activities that end up in violation of rights of individuals outside its borders, the concerned state is still bound by its human rights obligations.²⁷¹ There are, however, a number of conditions that need to be satisfied for extraterritorial application of human rights to be successfully invoked.

One of the most discussed conditions for the extraterritorial application of human rights is that the concerned state must be in effective control of the person whose rights are violated or the place where such rights are violated.²⁷² One of the compelling arguments that have been made is that the ability to use force against a particular individual is evidence of effective control over that person's life. The concept of effective control as a notion of establishing responsibility in international law is discussed in detail in Chapter 7.

4.8 Conclusion

The relevance and importance of International Human Rights Law in the regulation of weapons should not be undermined. In recent years, human rights law has in fact become the compass of international law.²⁷³ When drafting policies or laws, international organisations, lawyers, states and other players consider human rights to

²⁶⁹ See Human Rights Committee General Comment 31 UN Doc CCPR/C/21/Rev 1/Add 13(2004)10.

²⁷⁰ ECtHR, Issa Case para 69 and 71. The same argument (and wording!) was used already in UNHRC, Burgos Case, p 12.3; UNHRC, Celiberti Case, p 10.3.

²⁷¹ M Milanovic *Extraterritorial application of human rights treaties: law, principles, and policy* (2011).

²⁷² SA Shah *International law and drone strikes in Pakistan: the legal and socio-political aspects* (2014) 121.

²⁷³ S Rosenne *The perplexities of modern international law: general course on public international law* (2002) 239.



be the overarching and overall consideration.²⁷⁴ If a certain policy is not in line with human rights, that policy or law is condemned.²⁷⁵

With the realisation of the importance of human rights as an overall guideline in international law, it is untenable in the least to doubt the relevance of international human rights law to the AWS debate or to suggest that organisations that are mandated to deal with human rights issues such as the United Nations Human Rights Council should not discuss the issue of AWS that has clear implications on human rights.

For what it is worth, Article 36 of Additional Protocol I to the Geneva Conventions notes the relevance of human rights law when new weapons are reviewed. Human Rights Law without doubt continues to apply in times of armed conflict. Just like drones, it is likely that AWS may end up being used in law enforcement situations to which Human Rights Law is applicable. Presently, there are already advanced forms of autonomous systems that are being used by law enforcement agents. These and other reasons clearly support the relevance of human rights law in the AWS debate and the fact that this issue must also be discussed in human rights forum.

If used in law enforcement situations or outside the context of armed conflict, AWS without 'Meaningful Human Control' raise similar challenges like those that are raised if used in armed conflict. However, the challenges that are raised outside the context of armed conflict are far reaching. This kind of technology may not be able to comply with the requirements on the protection of the right to life that demands that life must only be taken where it is extremely necessary and for the purposes of protecting another life. Use of force by law enforcement agents must follow a graduated approach and must always be proportional.

Ascertaining what is necessary and what amount of force is proportionate requires human skills such as the ability to give humane judgement, read people's intentions,

²⁷⁴ O Schutter *International human rights law: cases, materials, commentary* (2014) 863.

²⁷⁵ O Schutter *International human rights law: cases, materials, commentary* (2014) 863.



and the capacity to persuade and use other non-violent means. This is what law enforcement and ethics demand. Yet AWS, being mere machines, may not possess such capabilities. As a result, if deployed in a law enforcement situation, AWS may not only violate the right to life but also the right to bodily security.

One of the important rights of every suspect is to be presumed innocent until proven guilty. The suspect is entitled to be put on fair trial so that a court of law may establish his/her guilt or otherwise. This is the essence of due process. Where AWS use lethal force on suspects resulting in their death or injury, it is a grave interference with the due process rights of the suspects making the use of such lethal force arbitrary.

Even if one were to assume that AWS can have the capacity to be super-cops such as those shown in science-fiction like Robocop, there is still one underlying consideration of human dignity which makes AWS undesirable all the same. It is not in line with the demands of the right to dignity and as a constitutional value that machines should make the decision to take another person's life or to use force on their human person. Such a decision must and should always be taken by a fellow human being who understands the implications of his or her actions.

Furthermore, it is emphasised in conclusion that the use of AWS will violate victims' right to a remedy. Whenever their rights are violated, victims are entitled to a remedy which encompasses the prosecution of those responsible for the violation. AWS may lead to an accountability gap since there is no one at the controls. From a human rights perspective, a weapon that is capable of perpetrating crimes yet with the potential of having no human person to prosecute for such crimes or violations is inconsistent with the long standing and established norms of International Human Rights Law.

Lastly, if AWS will be used in the context of law enforcement, they are likely to raise the same issues that have been raised by the use of armed drones outside the context of armed conflict. It is likely that the technology may be used to hunt and kill terrorists across a state's own borders. The issues that may arise concern the extraterritorial



application of human rights, violations of other states' territorial sovereignty and issues of transparency. Just like in the case of armed drones, it is emphasised hereupon that human rights apply extraterritorially; especially where a state chooses to use force against persons outside its borders.

When acting in self-defence, the rules of self-defence must be complied with and the state using unmanned technology must seek consent from the relevant authorities. There should also be transparency in the use of unmanned weapon systems for the purposes of accountability, which is an integral part of the human rights systems. This issue of accountability is the subject of discussion in the next Chapter.

It is important to put a caveat that the suggestion for transparency and other conditions where AWS are used outside armed conflict is only on the first condition that such AWS are under 'Meaningful Human Control'. As for those that do not have 'Meaningful Human Control', they must not be accepted in the first place because they will violate important rights such as the right to life, bodily security, dignity and due process.



Chapter 5: AWS and accountability in international law

If the nature of a weapon renders responsibility for its consequences impossible, its use should be considered unethical and unlawful as an abhorrent weapon.¹

5. Introduction

In Chapters 3 and 4, I concluded that in most circumstances AWS are incapable of complying with rules of International Humanitarian Law and International Human Rights Law leading to violations of important rights like the right to life. The question that follows is who is responsible for the violations of an Autonomous Weapon System. In this chapter, I focus on the challenges of accountability that are posed by AWS and the possible solutions to such.

AWS without ‘Meaningful Human Control’ are unpredictable on the battlefield or wherever they are used.² In the event of them violating the law – violations that are not intended by the person deploying them – it is not clear who is legally responsible, thereby creating an accountability gap.³ Accountability is important in international law because where there is an accountability gap; the victims’ right to a legal remedy is adversely affected.⁴ There are four forms of accountability that I am going to discuss in this chapter: individual, command, corporate and state responsibility.⁵ Under individual and corporate responsibility, there is civil and criminal liability.

¹ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p15 para 80.

² See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)1, 4, 8, 9, and 15. Available from <https://www.icrc.org/eng/assets/files/2014/expert-meeting-autonomous-weapons-icrc-report-2014-05-09.pdf> (accessed 19 January 2015).

³ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing Number 24*.

⁴ M Burke & L Persi – Vicentic ‘Remedies and Reparations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)542-89.

⁵ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)531-32.



In summary, the arguments I make in this chapter are: the above mentioned forms of accountability are complementary to each other; they are not alternatives to the exclusion of the other.⁶ For example, if AWS create an accountability gap as far as individual criminal responsibility of those deploying AWS on the battlefield is concerned, that specific gap is neither closed by suing the responsible individuals under civil responsibility nor holding the manufacturing company liable under corporate responsibility.

Under individual responsibility, as long as there remains the possibility of AWS acting in an unpredictable manner, they may present an unresolvable challenge as far as establishment of the accused person's *mens rea* is concerned. I also argue that the proposed system of 'split-responsibility' over use of a weapon – where responsibility is divided or shared between the fighter and other persons involved in the production of AWS like manufacturers – is not only foreign to international weapons law as the *lex specialis* on the use of weapons but also inappropriate and hence unwelcome.

As for command responsibility, I argue that it is inapplicable to the relationship between AWS and those deploying them. No analogy may be drawn between the relationship of *human commander* versus a *human subordinate* and that of *the human fighter* versus a *robot*. The continued referral of a person deploying AWS as a *commander* gives a misleading impression that AWS are somewhat combatants or fighters. As argued in Chapter 2, AWS must be developed in a manner that they remain weapons in the hands of a fighter who is liable on the basis of individual responsibility in cases where crimes are committed.⁷ It should not, and must not be a case of a *commander* and *subordinate* where the notion of command responsibility is invoked. Command responsibility is only

⁶ See A Bianchi 'State responsibility and criminal liability of individuals' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)16, 18. Bianchi, for example reiterates that 'state responsibility and individual criminal responsibility are considered as distinct in international law.'p16, 18. See also the case of *Bosnia and Herzegovina v Serbia and Montenegro* (2007) *Case concerning the Application of the Convention on the Prevention and Punishment of the Crime of Genocide* 173.

⁷ M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies /Naval War College* 324.



applicable to the extent of the responsibilities of a human commander over his or her human subordinates involved in the deployment or use of AWS.

Persons involved in the production of AWS have their own responsibilities at the designing, manufacturing, selling and transferring stages. This is where corporate responsibility also comes into play. I note, however that although corporate responsibility is a sound form of accountability, it has an inherent weakness of putting the onus on victims to bring cases against robot corporations which in some cases are registered in foreign countries thereby presenting insurmountable difficulties for the victims. Victims will not only face monetary challenges in terms of legal costs but will also be confronted by jurisdictional challenges.

State responsibility is like an umbrella to all the forms of responsibility mentioned above; covering and enforcing corporate responsibility at the design stage of AWS up to selling or transferring stage; enforcing individual and command responsibility when the weapon is finally used on the battlefield or law enforcement situations. As one commentator has observed, when considering accountability over the actions of AWS, state responsibility 'is the frame of reference for considering other forms of international responsibility'.⁸ From a state responsibility perspective, I also acknowledge the genuine fear that AWS may make it possible for some states to deploy force against other states in non-attributable ways.

In conclusion, I recommend that the only way to address the accountability challenges that are presented by AWS is to make sure that humans exercise 'Meaningful Human Control' over weapons. Where 'Meaningful Human Control' is exercised, AWS will remain mere weapons in the hands of the warriors – that is exactly what they should be. The notion of 'Meaningful Human Control' over weapons is discussed in detail in

⁸ T Marauhn 'An analysis of the potential impact of lethal Autonomous Weapon Systems on responsibility and accountability for violations of international law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.2 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).



Chapter 7. In short, however, I propose that the notion of ‘Meaningful Human Control’ over the use of a weapon is only satisfied where the control that a fighter exercises over a weapon is of such a degree that the actions of an Autonomous Weapon System are entirely his – the system depends on the control of the human fighter to execute the ‘critical functions’ like the decision as to who to kill and legal calculations on the lawfulness of an attack.⁹

5.1 The Importance of Accountability in International Law

It is necessary to appreciate the seriousness of the problems that are raised by AWS in terms of accountability before going into the details of arguments summarised above. I mentioned in the introduction that the potential accountability gap created by AWS will impact negatively on the victims’ rights to remedy. This is a very important area of international law. After all, without accountability, international law is nothing but the proverbial *brutum fulmen* – a harmless thunderbolt.

Steven Ratner observes that the purpose of international law is ‘not only in setting standards for governments, non-state actors and their agents, it is to prescribe the consequences of a failure to meet those standards’.¹⁰ Thus, the standards I discussed in Chapters 3 and 4 – some of them part of *jus cogens* – will mean nothing without accountability for failure to abide by them. Some scholars have observed that non-accountability of violations may pose a threat to the general maintenance of peace and security.¹¹

The issue of accountability is fundamental in international law because it is inherently connected to the victim’s right to remedy.¹² In particular reference to remedies for

⁹ See the elaboration of this proposal in Chapter 7.

¹⁰ SR Ratner et al *Accountability for human rights atrocities in international law: Beyond the Nuremberg legacy* (2009)1.

¹¹ See JRWD Jones & S Powles *International criminal practice* (2003) 2.

¹² A Seibert-Fohr *Prosecuting serious human rights violations* (2009) 17.



violations as a result of use of certain weapons, Meagan Burke and Loren Persi – Vicentic categorically state that for both civilian and military victims:

[Unlawful] use of a weapon will give rise to a right to a remedy or reparation. Such unlawful use of weapons includes: any use of a weapon that has been outlawed in all circumstances, such as biological weapons or, at least for any State Party to the relevant treaty, anti –personnel mines or cluster munitions; the use of indiscriminate weapons or the indiscriminate use of a weapon as a method of warfare in an armed conflict; or the use of force that is disproportionate or excessive during law enforcement. Any wilful or negligent failure to protect victims from harmful weapons, especially explosive weapons delivered from drones, mines, sub-munitions or other victim-activated explosive devices has also been recognised...as unlawful conduct tantamount to a rights violation.¹³

To the list that is mentioned by Meagan Burke and Loren Persi – Vicentic, I add Autonomous Weapon Systems. The accountability challenges that are posed by AWS must be taken seriously as they threaten some aspects of victims’ right to remedy.¹⁴

Victims of violations of International Humanitarian Law and International Human Rights Law have a right to remedy. In international law, victims are understood to be ‘persons who, individually or collectively, have suffered harm, including physical or mental injury, emotional suffering, economic loss or substantial impairment’ of their fundamental rights.¹⁵ In International Criminal Law, such harm is ‘as a result of the commission of crime’¹⁶ and may have been directed at the victim’s person, ‘property which is

¹³ M Burke & L Persi – Vicentic ‘Remedies and Reparations’ in Casey-Maslen S, (ed) *Weapons under international human rights law* (2014)554.

¹⁴ A Seibert-Fohr *Prosecuting serious human rights violations* (2009) 281.

¹⁵ Principle 1 of UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power. ‘Persons’ referred in the definition of victims can be ‘the immediate family or dependents of the direct victim or person who have suffered the harm.’ – See Article 19 of the Declaration on the Protection of All Persons from Enforced Disappearances; Principle 2 of UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power. See cases of *Almeida de Quinteros et al v Uruguay* (15 October 1982) CCPR/C/OP/2 paras 14, 16; *Malawi African Association et al v Mauritania*, Communications (2000) AHRLR 149 (ACHPR 2000).

¹⁶ See Rule 85 of the International Criminal Court's Rules of Procedure and Evidence.



dedicated to religion, education, art or science or charitable purposes, and to their historic monuments, hospitals and other places and objects for humanitarian purposes'.¹⁷ In the case of AWS, it means that the victim whose rights are violated by AWS is entitled to a remedy – and the question is: In the case of AWS, are remedies available for the victim?

Given the importance of accountability, it is the paramount duty of states to provide victims with remedies; not only in circumstances where the state is directly responsible for the violations but even where the violations are committed by non-state actors.¹⁸ Thus, states have an obligation to protect human rights through adoption of various measures.¹⁹ This obligation of the state has been confirmed several times by international human rights bodies.²⁰ Courts have also held that as a result of this duty, states must restore the rights of the victim by allowing them access to justice, information and reparation.²¹

Likewise and in the context of accountability and the right of victims to remedy, the Human Rights Committee²², the European Court of Human Rights²³ and the African Commission on Human and People's Rights²⁴ have held that it is the state's duty to give effect to victim's rights by investigating human rights violations and bringing

¹⁷ See Rule 85 of the International Criminal Court's Rules of Procedure and Evidence.

¹⁸ See Article 5 of Draft Articles on Responsibility of States; Soluman MS *The International Criminal Court and rebel groups* (2012)5; See also A Seibert-Fohr *Prosecuting serious human rights violations* (2009)7; General Comment Number 31, CCPR/C/21/Rev.1 para 8.

¹⁹ Article 2(2) ICCPR; Article 2 (c) and (d) of CERD; Article 2 (a) CEDAW; Article 4 CRC; Article 2(1) CAT; Article 1 ACHPR and Article 2 ACHR; See also *Velasquez-Rodriguez v Honduras* IACHR (29 July 1988) Ser C No 4 para 166.

²⁰ Article 34 of the Draft Articles on the Responsibility; General Comment Number 31, CCPR/C/74/CRP.4.

²¹ *Velasquez-Rodriguez v Honduras* IACHR (29 July 1988) Ser C No 4 para 166; See also *Case X and Y v Netherlands*, Judgment ECHR (26 March 1985) Ser A 91 para 27 and *Case M.C v Bulgaria* ECHR (4 December 2003) para 153.

²² See General Comment Number 31, CCPR/C/74/CRP.4.

²³ See *Aksoy v Turkey* ECHR (18 December 1996) Reports 1996 VI para 98.

²⁴ See *Social and Economic Rights Action Centre for Economic and Social Rights v Nigeria* (2001) AHRLR 60 (ACHPR 2001) paras 44-48.



perpetrators to justice through prosecution. As I will argue below, in certain circumstances, prosecution of crimes committed by AWS is difficult if not impossible.

A victim's remedy has three components namely: access to justice – linked to the states' responsibility to remedy victims; access to reparation – linked to state's responsibility to prosecute offenders as a form of victim's remedy.²⁵ Reparation is also linked to corporate responsibility and individual responsibility since non-state actors also have an obligation to provide reparations upon their conviction.²⁶ Finally, victims also have a right to access information and to know the truth concerning the infringement of their rights.²⁷

Although all the above three components are equally important for victims to realise an effective remedy,²⁸ in this chapter I will focus on reparation which is directly linked to

²⁵ A Seibert-Fohr *Prosecuting serious human rights violations* (2009)40; K Obura 'Duty to prosecute international crimes under international law' in C Murungu & J Biegon (eds) *Prosecuting international crimes in Africa* (2011)11-31.

²⁶ JE Alvarez 'Alternatives to international criminal justice' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)33-34.

²⁷ See the Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law, adopted by the UN GA in 2006; See also Article 8 of the UDHR, Article 2 of the ICCPR, Article 6 of the CERD and Article 7 of the ACHPR.

²⁸ See A Seibert-Fohr *Prosecuting serious human rights violations* (2009) 38. For a remedy to be effective it must be prompt and accessible; there must be speedy and impartial investigation of any gross human right violation, adjudication and enforcement must be by an independent authority. – See General Comment No 31, CCPR/C/21/Rev.1/Add.13,para 15; The African Commission has interpreted the right to remedy in its Principles and Guidelines on the Right to a Fair Trial and Legal Assistance in Africa, Principle C (a). Nevertheless, when it comes to international courts and tribunals, it is apparent that they have been dawdling in their investigation, charging, and prosecution of gross violations that there is no promptness to talk about. A good example is that of the ICC case against Thomas Lubanga which took 9 years from the time of investigation to the time of conviction. During such a long period, it is highly probable that other victims died before seeing justice. However, while recognizing the significance of promptness in prosecution of international crimes as a form of remedy for victims, it can be argued that sometimes 'justice delayed may be justice delivered.' A simple consideration of the magnitude of international crimes points one to the fact that more time is needed in their prosecution if victims are to receive true justice. In that regard, there is a need to balance the aspiration for a prompt remedy for victims against the 'stubborn but necessary processes that may cause delay.' – See A Whiting 'In International criminal prosecutions, justice delayed can be justice delivered' (2009)50 *Harvard International Law Journal* 323. On courts' interpretation of an effective remedy see cases of *Avena and others v US* IACHR (31 March 2004) paras 131-8, *German v the US* ICJ (27 June 2001)(2001) ICJ Reports 514 para 125, *Caracazo v Venezuela* IACHR (29 August 2002) Ser C No 95 para 115, *Silver v the UK* ECHR (25 March 1983) Ser A No



the accountability challenges posed by AWS. Reparation is a process which is meant to provide victims with justice; remove or redress to the extent possible, the damage done by the unlawful acts through prevention and deterrence.²⁹

The right to reparation is provided for in treaty law,³⁰ it has been given as a remedy in various cases,³¹ recognised by legal scholars³² and is part of customary international law.³³ International criminal courts and tribunals have played a significant role in recognizing and interpreting the right to reparation.³⁴ They have significantly increased the possibility of victims to get adequate reparations, not only from states but also from individuals.³⁵

In international law, reparation comes in various forms.³⁶ It includes restitution, compensation³⁷, rehabilitation; satisfaction and effective prosecution of the offender(s) as already mentioned above.³⁸

61 para 113.

²⁹ See R David 'Victims on transitional justice' (2005) 27 *Human Rights Quarterly* 393; RP Mazzeschi 'Reparation claims by individuals for state breaches of humanitarian law and human rights: an overview' (2003) 1 *Journal of International Criminal Justice* 344.

³⁰ Article 2(3) of ICCPR; Article 75 of the Rome Statute; Art 3 of CRLCWL; Article 14 of CAT; Article 6 of CERD.

³¹ *Amnesty International v Malawi, Communication No. 64/92, 68/92* (1995) para 12; Case *German v Poland* PCIJ (1928) Ser. A 17 para 29.

³² L Zegeveld 'Victims' reparations claims and International Criminal Courts' (2010) 8 *Journal of International Criminal Justice* 79; JE Alvarez 'Alternatives to international criminal justice' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)33.

³³ J Wemmers 'Victim reparation and the International Criminal Court' (2009) 16 *International Review of Victimology* 123.

³⁴ L Zegeveld 'Victims' reparations claims and International Criminal Courts' (2010) 8 *Journal of International Criminal Justice* 79.

³⁵ See Commentary on art 58 of Draft Articles on State Responsibility available at http://untreaty.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf (accessed 23 December 2014).

³⁶ See *Loayza Tamayo v Peru* IACHR (10 September 1993) Ser A No 15 para 43.

³⁷ Although the term compensation is used varyingly in national legislation, in international law it is a form of reparation which is given to victims for any economically assessable damage caused by the gross violation of IHL or IHRL. See Principle 20 of the UN Principles on Reparation; International Commission of Jurists *The right to a remedy and to reparation for gross human rights violations: A practitioner's guide* (2006)123. Many IHRL and IHL treaties provide for the right to compensation and jurisprudence has shown that compensation can be provided for physical or mental harm, loss of opportunities, material loss of earnings, moral damage and expenses incurred in vindicating one's rights following the gross



Adequate prosecution of perpetrators is one of the areas that are likely to be adversely affected by use of AWS. Prosecution of perpetrators reinforces the victims' rights to reparation especially in view of achieving deterrence and non-repetition.³⁹ Prosecution of offenders is a victims' right and is inherent in states' general responsibility to ensure effective human rights protection which has been consistently emphasized by many commentators and decisions of judicial or quasi-judicial international bodies.⁴⁰

The duty of the state to prosecute⁴¹ is connected to the victims' rights to justice⁴² and it has long been accepted by both the UN Security Council⁴³ and General Assembly⁴⁴. The UN Commission on Human Rights⁴⁵, the Human Rights Committee⁴⁶, the Inter-American Court and Commission of Human Rights⁴⁷, European Court of Human Rights⁴⁸ and the African Commission on Human and Peoples' Rights⁴⁹ have all emphasised the importance of states' obligation to prosecute offenders in the fight against impunity on gross violations of human rights and humanitarian law.

violations. See Article 9(5) of ICCPR, Article 91 of Additional Protocol I to the Geneva Conventions, Article 5(5) of ECHR, Article 10 of ACHR, Article 16 of the Arab Charter on Human Rights and Article 85 of the Rome Statute and Article 68 of the Third Geneva Convention.

³⁸ Economic and Social Council's Resolution 2005/30 - Resolution on Basic Principles and Guidelines on the Right to a Remedy and Reparations for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law at para 19 to 23; United Nations Compendium of United Nations standards and norms in crime prevention and criminal justice (2006)303-5.

³⁹ See Principle 4 and the eighth preambular paragraph of the 2006 Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims.

⁴⁰ Principle 4 and the eighth preambular paragraph of the 2006 Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims.

⁴¹ See for example Article 4 of CAT; A/RES/57/214, General Assembly Resolution on extrajudicial, summary and arbitrary executions (2003) para 6.

⁴² E/CN.4/Sub.2/20/Rev, Report of the Special Rapporteur on the question of impunity of perpetrators of human rights violations (1997) Annex II, Section III; K Obura 'Duty to prosecute international crimes under international law' in C Murungu & J Biegon (eds) *Prosecuting international crimes in Africa* (2011)11-31.

⁴³ A/RES/57/228, Resolution on Khmer Rouge trials of 18 December 2002.

⁴⁴ A/RES/57/228 (n...above) 3; A/RES/57/190, 19 (2003) para 11.

⁴⁵ See for example E/CN.4/RES/2003/72 paras 2.

⁴⁶ See for example CCPR/C/15/D/30/1978 para 11.

⁴⁷ *Velasquez v Rodriguez v Honduras* (above) para 166 and 175.

⁴⁸ *Case of X and Y v the Netherlands* (above) para 27.

⁴⁹ *SERAC v Nigeria* (above).



When offenders are prosecuted, there is the concept of satisfaction as a form of reparation which is aimed at repairing the moral damage done to the victim when their rights were violated.⁵⁰ Satisfaction can be done through judicial condemnatory judgments⁵¹, admission of responsibility by the offender and a sincere apology both to the victim and the public.⁵² The former ICC prosecutor, Morino Ocampo, in his address to the court after conviction of Thomas Lubanga suggested the stiffest punishment but stated that the Office of the Prosecutor was ‘willing to cut the sentence to 20 years if Lubanga offered a ‘genuine apology’ to victims of his crimes’.⁵³ Of course, in the case of AWS, the person who deployed the machine may offer the apology but it is not the same since he or she was not the person on the ground, the direct perpetrator of the crime – the robot was.

Likewise, tied to prosecution of offenders is the right to information which encompasses the right to truth.⁵⁴ Under the human rights regime, the UN Human Rights Committee has reaffirmed the victims’ right to know the truth about the perpetrators, their accomplices and the motives thereof.⁵⁵ The right to truth has been held to be substantive⁵⁶, inalienable⁵⁷ and non-derogable right⁵⁸ which entails ‘knowledge as to how, when, why and by whom violations were committed’.⁵⁹ To that end, states have a

⁵⁰ International Commission of Jurists *The right to a remedy and to reparation for gross human rights violations: A practitioner’s guide* (2006)145.

⁵¹ See *Golder v the UK* ECHR (21 February 1975) Ser A No 18; *Ocalan v Turkey* ECHR (12 March 2003) para 250.

⁵² Principle 22 (b) UN Principles on Reparation (above).

⁵³ See <http://www.guardian.co.uk/law/2012/jul/10/icc-sentences-thomas-lubanga-14-years> (accessed 14 March 2013).

⁵⁴ A Ceretti ‘Collective violence and international crimes’ in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)14.

⁵⁵ See E/CN.4/RES/2003/72 para 8; *Almeida de Quinteros* (n...above) where it was held that a mother had a right to know about the truth of what happened to her daughter failure of which constitutes cruel, inhuman and degrading treatment.

⁵⁶ *Almeida de Quinteros et al v Uruguay* (n...above) para 14.

⁵⁷ UN Principles on Impunity, Principle 2, 3, 4 and 5 (above).

⁵⁸ E/CN.4/1995/20/Annex I, Report of the United Nations Special rapporteur on the question of human rights and states of emergency (1995) para 39.

⁵⁹ Principle 8 of UN Principles on Impunity (above).



duty to disclose the truth to the victims and the public at large.⁶⁰ Access to information about what transpired may be easy in case of AWS since they can leave a digital trail of all events.⁶¹ In as much as this is a positive aspect, victims may not appreciate, for example, to discover that it was a robot that made an ill-informed decision to kill their relative after mistakenly identifying him or her as a legitimate target. Insult upon injury, the robot cannot offer an apology.

5.2 AWS and the Accountability Gap

In 2001, a scholar by the name of Perri was among the first to articulate some of the serious challenges when it comes to legal responsibility for actions of intelligent machines.⁶² He argued that where a machine attains a certain level of intelligence – to the extent of ‘making decisions by itself’ – difficulties arise in imputing responsibility.⁶³ The problem arises out of the fact that no matter how machines’ autonomy increases, they do not have moral agency.⁶⁴

Thus, commenting on the problem of legal responsibility, Kenneth Himma has observed that unless and until machines such as AWS have a free will and deliberative capability, no moral agency or legal responsibility can be attributed to them.⁶⁵ In the absence of moral agency in AWS, it is impossible to hold them accountable for any wrongful acts.⁶⁶

⁶⁰ Juan Humberto Sanchez Case, Judgment of 7 June 2003, Series C No 99 para 186.

⁶¹ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p10 para 52.

⁶² 6 Perri ‘Ethics, regulation and the new artificial intelligence, part II: autonomy and liability’ (2001) *Information, Communication and Society* 406-434. (Before 1983, Perri 6 was known as David Ashworth).

⁶³ 6 Perri ‘Ethics, regulation and the new artificial intelligence, part II: autonomy and liability’ (2001) *Information, Communication and Society* 406-434.

⁶⁴ M Wagner ‘Taking humans out of the loop: implications for international humanitarian law’ (2011)21 *Journal of Law Information and Science* 5; P Asaro ‘On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making’ (2012)94 *International Review of the Red Cross* 693.

⁶⁵ KE Himma ‘Artificial agency, consciousness, and the criteria for moral agency: what properties must an artificial agent have to be a moral agent?’ (2007) *7th International Computer Ethics Conference*.

⁶⁶ P Asaro ‘On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making’ (2012)94 *International Review of the Red Cross* 693; See also A/HRC/23/47 (n...above) 14.



The question is who then is responsible in the event of such machines committing crimes?

Sparrow rightfully notes that the law demands that someone be held accountable for unlawful acts in war and the fact that AWS may never meet this condition makes their deployment unethical.⁶⁷ To elucidate the impossibility of attributing responsibility to AWS, Sparrow gives an analogy of the prohibition on the recruitment and use of child soldiers in combat.⁶⁸ He considers that in as much as child soldiers are autonomous – even much more than AWS, they ‘lack full moral autonomy’. This vitiates their ‘understanding [of] the full moral dimensions of what they do’ therefore making child soldiers ‘not appropriate objects of punishment’⁶⁹ and ineligible for playing a combatant role.⁷⁰

For the above stronger reason, the considerations that AWS can be more reliable than human beings is not the crux of the matter; for ‘what makes the attribution of responsibility especially problematic [in the case of child soldiers] is not that child soldiers are necessarily unreliable or unpredictable’, it is their lack of ‘moral responsibility that makes child armies especially terrifying’.⁷¹ The heinous actions of child soldiers in countries like DRC, Angola, Liberia and Uganda have also been explained in terms of children’s lack of moral responsibility.⁷² Moral responsibility, it is argued, is one step towards deterrence.⁷³

⁶⁷ R Sparrow ‘Killer Robots’ (2007) 24 *Journal of Applied Philosophy* 1.

⁶⁸ See Rule 136 of the International Committee of the Red Cross on Customary International Humanitarian Law.

⁶⁹ R Sparrow ‘Killer Robots’ (2007) 24 *Journal of Applied Philosophy* 73-74.

⁷⁰ See Rule 136 of the International Committee of the Red Cross on Customary International Humanitarian Law.

⁷¹ R Sparrow ‘Killer Robots’ (2007) 24 *Journal of Applied Philosophy* 73-74.

⁷² See International Labour Office ‘Wounded childhood: The use of children in armed conflict in Central Africa’ (2003) available at http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_crisis/documents/publication/wcms_116566.pdf (accessed 19 January 2015).

⁷³ See in general K Fisher *Moral accountability and international criminal law: Holding agents of atrocity accountable to the world* (2013).



For many decades now and in terms of international criminal law, accountability has been on the basis of individual and command criminal responsibility.⁷⁴ The importance of individual criminal responsibility can never be overstated. In addition to Heyns' list⁷⁵ of human factors that influence individuals to refrain from killing others – especially unlawfully – it is the fear of prosecution as one of the legal consequences that may follow after the facts that force humans to exercise restraint.⁷⁶

More so, the concept of individual criminal responsibility has made it impossible for violators to claim superior orders as a defence.⁷⁷ This will not apply in the case of AWS especially if a belligerent chooses to program them to commit crimes. If AWS are to be seen as taking the position of human combatants, one level where deterrence considerations have been directed for years is ultimately taken away.

In response to the argument that AWS with full or high levels of autonomy are unpredictable thereby posing a challenge of accountability,⁷⁸ Arkin argues that it is possible with AWS to make 'responsibility transparent and explicit, through the use of a responsibility advisor at all steps in the deployment of these systems'.⁷⁹ The 'responsibility advisor' can be incorporated into AWS 'for pre-mission planning and managing operator overrides'. Such a 'responsibility advisor' will require explicit acceptance and authorisation before its use and advises in advance of any mission on the ethical responsibility of commanders and operators. When deploying AWS, such

⁷⁴ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)89.

⁷⁵ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p11 para 57. Heyns observes that humans have 'built-in constraints...against going to war or otherwise using force which continue to play an important (if often not decisive) role in safeguarding lives and international security. Chief among these are unique human traits such as our aversion to getting killed, losing loved ones, or having to kill other people'.

⁷⁶ SG Shoham *International handbook of penology and criminal justice* (2007) 350-1.

⁷⁷ Y Dinstein *The defence of 'obedience to superior orders' in international law* (2012) 80-1; JRWD Jones & S Powles *International criminal practice* (2003)459.

⁷⁸ See Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014)1, 4, 8, 9, and 15.

⁷⁹ R Arkin 'Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture' (2011) *Technical Report* 9.



responsibility acceptance is possible at many levels. Acceptance starts with the ‘authoring [and translation] of the [ethical] constraints that provides the basis for implementing [IHL]’; verification that only military personnel are in charge of the system’; it may be during ‘command authorization of the system for a particular mission’; and where there is an ‘override responsibility acceptance’, that is where the operator changes ‘the system’s ability to use lethal force, either by allowing it when it was forbidden by the ethical controller, or by denying it when it was enabled’.⁸⁰

If this responsibility adviser will allow the fighter to verify targets – thereby being the human who makes the final decision on the release of force and against whom – and overrides AWS actions or choices in cases where they are not in line with international law, then such AWS would be acceptable since the fighter will be exercising ‘Meaningful Human Control’ that clearly establishes his or her responsibility.

More in line with Arkin’s argument, Wendell Wallach notes that there is a challenge in computing legal responsibilities for AWS’ actions where a number of individuals are involved from their production up to their deployment. He however, refers to five rules that have been developed by ‘practical ethicists and social theorists’ who insist on the ‘the principle that humans cannot be excused from moral responsibility for the design, development or deployment of computing artefacts’.⁸¹ The rules provide as follows:

Rule 1: The people who design, develop or deploy a computing artefact are morally responsible for that artefact, and for the foreseeable effects of that artefact. This responsibility is shared with other people who design, develop, deploy or knowingly use the artefact as part of a sociotechnical system.

Rule 2: *The shared responsibility of computing artefacts is not a zero-sum game. The responsibility of an individual is not reduced simply because more people become involved in designing, developing, deploying or using the artefact. Instead, a person’s responsibility includes*

⁸⁰ R Arkin ‘Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture’ (2011) *Technical Report* 77 - 82.

⁸¹ W Wallach ‘From robots to techno sapiens: Ethics, law and public policy in the development of robotics and neurotechnologies’ (2011) *Law, Innovation and Technology* 194.



being answerable for the behaviours of the artefact and for the artefact's effects after deployment, to the degree to which these effects are reasonably foreseeable by that person. (Emphasis mine)

Rule 3: *People who knowingly use a particular computing artefact are morally responsible for that use.* (Emphasis mine).

Rule 4: People who knowingly design, develop, deploy or use a computing artefact can do so responsibly only when they make a reasonable effort to take into account the sociotechnical systems in which the artefact is embedded.

Rule 5: People who design, develop, deploy, promote or evaluate a computing artefact *should not explicitly or implicitly deceive users about the artefact or its foreseeable effects, or about the sociotechnical systems in which the artefact is embedded*'.⁸² (Emphasis mine).

Of particular importance to me is Rule 2 which acknowledges that in the development of weapons like AWS, various individuals are involved but that does not mean individual responsibility is 'reduced simply because more people become involved in designing, developing, deploying or using the artefact'.⁸³ This supports the argument I put forward that accountability forms of responsibility are not alternatives to the exclusion of the other. Everyone has a role to play, and if an accountability gap is created in one form or mode of responsibility, it cannot be ignored on the basis that there are other persons who can be held responsible.

Ron Arkin also adds that it is a 'roboticist's duty to ensure that [AWS] are as safe as possible to both combatant and non-combatant alike'.⁸⁴ This is agreeable as far as the responsibility of roboticists is concerned. However, the responsibilities of a roboticist do

⁸² See 'Moral Responsibility for Computing Artefacts' defines terms and explains the rules. Available at <https://edocs.uis.edu/kmill2/www/TheRules> (accessed 13 February 2014); The rules seem to follow a suggested notion of strict liability where responsibility is fully acknowledged before an autonomous weapon system is deployed. See R Arkin 'The Robot didn't do it', *Position Paper for a Workshop on Anticipatory Ethics, Responsibility and Artificial Agents* (2013)1.

⁸³ Rule 2 of the 'Moral Responsibility for Computing Artefacts' defines terms and explains the rules. Available at <https://edocs.uis.edu/kmill2/www/TheRules> (accessed 13 February 2014).

⁸⁴ R Arkin 'Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture' (2011) *Technical Report* 4.



not make the responsibility of the final weapon user irrelevant. As was indicated in Chapter 2, the gist of international weapons law is that the warrior is the one in control of his or her weapon, therefore responsible for violations committed through that weapon.⁸⁵ It may even be similar to the case of motor vehicle manufacturers - they put in place many things such as brakes, speedometers etc. in the vehicle to ensure that the vehicle is safe for driving. However, that does not negate the responsibilities of the driver.

A challenge arises with the final user because in international criminal law, it would be an injustice to impute responsibility to fighters who deploy these systems when they are incapable of precisely predicting or fully controlling the behaviour of AWS once they are activated.⁸⁶ In my view, there are two choices for combatants or fighters: use AWS when you can meaningfully control them or do not use them at all.

There are commentators who argue that as far as AWS are concerned, 'criminal responsibility of individuals can be established for commanders and operators on the basis of command responsibility'.⁸⁷ To the same end, Arkin argues that in the case of AWS which are programmed to be ethical, 'it should be fairly easy to satisfy and demonstrate' the culpability of the 'commander' since 'the robot's beliefs can be well-known and characterized, and perhaps even inspected ... [therefore] the responsibility returns to those who designed, deployed, and *commanded the autonomous agent to*

⁸⁵ See generally HW Boothby *Weapons and the law of armed conflict* (2009).

⁸⁶ A Matthias 'The responsibility gap: ascribing responsibility for the actions of learning automata' (2004) 6 *Ethics and Information Technology* 175-183.

⁸⁷ T Marauhn 'An analysis of the potential impact of lethal Autonomous Weapon Systems on responsibility and accountability for violations of international law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.5 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015); See also HM Roff 'killing in war: responsibility, liability and lethal autonomous robots' (2014) 14 available at https://www.academia.edu/2606840/Killing_in_War_Responsibility_Liability_and_Lethal_Autonomous_Robots (accessed 20 January 2015); MN Schmitt 'Autonomous weapon systems and international humanitarian law: a reply to the critics' (2013) *Harvard National Security Journal* 33.



act, as they are those who controlled its beliefs'.⁸⁸ On various occasions, Arkin uses the term 'human commander' when referring to those who deploy AWS.⁸⁹

From the arguments that have been made by scholars so far in connection with accountability over the actions of AWS, there are four points that I am going to address: Firstly, whether accountability over AWS's actions is possible under the individual responsibility mode; secondly, whether the international criminal law concept of command responsibility is and to what extent applicable to AWS; thirdly, whether the proposed notion of 'split responsibility' over the actions of AWS is acceptable in international weapons law as the *lex specialis* on weapons; fourthly and finally, the role of corporate and state responsibility in establishing accountability for violations committed through AWS.

5.3 Individual Criminal Responsibility and the Challenges posed by AWS

'If there are recognizable war crimes, there must be recognizable criminals'.⁹⁰

Accountability of individuals for their unlawful acts is not a new concept of law; it stretches across various branches of law - from domestic law, international human rights law, international humanitarian law and international criminal law.⁹¹ As Steven Ratner observes, individual accountability is 'a complex amalgam of law and a wide spectrum of sanctioning processes that transcends the orthodox divisions of subjects of international law'.⁹² Individual criminal responsibility is part of customary international

⁸⁸ R Arkin 'Governing Lethal Behaviour: embedding ethics in a hybrid deliberative/reactive robot architecture' (2011) *Technical Report* 76.

⁸⁹ See R Arkin et al 'Moral decision-making in autonomous systems: enforcement, moral emotions, dignity, trust and deception' (2011)13, 18 available at <https://smartech.gatech.edu/bitstream/handle/1853/40769/IEEE-ethicsv17.pdf?sequence=1> (accessed 20 January 2015).

⁹⁰ M Walzer *Arguing About War* (2004) 287.

⁹¹ SR Ratner et al *Accountability for human rights atrocities in international law: Beyond the Nuremberg legacy* (2009)9-17; M Sassoli 'Humanitarian law and international criminal law' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)112-13.

⁹² SR Ratner et al *Accountability for human rights atrocities in international law: Beyond the Nuremberg legacy* (2009)1.



law⁹³ and ensues whether unlawful acts are committed in international armed conflicts or in non-international armed conflict.

As was observed in the case of *Prosecutor v Tadic*, violations of the law 'entail individual criminal responsibility regardless of whether they are committed in internal or international armed conflicts'.⁹⁴ Thus, whether or not AWS are used in international or non-international armed conflict is of no effect as far as individual responsibility over their use is concerned.

By insisting that AWS are weapons and not combatants or fighters, it means that whenever a crime is committed as a result of the use of AWS, it is the individual who deployed it who is criminally liable. However, due to the increased levels of autonomy in some AWS or those that have attained full autonomy, liability is not cast in stone.⁹⁵ It is inevitable to start by outlining some of the fundamental elements of individual criminal responsibility.

Since time immemorial, wars have been fought by armies and armed groups under the authority of a commander(s) or leader(s). It was not uncommon that acts that were committed on an individual basis were covered by excuses such as 'my commander ordered me to do so' or 'I had no choice, it was the idea of the group'.⁹⁶ With the intention of ending such kind of impunity and holding individuals accountable for their actions, under the current concept of individual criminal responsibility, individuals can neither claim superior orders as a defence nor can they hide behind the group.⁹⁷

⁹³ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)91.

⁹⁴ *Prosecutor v Tadic* Jurisdiction Appeals Decision (n...above) para 129.

⁹⁵ See Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014)1, 4, 8, 9, and 15. Available from <https://www.icrc.org/eng/assets/files/2014/expert-meeting-autonomous-weapons-icrc-report-2014-05-09.pdf> (accessed 19 January 2015).

⁹⁶ See JRWD Jones & S Powles *International criminal practice* (2003)459 stating that superior orders are no longer a defence in international criminal law.

⁹⁷ JRWD Jones & S Powles *International criminal practice* (2003) 459.



Individual criminal responsibility thus focuses on the commission of a crime by the individual.⁹⁸ It is applicable where an individual *directly* commits a crime⁹⁹ or *directly* contributes to it through ordering, planning, instigating, inciting, co-perpetration, joint criminal enterprise, aiding and abetting.¹⁰⁰ According to Article 25 of the Rome Statute:

2. A person who commits a crime within the jurisdiction of the Court shall be individually responsible and liable for punishment in accordance with this Statute.

3. In accordance with this Statute, a person shall be criminally responsible and liable for punishment for a crime within the jurisdiction of the Court if that person:

- a) Commits such a crime, whether as an individual, jointly with another or through another person, regardless of whether that other person is criminally responsible;
- b) Orders, solicits or induces the commission of such a crime which in fact occurs or is attempted;
- c) For the purpose of facilitating the commission of such a crime, aids, abets or otherwise assists in its commission or its attempted commission, including providing the means for its commission;
- d) In any other way contributes to the commission or attempted commission of such a crime by a group of persons acting with a common purpose. *Such contribution shall be intentional and shall either:*
 - i. Be made with the aim of furthering the criminal activity or criminal purpose of the group, where such activity or purpose involves the commission of a crime within the jurisdiction of the Court; or
 - ii. Be made *in the knowledge of the intention of the group* to commit the crime;

⁹⁸ S B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)89; see http://wcjp.unicri.it/deliverables/docs/Module_10_Superior_responsibility.pdf (accessed 7 September 2014).

⁹⁹ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)89; See http://werle.rewi.hu-berlin.de/07_Individual%20Criminal%20Responsibility-Summary.pdf (accessed 7 September 2014).

¹⁰⁰ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83; See http://werle.rewi.hu-berlin.de/07_Individual%20Criminal%20Responsibility-Summary.pdf (accessed 7 September 2014).



- e) In respect of the crime of genocide, directly and publicly incites others to commit genocide;
- f) attempts to commit such a crime by taking action that commences its execution by means of a substantial step, but the crime does not occur because of circumstances independent of the person's intentions. However, a person who abandons the effort to commit the crime or otherwise prevents the completion of the crime shall not be liable for punishment under this Statute for the attempt to commit that crime if that person completely and voluntarily gave up the criminal purpose.¹⁰¹ (My emphasis).

The question that will be considered below is whether it will be possible to charge a fighter who deploys an Autonomous Weapon System that subsequently commits crime in terms of Article 25 of the Rome Statute. Thilo Marauhn argues that Article 25 (3) (c) of the Rome Statute is best suited to deal with designers and manufacturers of AWS.¹⁰² In order to agree or disagree with this statement, I will consider in what ways a designer or manufacturer can be said to have 'aided, abetted or otherwise assisted in the commission of a crime' when the weapon is finally used. I will argue that this will depend first of all, on whether the crime allegedly abetted or aided by the designer or manufacturer is within the jurisdiction of the International Criminal Court. In any event, commission of a crime requires the proving of both the *actus reus* and *mens rea*.

5.3.1 Importance of *mens rea* and *actus reus* for individual responsibility

It is important to note that in general, the basis for individual criminal responsibility hinges on a guilty criminal state of mind (*mens rea*) coupled with wrongful action (*actus reus*) of the perpetrator.¹⁰³ In armed conflict, this is where a combatant or fighter, fully

¹⁰¹ Article 25 of the Rome Statute of the International Criminal Court. Similar provisions are found in Article 7 of the Statute of the International Criminal Tribunal of the Former Yugoslavia and Article 6 of the Statute of the International Criminal Tribunal of Rwanda.

¹⁰² T Marauhn 'An Analysis of the Potential Impact of Lethal Autonomous Weapon Systems on Responsibility and Accountability for Violations of International Law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.4 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).

¹⁰³ See JRWD Jones & S Powles *International criminal practice* (2003)414-24; ME Badar *The concept of mens rea in international criminal law: the case for a unified approach* (2013)234-52; A Klip & G Sluite



aware that certain conduct or weapon is prohibited by law, nonetheless proceeds to engage in that conduct or use that particular weapon.¹⁰⁴ The idea of punishing only those with a guilty mind is well grounded in natural justice and human rights.¹⁰⁵ As early as 1819, Bagshaw observed that the fact that ‘no man ought to be punished, except for his own fault’ is a clear maxim of natural justice.¹⁰⁶

5.3.2 Forms of participation for individual responsibility

The forms of participation outlined in Article 25 of the Rome Statute have been interpreted by international courts most of which emphasise the need to make clear which form of liability is applicable to the accused person.¹⁰⁷ The form of liability is of paramount importance for the court when it comes to sentencing. For example, ‘there may be an enormous difference in terms of sentencing between an instigator, an aider and abettor and a direct perpetrator of a completed offense’.¹⁰⁸

In terms of the jurisprudence of international courts and tribunals, a person who commits the crime is the perpetrator. It is important to note that there can be many perpetrators in one crime, as long as the actions of each person satisfy the requisite substantive elements of the crime.¹⁰⁹ In all cases, for individual criminal liability to be established, both *actus reas* and *mens rea* must be proved.

Annotated Leading Cases of International Criminal Tribunals: The International Criminal Tribunal for the Former Yugoslavia (2001)321; J Doria *et al The Legal regime of the International Criminal Court: Essays in Honour of Professor Igor Blishchenko [1930-2000]* (2009)144; I Marchu *The fundamental concept of crime in international criminal law: a comparative law analysis* (2013)134; BI Bonafè *The relationship between state and individual responsibility for international crimes* (2009)247; Bruno Tesch and Others (*Zyklon B Case*), UNWCC, Case Number 9, British Military Court (1946), Law Reports of Trials of War Criminals (1949) Volume 1, 93-104.

¹⁰⁴ See JRWD Jones & S Powles *International criminal practice* (2003)414-24.

¹⁰⁵ E Allen *Reason, the only oracle of man, or, a compendious system of natural religion* (1836) 87.

¹⁰⁶ See *Cobbett's Parliamentary History of England: From the Norman Conquest, in 1066 to the Year 1803* (1819)1079.

¹⁰⁷ See the case of *Prosecutor v Furundzija*, Trial Judgement, (n...above) para 189.

¹⁰⁸ JRWD Jones & S Powles *International criminal practice* (2003)415.

¹⁰⁹ See the cases of *Prosecutor v Foca*, Trial Judgement, para 390; *Prosecution v Kashiyema*, ICTR Appeals Chamber, para 187 and 192; *Prosecutor v Krstic*, Trial Judgement, para 601.



A person who instigates plans and orders the commission of the crime is the co-perpetrator. This includes a person(s) who, with full knowledge and intention, participates in a crime in what is referred to as the 'common criminal purpose' doctrine.¹¹⁰ The activities of the person participating 'must have a direct and substantial effect on the commission of the crime'.¹¹¹ The said conduct must also be performed with *mens rea*, knowledge that participation 'will assist the principal in the commission of the criminal act'.¹¹² As far as co-perpetration is concerned, all the participants may have the same criminal intent while one or more of them executes the criminal conduct.¹¹³ Criminal intent can also be said to be present where participants had knowledge of the alleged criminal conduct or its planning and they intentionally furthered it.¹¹⁴ Even where one of the participants will act out of the common plan, if his actions were foreseeable, courts have held that the other participants will be held to have possessed the criminal intent.¹¹⁵

In this regard, for persons involved in the production of AWS to be held as co-perpetrators, they must have been aware that a particular Autonomous Weapon System was going to be used to commit crime and they made a conscious decision to provide the system to principal perpetrator all the same.¹¹⁶ Furthermore, they must also have been aware that the autonomous system was going to commit a specific crime, knowledge of which was shared with the one deploying the system. It can be argued

¹¹⁰ See in general the cases of *Prosecutor v Delalic et al*, Trial Judgement para 328; *Prosecutor v Tadic*, Appeals Chamber Judgement, paras 185-92 and *Prosecutor v Furundzija*, Trial Judgement; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88; C Murungu 'Prosecution and punishment of international crimes by the Special Court for Sierra Leone' in C Murungu & J Biegon (eds) *Prosecuting international crimes in Africa* (2011)114-17.

¹¹¹ *Prosecutor v Delalic et al*, Trial Judgement, para 326; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.

¹¹² *Prosecutor v Delalic et al*, Trial Judgement, para 326; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.

¹¹³ *Prosecutor v Tadic*, Appeals Judgement, para 220; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.

¹¹⁴ *Prosecutor v Tadic*, Appeals Judgement, para 220; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.

¹¹⁵ *Prosecutor v Tadic*, Appeals Judgement, para 220; B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.

¹¹⁶ See *Prosecutor v Delalic et al*, Trial Judgement, para 326 in support of this reasoning.



that if the actions of AWS with full autonomy are unpredictable to the individual deploying them, they are as well unpredictable to the individual who manufactured or programmed the robot. Establishing a criminal state of mind may be difficult if not impossible on all the levels of responsibility.

In relation to planning as part of co-perpetration, the manufacturer or programmer of the AWS would have helped in the preparation of the commission of a specific crime through manufacturing or programming a weapon in a specific way that would assist in the execution of a particular crime. Planning as a form of co-perpetration has thus been defined as the ‘designing of the commission of the crime at both the preparatory and executive phases’.¹¹⁷ Chances where this will actually happen in terms of the development of AWS are very slim.

Further, it is also important to remember that individual criminal responsibility arises on various levels. For example, political leaders have been held individually responsible for having directly influenced the commission of war crimes.¹¹⁸ This may point to a scenario where an individual who is involved in the production of AWS directly influences the commission of a crime; such an individual may be held individually responsible. Thus in both the ICTY and ICTR, ‘both leaders and executants’ are held responsible’.¹¹⁹ Leaders who make irresponsible decisions on deployment of AWS may also be held responsible – the UN Security Council in Resolution 1329 of 30 November 2000 emphasised the prosecution of leadership figures for war crimes.¹²⁰

Nevertheless, as was noted in the trial judgement of *Prosecutor v Delalic*, responsibility of political leadership and other high ranking figures – in the case of AWS, political

¹¹⁷ *Prosecutor v Akayesu*, Trial Judgement, para 480; See also the case of *Prosecutor v Kordić*, Trial Judgement, para 388.

¹¹⁸ See the case of *Prosecutor v Karadžić et al* IT-95-5-D, Request for Deferral, para 25. ; see also JRWD Jones & S Powles *International criminal practice* (2003)410 observing that in international criminal tribunals and courts, there is always a ‘subtle and often complex interplay between different levels of responsibility and policy choices to be made as to whom it is most appropriate to prosecute...’

¹¹⁹ Article 7(1) of the ICTY and Article 6(1) of the ICTR.

¹²⁰ UN Security Council in Resolution 1329 of 30 November 2000.



leadership and those involved in the production of the technology – does not excuse the responsibility of the ‘ordinary soldier’ involved in the commission of the crime – in the case of AWS, the individual involved in the final deployment of the weapon.¹²¹ In as much as international tribunals and courts may, as a matter of policy concentrate on the ‘big fish’, ‘small fish’ still need prosecution in national courts for example.¹²²

5.3.3 *Actus reus and mens rea for participation*

As far as the objective elements of *actus reus* and *mens rea* in a criminal act are concerned, the *Tadic case*¹²³ observed that for *actus reus* of perpetrators in a common criminal purpose or joint criminal enterprise, there is no need for an organised military, political or administrative structure. All that is needed is ‘the existence of a common plan, design or purpose which amounts to or involves the commission of a crime’.¹²⁴ It is not necessary, for example, for the plan to have pre-existed before the perpetration of the crime since ‘common plan or purpose may materialise extemporaneously and be inferred from the fact that a plurality of persons act in unison to put into effect a joint criminal enterprise’.¹²⁵ The manufacturer or developer of AWS does not need to be involved in the commission of a specific crime as long as there is some form of ‘contribution to the execution of the *common plan*’ by the individual deploying AWS.¹²⁶

As far as the *mens rea* element of perpetrators in a joint criminal enterprise is concerned, what needs to be satisfied is that the accused person(s) had ‘intent to perpetrate a certain crime; or intent to pursue the common criminal design plus

¹²¹ See the case of *Prosecutor v Delalic*, para 1283.

¹²² JRWD Jones & S Powles *International criminal practice* (2003)412-14.

¹²³ *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹²⁴ *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹²⁵ *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹²⁶ B Swart ‘Modes of international criminal liability’ in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)83-88.



foresight that those crimes outside the criminal common purpose were likely to be committed'.¹²⁷

In the case of aiders and abettors, as regards *actus reus*, the accused must have carried out acts that were 'specifically directed to assist, encourage or lend moral support to the perpetration of a certain specific crime'.¹²⁸ The support that was given by the aider or abettor must also have 'a substantial effect upon the perpetration of the crime' as already indicated above.¹²⁹ Since some commentators have pointed out that manufacturers and designers of AWS may be perfectly charged under Article 25 (3) (c) of the Rome Statute¹³⁰, questions may arise as to how one would prove that there was a common plan between the manufacturer and the individual who deploys AWS that subsequently commit crimes. However, according to the jurisprudence on aiding and abetting, an 'aider and abettor is always an accessory to a crime perpetrated by another person' and because of that 'no proof is required of the existence of a common concerted plan, let alone of the pre-existence of such a plan'.¹³¹ The person deploying the AWS who is 'the principal may not even know about the accomplice's [manufacturer or programmer's] contribution. All that is needed is that there was contribution to the commission of the crime with 'knowledge that the acts performed by the aider and abettor assist the commission of a specific crime by the principal'.¹³²

The above interpretations of aiding and abetting by international criminal tribunals also point to the argument I emphasise in this chapter that while responsibility of manufacturers, programmers and other actors is important, it does not, however,

¹²⁷ See *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹²⁸ See *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹²⁹ See *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹³⁰ T Maruhn 'An Analysis of the Potential Impact of Lethal Autonomous Weapon Systems on Responsibility and Accountability for Violations of International Law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.4 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).

¹³¹ See *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹³² See *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.



repudiate the responsibilities that are borne by the person involved in the final deployment of the weapon.¹³³ The number one rule that governs the final user of the weapon is that ‘the means and methods of warfare are not unlimited’.¹³⁴ Belligerents and specifically combatants may only choose weapons whose effects they can control.¹³⁵ If there is a possibility that AWS, on account of high levels of autonomy or full autonomy, will act in an unpredictable way – unpredictability that may result in the commission of crimes – then the fighter or combatant has no ‘meaningful control’ over the weapon since he or she cannot limit its effects.¹³⁶

5.3.4 The challenges posed by AWS to individual responsibility

But it would be still a greater injustice to lay blame and vindictive punishment of a guilty [manufacturer, programmer, roboticist] upon an innocent and inoffensive being [the combatant or fighter], for in this case the guilty would be exempted from their punishment, and the innocent unjustly suffer for it; which holds up to view two manifest injustices; the first consists in not doing justice to the guilty, and the second in actually punishing the innocent.¹³⁷

There are two issues that I note concerning the concept of individual criminal responsibility and AWS technology. Firstly, it has been pointed out that AWS may be too complex to the extent that those who deploy them may not understand how they function.¹³⁸ Marco Sassoli disagrees, noting that there is no need for individuals

¹³³ For example Article 25(4) of the Rome Statute clearly provides that the provision relating to individual criminal responsibility shall affect other forms of responsibilities in international law like state responsibility.

¹³⁴ This rule is provided for in Article 22 of the 1907 Hague Regulations Respecting the Laws and Customs of War on Land and Article 35(1) of Additional Protocol I; See also International Committee of the Red Cross ‘A Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977’ (2006)88 *International Review of the Red Cross* 931.

¹³⁵ Article 51(4) (c) of Additional Protocol I to the Geneva Conventions.

¹³⁶ However, Schmitt argues that ‘autonomous weapon systems are not unlawful per se. Their autonomy has no direct bearing on the probability they would cause unnecessary suffering or superfluous injury, does not preclude them from being directed at combatants and military objectives, and need not result in their having effects that an attacker cannot control.’ See MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 35. I have disagreed with this argument in Chapter 2 in as far as AWS are concerned.

¹³⁷ E Allen Reason, *the only oracle of man, or, a compendious system of natural religion* (1836) 87.

¹³⁸ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p15 para 78; Geneva Academy of International Humanitarian Law ‘Autonomous weapon



deploying AWS to understand the complexities of their programming, rather, all they need to understand is the result of what an Autonomous Weapon System can do and not do.¹³⁹

If Sassòli's argument is followed to its logical conclusion, it does not hold water. If AWS are said to be unpredictable, how then can one understand what they can and cannot do? Fighters may learn all year what AWS can and cannot do but as long as there remains a chance of AWS being unpredictable once they are deployed,¹⁴⁰ then the individual that deploys an Autonomous Weapon System may not anticipate all the actions of the robot. As a result of that unpredictability, it is difficult if not impossible to establish a guilty mind therefore diminishing the culpability of the individual deploying it.¹⁴¹ Even in the development of AWS, there are reports that it is impossible to anticipate all situations that AWS may face on the battlefield therefore making it hard to effectively control them or understand all they can and cannot do as suggested by Sassòli.¹⁴²

In the 2014 CCW Expert meeting on AWS, the US delegation suggested that there should be thorough training of individuals who deploy AWS.¹⁴³ That is a valid point. However, and as pointed out above, as long as there remains an iota of unpredictability of how the robot will act, then imputing responsibility to the one who uses the weapon will always be problematic.

systems under international law' (2014)8 *Academy Briefing Number 24*.

¹³⁹ M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies /Naval War College* 324.

¹⁴⁰ Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing Number 24*.

¹⁴¹ See the UK Ministry of Defence, Development, Concepts and Doctrine Centre, The UK Approach to Unmanned Aircraft Systems, *Joint Doctrine Note 2/11*, para 510.

¹⁴² See US Chief Air Force Scientist, Report on Technology Horizons: A Vision for Air Force Science & Technology During 2010-2030, p 105. Available at <http://www.flightglobal.com/assets/getasset.aspx?ItemID=35525> (accessed 20 December 2014).

¹⁴³ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



Some commentators have suggested strict responsibility for those who deploy AWS.¹⁴⁴ However, in international criminal law and in view of the rules of fairness and natural justice, such an approach will vitiate the rights of the accused person.¹⁴⁵ It would be unfair for governments to develop weapons that are sophisticated and highly unpredictable once they are deployed, with input from many actors like roboticists, manufacturers, programmers, engineers etc. and put all the blame on the deploying individual.¹⁴⁶ This is where other scholars suggest a system of splitting responsibility, from the roboticist up to the individual who deploys the machine.¹⁴⁷ This suggestion is addressed below.

The second point concerning the use of AWS and the concept of individual criminal responsibility relates to the watering down of the power of deterrence as far as individual responsibility of soldiers on the ground is concerned. As mentioned above, individual criminal responsibility deters the foot soldier at an individual level – neither can he or she claim superior orders nor can he or she hide behind a group.¹⁴⁸ Thus in armed conflict, deterrence from committing crimes operates on two levels: i) at the commanding level, where commanders do not give criminal or unlawful orders for fear of being held individually responsible.¹⁴⁹ Commanders also ensure that their

¹⁴⁴ T Marauhn 'An Analysis of the Potential Impact of Lethal Autonomous Weapon Systems on Responsibility and Accountability for Violations of International Law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.3 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).

¹⁴⁵ E Allen Reason, *the only oracle of man, or, a compendious system of natural religion* (1836) 87.

¹⁴⁶ See E Allen Reason, *the only oracle of man, or, a compendious system of natural religion* (1836) 87. Arguing that punishment must come only when one is to blame.

¹⁴⁷ See Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014) Academy Briefing Number 8, p.25 noting in footnote 159 that Heyns and other scholars' approach on split responsibility is criticised 'for violating the fundamental principle that no penalty may be inflicted on a person for an act for which he or she is not responsible.

¹⁴⁸ Y Dinstein *The defence of 'obedience to superior orders' in international law* (2012) 80-1; JRWD Jones & S Powles *International criminal practice* (2003)459. However, I note that there are scholars who argue that there are many factors that contribute to an individual committing a crime and in many cases fear of prosecution is not much of a deterrent factor. Notwithstanding such arguments, there is wide agreement that fear of prosecution plays its part as far as deterrence is concerned.

¹⁴⁹ See Article 28 of the Rome Statute; See also TM Funk *Victims' rights and advocacy at the International Criminal Court* (2010) 16 in footnote 28.



subordinates are not committing crimes by preventing, stopping or punishing those who have committed crimes.¹⁵⁰ ii) At the primary level, where the individual fighter on the ground refrains from committing crime because they are aware they can be held individually liable.¹⁵¹

Now, where the individual soldier is replaced by an Autonomous Weapon System – a bloodless robot with no sense of self-preservation, fear of prosecution after the fact or punishment by the commander – an important part of deterrence is watered down.¹⁵²

In view of the idea of protecting and saving lives, Heyns argues that soldiers in armed conflict do not automatically kill because they have a right to kill legitimate targets.¹⁵³ When faced with a target, human soldiers rethink whether it is necessary to kill that legitimate target in that particular circumstance.¹⁵⁴ This is not to say that this has any bearing on individual criminal responsibility but just to note that there is a lot of consideration that goes on before a human soldier pulls the trigger.¹⁵⁵ The same happens, albeit not always, before a human soldier commits a crime. There is at least some consideration of the criminal sanction that will follow.¹⁵⁶ This is not the case with AWS. The situation will be worse where an individual will specifically program the robot to commit crimes. There is no guarantee that such situations will not arise because once the technology is available, conscience will only be the limit and conscience fails us many times.

¹⁵⁰ See Article 28 of the Rome Statute; See also TM Funk *Victims' rights and advocacy at the International Criminal Court* (2010) 16 in footnote 28.

¹⁵¹ See Article 25 of the Rome Statute; See also TM Funk *Victims' rights and advocacy at the International Criminal Court* (2010) 16 in footnote 28.

¹⁵² TM Funk *Victims' rights and advocacy at the International Criminal Court* (2010) 16 in footnote 28.

¹⁵³ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p11, para 57; See also D Grossman *On killing: The psychological cost of learning to kill in war and society* (2009).

¹⁵⁴ See generally D Grossman *On killing: The psychological cost of learning to kill in war and society* (2009); See also R Goodman 'The power to kill or capture enemy combatants' (2013)24 *European Journal of International Law*. Ryan Goodman discusses the legal question regarding 'the scope of authority to choose whether to kill or capture enemy combatants.

¹⁵⁵ D Grossman *On killing: The psychological cost of learning to kill in war and society* (2009).

¹⁵⁶ See SG Shoham *International handbook of penology and criminal justice* (2007) 350-1.



As far as the notion of individual responsibility and AWS is concerned, it can be summarised that persons involved in the production of AWS up to the final user of the system can be held individually responsible.¹⁵⁷ The pillars of criminal liability – *mens rea* and *actus reas* – must be satisfied in all cases.¹⁵⁸ For designers, manufacturers and other actors, it is likely that their prosecution may be in terms of domestic law in domestic courts. In the event, however, that they are aiders and abettors to the commission of a crime within the jurisdiction of the International Criminal Court for example, satisfying all the constitutive elements of aiders and abettors, then, they can be prosecuted at the international level.¹⁵⁹ In terms of international law accountability principles, responsibility of a particular person does not affect responsibility of another. In other words, the fact that a manufacturer has certain responsibilities does not mean the end users do not have responsibilities.¹⁶⁰ For the end user – the fighter or combatant deploying the weapon – the golden rule is that he or she must never use a weapon whose effects he or she cannot control.¹⁶¹ The combatant or fighter must only use those weapons that do not obfuscate his or her responsibilities under international law. To that end, the combatant must be in ‘Meaningful Human Control’ of the weapon.¹⁶² ‘Meaningful Human Control’ of a weapon in terms of the responsibilities of the combatant or fighter deploying it is where all the decisions to employ lethal force are made by the fighter in real time and there is an abort function. This eliminates the

¹⁵⁷ See T Maruhn ‘An Analysis of the Potential Impact of Lethal Autonomous Weapon Systems on Responsibility and Accountability for Violations of International Law’ Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).

¹⁵⁸ See JRWD Jones & S Powles *International criminal practice* (2003)414-24.

¹⁵⁹ On the elements that needs to be satisfied as far as aiding and abetting is concerned see *Prosecutor v Tadic*, Appeals Judgement, 15 July 1999, IT-94-1-A, paras 227-9.

¹⁶⁰ See Article 25 (4) of the Rome Statute; See also Rule 2 of the ‘Moral Responsibility for Computing Artefacts’ providing ‘the shared responsibility of computing artefacts is not a zero-sum game. The responsibility of an individual is not reduced simply because more people become involved in designing, developing, deploying or using the artefact’; the case of *Prosecutor v Delalic* also support this, see para 1283.

¹⁶¹ See Article 51(4)(c) of Additional Protocol I to the Geneva Conventions.

¹⁶² See Chapter 7 on the discussion of what constitutes ‘Meaningful Human Control’.



question of unpredictability of AWS – an issue that presents an accountability gap in terms of the responsibility of the weapon user.¹⁶³

5.4 Command Responsibility and AWS

As indicated above, there are commentators who suggest that command responsibility can be used to establish the responsibility of those who deploy AWS.¹⁶⁴ It is not uncommon that in the debate on AWS, some commentators refer to persons deploying AWS as the *commanders* while the Autonomous Weapon Systems are referred to as *agents*.¹⁶⁵ This gives an impression that AWS are replacing the human fighters as robot combatants. I have objected to this idea in chapter 2. Hereupon, I consider whether the notion of command responsibility – a concept founded and developed to govern the relationship between a *human commander* and a *human subordinate* – can be used to govern this new relationship between a *human commander* and a *robot*.

To ascertain the applicability of command responsibility to the case of AWS, it is inevitable to start by explaining what this notion entails. Command responsibility is an international criminal law mode of imputing responsibility that has been developed in the jurisprudence of various international criminal tribunals and courts.¹⁶⁶ Command

¹⁶³ On the issue of AWS with high levels of autonomy or full autonomy being unpredictable, see the UK Ministry of Defence, Development, Concepts and Doctrine Centre, The UK Approach to Unmanned Aircraft Systems, Joint Doctrine Note 2/11, para 510; Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing* 24; Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014)1, 4, 8, 9, and 15; N Melzer 'Human rights implications of the usage of drones and unmanned robots in warfare' (2013) *European Parliament Directorate-General for External Policies* 39.

¹⁶⁴ MN Schmitt 'Autonomous weapon systems and international humanitarian law: a reply to the critics' (2013) *Harvard National Security Journal* 33; HM Roff 'killing in war: responsibility, liability and lethal autonomous robots' in A Henschke *et al Handbook of ethics and war: just war theory in the 21st Century* (2013)14; T Marauhn 'An analysis of the potential impact of lethal Autonomous Weapon Systems on responsibility and accountability for violations of international law' Presentation on the occasion of the CCW expert meeting on lethal autonomous systems (2014) 5.

¹⁶⁵ See R Arkin *et al* 'Moral decision-making in autonomous systems: enforcement, moral emotions, dignity, trust and deception' (2011)13, 18 available at <https://smartech.gatech.edu/bitstream/handle/1853/40769/IEEE-ethicsv17.pdf?sequence=1> (accessed 20 January 2015).

¹⁶⁶ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)88.



responsibility is part of customary international law¹⁶⁷ and has been considered an important tool as far as reinforcing deterrence and countering impunity is concerned.¹⁶⁸

Command responsibility is where a commander is held responsible for actions of her or his subordinates by virtue of her or him failing to prevent or punish the commission of crimes by the subordinates.¹⁶⁹

The idea of command responsibility goes back to as early as the 15th century, when in 1439, Charles VII of Orleans promulgated a law stating that:

The King orders that each captain or lieutenant be held responsible for the abuses, ills and offences committed by members of his company, and that as soon as he receives any complaint concerning any of such misdeed or abuse, he bring the offender to justice...If he fails to do so or covers up the misdeed or delays taking action, or if, because of his negligence or otherwise, the offender escapes and thus evades punishment, the captain shall be deemed responsible for the offence as if he had committed it himself and be punished in the same way as the offender would have been.¹⁷⁰

The modern form of command responsibility was clearly spelt out after the World Wars and during the prosecution of war criminals.¹⁷¹ For example, after World War I, the Commission that was tasked to work on issues of responsibilities of those responsible for the war noted and emphasised that rank and position does not excuse one from criminal liability but rather can be a basis for it.¹⁷² The position of a commander or superior can also be used to establish individual responsibility for example where the

¹⁶⁷ JRWD Jones & S Powles *International criminal practice* (2003)432; *Prosecutor v Delalic*, Trial Judgement, paras 330-400).

¹⁶⁸ TM Funk *Victims' rights and advocacy at the International Criminal Court* (2010) 16 in footnote 28.

¹⁶⁹ B Swart 'Modes of international criminal liability' in A Cassese (eds) *The Oxford companion to international criminal justice* (2009) 88; See http://wcjp.unicri.it/deliverables/docs/Module_10_Superior_responsibility.pdf (accessed 7 September 2014).

¹⁷⁰ T Meron *Henry's laws and Shakespeare's wars* (1993) citing Charles VII's Ordinance des Rois de France de la Troisieme Race.'

¹⁷¹ See M Smidt 'Yamahita, Medina, and beyond: Command responsibility in contemporary military operations' (2000)164 *Military Law Review* 176; JRWD Jones & S Powles *International criminal practice* (2003)424.

¹⁷² See the Commission on the Responsibility of Authors of War and on Enforcement of Penalties 1919 Report (1920) *American Journal of International Law* 25.



commander ordered, aided and abetted the commission of a crime.¹⁷³ There is a number of cases after World Wars I and II that clearly spells out the duties of the commander as far as his or her obligation towards the conduct of subordinates is concerned.¹⁷⁴

It was, however, only in 1977 that the concept of command responsibility was included in a binding international treaty – Additional Protocol I to the Geneva Conventions of 1949.¹⁷⁵ In Article 86 (2), it provides that the fact that the unlawful act was committed by a subordinate does not absolve the superior of responsibility when the commander ‘knew or had information which should have enabled’ him to know that subordinates were committing crimes and did not take feasible steps to stop or prevent them.¹⁷⁶

The modern form of command responsibility is contained in Article 28 of the Rome Statute – applicable to both military and civilian commanders.¹⁷⁷ Article 28 of the

¹⁷³ JRWD Jones & S Powles *International criminal practice* (2003)441; *Prosecutor v Akayesu*, Trial Judgement, para 692.

¹⁷⁴ See cases of *Re Yamashita* 327 US 1 (1946); *High Command Case*, 11 Trials of War Criminals 462 (1948); *The Hague Case*, 11 Trials of War Criminals 1230 (1948); *Trial of Hideki Tojo*, 20 Tokyo Trials 49845-49846; *Melenki v Chief Military Prosecutor* (1985) 2 *Palestine Yearbook of International law*.

¹⁷⁵ JRWD Jones & S Powles *International criminal practice* (2003)429.

¹⁷⁶ Likewise, Article 87 of Additional Protocol I also provides that:

1. The High Contracting Parties and the Parties to the conflict shall require military commanders, with respect to members of the armed forces under their command and other persons under their control, to prevent and, where necessary, to suppress and to report to competent authorities breaches of the Conventions and of this Protocol.
2. In order to prevent and suppress breaches, High Contracting Parties and Parties to the conflict shall require that, commensurate with their level of responsibility, commanders ensure that members of the armed forces under their command are aware of their obligations under the Conventions and this Protocol.
3. The High Contracting Parties and Parties to the conflict shall require any commander who is aware that subordinates or other persons under his control are going to commit or have committed a breach of the Conventions or of this Protocol, to initiate such steps as are necessary to prevent such violations of the Conventions or this Protocol, and, where appropriate, to initiate disciplinary or penal action against violators thereof. See also GW Mugwanya ‘The contribution of the International Criminal Tribunal of Rwanda to the development of international criminal law’ in C Murungu & J Biegon (eds) *Prosecuting international crimes in Africa* (2011)88.

¹⁷⁷ See WJ Fenrick ‘Some international law problems related to prosecution before the International Criminal Tribunal of the Former Yugoslavia’ (1995)6 *Duke Journal of Comparative and International Law* 103.



Statute provides that ‘in addition to other grounds of criminal responsibility under [the Rome] Statute for crimes within the jurisdiction of the [ICC]:

- a) A military commander or person effectively acting as a military commander shall be criminally responsible for crimes within the jurisdiction of the Court committed by *forces* under his or her effective command and control, or effective authority and control as the case may be, as a result of his or her failure to exercise control properly over such *forces*, where:
 - i) That military commander or person either knew or, owing to the circumstances at the time, should have known that the *forces* were committing or about to commit such crimes; and
 - ii) That military commander or person failed to take all necessary and reasonable measures within his or her power to prevent or repress their commission or *to submit the matter to the competent authorities for investigation and prosecution.*
- b) With respect to *superior and subordinate* relationships not described in paragraph (a), a superior shall be criminally responsible for crimes within the jurisdiction of the Court committed by *subordinates* under his or her effective authority and control, as a result of his or her failure to exercise control properly over such subordinates, where:
 - i) The superior either knew, or consciously disregarded information which clearly indicated, that the *subordinates* were committing or about to commit such crimes;
 - ii) The crimes concerned activities that were within the effective responsibility and control of the superior; and
 - iii) The superior failed to take all necessary and reasonable measures within his or her power to prevent or repress their commission or to submit the matter *to the competent authorities for investigation and prosecution.*¹⁷⁸ (My emphasis).

According to Thilo Marauhn, Article 28 of the Rome Statute on command responsibility is best suited to deal with programmers and operators of AWS since they are ‘much closer to ‘effective command and control’ as required under command responsibility.¹⁷⁹

¹⁷⁸ See Article 7(3) of ICTY Statute and Article 6 (3) of ICTR Statute; See also C Murungu ‘Prosecution and punishment of international crimes by the Special Court for Sierra Leone’ in C Murungu & J Biegon (eds) *Prosecuting international crimes in Africa* (2011)114-17.

¹⁷⁹ T Marauhn ‘An Analysis of the Potential Impact of Lethal Autonomous Weapon Systems on



As will be discussed below, this may be a wrong approach to responsibility over AWS – the concept of command responsibility as developed under international criminal law and as contained in Article 28 of the Rome Statute may not be applicable to a *human-machine* relationship.

As interpreted by courts, command responsibility provides that a commander may only be held responsible where he or she ‘knew or should have known’ that his or her subordinates were about to or are committing a crime and the commander fails to take action to prevent or stop them or that no punishment was meted against the perpetrators after commission.¹⁸⁰

Furthermore, in order to be held accountable for the actions of his or her subordinates, the commander must have *exercised effective control* over them.¹⁸¹ The ICTY, ICTR and the ICC have articulated some elements of what constitutes effective control for the commander to be held responsible. These elements are more elaborated in Chapter 7 when the concept of ‘Meaningful Human Control’ over weapon systems is discussed. For now, it is sufficient to state that there must be a superior-subordinate relationship between the commander and the combatants or fighters¹⁸² that allows the commander to control his or her subordinates¹⁸³ while the subordinates depend on his or her

Responsibility and Accountability for Violations of International Law’ Presentation on the occasion of the CCW expert meeting on lethal autonomous systems, Geneva, May 13-16, 2014, p.4 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/\\$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/35FEA015C2466A57C1257CE4004BCA51/$file/Marauhn_MX_Laws_SpeakingNotes_2014.pdf) (accessed 20 January 2015).

¹⁸⁰ Articles 86 (2) and 87 of Additional Protocol I to the Geneva Conventions; ICRC Commentary on Additional Protocol I, para 3543; JRWD Jones & S Powles *International criminal practice* (2003)430.

¹⁸¹ See *Prosecutor v Zejnil Delalic Čelebici* Case No. IT-96-21-T, Trial Judgement, 16 November 1998 p 354; *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 32,54 *Prosecutor v Stanislav Galic*, Case No. IT-98-29-T, Trial Judgement, 5 Dec. 2003, p 173; *Prosecutor v Rašević et al.*, Verdict at First Instance, p 149.

¹⁸² *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 417; JRWD Jones & S Powles *International criminal practice* (2003)434.

¹⁸³ *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 210; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Appeal Judgement, 3 July 2008, p 20; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Trial Judgement, p 311; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 256; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Trial Judgement p 354; *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 411-419; See *Prosecutor v Stupar Milos et al*, No. X-



orders.¹⁸⁴ The question therefore, is whether this mode of responsibility is applicable to AWS.

5.4.1 Inapplicability of command responsibility to AWS

I disagree with commentators who suggest that responsibility over the actions of AWS can be ascertained by resorting to the rules of command responsibility. I disapprove of the labelling of Individuals who deploy AWS as *commanders* and AWS as *agents or combatants*. Whether scholars who do this do it intentionally or unwittingly, referring to individuals who deploy AWS as *commanders* gives the impression that AWS are the combatants or fighters. AWS must not be referred to or treated as combatants or fighters. They must be weapons and when they are developed, they must not be given autonomy or functions that make them seem like weapons but robot combatants.¹⁸⁵

I therefore argue that the concept of command responsibility cannot and should not be applied to AWS. This is so because in International Criminal Law and International Humanitarian Law, command responsibility as a mode of computing criminal liability has been introduced and developed as a concept governing the relationship between a *human commander* and a *human subordinate*.¹⁸⁶ Referring to the person who deploys an Autonomous Weapon System as a commander is wrong and misleading. Even the

KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 148; See also G Mettraux *The law of command responsibility* (2009) 157.

¹⁸⁴ *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 210; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Appeal Judgement, 3 July 2008, p 20; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Trial Judgement, p 311; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 256; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Trial Judgement p 354; *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 411-419; *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 148; See also G Mettraux *The law of command responsibility* (2009) 157.

¹⁸⁵ I have explored this argument in Chapter 2.

¹⁸⁶ See Article 28 of the Rome Statute. In terms of international law rules on treaty interpretation, surely, the drafters of the Rome Statute and other treaties providing for command responsibility did not intend this concept to apply to a relationship between a human commander and a machine. A weapon cannot be a subordinate in the strict sense of the word.



simple literal meaning of a commander states that it is an individual in authority over a body of troops during a military operation.¹⁸⁷ In IHL and International Criminal Law, a commander has been understood to be a natural person exercising authority over natural persons in a military operation.¹⁸⁸ Likewise, Article 28 of the Rome Statute uses terms such as ‘forces’ and ‘subordinates’ who are capable of being subjected to prosecution and punishment.¹⁸⁹ That alone shows that the drafters of the Rome Statute clearly intended and rightly so, for the concept to be applied to a *human to human* relationship.

More so, a consideration of the key elements of command responsibility referred to above clearly shows that it is a concept that was developed strictly to govern the relationship between *humans* on the battlefield. In order for a commander to be held responsible for the actions of his or her subordinate, there are three important elements that should be satisfied:

- i) That the commander knew or ought to have known that crimes were about to or were being committed by his or her subordinates;
- ii) That the responsible commander failed to prevent or stop commission of the crimes by his or her subordinates;
- iii) And that the commander did not punish the subordinate after the fact.¹⁹⁰

The above elements have been developed by courts over the years and they are the thumb rule when establishing command responsibility in any court.¹⁹¹ Now, the first two elements refer to commanders and subordinates, terms that have consistently been

¹⁸⁷ See <http://www.thefreedictionary.com/commander> (accessed 21 January 2015).

¹⁸⁸ M Smidt ‘Yamahita, Medina, and beyond: Command responsibility in contemporary military operations’ (2000)164 *Military Law Review* 176; JRWD Jones & S Powles *International criminal practice* (2003)424.

¹⁸⁹ See Article 28 of the Rome Statute.

¹⁹⁰ Article 28 of the Rome Statute; See also Article 86 (2) and 87 of Additional Protocol I to the Geneva Conventions.

¹⁹¹ See for example *Prosecutor v Zejnil Delalic Čelebici* Case No. IT-96-21-T, Trial Judgement, 16 November 1998 and *Prosecutor v Stanislav Galic*, Case No. IT-98-29-T, Trial Judgement, 5 December 2003, p 173.



used to refer to humans not machines. Furthermore and more importantly, the third element refers to the duty of the commander to punish his or her subordinates when they commit crimes. As I have mentioned above, machines have no moral agency and for obvious reasons cannot be punished.¹⁹² This shows clearly that when it was introduced and developed, the concept of command responsibility was and still is only meant to cover *human to human* relationships on the battlefield. Of course concepts of law are sometimes extended and fine-tuned to cover and address new situations but in the case of AWS and the concept of command responsibility, this cannot and should not be done.

Thus, in regard to the concept of command responsibility and AWS, Peter Asaro also observes that:

The nature of command responsibility does not allow one to abdicate one's moral and legal obligations to determine that the use of force is appropriate in a given situation. One might transfer this obligation to another responsible human agent, but one then has a duty to oversee the conduct of that subordinate agent. Insofar as autonomous weapon systems are not responsible human agents, one cannot delegate this authority to them.¹⁹³

The only instance where the issue of command responsibility is relevant is when the commander or civilian who supervises the individual programming or deploying an AWS knew or should have known that his or her subordinate was programming or using an AWS in an unlawful manner and did nothing to prevent or stop his or her subordinate or punish them after the fact.¹⁹⁴ This is just the same line of reasoning in relation to other weapons.

¹⁹² M Wagner 'Taking humans out of the loop: implications for international humanitarian law' (2011)21 *Journal of Law Information and Science* 5; P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross* 693; KE Himma 'Artificial agency, consciousness, and the criteria for moral agency: what properties must an artificial agent have to be a moral agent?' (2007) 7th *International Computer Ethics Conference*.

¹⁹³ P Asaro 'On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making' (2012)94 *International Review of the Red Cross* 701.

¹⁹⁴ See MN Schmitt 'Autonomous weapon systems and international humanitarian law: a reply to the



The argument I maintain in this case is that AWS should be weapons and those who deploy them are the warriors. From a legal perspective, AWS cannot and should not commit crimes. As Seneca observed, ‘a sword is never a killer, it is a tool in the killer’s hands’.¹⁹⁵ Therefore, if this is a case of a warrior and his weapon, to establish liability of the combatant or fighter over use of an AWS, the correct mode of imputing criminal liability is individual criminal responsibility.¹⁹⁶ Command responsibility is restricted to the situation highlighted above, where a command of the person who used an AWS is liable for having failed to prevent, stop or punish his subordinate in relation to the use of AWS.

Nevertheless, as discussed above, AWS present serious challenges to the concept of individual criminal responsibility if they have full autonomy or high levels of autonomy to the extent that the weapon bearer is no longer exercising ‘Meaningful Human Control’. Meaningful control over AWS by the fighter or combatant is thus emphasised. Michael Schmitt however, expresses a different view as far as control of weapons during their use is concerned. He states as follows:

The mere fact that a human might not be in control of a particular engagement does not mean that no human is responsible for the actions of the autonomous weapon system. A human must decide how to program the system. Self-evidently, that individual would be accountable for programming it to engage in actions that amounted to war crimes.¹⁹⁷

critics’ (2013) *Harvard National Security Journal* 33.

¹⁹⁵ Quoted by MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 1.

¹⁹⁶ M Sassòli ‘Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified’ (2014)90 *International Law Studies /Naval War College* 324. Although Sassoli uses the term ‘commander’ to refer to the individual deploying the AWS, he supports the above noted argument when he states that ‘it is obvious that a commander deploying autonomous weapons must understand how they function, just as for any other means and method of warfare. In my view, the responsibility of such a commander is not a case of—nor is it analogous to—command responsibility, but a case of direct responsibility, just as that of a soldier firing a mortar believing that it can land only on the targeted tank, but which will kill civilians he knows are following the tank. This is a question of the mens rea, intent and recklessness with which criminal lawyers are familiar.’ – at 324.

¹⁹⁷ See MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 33.



Like Sassòli, Schmitt also ignores the problem of unpredictability of AWS with full autonomy or high levels of autonomy and functioning in unstructured environments. If followed to its logical conclusion, Schmitt's argument is that once one has programmed an AWS and deployed it, all the eventual actions of the AWS are attributable to the programmer or the individual deploying it. In this regard, Schmitt's argument suggests that programming of an AWS alone is sufficient control by the weapon user leading to responsibility over all ensuing acts. This idea has a chilling effect of throwing the important element of *mens rea* out of the window and putting in place some form of 'strict criminal liability'. It suggests that once programmed all actions of AWS are foreseeable. This is arguably not true, since there can be situations where a combatant with no intentions to commit any crime programs and deploys an AWS to kill legitimate targets but the system ends up killing innocent civilians. AWS with full autonomy for example, will make other important decisions once they are deployed – decisions that may not be in line with the intentions of the person deploying them. The situation is even more horrendous where the system does not allow or need human intervention once it is activated. In those circumstances, establishing the important element of *mens rea* becomes difficult.

Thus, contrary to what Schmitt seems to suggest, the idea of control over the weapon one uses is central to their responsibility. For it to be meaningful control, programming alone is not sufficient. There is need for some form of supervision after activation. Such supervision must be in real time. The actions of an Autonomous Weapon System must be well within the control of a human combatant who approves targets, prevent or abort missions whenever the situation requires.

5.5 Inappropriateness of the proposed concept of 'split responsibility'

Arguments have been made that the control of AWS is done by various stakeholders, such as manufacturers, programmers, roboticists and other players in the development



of AWS¹⁹⁸ therefore the need to take into account a number of individuals when assigning responsibility over their actions.¹⁹⁹ Other scholars have thus suggested the sharing and splitting of responsibility among all these actors.²⁰⁰

For example, in the 2014 Convention on Conventional Weapons expert meeting on AWS, the US delegation suggested that ‘Meaningful Human Control’ starts right from manufacturing of different components of AWS, programming of software up to the final deployment of autonomous weapon systems.²⁰¹ Thus, there was a suggestion that in considering what ‘Meaningful Human Control’ of AWS means, there should be a ‘capture [of] the full range of human activity that takes place in weapon systems development, acquisition, fielding and use; including a commander’s or an operator’s judgment to employ a particular weapon to achieve a particular effect on a particular battlefield’.²⁰²

In as much as the suggestion of splitting responsibility may sound attractive, I contend that it is misdirection. As noted above, these many players are responsible in their own capacity, individually, through command or corporate responsibility. Within those forms of responsibilities, there is no ‘splitting of responsibility’ as it were. In particular, if we are discussing the issue of the responsibility of the combatant or fighter over their use of a particular weapon – in this case AWS – that responsibility cannot be split or shared with manufacturers for example. For the purposes of holding a combatant or fighter

¹⁹⁸ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 79.

¹⁹⁹ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p 15, para 81.

²⁰⁰ A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, p 15, para 81; G Verugio & K Abney ‘Roboethics: The Applied Ethics for a New Science’ in Lin p 114; R Sparrow ‘Killer Robots’ *Journal of Applied Philosophy* (2007)24.

²⁰¹ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).

²⁰² US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



responsible for war crime, International Humanitarian Law and International Criminal Law is not concerned about the manufacturer of the weapon he or she used. It is concerned about the bearer of the weapon; the one who chose to use that particular weapon.²⁰³ The reasoning behind it is that the combatant or fighter who is in control of the weapon and who makes choices regarding which weapon to use. Of course, as discussed above, this is not to say the manufacturer cannot be a co-perpetrator, aider or abettor of the crime if conditions are fulfilled. Those forms of liability however, are not 'splitting of responsibility'; persons are being held individually liable in their own capacity.²⁰⁴ Likewise, the same reasoning applies in connection with corporate responsibility which will be discussed below.

Therefore, a suggestion of 'split responsibility' over the use of AWS by combatants or fighters is a dangerous attempt to conflate different modes of responsibility such as individual, command and corporate responsibility – modes that stand independently. From an International Humanitarian Law perspective, companies and their workers are not part to an armed conflict unless they directly participate in an armed conflict.²⁰⁵ This body of law is concerned with the combatant and his weapons not the manufacturers or other individuals involved in the production of the weapon – unless of course they become party by directly participating.²⁰⁶

5.6 Corporate Responsibility and AWS

As already noted, the above is not to say that other players in the production of AWS such as manufacturers, engineers, roboticists etc. are exonerated from any form of

²⁰³ See Geneva Academy of International Humanitarian Law 'Autonomous weapon systems under international law' (2014)8 *Academy Briefing Number 25* noting in footnote 159 that Heyns and other scholars' approach on split responsibility is criticised 'for violating the fundamental principle that no penalty may be inflicted on a person for an act for which he or she is not responsible. See 1907 Hague Regulations, Article 50; 1949 Geneva Convention IV, Article 33(1); 1977 Additional Protocol I, Article 75(4)(b); 1977 Additional Protocol II, Article 6(2)(b); ICRC Customary IHL Study, Rule 102.'

²⁰⁴ See Article 25 of the Rome Statute.

²⁰⁵ See T McCormack & A McDonald *Yearbook of International Humanitarian Law* (2006)84.

²⁰⁶ T McCormack & A McDonald *Yearbook of International Humanitarian Law* (2006)84.



responsibility. There are other laws, ethics and codes of conduct that govern them.²⁰⁷ Article 25(4) of the Rome Statute clearly provides that the provision relating to individual criminal responsibility for example, shall not affect other forms of responsibilities in international law like state responsibility.²⁰⁸ This supports the argument which I highlighted in the introduction that forms of responsibility are complementary. They are not mutually exclusive or alternatives to the exclusion of the other.²⁰⁹ Thus, in her book titled *The Relationship Between State and Individual Responsibility for International Crimes*, Béatrice Bonafè observes that ‘state and individual responsibility are two separate sets of secondary rules attached to the breach of the same primary norms’. She argues that it is important to understand them as ‘two different regimes, each of which aims to foster compliance with the most important obligations owed to the international community as a whole’.²¹⁰

Other persons – natural and legal – involved in the production of AWS can be held criminally liable or sued under civil law.²¹¹ Corporate responsibility used to be the domain of domestic jurisdictions to the exclusion of the international community.²¹² However, this is no longer the case since corporate responsibility is now the subject of international law.²¹³

²⁰⁷ M Sassòli ‘Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified’ (2014)90 *International Law Studies /Naval War College* 325.

²⁰⁸ Article 25(4) of the Rome Statute of the International Criminal Court.

²⁰⁹ See BI Bonafè *The relationship between state and individual responsibility for international crimes* (2009)1.

²¹⁰ BI Bonafè *The relationship between state and individual responsibility for international crimes* (2009)1.

²¹¹ See P Simons & A Macklin *The governance gap: extractive industries, human rights, and the home state advantage* (2014)205; JP Bohoslavsky & JL Cernic *Making Sovereign financing and human rights work* (2014)63; EP Mendes *Global governance and international law: combating the tragic flaw* (2014)210; S Michalowski *Corporate accountability in the context of transitional justice* (2014).

²¹² RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)508.

²¹³ See EP Mendes *Global governance and international law: combating the tragic flaw* (2014) 210.



5.6.1 International Law on Responsibility and Corporations

There used to be arguments that international law is concerned about states, therefore corporations and other entities are outside the purview of international law.²¹⁴ However, currently there is a general agreement that criminal liability of corporations is well grounded in international law.²¹⁵ Treaties, general principles of international law and customary international law support that corporations are not immune from responsibility under international law.²¹⁶ For example, the European Convention on the prevention of terrorism provides in Article 10 that:

1. Each Party shall adopt such measures as may be necessary, in accordance with its legal principles, to establish the *liability of legal entities* for participation in the offences set forth in Articles 5 to 7 and 9 of this Convention.
2. Subject to the legal principles of the Party, the *liability of legal entities may be criminal, civil or administrative*.
3. *Such liability shall be without prejudice to the criminal liability of the natural persons who have committed the offences.*²¹⁷ (Emphasis mine).

In furthering the argument that treaty law supports the criminal liability of corporations, Ralph Steinhardt argues that there is nothing, for example, in the drafting history of the 1948 Genocide Convention to suggest that the drafters did not intend to include

²¹⁴ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)510-20.

²¹⁵ See RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)510-20 reasoning that arguments suggesting that corporations may not be subjects of international law since they are a creation of domestic laws are misdirected. See also See P Simons & A Macklin *The governance gap: extractive industries, human rights, and the home state advantage* (2014)205; JP Bohoslavsky & JL Cernic *Making Sovereign financing and human rights work* (2014)63; EP Mendes *Global governance and international law: combating the tragic flaw* (2014)210; S Michalowski *Corporate accountability in the context of transitional justice* (2014).

²¹⁶ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)520, 523, 526.

²¹⁷ See also Article 10(1) of the Convention against Transitional Organised Crime (2000); Article 2 of the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (1997); Article 1(2) of the International Convention on the Suppression and Punishment of the Crime of Apartheid'(1973).



corporations.²¹⁸ That argument is premised on the fact that Article IV of the Convention provides that persons responsible for genocide must be punished ‘whether they are constitutionally responsible rulers, public officials or *private individuals*’.²¹⁹ Steinhardt argues that private individuals may include corporations since there is no suggestion that the referred ‘private individuals’ should be humans.²²⁰

More directly, treaties proscribing development, transfer and stockpiling of certain weapons transcend to the private sector which includes corporations. For example, Article 9 of the 1977 Convention on the prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines provides as follows:

Each State Party shall take all appropriate legal, administrative and other measures, including the imposition of penal sanctions, to prevent and suppress any activity prohibited to a State Party under this Convention undertaken by *persons* or on territory under its jurisdiction or control.²²¹

Notwithstanding that responsibility of corporations is pronounced in international law, given the non-human nature of corporations, Ralph Steinhardt points out that there are various difficult technical questions that arise particularly in relation to corporations involved in the production of weapons:

When will the corporation be responsible for the acts of its human agents? When will a parent company be responsible for the acts of its subsidiaries and joint ventures, its suppliers and distributors, or its contractors? For those wrongs that require a mental element – *mens rea* – what does it mean for a corporation to have a mental state at all, and how would one go about proving what it is or was? And even if the corporation was in principle responsible, how could a

²¹⁸ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)521.

²¹⁹ Article IV of the 1948 Genocide Convention.

²²⁰ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)521.

²²¹ Article 9 of 1977 Convention on the prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines.



punishment be devised and administered without punishing innocent third parties such as investors, customers, employees, or the public?²²²

Although there is no definite answer to some of these questions, the discussion below will attempt to map the way out with a specific focus on the responsibilities of corporations involved in the design and manufacturing of Autonomous Weapon Systems.

5.6.2 Corporate Criminal Responsibility

A company that manufactures or designs AWS in a way that will violate international law can be held criminally liable.²²³ There is a number of jurisdictions providing for criminal sanctions against corporations that involve themselves in criminal conduct.²²⁴ A corporation can, for example, be charged of manslaughter and punishment ranges from termination of operation licence, reparations and deregistration.²²⁵

Corporate criminal responsibility is not, however, universally accepted as certain jurisdictions refute the fact that entities ‘with no soul to damn and no body to kick’ can be meaningfully penalised for unlawful acts.²²⁶ More so, one of the challenges to corporate criminal responsibility is that in certain jurisdictions it is subject to limitations. For example, a corporation is only criminally liable when the conduct alleged was the intention of the top executive rather than some low level personnel.²²⁷

²²² RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)508.

²²³ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014)8 *Academy Briefing* 22.

²²⁴ See M Pieth & R Ivory *Corporate criminal liability: emergence, convergence and risk* (2011)pp. 7–14. Example of such states are the US, Israel, France and the UK.

²²⁵ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing* 22.

²²⁶ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)508.

²²⁷ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing* 22.



Furthermore, some jurisdictions also exclude criminal liability of corporations if the alleged conduct relates to military sanctioned developments or public functions related developments.²²⁸ In such jurisdictions, corporate criminal liability for AWS manufacturing companies will face the same limitations.

5.6.3 Corporate civil responsibility

As mentioned above, one of the forms of remedies available to victims – in this case victims of AWS – is reparations in the form of compensation. The victims can sue the responsible parties such as state agents who deployed AWS, persons involved in the development of such weapons such as manufacturers and programmers.²²⁹ However, suing a manufacturer may be difficult to sustain because the manufacturer or other individuals may not be directly linked to the harm suffered by the victim. Manufacturers of many different kinds of weapons are not necessarily liable when those weapons are used to violate the rights of other people. More importantly, ‘product liability laws are largely untested in robotics’.²³⁰ This means that for victims of AWS, launching a successful civil lawsuit will be an uphill task unless where it is clear that the corporation operated with malafides.

Both in a civil lawsuit and corporate criminal responsibility, the victim assumes an onus to start a claim usually in a foreign jurisdiction.²³¹ There are various jurisdictional technicalities and difficulties that the victim has to face in addition to monetary costs. Christof Heyns has questioned whether such an approach is equitable to the victim.²³²

²²⁸ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing* 22 referring to the 2007 UK Corporate Manslaughter and Corporate Homicide Act.

²²⁹ SR Ratner et al *Accountability for human rights atrocities in international law: Beyond the Nuremberg legacy* (2009)272, 355.

²³⁰ P Lin ‘Introduction to robot ethics’ in P Lin et al (eds) *Robot ethics: The ethical and social implications of robotics* (2012) p.8; See also Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014)8 *Academy Briefing* 24.

²³¹ Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing* 24.

²³² A/HRC/23/47, Report of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions.



There are four entry points at which responsibility of corporations can be articulated in international law: at the point of design, at the point of manufacture, at the point of sale and transfer and at the point of the use of the weapon already discussed above.²³³ I am now going to address these in turn.

5.6.4 Corporate responsibility for the design of AWS

Corporate responsibility will attach clearly where AWS would be designed to violate international human rights and humanitarian law or other relevant laws.²³⁴ For example, a corporate entity that intentionally designs an Autonomous Weapon System that once activated, 'shuts out' the human controller while at the same time it is incapable of distinguishing civilians and combatants or engages in unlawful acts or cause unnecessary suffering. Responsibility of corporations at this stage will be, in most cases, in terms of domestic laws. Nevertheless, as noted by Steinhardt, the challenge is that most weapons may not be specifically designed to violate International Human Rights Law or International Humanitarian Law; such weapons might have:

Sufficient dual uses to make them lawful at the design stage; moreover the design of such weapons without the actual deployment or operational use of the weapon might belong in the realm of sadistic fantasy before it triggered legal sanction. The *mens rea* or mental state for a violation is generally a necessary but insufficient condition for liability in the absence of some *actus reus*.²³⁵

The argument on the dual use of technology has been noted in relation to AWS.²³⁶ Various components of AWS have dual use making it difficult if not impossible to impose

Christof Heyns, p15 para 79.

²³³ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)531-2.

²³⁴ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)531.

²³⁵ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)531.

²³⁶ See M Bieri & M Dickow Lethal 'Autonomous Weapon Systems: future challenges' (2014) *Center for Security Studies, Analysis in Security Policy* 3 available at <http://www.css.ethz.ch/publications/pdfs/CSSAnalyse164-EN.pdf> (accessed 21 January 2015).



an obligation on states to proscribe the design of such components.²³⁷ The first part of Steinhardt’s statement is agreeable; however, the second part in relation to *mens rea* and *actus reus* needs qualification. Where for example, there is a domestic criminal sanction against the designing of AWS that violates international law, the *mens rea* is the guilty mind to create such a design and the *actus reus* is the actual designing of the AWS – the *actus reus* is thus present. To that end, it would be possible to prosecute the designer in the circumstances without necessarily having to wait until that particular design is used to create the AWS or it being used to commit the actual crime.

5.6.5 Corporate responsibility for the manufacture of AWS

The clear cut responsibility of the manufacturer at this stage is where the manufacturer chooses to manufacture weapons that are illegal *per se* – such illegality may be established in terms of treaty law prohibiting the manufacture or stock piling of that particular weapon. The weapon may also be illegal on the basis of customary international law. In the case of AWS, this is tricky because AWS are not as yet proscribed by any treaty and there is no agreement as to whether they are prohibited under customary international law. In the case where the manufacturer produces AWS which are not illegal *per se* but are then used illegally, this will not ‘trigger liability unless the company has substantial knowledge of the illegal use of that particular customer’ as already indicated above when forms of perpetration such as planning, aiding and abetting were discussed.²³⁸ Thus a machete manufacturing company in India, for example, will not be liable for the use of the machetes in Africa unless it supplied the machetes to a customer in full or substantive knowledge that they were going to be

²³⁷ See presentation of Michael Biontino on behalf of the Foreign Office of Republic of Germany to the CCW Expert Meeting Lethal Autonomous Weapon Systems at page 3. Available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6035B96DE2BE0C59C1257CDA00553F03/\\$file/Germany_LAWS_Technical_Summary_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6035B96DE2BE0C59C1257CDA00553F03/$file/Germany_LAWS_Technical_Summary_2014.pdf) (accessed 21 January 2015).

²³⁸ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)531.



used to hack off civilians' heads. In that case, the manufacturer is liable for aiding and abetting.²³⁹

5.6.6 Corporate Responsibility for the Sale and transfer of AWS

Of course in terms of treaty obligations on the sale and transfer of weapons, it is the duty of the state to ensure that certain kinds of weapons are not sold or transported.²⁴⁰ To that end, the state has an obligation to put in place measures that govern both natural and legal persons not to act in a manner that would be inconsistent with the international obligations of the state. Thus, where a corporation engages in conduct that is inconsistent with the hosting state's international obligations like arms embargoes for example, a state can choose various forms of sanctions against such a corporation discussed above.²⁴¹

5.6.7 Corporate Responsibility for the use of AWS

Where corporations are directly involved in military operations or where force is used, there are guidelines in terms of the liability of such corporations. For example, and in relation to direct involvement in combat, military companies are of course liable for the weapons they use in combat.²⁴² However, stakes are different if the issue is where the weapon is used by other actors other than by the corporation in a direct manner. A question thus arises whether corporations can be held criminally liable for the use of weapons by fighters under the *lex specialis* of weapons – international weapons law.²⁴³

²³⁹ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)532.

²⁴⁰ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)532.

²⁴¹ See in general M Brzoska *Putting teeth in the tiger: improving the effectiveness of arms embargoes* (2009).

²⁴² See the Monteux document on pertinent international legal obligations and good practices for states related to operations of private military and security companies during armed conflict, ICRC and Swiss Federal Department of Foreign Affairs, Geneva (2009).

²⁴³ RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)530.



In as much as corporate criminal liability is important, it is a separate issue and should not be conflated with individual criminal liability of the individual deploying or using a weapon during war time or law enforcement as already noted above. The manufacturer and the combatant may not split or share responsibility over the final use of a weapon because that will dilute the responsibility that the latter must exercise over weapons they choose to use.²⁴⁴ There is no weapon in use presently, where the user of the weapon - after committing a war crime for example - will say 'it was not me, something went wrong with my weapon; ask the manufacturer'. The manufacturers and other players have their own responsibilities related to the producing of the weapon. Likewise, the warriors or fighters have their own responsibilities when using the weapon. However, as noted already, employees of these corporations may incur individual criminal responsibility.

Scholars like Marco Sassòli have questioned whether, in terms of International Humanitarian Law, roboticists and other actors can be held accountable for war crimes committed by AWS when they did their job before the armed conflict started.²⁴⁵ Marco Sassòli considers it to be a tricky issue, but however suggests that the individual who knowingly and intentionally programs an AWS to commit crimes is an 'indirect perpetrator of the war crime committed during the conflict'.²⁴⁶ In the event that the person who is deploying the AWS is aware of the defect, then the programmer is considered to be an accessory to the crime.²⁴⁷

Marco Sassòli's proposition is correct and a close scrutiny of the modes of responsibility as developed by international tribunals and courts may even show that the issue is not

²⁴⁴ See MN Schmitt & JSThurnher 'Out of the loop: autonomous weapon systems and the law of armed conflict (2013) 4 *Harvard National Security Journal* 278–79.

²⁴⁵ M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies/Naval War College* 325.

²⁴⁶ M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies/Naval War College* 325.

²⁴⁷ M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies/Naval War College* 325.



tricky at all.²⁴⁸ For the roboticist or manufacturer to be prosecuted for a war crime as a direct perpetrator, co-perpetrator, aider or abettor, there must be a direct link with the armed conflict in question and the legal requirements of *mens rea* and *actus reus* must be satisfied.²⁴⁹ Otherwise, where there is no direct link with the war crime in question, the manufacturer or the roboticist may be prosecuted under the general domestic criminal law.²⁵⁰

An example for the above proposition is where a manufacturer, aware of the existence of an armed conflict or an impending war (preparations for war) produces and supplies AWS to one of the parties to the armed conflict fully aware that the system is going to be used to commit war crimes.²⁵¹ In that case, the manufacturer is not different from a political leader like Charles Taylor who aided the commission of war crimes and crimes against humanity.²⁵²

This example can be explained in terms of the British case of *Bruno Tesch et al*, where an owner of a firm, Bruno Tesch, his assistant Weinbacher and a gassing technician, Drohish were charged with war crimes for supplying poisonous gas used in the killing of people in concentration camps.²⁵³ The charge specified that the accused persons fully knew what the gas was being used for.²⁵⁴ The prosecution particularly argued that the

²⁴⁸ See A Klip & G Sluite *Annotated Leading Cases of International Criminal Tribunals: The International Criminal Tribunal for the Former Yugoslavia* (2001)321. Klip and Sluite emphasise that the crux of attribution of responsibility over war crimes and other international crime is proving *mens rea*.

²⁴⁹ See A Klip & G Sluite *Annotated Leading Cases of International Criminal Tribunals: The International Criminal Tribunal for the Former Yugoslavia* (2001)321; *Bruno Tesch and Others (Zyklon B Case)*, UNWCC, Case Number 9, British Military Court (1946), *Law Reports of Trials of War Criminals* (1949) Volume 1, 93-104.

²⁵⁰ As argued above.

²⁵¹ See cases of *The United States of America v Carl Krauch, et al*, 1168 -72; *Bruno Tesch and Others (Zyklon B Case)*, UNWCC, Case Number 9, British Military Court (1946), *Law Reports of Trials of War Criminals* (1949) Volume 1, 93-104. These cases have similar facts as being espoused in this example.

²⁵² See *Prosecutor v Taylor*, (2012) SCSL-03-1-T.

²⁵³ See case of *Bruno Tesch and Others (Zyklon B Case)*, UNWCC, Case Number 9, British Military Court (1946), *Law Reports of Trials of War Criminals* (1949) Volume 1, 93-104; See also See ME Badar *The concept of mens rea in international criminal law: the case for a unified approach* (2013)234-52; A Klip & G Sluite *Annotated Leading Cases of International Criminal Tribunals: The International Criminal Tribunal for the Former Yugoslavia* (2001)321.

²⁵⁴ See case of *Bruno Tesch and Others (Zyklon B Case)*, UNWCC, Case Number 9, British Military Court



accused persons were war criminals because they knowingly supplied gas to an organisation of a state which used it to commit war crimes.²⁵⁵ The gas so provided, or the formulas used to make it, may as well have been produced or formulated before the outbreak of the war, but that would not excuse the accused persons from being part to a war crime as long as there is a direct link to the war crime alleged and *mens rea*.

Another scenario is when a manufacturer produces and sells AWS to a customer who is either a party to an armed conflict or becomes a party thereafter but without knowledge that the AWS are to be used to commit crimes. That manufacturer may not be charged for committing those specific war crimes because *mens rea* must be specific to the particular war crime alleged.²⁵⁶ However, if the AWS manufactured are illegal *per se*, the manufacturer may not be prosecuted for the specific war crime for lack of *mens rea* to the alleged crime but is still subject to prosecution under domestic criminal laws for example.²⁵⁷

The above reasoning was particularly the argument that was raised by the Defense Counsel for Bruno Tesch and others. In principle, counsel correctly argued that a war crime charge is not in blanket form but specific. Therefore, there is need for specific intent. It is not enough to say that accused persons supplied toxic gas; the supply will only be considered to be part of the alleged war crime if the gas was supplied with the supplier's specific intention to contribute to the killing of humans in the concentration camps. Otherwise 'to supply material which also had quite legitimate purpose is no war crime'.²⁵⁸ In principle, the court agreed with Defense Counsel noting, specifically that in

(1946), Law Reports of Trials of War Criminals (1949) Volume 1, 93-10; I Marchu *The fundamental concept of crime in international criminal law: a comparative law analysis* (2013)134.

²⁵⁵ See case of Bruno Tesch and Others (Zyklon B Case), UNWCC, Case Number 9, British Military Court (1946), Law Reports of Trials of War Criminals (1949) Volume 1, 94; See ME Badar *The concept of mens rea in international criminal law: the case for a unified approach* (2013)234-52.

²⁵⁶ See *the United States of America v Carl Krauch, et al*, 1168 -72.

²⁵⁷ See above on corporate criminal responsibility.

²⁵⁸ See case of Bruno Tesch and Others (Zyklon B Case), UNWCC, Case Number 9, British Military Court (1946), Law Reports of Trials of War Criminals (1949) Volume 1, 98; J Doria *et al The Legal regime of the International Criminal Court: Essays in Honour of Professor Igor Blishchenko [1930-2000]* (2009)144.



order for the court to convict the accused persons of having committed a war crime, three points must be proved: that people were killed by gas in concentration camps; that the gas was supplied by the accused persons and that the accused persons knew the purpose for which the gas was going to be used.²⁵⁹

Likewise, in the US case of *IG Farben*, the *Trials of War Criminals before the Nuremberg Military Tribunals*, employees of IG Farben – a German multinational corporation of chemical firms – Fritz Gajewski, in his capacity as Director of Agfa-Gevaert NV; Heinrich Hörlein, as the Head of Chemical Research; Christian Schneider, as the Head of Department in charge of nitrogen and gasoline production plant leaders Hans Kühne and Carl Lautenschläger; Wilhelm Rudolf Mann as Head of Pharmaceuticals, August von Knieriem, as Chief Counsel and Head of the legal department; intelligent plant police officers Heinrich Gattinea and Erich von der Heyde - were charged along with others of conspiracy to commit war crimes and crimes against humanity through participation by providing Zyklon B, the poison gas that was used at the extermination camps. The accused persons were acquitted as the tribunal concluded that they reasonably believed that the gas they were providing was being used for lawful purposes.²⁶⁰

An important issue can also be noted from these cases; even provision of lawful material may constitute a war crime if the material is provided with full or substantive knowledge that it is going to be used for unlawful purposes.²⁶¹

5.6.8 Case study: Use of weapons and corporate responsibility

Complicated issues of extra-territorial application of human rights and competence of courts in terms of jurisdiction always arise when foreign nationals are involved. To give a

²⁵⁹ See case of Bruno Tesch and Others (Zyklon B Case), UNWCC, Case Number 9, British Military Court (1946), Law Reports of Trials of War Criminals (1949) Volume 1, 101; See ME Badar *The concept of mens rea in international criminal law: the case for a unified approach* (2013)234-52.

²⁶⁰ See the case of *The United States of America v Carl Krauch, et al*, 1168 -72.

²⁶¹ See the case of *The United States of America v Carl Krauch, et al*, 1168 -72; Bruno Tesch and Others (Zyklon B Case), UNWCC, Case Number 9, British Military Court (1946), Law Reports of Trials of War Criminals (1949) Volume 1, 93-104.



hypothetical case: A fictitious company called RoboAWS is registered in country A and is involved in the production of AWS. RoboAWS has branches operating in country B and C. It sells its products to country D which in turn uses the AWS against citizens of country E in the territory of country E. Relatives of victims who are killed unlawfully by AWS in country E are residing in country B and they bring a civil lawsuit against RoboAWS in the supreme court of country B claiming that RoboAWS aided and abetted country D by providing it with malfunctioning AWS.

Although of different facts, the above situation is similar to the *Kiobel case* that was brought to the US Supreme Court in 2013.²⁶² In this case, petitioners were a group of Nigerian nationals residing in the US. They filed a law suit in the US Federal Court against certain Dutch, British and Nigerian corporations. None of the corporations are registered in the US. The petitioners sued under the *Alien Tort Statute 28 U.S.C 1350* (ATS) alleging that the corporations aided and abetted the Nigerian Government by enlisting it to violently suppress demonstrations by the Ogoni people who felt their environment was being polluted by the activities of the corporations.

To that end, petitioners alleged that corporations helped in the commission of extra-judicial killings, crimes against humanity, torture and cruel treatment, arbitrary arrests and detention only to mention a serious few.²⁶³ In relation to jurisdiction of the US courts in such matters, the ATS provides that 'the district courts shall have original jurisdiction of any civil action by an alien for a tort committed in violation of the law of nations or a treaty of the United States'.²⁶⁴ The legal question in this case was 'whether and under what circumstances' the US courts may recognise 'a cause of action under ATS for violations of the law of nations occurring within the territory of a sovereign

²⁶² See *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013). For a detailed analysis of this case from the view of weapons responsibility of corporations, see RG Steinhardt 'Weapons and the human rights responsibilities of multinational corporations' in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)533 -41.

²⁶³ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 1.

²⁶⁴ See the United States Alien Tort Statute 28 U.S.C 1350



other than the US';²⁶⁵ and consequently, whether the petitioners' law suit can be entertained in the US courts.

The court held that corporations can be held liable for human rights violations, and cannot be 'harboured' when they have committed serious human rights violations.²⁶⁶ It also noted that there are certain serious crimes of international concern that obligate states to prosecute or remedy victims of such crimes.²⁶⁷ Such victims include of piracy, genocide, crimes against humanity.²⁶⁸ To such crimes, the presumption against extraterritoriality is inapplicable because whoever commits such crimes becomes 'enemy of mankind'.²⁶⁹ However, the court found that the presumption against extraterritoriality was applicable in the present case.²⁷⁰ It reasoned that there was no clear indication of extraterritorial application of the ATS in the petitioners' case since all the relevant conduct took place outside the borders of the US.²⁷¹ Consequently, the petitioners were denied relief in the US courts.²⁷² This was notwithstanding the fact that the concerned corporations were listed on the US stock exchange and had Offices in New York.

In arriving at that decision, the US Supreme Court reasoned that extraterritorial application will only be allowed where claims 'touch and concern the territory of the US with sufficient force to displace the presumption'.²⁷³ The court further stated that since

²⁶⁵ See <http://www.internationallawobserver.eu/2013/04/18/the-us-supreme-court-decides-kiobel-denies-extraterritoriality-for-the-ats/?session-id=67d7533a494f702f31c230a26fb3c8fe> (accessed 21 January 2015).

²⁶⁶ Breyer J, Concurring judgement, *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 8, 10.

²⁶⁷ Breyer J, Concurring judgement, *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 9.

²⁶⁸ Breyer J, Concurring judgement, *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 6.

²⁶⁹ Breyer J, Concurring judgement, *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 8.

²⁷⁰ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)5.

²⁷¹ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)14.

²⁷² *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)14.

²⁷³ Breyer J, Concurring judgement, *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)1. Examples of such issues are spelt out in the ATS and include piracy, which in the court's view is



both petitioners and respondents²⁷⁴ are aliens and remotely associated to the US, the ‘sufficient attachment’ test was not satisfied,²⁷⁵ and as a result the presumption against extraterritorial application must be respected as it is important because it avoids clashes between not only the judiciary and policy makers but also other sovereigns;²⁷⁶ that entertaining the petitioners and applying ATS ‘extraterritorially’ would lead to a situation where US citizens would be ‘hale(d) before foreign jurisdictions’;²⁷⁷ that the US, after all, is neither a ‘uniquely hospitable forum for the enforcement of international norms’ nor the ‘*custos morum* of the whole world’²⁷⁸; and that allowing the court to entertain the case would lead the court into an arena of decision - making where it has no right, clearly violating the separation of powers doctrine.²⁷⁹

Ralph Steinhardt, and in view of the idea of holding corporations responsible for weapons they manufacture, criticises the US Supreme Court’s interpretation of the ATS, and that such precedent may not be in the interest of victims in the future.²⁸⁰ He however notes that the ATS ‘offers a normatively and logistically superior approach to assuring that corporations are accountable for their role in weapons-related violations of international human rights law’.²⁸¹

Now that AWS are a product of various companies with operations likely to be carried out across borders, it is foreseeable that some of the above challenges may be faced by victims who will attempt to file civil lawsuits against corporations. As such, states may not proceed to develop AWS on the basis that if things go wrong and individual criminal

fair game since pirates have been, from time immemorial, considered enemies of humanity – see US Supreme Court *Kiobel et al* judgment p.10.

²⁷⁴ The concerned corporations were however, on the US stock exchange and had Offices in New York.

²⁷⁵ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)14.

²⁷⁶ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 4, 5.

²⁷⁷ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)13.

²⁷⁸ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013)12.

²⁷⁹ *Kiobel v Royal Dutch Petroleum Company* 133 US Supreme Court 1659 (2013) 5.

²⁸⁰ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)509-10.

²⁸¹ RG Steinhardt ‘Weapons and the human rights responsibilities of multinational corporations’ in S Casey-Maslen (ed) *Weapons under international human rights law* (2014)509-10.



liability is impossible; victims can rely on civil lawsuits. In any event, very few victims will be able to afford such legal processes.

5.7 State Responsibility and AWS

Another facet of accountability over the actions of AWS is through state responsibility for violations committed by AWS. In terms of international law, there are three ways by which the state will assume responsibility over the actions of AWS on the battlefield or wherever they are used:

- i. Where a state agent deploys – be it lawfully, unlawfully or extra-legally – AWS which end up violating protected rights. This is so because the conduct of a state’s organs or agents is attributable to the state.²⁸²
- ii. Where, with the authorisation, ‘acquiescence, complicity or acknowledgment of state agents’ a non-state actor deploys an Autonomous Weapon System which violates protected rights.²⁸³
- iii. Where a private party – like corporations in the production of AWS – without attribution to the state is involved in the production of AWS not up to standard which in the end violate certain protected rights.

Needless to say, for item i) and ii), the state is liable and has a duty to give effect to the rights of victims by providing reparations.²⁸⁴ The general rule to provide reparations whenever a state is responsible was well enunciated in the *Chorzow Factory case* which held that as a principle of international law, whenever there is a violation by the state,

²⁸² See Draft Articles on Responsibility of States, Article 4.

²⁸³ See Draft Articles on Responsibility of States, Articles 5, 8, and 11.

²⁸⁴ See Draft Articles on Responsibility of States, Article 31; Rule 150 of the ICRC Study of Customary International Humanitarian Law (2005); Article 3 of the 1907 Hague Convention IV; Article 91 of Additional Protocol I to the Geneva Conventions; Article 2(3) of the ICCPR.



‘reparation is the indispensable complement of a failure to apply a convention’.²⁸⁵ This rule is also applicable to international humanitarian law violations.²⁸⁶

Of course in terms of state responsibility, reparations were understood to be applicable between two countries, where one state would pay reparations to another state.²⁸⁷

There is, however, an acknowledgment among states of ‘the right of individuals to seek reparations directly from a state’.²⁸⁸ In any event, the Draft Articles on the Responsibility of States for International Wrongful Acts declare that its provisions are ‘without prejudice to any right, arising from the international responsibility of a state, which may accrue directly to any person or entity other than a state’.²⁸⁹

With regard to violations by private parties, the state still has a duty to take diligent steps to protect its citizens from actions of private parties²⁹⁰ and as such should investigate and prosecute private parties like corporations and rebel groups.²⁹¹

There are two main reasons why the state should accept primary responsibility for AWS used by non-state actors and provide reparation to the victims. Firstly and as referred to above, the state has failed in its duty to protect the rights of persons within its jurisdiction whose rights were abused by the non-state actor.²⁹² Secondly, in line with principles of fairness and non-discrimination, a state must not ‘discriminate against one

²⁸⁵ See the Case Concerning the Factory at Chorzów (*Germany v Poland*) Judgment, (1927) Permanent Court of International Justice.

²⁸⁶ See Article 91 of Additional Protocol I to the Geneva Conventions; Article 3 of the 1907 Hague Convention IV; Rule 149 of the ICRC Customary International Humanitarian Law Study (2005).

²⁸⁷ Geneva Academy on International Humanitarian Law ‘Autonomous Weapon Systems under international law’ (2014) 8 *Academy Brief* 23.

²⁸⁸ Geneva Academy on International Humanitarian Law ‘Autonomous Weapon Systems under international law’ (2014) 8 *Academy Brief* 23.

²⁸⁹ Article 33(2) of the Draft Articles.

²⁹⁰ General Comment Number 31, CCPR/C/21/Rev.1 Add. 13, para 8.

²⁹¹ MS Soluman *The international Criminal Court and rebel groups* (2012)5; See also A Seibert-Fohr *Prosecuting serious human rights violations* (2009) 34, 36.

²⁹² This is a duty that has been well-developed within the inter-American human rights system, for example. See the seminal decision in the Velasquez-Rodriguez case by the Inter-American Court of Human Rights, Series C, No. 4, 29 July, 1988, paragraph 172.



set of victims because their rights were abused by a non-state actor'.²⁹³ Fairness and non-discrimination when dealing with victims is extremely important especially in post war scenarios where the state needs to achieve reconciliation amongst different groups. Thus, if the international community is going to insist on the development of AWS and their deployment, states assume the risk of bearing responsibility in cases where this technology ends up in the hands of irresponsible non-state actors.

If a case ends up in international criminal tribunals, victims can access reparations for violations perpetrated against them by non-state actors. This is because most international criminal tribunals or courts, the ICC, for example, have a victim's fund.²⁹⁴ Where a leader of a rebel group is indicted by the ICC, victims who are admitted to participate in the proceedings have access to reparations irrespective of the fact that the violation was committed by a non-state actor.²⁹⁵

Commentators have also noted that AWS may affect the notion of state responsibility because Autonomous Weapon Systems and other unmanned systems can be deployed in non-attributable ways.²⁹⁶ This may see states using force against each other in ways that are difficult to pin point the source of the armed attack. Furthermore, because of the unpredictability of AWS in certain circumstances, commentators have argued that some 'states may be tempted to plead force *majeure* in order to evade international responsibility for an armed robot's unforeseen 'decision', for example, to attack civilians'.²⁹⁷

²⁹³ Baldo S & Magarrell L 'Reparation and the Darfur peace process: Ensuring victims' rights' *International Center for Transitional Justice* (2007) 13.

²⁹⁴ Article 75 and 79 of Rome Statute.

²⁹⁵ See generally 'Questions and Answers: The Victims Trust Fund of the ICC' Available at <http://www.iccnw.org/documents/FS-VTFC-FAQ.pdf> (Accessed 15 May 2014).

²⁹⁶ A/68/30532, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013, para 14.

²⁹⁷ N Melzer 'Human Rights Implications of the Usage of Drones and Unmanned Robots in Warfare' (2013) *European Parliament Directorate-General for External Policies* 39 available at http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/410220/EXPO-DROI_ET%282013%29410220_EN.pdf (accessed 23 December 2014).



5.8 Conclusions

The challenges that are posed by AWS as far as accountability of violations is concerned must be taken seriously. This is so because accountability is the crux of international law - without accountability, we may as well forget about it. Not only does accountability counter impunity, it is the basis on which victims of international crime, violations of international human rights and humanitarian law realise their right to a remedy.

Where a victim's right is violated, he or she must be able to find a remedy through state responsibility, individual and command responsibility, civil and criminal responsibility of corporations. All these forms of responsibility are complementary to each other, each being important in its own right and therefore not alternatives to the exclusion of the other.²⁹⁸ AWS – those with full autonomy or high levels of autonomy to the extent of no 'Meaningful Human Control' after deployment – create accountability gaps in terms of individual criminal responsibility of weapon users.

As was discussed in this chapter, that accountability gap can only be dealt with by making sure that humans maintain a 'Meaningful Human Control' over AWS even after deployment. AWS must be developed in a way that they remain mere weapons in the hands of warriors. The potential accountability gap as far as individual criminal responsibility is concerned cannot be dealt with by splitting responsibility between the user of the weapon and other individuals who are involved in the production of AWS such as manufacturers, programmers and roboticists. These actors have their own individual responsibilities.

²⁹⁸ See A Bianchi 'State responsibility and criminal liability of individuals' in A Cassese (eds) *The Oxford Companion to International Criminal Justice* (2009)16, 18. Bianchi, for example reiterates that 'state responsibility and individual criminal responsibility are considered as distinct in international law.'p.16, 18. See also the case of *Bosnia and Herzegovina v Serbia and Montenegro* (2007) *Case concerning the Application of the Convention on the Prevention and Punishment of the Crime of Genocide* 173.



The notion of command responsibility is inapplicable to the relationship between a human and a machine or robot. AWS are not human subordinates – command responsibility is only applicable in the relationship between a *human commander* and his or her *human subordinate*. The relationship between AWS and the person deploying it must remain that of a *weapon* and a *warrior*. Referring to the person deploying an Autonomous Weapon System as the ‘commander’ may thus be misleading. To that end, command responsibility only remains applicable to the extent that the human commander is responsible for the actions of the human subordinate deploying the AWS if he/she knew or ought to have known that the human subordinate was programming or deploying an Autonomous Weapon System in a way that would violate international law and failed to prevent, stop the human subordinate or punish him or her after the fact.

Other forms of accountability such as civil and criminal liability of corporations are important. However, in the case of AWS, they present various challenges to the victim who chooses to pursue such legal remedies. To this end, prosecution – at the instance of the state or international community – of the individual persons who commit crimes through AWS remains an integral and indispensable part of accountability.



Chapter 6: The Martens Clause and AWS

6. Introduction

Until a more complete code of the laws of war is issued, the High Contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and from the requirements of the public conscience.¹

Whenever an issue is not covered by treaty law, customary law, general principles of international law or where there are uncertainties with regard to the legality of certain conduct or weapons, international lawyers have not been slow to invoke the Martens Clause – a Clause which, in the history of international law is some kind of a treaty in miniature, acting as a safety net or fall-back treaty whenever written law seems to fail humankind.² AWS present a number of challenges, most of which seem to be out of the purview of the current international law which has led some commentators to invoke the Martens Clause and its elements of public conscience and elementary principles of humanity as a possible solution.³ However, other scholars have expressed different views on the relevance of the Martens Clause to the AWS debate,⁴ arguing in particular, that the Clause ‘is a failsafe mechanism meant to address lacunae in the law’ and ‘not an overarching principle’ demanding consideration in every case especially in the

¹ The original text of the Martens Clause.

² See D Thürer *International humanitarian law: theory, practice, context* (2011) 400; A Orford *International law and its others* (2006) 283; HV Condä *A handbook of international human rights terminology* (2004) 157; RM Alley *Internal conflict and the international community: wars without end?* (2004) 119; L Maresca & S Maslen *The banning of anti-personnel landmines: the legal contribution of the International Committee of the Red Cross 1955–1999* (2000)13; H Haug *et al Humanity for all: the International Red Cross and Red Crescent Movement* (1993) 499.

³ See Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)35-36; TD Evans ‘Note at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 697; MS Riza *killing without heart: limits on robotic warfare in an age of persistent conflict* (2013).

⁴ See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)13 noting the different positions of scholars.



present debate where there is ‘a rich fabric of treaty law [that] governs the legality of weapon systems’.⁵

In the previous chapters, I have noted that bright lines are difficult to draw as far as the legality of AWS is concerned and various international law norms have been developed with the idea of humans being the bearers of weapons, not machines. Particularly in Chapter 2, I noted that AWS may not be weapons in the strict sense of the word leading to the question whether or not they should be reviewed in terms of Article 36 of Additional Protocol I to the Geneva Conventions. In Chapters 3 and 4, I noted that AWS present unique challenges to International Humanitarian Law and Human Rights Law respectively – challenges that have led some scholars to question the adequacy of these regimes in regulating this emerging technology. In Chapter 5, I observed the novelty of accountability challenges that are posed by AWS for example, in relation to international criminal law concepts of command responsibility that was founded and developed strictly with the relationship of a *human commander* and *human subordinate* not *human commander* and *robot*. In this chapter, I seek to ascertain the relevance of the Martens Clause and its elementary principles of humanity and dictates of public conscience in the AWS debate and whether the Clause can help in mapping an appropriate response to AWS.

In summary, in this chapter I note that there are various diverging views on how the Martens Clause should be interpreted.⁶ After examining the status of the Clause in international law and how it ought to be interpreted, I argue that the Martens Clause is relevant to the AWS debate; just as it was relevant in the debates on the regulation of other weapons like Anti-personnel mines.

⁵ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 32.

⁶ R Ticehurst ‘The Martens Clause and the laws of armed conflict’ (1997) 317 *International Law Review of the Red Cross* 126.



Furthermore, I also consider the difficult question about what is meant by humanity and public conscience and how one can measure it in as far as AWS are concerned.⁷ Although I observe that the elements of the Martens Clause, in particular dictates of public conscience and elementary principles of humanity are not cast in stone in international law, I argue that working definitions can be derived from other norms of international law and other disciplines such as socio-political sciences. This is where I note that the debate on AWS is multifaceted with commentators referring to ethics and moral arguments which seem to be grounded in other disciplines other than law. I contend that the arguments can find place in the Martens Clause⁸ and that the referred multi-disciplinary approach is welcome, as was observed in the 28th International Conference in 2003 that the nature of today's military technology needs a 'rigorous and multidisciplinary review'.⁹ I conclude that a proper understanding and interpretation of public conscience and humanity as contained in the Martens Clause and fleshed out from other disciplines cannot be reconciled with AWS with full autonomy or those without 'Meaningful Human Control'.

6.1 Relevance of the Martens Clause to the AWS debate

There are basically two schools of thought as far as the relevance of the Martens Clause to the AWS debate is concerned – those who insist on its relevance and those who argue that it is not. These different positions can be explained in terms of how one interprets the Martens Clause.

⁷ See MA Hansen 'Preventing the emasculation of warfare: halting the expansion of human rights law into armed conflict' (2007) *Military Law Review* 19-20 stating that there is no single meaning of public conscience.

⁸ See for example the Report of the ICRC Expert Meeting on 'Autonomous weapon systems: technical, military, legal and humanitarian aspects' (2014) noting that 'the Martens Clause embodies a moral framework whereby in the absence of a necessity to kill, lethal force should not be used even against lawful targets.' – at 16.

⁹ See Final Goal 2.5 of the Agenda for Humanitarian Action adopted by the 28th International Conference of the Red Cross and Red Crescent (2003). The Conference includes all states parties to the Geneva Conventions – all states are part to the Geneva Conventions; see also K Lawand 'Reviewing the Legality of new weapons, means and methods of warfare' (2006)88 *International Review of the Red Cross* 929; ICRC 'A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977' (2006)88 *International Review of the Red Cross* 935.



To those who view it as part of the sources of international law, the Martens Clause is relevant to the AWS debate whether or not treaty law is adequate to regulate this new technology.¹⁰ On the other hand, for those who interpret the Martens Clause to be a ‘failsafe mechanism’ that is only invoked when the law is inadequate, the relevance of the Clause is dependent on the adequacy of treaty law and customary law to regulate AWS.¹¹

6.1.1 Arguments supporting the relevance of the Martens Clause to the AWS debate

In 2012, Human Rights Watch expressly stated the relevance of the Martens Clause in the AWS debate.¹² It noted in the 2012 report on AWS that when states conduct legal review of AWS, they must take into consideration the Martens Clause.¹³ Human Rights Watch states that in terms of the Martens Clause, ‘even if a means of war does not violate an existing treaty or customary law, it can still be found unlawful if it contravenes the principles of humanity or the dictates of public conscience’.¹⁴ This implies that Human Rights Watch interprets the Martens Clause to be a source of international law in its own right and may be used to outlaw AWS in the absence of any codified treaty.¹⁵ For that reason, whether or not treaty law is adequate to regulate AWS, the Clause is relevant. The interpretation by Human Rights Watch is in line with that of the ICRC which observes as follows:

¹⁰ See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)13 noting that the presenters and participants who participated in the meeting ‘expressed different views regarding the relevance of the Martens Clause to legal reviews of new weapons. Some were of the opinion that States were under an obligation to assess whether a new weapon complies with the principles of humanity and the dictates of public conscience. Others were of the view that the Martens Clause is not a criterion in its own right; rather, it operates as a reminder that even if new technologies are not covered by particular treaty law, other international norms nevertheless apply to them.’

¹¹ See MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 32.

¹² Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)24.

¹³ Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)25.

¹⁴ Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)26.

¹⁵ See TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 723.



A weapon which is not covered by existing rules of international humanitarian law would be considered contrary to the Martens clause if it is determined *per se* to contravene the principles of humanity or the dictates of public conscience.¹⁶

In terms of public conscience as enshrined in the Martens Clause, Human Rights Watch states that ‘there is certainly a large number for whom the idea [of AWS] is shocking and unacceptable’.¹⁷ It emphasises that ‘both experts and laypeople have expressed a range of strong opinions’ against the idea of machines being given the ‘power of life and death over human beings’.¹⁸ The report of Human Rights Watch thus concludes that ‘fully autonomous weapons would likely contravene the Martens Clause, which prohibits weapons that run counter to the dictates of public conscience’.¹⁹

Even roboticist Ronald Arkin who is in support of certain AWS has noted that the majority of people surveyed are against Autonomous Weapon Systems that do not have ‘Meaningful Human Control’.²⁰ Arkin specifically notes that:

People are clearly concerned about the potential use of lethal autonomous robots. Despite the perceived ability to save soldiers’ lives, there is clear concern for collateral damage, in particular civilian loss of life.²¹

There is a number of scholars who have invoked issues of public conscience and humanity without specifically referring to the Martens Clause. Arguments on how AWS will offend public conscience are more than often linked with the right to dignity as was discussed in Chapter 4. To that end, Marie Jacobson, has noted that ‘the prohibitions

¹⁶ ICRC Guide to the legal review of new weapons, means and methods of warfare: measures to implement Article 36 of Additional Protocol I of 1977 (2006)945.

¹⁷ Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)35; See also D Saxon *International humanitarian law and the changing technology of war* (2013)96-8.

¹⁸ Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)35; See also Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ (2014)13; D Saxon *International humanitarian law and the changing technology of war* (2013)96-8.

¹⁹ Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)4; See also D Saxon *International humanitarian law and the changing technology of war* (2013)96-8.

²⁰ See R Arkin *Governing lethal behavior in autonomous robots* (2009) 49, 52, 53 and 55; See also D Saxon *International humanitarian law and the changing technology of war* (2013)96-8.

²¹ R Arkin *Governing lethal behavior in autonomous robots* (2009) 55.



and restrictions [on weapons] are nothing but a reflection of the laws of humanity and the dictates of public conscience'.²²

Austin Fagothey has since long observed that the law is of no value unless and until each person has the ability to consider his or her conscience when applying the law to the practical scenarios that he or she finds himself or herself.²³ Conscience and humanity gives each individual the ability to see the important nexus between the individual act and the law – where there is no law, to question whether they would want to be treated in the same manner they are treating others.²⁴ Thus it has been questioned whether humans, as a matter of humanity and conscience – are willing to see fellow humans lose their life at the hands of a robot and if such death is meaningful in anyway.²⁵

In support of the Human Rights Watch's observations, a number of scholars have argued, and convincingly so, that there may be a public revulsion against machines with power over life and death.²⁶ As analysed in detail in Chapter 2, not only is it that deprivation of the right to life by AWS may constitute an arbitrary deprivation; it may also be inhuman and degrading.²⁷ Heyns thus notes that 'taking humans out of the loop risks taking humanity out of the loop'.²⁸ Such a result is not in line with the Martens Clause that requires humanity to be always the governing factor of any military conduct or weapon.²⁹ It has been argued – much in support of the precedence of principles of

²² M Jacobson 'Modern weaponry and warfare: The application of article 36 of Additional Protocol I by governments' in AM Helm (ed) *The law of war in the 21st century: weaponry and the use of force International law studies* (2006) 184.

²³ A Fagothey *Right and Reason: Ethics in Theory and Practice* (2000)207.

²⁴ A Fagothey *Right and Reason: Ethics in Theory and Practice* (2000)207.

²⁵ P Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14.

²⁶ Human Rights Watch 'Losing humanity: the case against killer robots' (2012)40; See also C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

²⁷ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, paras 85,90, 112; See also P Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 15.

²⁸ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 16 para 89.

²⁹ See E Biglieri & G Prati *Encyclopaedia of public international law* (2014)446; H Kinsella *The image before*



humanity – that if death at the instance of a robot offends public conscience and humanity, then ‘no other consideration can justify deployment of [AWS] no matter the level of technical competence at which they operate’.³⁰

Strawser has observed that giving machines the power to decide issues of life and death is against public conscience because doing so shows that ‘human persons fail to satisfy reflexive duties to respect their own rationality, autonomy or dignity, they fail to take responsibility for their own actions’.³¹ Strawser argues that human dignity is not only violated in the case of the victim, even the person using Autonomous Weapon Systems ‘fails to express his own dignity’ by resorting to means of warfare that offend elementary principles of humanity, that each individual is worth respect and before their life is taken, a human being, not a machine, must do deliberative reasoning – something that a machine cannot do.³²

In the same light, Sparrow has argues that giving AWS ‘the power to kill seems a bit too much like setting a mousetrap for human beings³³; to do so would be to treat our enemies like vermin’- something that cannot be reconciled with elementary principles of humanity and public conscience.³⁴ AWS with the power to kill without human

the weapon: a critical history of the distinction between combatant and civilian (2011).

³⁰ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013p 17 para 93.

³¹ J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 237.

³² J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.

³³ The mouse trap example is also given by AM Johnson. He considers that ‘a mouse can be caught in a mouse-trap, but a human must be treated with more dignity. A mouse-trap kills targets with certain characteristics based on certain behavior, i.e. anything of sufficient mass eating or at least touching the bait. The trigger is designed to attack based on the mouse-trap’s perception of the target and its actions. The complexity of the trigger is not what we are concerned with – a mouse can be killed by a machine, as it has no inherent dignity. A robot is in a way like a high tech mouse-trap, it is not a soldier with concerns about human dignity or military honor. Therefore a human should not be killed by a machine as it would be a violation of our inherent dignity.’ See AM Johnson ‘The morality of autonomous robots’ (2013) 134 *Journal of Military Ethics* 134.

³⁴ R Sparrow ‘Robotic weapons and the future of war’ in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011) 11.



supervision have thus been viewed as ‘some kind of mechanized pesticide’ – contrary to principles of humanity.³⁵

Again, in the name of public conscience, commentators argue that a riskless war, where one party has the power to injure without risk is immoral and may not sync well with the dictates of public conscience.³⁶ One commentator has observed that it is ‘the way [AWS] enable warlike actions to occur but without the traditional costs associated with them’ that may offend the spirit of the Martens Clause.³⁷ Along the same lines, Khan, with Asaro disagreeing,³⁸ invokes the concept of public conscience when he points out that even in a just war the use of AWS may still be considered to be immoral because in an armed conflict, members of the parties to the conflict are licensed by law to hurt or kill the other as long as they are fighting.³⁹ The perceived basis of such a license is that they are acting in self-defense *a propos* to the other.⁴⁰ According to Khan, there is a moral side to this formulation which creates and imposes a reciprocal moral duty not to injure the ‘morally innocent’ – that is – those who are not directly participating in hostilities.⁴¹

Now that AWS take asymmetry to its worst form, it upsets the ‘reciprocal imposition of risk’, the very core of the moral basis for refraining from targeting the ‘morally

³⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 18 para 95.

³⁶ PW Khan ‘The paradox of riskless warfare’ (2002)326 *Faculty Scholarship Series 4* available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

³⁷ D Garcia ‘Future arms: what international law? (2014) 4 Paper Presented to the Cornell University Law School, Internal law and International Relations Colloquium available at <http://www.lawschool.cornell.edu/cornell-IL-IR/upload/New-Technologies-Intl-Law-Denise-Garcia-4.pdf> (accessed 24 January 2015).

³⁸ P Asaro ‘How Just Could a Robot War Be?’ in P Brey et al (eds) *Current issues in computing and philosophy* (2008) 9.

³⁹ PW Khan ‘The Paradox of Riskless Warfare’ (2002) 326 *Faculty Scholarship 2*. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴⁰ PW Khan ‘The Paradox of Riskless Warfare’ (2002) 326 *Faculty Scholarship 2*. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴¹ PW Khan ‘The Paradox of Riskless Warfare’ (2002) 326 *Faculty Scholarship 2*. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).



innocent'.⁴² To that end, Khan argues that where there is no mutual risk to the belligerences considered to be at war, then that in fact is no war but a replica of the law enforcement paradigm⁴³, a situation where a state's national army – albeit not being an international police – takes out those perceived to be 'morally guilty' across the globe without them having a chance to defend themselves.⁴⁴ Such a scenario, argues Khan, 'propels us well beyond the ethics of warfare'.⁴⁵ In most cases, if something is unethical and immoral, it is against our conscience.⁴⁶

Since AWS take asymmetric warfare to its extreme, an extremity that erodes the fundamental value of moral distinction between combatants and non-combatants,⁴⁷ it is considered to be against the spirit of the Martens Clause. In addition, Khan considers that AWS may threaten humanity since the kind of asymmetry created by the technology 'compels innovation by the disadvantaged side' like resort to terrorism and deliberate attacks on the civilian population.⁴⁸

Thus while some scholars have expressly stated the relevance of the Martens Clause to the AWS debate – some arguing that it is an independent source of law and some

⁴² PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 2. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴³ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 2. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴⁴ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 2. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴⁵ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 3. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014). However, there are other arguments which seem to suggest that AWS are in line with the spirit and purpose of the Martens Clause. These arguments resonate from the sentiments that AWS will save the lives of soldiers and have the potential to save the lives of civilians too. Where a state has the capacity to develop weapons that can save the lives of its own soldiers, refraining from developing and deploying such weapons may offend public conscience of that particular country. In the same way, it is considered to be against the principles of elementary humanity not to use weapons that can spare the lives of civilians in armed conflict.

⁴⁶ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 3. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴⁷ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 6. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

⁴⁸ PW Khan 'The Paradox of Riskless Warfare' (2002) 326 *Faculty Scholarship* 7. Available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014); See also C Heyns Report on lethal autonomous robots to the Human Rights Council (2013) A/HRC/23/47 p 16 para 87.



arguing that it should be taken into consideration especially in view of this new technology that presents unique challenges to the existing laws – others have simply invoked the principles of humanity and public conscience when backing their moral and ethical arguments against AWS.

6.1.2 Arguments stating that the Martens Clause is irrelevant to the AWS debate

Nevertheless, as noted above, there are some commentators who argue that the Martens Clause is irrelevant to the AWS debate. There are three kinds of arguments that are made in this regard: those who say that there are adequate laws to govern AWS therefore the Martens Clause is irrelevant; those who argue that the Martens Clause is too vague to be of any value to the AWS debate; and those who acknowledge the importance of the Martens Clause but all the same advocate for the limitation of its relevance to AWS for one reason or the other.

M.N. Schmitt argues that treaty law and custom is sufficient to establish the legality of AWS and regulate their use. He particularly notes that there is ‘a rich fabric of treaty law [that] governs the legality of weapon systems’.⁴⁹ Although Marco Sassoli does not address the issue of the relevance of the Martens Clause to the AWS debate, he supports Schmitt’s argument on the adequacy of the law in regulating AWS when he categorically states the following:

I reject the idea that IHL is inadequate to regulate autonomous weapons because they would be situated somewhere between weapon systems and combatants, and further reject the suggestion that a new category with new rules should be created to regulate them.⁵⁰

⁴⁹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 32.

⁵⁰ M Sassòli ‘Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified’ (2014)90 *International Law Studies /Naval War College* 323. Sassoli was in particular responding to the conclusion made by Hin-Yan Liu that IHL is inadequate to deal with the aspect of AWS in H Liu ‘Categorization and legality of autonomous and remote weapons systems’ (2012) 94 *International Review of the Red Cross* 629.



M.N. Schmitt goes on to argue that the Martens Clause is understood to be a ‘failsafe mechanism meant to address lacunae in the law’, it is not ‘an overarching principle’ demanding consideration in every case especially in the present debate on AWS where the law is adequate.⁵¹ For that reason, he considers it irrelevant or not of much importance to the AWS debate.

Along the same lines, Tyler Evans forcefully rejects the interpretation of the Martens Clause by Human Rights Watch and the ICRC contending that interpreting the Martens Clause as a standalone source of law is too broad an interpretation that is mischievously designed to ‘empower NGOs to command the pre-emptive prohibition of AWS merely upon a showing of inhumanity or widespread public outcry, without relying upon the traditional principles of international humanitarian law’.⁵² He reasons that states must resist such an interpretation since it ‘incentivizes the dissemination of sensationalist, fear-mongering rhetoric aimed at persuading the public, impressionable states or NGOs that the challenged weapons are abhorrent and must be banned before they exist’.⁵³

Evans further argues that even if the Martens Clause were to be accepted as an independent source of international law, its element of public conscience is too vague for a source of law:

What public? and Whose conscience? If these dictates are merely a matter of public opinion, then the Clause would be overly vague and prone to endless fluctuations. If the public disagrees over what is conscionable, how will a judiciary decide? Perhaps more importantly, how will states know what practices are prohibited as result of the dictates of public conscience? Even if the

⁵¹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’ (2013) *Harvard National Security Journal* 32; M Sassòli ‘Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified’ (2014)90 *International Law Studies /Naval War College* 323.

⁵² TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 727.

⁵³ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 727.



Martens Clause withstands attacks to its vague nature, AWS should not be banned on the tenuous predictions of NGOs or foreboding themes of science fiction.⁵⁴

To that end, Evans argues for the limitation of the relevance of the Martens Clause in the AWS debate. He openly states that if the Martens Clause is narrowly construed, AWS will not ‘face much, if any, threat of being pre-emptively prohibited’.⁵⁵ To that end, he urges all the ‘states seeking to protect their interests in autonomous weapons [to] object fiercely to interpretations of the Martens Clause that purport to enlarge the principles of humanity and the dictates of the public conscience’.⁵⁶ If one thing is clear from Evans’ arguments, what takes precedence in his opinion are the interests of the states – whether or not those interests will adversely affect humanity is a secondary issue.

6.2 Interpretation of the Martens Clause

From the foregoing, it is clear that the manner in which one interprets the Martens Clause is of fundamental importance to the AWS debate. As has been observed by one commentator:

The interpretation of the Martens Clause, and the weight afforded to the principles of humanity and the dictates of the public conscience, will determine how the Clause can impact—or prevent—the development or use of AWS in armed conflicts.⁵⁷

The Martens Clause is named after a Russian Professor, Professor Frederick de Martens. During The Hague negotiations in 1899 where states sought to adopt some parts of the 1874 Brussels Declaration relating to belligerent occupation, there was a deadlock between the major powers and small powers on the way forward. After parties to the

⁵⁴ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 731-32.

⁵⁵ See TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 725-6.

⁵⁶ See TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 725-6.

⁵⁷ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 723.



negotiations failed to reach a solid conclusion, Frederick de Martens suggested a clause that had to serve as a ‘place holder’ until an agreement is reached. The clause became known as the Martens Clause.

The original text of the Martens Clause reads as follows:

Until a more complete code of the laws of war is issued, the High Contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and from the requirements of the public conscience.

Notwithstanding that many states and commentators agree that the Martens Clause is important, there have been and still are diverging views on how it should be interpreted. As a result, Antonio Cassese has categorised the Martens clause as one of the contemporary legal myths – on one hand being famous for its importance in international law and on the other being notorious for nebulosity.⁵⁸

There are four important perspectives on how the Martens Clause may be interpreted or how its value may be understood: the Martens Clause is a safety net applicable where the law is inadequate; the Martens Clause is an interpretive guide for the existing laws; the Martens Clause is supplementary to the existing laws; and the Martens Clause is an independent source of law.

6.2.1 The Martens Clause is a mere safety net where international law is inadequate

As I have already noted above, Schmitt’s is one of the scholars who interpret the Martens Clause as a ‘failsafe mechanism meant to address lacunae in the law’ and applicable *only* where treaty and customary law is inadequate.⁵⁹ Michel Veuthey also

⁵⁸ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 187.

⁵⁹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: a reply to the critics’



considers the Martens Clause to be a 'safety net' that guarantees 'the survival and fundamental dignity of humankind' where written law does not cover certain situations.⁶⁰

Some commentators believe that it was with the same aim of avoiding any legal gap, that the Martens Clause was inserted in the four Geneva Conventions of 1949.⁶¹ The Geneva Conventions provide that states shall 'remain bound by the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity and the dictates of the public conscience'.⁶² To that end, the relevance of the Martens Clause is understood to be only where the law is not sufficient.

Thus, while Theodor Meron observes the importance of the Martens Clause by noting that unlike in the Geneva Conventions where the Martens Clause is in the denunciation section, in the Additional Protocols of 1977 to the Geneva Conventions of 1949, it was intentionally moved to the text in recognition of its importance, he supports the idea that the Clause is only a safety net.⁶³

However, in commentary to the denunciation provisions of the Geneva Conventions, the ICRC has noted that even when states make denunciations, the obligations as enunciated by these treaties⁶⁴, and not withstanding any 'developments in types of

(2013) *Harvard National Security Journal* 32; M Sassòli 'Autonomous weapons and international humanitarian law: Advantages, open technical questions and legal issues to be clarified' (2014)90 *International Law Studies /Naval War College* 323.

⁶⁰ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 609 ; See also C Greenwood 'Historical development and legal basis' (1995) in D Fleck (ed) *Handbook of international humanitarian law in armed conflict* 129; F Kalshoven *Constraints on the waging of war* (1991) 14; T Meron 'The Martins Clause, principles of humanity, and dictates of public conscience.' (2000) 94 *American Journal of International Law* 79.

⁶¹ Article 63 of Geneva Convention I; Article 62 of Geneva Convention II; Article 142 of GC III and Article 158 of Geneva Convention IV.

⁶² Article 63 of Geneva Convention I; Article 62 of Geneva Convention II; Article 142 of GC III and Article 158 of Geneva Convention IV.

⁶³ T Meron 'The Martins Clause, principles of humanity, and dictates of public conscience.' (2000) 94 *American Journal of International Law* 80.

⁶⁴ ICRC Commentary to the First 1949 Geneva Convention, 413.



situations or technology⁶⁵, states remain bound by the universal conscience and practice of nations.⁶⁶

The Martens Clause also appears in many treaties relating to weapons law and the wording in those treaties suggests the Clause as a safety net. For example, the 1976 UN Convention on Certain Conventional Weapons' preamble provides that for cases outside the Convention, civilians are still protected by the principles 'of international law derived from established custom, from the principles of humanity and from the dictates of public conscience'.⁶⁷

Thus according to Meron, Schmitt and other scholars, the Martens Clause is limited to cases where there is no treaty law or customary law. However, when discussing the contemporary laws of targeting, Ian Henderson contends that there is 'no limitation on the operation of the Martens Clause' – it is not a case where it applies only when the law is inadequate.⁶⁸

6.2.2 The Martens clause as an interpretive guide – the narrow interpretation

There are some commentators who view the Martens Clause as a guideline when interpreting existing laws especially when it is not clear how it should be interpreted.⁶⁹ For example, in their 2014 book, Anja Mihr and Mark Gibney categorically state that the

⁶⁵ ICRC Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949, at 39.

⁶⁶ ICRC Commentary to the First 1949 Geneva Convention, 413; See also G Abi-Saab 'The specificities of humanitarian law' (1984) in C Awinarski (ed) *Studies and essays on international humanitarian law and the Red Cross principles* 275.

⁶⁷ The 1976 UN Convention on Certain Conventional Weapons.

⁶⁸ See I Henderson *The contemporary law of targeting* (2009)29.

⁶⁹ See HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)147; N Arajärvi *The changing nature of customary international law: methods of interpreting the concept of custom in international criminal tribunals* (2014)85; See also A Orakhelashvili *Research handbook on the theory and history of international law* (2011) noting that the Martens Clause's reference to 'the laws of humanity and public conscience act as a pseudo-positive conduit for the introduction of all kinds of considerations about how that particular regime should operate.' – at 221 in footnote 149.



Martens Clause is ‘an interpretive device for funnelling customary human rights rules into the body of IHL’.⁷⁰

Likewise, in the Inter-American Court of Human Rights case of *Barrios Altos v Peru*, Judge President Antônio Cançado Trindade noted that the Martens Clause ‘exerts an important role in the interpretation of humanitarian norms’.⁷¹ In the same light, Peter Asaro notes that humanity and morality as enshrined in the Martens Clause underlie the law and its expressions. In the least, the law aims to express shared norms which serves as the basis of legitimacy of such laws - the reason why when interpreting the law, humanity should be taken into consideration.⁷²

Thus, when interpreting human rights or humanitarian law treaties for example, it is the interpretation that is in line with principles of humanity and public conscience that should be accepted.⁷³ It is a presumption that drafters of treaties could not have intended to violate elementary principles of humanity for example. In this sense, the Martens Clause also serves to counter *contracio arguments* – the suggestion that none proscription of certain conduct in treaties does not necessarily mean that conduct is permissible.⁷⁴ In her statement in the *Nuclear Weapons case*, Australia, specifically

⁷⁰ A Mihr & M Gibney *The SAGE handbook of human rights* (2014)98.

⁷¹ *Barrios Altos v Peru* IACHR (14 March 2001) para 24; See also AAC Trindade *The construction of a humanized international law: a collection of individual opinions 1991-2013* (2014)320.

⁷² PM Asaro ‘*Jus nascendi, robotic weapons and the Martens Clause*’ (2015) *Forthcoming* 3-4.

⁷³ HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)147; See also N Arajärvi *The changing nature of customary international law: methods of interpreting the concept of custom in international criminal tribunals* (2014)85; S Bashi & K Mann *Disengaged occupiers: the legal status of Gaza* (2007) noting that ‘the Martens Clause establishes an interpretive presumption in favour of applying the protections of humanitarian law’ – at 143; R Kolb & R Hyde *An Introduction to the international law of armed conflicts* (2008) stating that ‘the Martens clause serves as a basis for interpreting the LOAC in a humanitarian sense.’ – at 63; H Kinsella *The image before the weapon: a critical history of the distinction between combatant and civilian* (2011) discussing the Martens Clause and the 1949 Geneva Conventions and noting that the Clause has been used to interpret other laws.

⁷⁴ See G Schwarzenberger *The legality of new weapons* (1958) 10 -11; E Spetzler *Air war and humanity: The international legal position of civil persons in the air war* (1956) 129 -131; See also paragraph 11 of the Diplomatic Conference on the reaffirmation and development of international law applicable to armed conflicts, Official Records, Document CDDH/I/SR.3, (1978); PM Asaro ‘*Jus nascendi, robotic weapons and the Martens Clause*’ (2015) *Forthcoming* 5.



noted that the Martens Clause helps to emphasise the fact that absence of proscription of certain conduct in a specific treaty does not mean the conduct is consistent with IHL.⁷⁵

In the same light, the US also interpreted the Martens Clause as ‘recognition of the continued validity of customary rules that have not been altered by treaty’.⁷⁶ Abi-Saab has also noted that the Clause is there to make sure that the customary law status of matters that are not included in treaties are not undermined.⁷⁷

As far as these different forms of interpretation of the Martens Clause are concerned, H.M. Hensel considers the interpretation of the Martens Clause as affirming customary international law as the one that is widely accepted.⁷⁸ Likewise, Evans views this as the acceptable narrow interpretation of the Martens Clause leading to a conclusion that in the absence of treaty and customary law, weapons may not be outlawed on the basis of the Clause alone.⁷⁹

However, in his recent book on International Humanitarian Law, Andrew Clapham notes that the narrow interpretation of international humanitarian law treaties and rules reeks of ‘residual rule of state freedom’, something that was only acceptable in the first or ‘state-centred phase of international law’ interpretation between 1899 and 1949.⁸⁰ From 1949 onwards, Clapham notes that there has been a change from narrow interpretation to broad interpretation of International Humanitarian Law treaties as

⁷⁵ See Australian Statement in the Nuclear Weapons Case, *Australia Law Book of International Law* (1996) pp. 692-3.

⁷⁶ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience.’ (2000) 94 *American Journal of International Law* 86; See also MB Carnahan *Customary rules of international humanitarian law* (1997) Report on the Practice of the United States 6-2.

⁷⁷ G Abi-Saab ‘The specificities of humanitarian law’ (1984) in C Awinarski (ed) *Studies and essays on international humanitarian law and the Red Cross principles* 265, 274.

⁷⁸ HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)150.

⁷⁹ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 724.

⁸⁰ A Clapham *et al The oxford handbook of international law in armed conflict* (2014) 79.



influenced by the ‘active rule of humanity’ enshrined in the Martens Clause – ‘the polar star of the new layer of the law [being] the humanitarian protection of war victims’.⁸¹

6.2.3 The Martens Clause as supplementary to existing sources of law – the moderate interpretation

When discussing the new approaches that are followed in the protection of the environment, Rosemary Rayfuse has noted the complimentary nature of the Martens Clause.⁸² The Martens Clause is viewed as a supplement to the existing laws on a particular subject. The first port of call in the regulation of a particular conduct would be on treaty law and customary law – the Martens Clause is only considered as an additional bolster. To that end, Evans notes that this is a moderate view on the interpretation of the Martens Clause where ‘the principles of humanity and dictates of public conscience are supplemental to sources of international law’.⁸³

In the above sense, the Martens Clause is viewed as a strengthening aid in this regard on the basis that the modern form of International Humanitarian Law for example, is argued to have sprung and developed from the Martens Clause.⁸⁴ Thus, an individual considering the rules of IHL would refer to the Martens Clause as an aid that ‘concisely states in essence the whole motivation behind IHL and indeed all laws with the primary intention of securing the rule of law, justice and humanity’.⁸⁵

In the same light of the Martens Clause being supplementary to existing laws, other scholars have observed that the Martens Clause has an attenuating function on the requirements of customary international law for example. The attenuating function of

⁸¹ A Clapham *et al* *The oxford handbook of international law in armed conflict* (2014) 80.

⁸² R Rayfuse *War and the environment: new approaches to protecting the environment in relation to armed conflict* (2014)73; See also CJ Tams & J Sloan *The development of international law by the International Court of Justice* (2013) noting that the Martens Clause has not been used by the ICJ as an independent source of law but rather an ‘additional support’ for the existing laws. – at 285.

⁸³ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 724.

⁸⁴ See the Foreword by Lord Wright in *Law Reports of Trials of War Criminals*, Volume XV.

⁸⁵ Lord Wright, *The Law Reports of Trials of War Criminals, United Nations War Crimes Commission* (1949)15 at xiii.



the Martens Clause on customary law is understood 'to modify the weight attached to state practice in the two-element theory of customary international law...an attenuating effect [meant for] enlarging the possibility of the identification of customary law even when constant practice is hard to demonstrate'.⁸⁶ In this regard, the Martens Clause aids the existing law by reducing some of the hardships that may be met in proving existence of that law.

The above mentioned attenuating effect of the Martens Clause was for example relied upon in the case of *Prosecutor v Kupreskic* where the court was dealing with the issue of reprisals against the civilian population.⁸⁷ In terms of Article 51(6) of Additional Protocol I, reprisals against the civilian population are prohibited. Although reprisals against the civilian population are prohibited in terms of customary international law, the court considered the question whether state practice can be demonstrated in this regard. In the end it noted as follows:

Admittedly, there does not seem to have emerged recently a body of state practice consistently supporting the proposition that one of the elements of custom, namely *usus* or *diuturnitas* has taken shape. This is however an area where *opinio iuris sive necessitatis* may play a much greater role than *usus*, as a result of the aforementioned Martens Clause. *In the light of the way States and courts have implemented it, this Clause clearly shows that principles of international humanitarian law may emerge through a customary process under the pressure of the demands of humanity or the dictates of public conscience, even where state practice is scant or inconsistent. The other element, in the form of opinio necessitatis, crystallising as a result of the imperatives of humanity or public conscience, may turn out to be the decisive element heralding the emergence of a general rule or principle of humanitarian law.*⁸⁸ (My emphasis)

Thus in as much as the court noted the existence of customary law, it could not, however, pinpoint or demonstrate state practice. To aid the customary nature of the rule prohibiting reprisals against civilians, the court thus referred to the Martens Clause.

⁸⁶ HM Hensel *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2013)147.

⁸⁷ *Prosecutor v Kupreskic* Case No.: IT-95-16-T (2000) para 527.

⁸⁸ *Prosecutor v Kupreskic* Case No.: IT-95-16-T (2000) p 207 para 527.



Likewise, in the *Military and Paramilitary Activities in and Against Nicaragua case*, the Martens Clause was mentioned in place of state practice.⁸⁹ However, like under the narrow interpretation of the Martens Clause, Evans argues that under this moderate interpretation of the Martens Clause as a supplement to existing laws, ‘the Clause could influence or strengthen a determination that a non-existent weapon violates LOAC [Laws of Armed Conflict], but the Clause alone would not be sufficient to prohibit it’.⁹⁰

6.2.4 The Martens Clause as an independent source of law – the broad interpretation

Under the broad interpretation, the Martens Clause is viewed to have extended the sources of international law in particular international humanitarian law – with humanity and the dictates of public conscience being the new sources.⁹¹ Thus, contrary to the consideration of public conscience and elementary principles of humanity being taken as a moral issue and non-binding upon states, some commentators have argued that if viewed from the perspective of the Martens Clause, humanity and dictates of public conscience may not only be a moral issue but an issue of positive law.⁹²

Mariëlle Matthee, Brigit Toebes and Marcel Brus are among scholars who clearly refer to dictates of public conscience and elementary principles of humanity as clear standalone sources of International Humanitarian Law. In their recent book, they state as follows:

The Martens Clause is basically to international humanitarian law what Article 38 of the ICJ Statute is to international law as a whole...The Martens Clause enumerates more specifically the sources of international humanitarian law and underlines that as a matter of law, one should not

⁸⁹ *Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v US)* ICJ (1986) para 218.

⁹⁰ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 724.

⁹¹ BVA Roling *International law in expanded word* (1960) 37 -38; See also PM Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 5.

⁹² A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 188.



only look for rules of international humanitarian law in treaties and customary international law but also in its principles that apply as a matter of law.⁹³

In discussing the challenges of asymmetric warfare, William Banks notes that the broadest interpretation of the Martens Clause is that the legality of conduct and weapons is not only determined in terms of treaty law and customary international law, but also in terms of principles that are espoused in the Martens Clause.⁹⁴ This implies recognising the Martens Clause as an independent source of law.⁹⁵

Likewise, Sonja Grover, while considering the question whether or not the use of ‘unoccupied civilian schools for military purposes’ violates international law, notes that if the law is not explicit on the issue, ‘the Martens Clause appears to be quite relevant to [establish] the legality or illegality’ thereof.⁹⁶ The implication here again is that the Martens Clause is an independent source of law upon which the legality or illegality of conduct or a weapon can be determined.

In the same vein, when discussing the law of occupation and how international humanitarian law and human rights influence each other, Yutaka Arai considers the Martens Clause as an independent source of law as he demands that the Clause must be ‘conceptualised as a general principle of IHL’.⁹⁷ The potential problem with this approach is that for it to be part of general principles of international law there is need for consent of states. However, citing the dissenting opinion of Judge Tanaka in the *South West African case*⁹⁸, Arai argues that since principles of humanity as enshrined in

⁹³ M Matthee *et al* *Armed conflict and international law: in search of the human face: Liber Amicorum in Memory of Avril McDonald* (2013)20.

⁹⁴ WC Banks *New battlefields/old laws: critical debates on asymmetric warfare* (2013)204. See also TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 724.

⁹⁵ See A Balitzki *The Martens Clause: Origin of new source of international law* (2009) available at <http://www.grin.com/en/e-book/133806/the-martens-clause> (accessed 26 January 2015).

⁹⁶ SC Grover *Schoolchildren as propaganda tools in the war on terror: violating the rights of Afghani children under international law* (2011)195-200 at 197.

⁹⁷ Y Arai *The law of occupation: continuity and change of international humanitarian law, and its interaction with international human rights law* (2009)658-9.

⁹⁸ *South West Africa* (1966), Dissenting Opinion of Judge Tanaka, available at <http://www.icj->



the Martens Clause fit in the realm of human rights which are part of *jus cogens*, there is no state consent needed to recognise it as such in terms of Article 38(1) (c) of the ICJ Statute.⁹⁹

In the *Nuclear Weapons case*, Judge Shahabuddeen stated that the Martens Clause is 'self-sufficient and conclusive authority that there [is] already in existence principles of international law under which considerations of humanity [as enshrined in the Martens Clause] can themselves exert legal force to govern military conduct'.¹⁰⁰ On his part, in recognising and emphasising the Martens Clause as an independent source of law, in the Inter-American Court of Human Rights case of *Barrios Altos v Peru*, Judge President Antônio Cançado Trindade noted as follows:

The fact that the draftsmen of the Conventions of 1899, 1907 and 1949, and of Protocol I of 1977, have reiteratedly asserted the elements of the Martens clause, *places this latter at the level of the material sources themselves of International Humanitarian Law*. Thus, it exerts a continuing influence in the spontaneous formation of the content of new rules of International Humanitarian Law. *Contemporary juridical doctrine has also characterized the Martens clause as a source of general international law itself; and no one would dare today to deny that the 'laws of humanity' and the 'dictates of public conscience' invoked by the Martens clause belong to the domain of jus cogens.*¹⁰¹ (My emphasis).

Cassese, however, is among the scholars who refute the fact that the Martens Clause is an independent source of law. He argues that neither Martens himself nor the drafters who were present at the Hague negotiations had the intention to make the Martens Clause a source of international law. He refers to the drafting history of the Martens Clause which reveals that the Clause was only for the purpose of 'solving a diplomatic problem' – the strong disagreement during the Hague negotiations in 1899.¹⁰² Thus,

[cij.org/docket/index.php?p1=3&p2=3&k=f2&case=47&code=Isa&p3=4](http://www.icj.org/docket/index.php?p1=3&p2=3&k=f2&case=47&code=Isa&p3=4) (accessed 26 January 2015).

⁹⁹ Y Arai *The law of occupation: continuity and change of international humanitarian law, and its interaction with international human rights law* (2009)658-9.

¹⁰⁰ *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, ICJ Reports 1996*, 408.

¹⁰¹ *Barrios Altos v Peru* IACHR (14 March 2001) para 25; See also AAC Trindade *The construction of a humanized international law: a collection of individual opinions 1991-2013* (2014)320.

¹⁰² A Cassese 'The Martens Clause: Half a loaf or simply pie in the sky?' (2000) *European Journal of*



when it was first introduced in IHL, the Martens Clause was viewed by many ‘as a diplomatic gimmick’ meant to do away with the tie ‘between conservative and progressive’ negotiators.¹⁰³

To the same effect, in her statement in the *Nuclear Weapons* case, the United Kingdom noted that in the absence of a specific treaty provision, the Martens Clause cannot, on its own accord establish illegality of a particular weapon.¹⁰⁴ Theodor Meron also adds that the Martens Clause’s reference to ‘principles of humanity and dictates of public conscience cannot, alone, delegitimise weapons and methods of war, especially in contested cases’.¹⁰⁵

Furthermore, as was observed by some commentators in the *Nuclear Weapons* case¹⁰⁶, despite the appealing contents of the Martens Clause, it is loosely worded, ambiguous and evasive for it to be an independent source of law.¹⁰⁷ The United States Department of Army has also stated that the Martens Clause uses too broad and ambiguous phrases such that attempting to rely on them is ‘in reality reliance upon moral law and public opinion’.¹⁰⁸ In this regard, Cassese wonders whether Professor Martens intentionally or unwittingly crafted the Clause with such evasiveness. In the end, he concludes that it was Martens’ ‘diplomatic skill, his humanitarian leanings and his lack of legal rigour which brought such felicitous result’.¹⁰⁹

International Law 193 – 202.

¹⁰³ A Cassese ‘The Martens Clause: half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 187–216.

¹⁰⁴ See paragraph 32 of the Statement of the United Kingdom in the *Nuclear Weapons* Case, *British Year Book of International Law* (1995).

¹⁰⁵ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 86.

¹⁰⁶ See the submissions of states in the *Nuclear Weapons* case available at <http://www.icj-cij.org/docket/index.php?p1=3&p2=4&k=e1&case=93&code=anw&p3=1> (accessed 11 February 2015).

¹⁰⁷ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 188.

¹⁰⁸ See United States Department of Army, *International Law* 15 (No. 27-161-2-1962).

¹⁰⁹ A Cassese ‘The Martens Clause: Half a Loaf or Simply Pie in the Sky?’ (2000) *European Journal of International Law* 189.



As noted above, Evans argues that the broad or expansive interpretation of the Martens Clause is an attempt by NGOs ‘to expand their own influence and law making authority’ while diminishing ‘the power of states to control their own means and methods of combat’.¹¹⁰ If allowed, Evans argues, the ‘expansive interpretation of the Martens Clause’ will pose ‘the greatest threat to AWS’ since it is ‘uniquely poised to prohibit AWS before the technology is developed or fielded in combat’.¹¹¹

For the above reason, Evans urges states not to allow NGOs ‘to build castles of sand’ by acquiescence to the proposed expansive interpretation but to ‘object fiercely to interpretations of the Martens Clause that purport to enlarge the principles of humanity and the dictates of public conscience’ as independent sources of law.¹¹² If AWS will be prohibited on the basis of the Martens Clause, Evans considers such a prohibition to be ‘unprecedented’ in the history of weapons law.¹¹³ He thus urges states to:

- i) Refuse to sign or participate in the formation of treaties that enlarge the scope of the Clause;
- ii) Domestically interpret the Clause narrowly in official documents, directives, and judicial decisions;
- iii) Directly speak out against enlarging interpretations of the Clause; and
- iv) Forge agreements or treaties with other states that adopt the Narrow or Moderate View.¹¹⁴

¹¹⁰ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 725. Evans forgets to note that in terms of international humanitarian law, the ‘means and methods of warfare are not unlimited.’

¹¹¹ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 725-6.

¹¹² TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 725.

¹¹³ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 731.

¹¹⁴ TD Evans ‘Note, at war with the robots: autonomous weapon systems and the Martens Clause’ (2014) 41 *Hofstra Law Review* 726.



It appears that Evans seems to ignore the general international rule of combat – ‘the means and methods of war fare are not unlimited’.¹¹⁵ Furthermore, he seems to take the position that the interests and reasons of states take precedence even against protected human rights. Such is not a correct position in international law.¹¹⁶ It is not surprising that whenever the issue of humanity is invoked, there is always a misdirection that it is a term that is associated with NGOs and humanitarian organisations who are sceptically viewed as attempting to ‘expand their powers’ as Evans argues. However, I note and emphasise that ‘humanity is a cosmopolitan or universal ethic and humanitarian responsibility extends to all parties involved in war and with war’, it is not an NGO thing, it is ‘the great truth which humanitarianism seeks to proclaim and practice as a universal principle’.¹¹⁷

6.2.5 What to make of these different interpretations?

Now that all these different interpretations of the Martens Clause have been noted, the question becomes what one should make out of them in the AWS debate. The issue is not that one view or interpretation of the Martens Clause must win it all. Without doubt, some of the above interpretations and perceptions on the Martens Clause have been followed in case law, espoused in human rights treaty bodies¹¹⁸ and military manuals of some states.¹¹⁹

¹¹⁵ Article 22 of the 1907 Hague Regulations Respecting the Laws and Customs of War on Land; Article 35(1) of Additional Protocol I.

¹¹⁶ See *Barrios Altos v Peru* IACHR (14 March 2001) para 24-25; See also AAC Trindade *The construction of a humanized international law: a collection of individual opinions 1991-2013* (2014)320.

¹¹⁷ H Slim ‘Sharing a universal ethic: The principle of humanity in war’ (1998) *International Journal of Human Rights* 28, 32 available at <http://www.tandfonline.com/doi/pdf/10.1080/13642989808406759> (accessed 2 February 2015).

¹¹⁸ See for example the *Altstotter case*, 6 Law Reports of Trials of War Criminals, 40, 58-59, United Nations War Crimes Commission, 1948, U.S. Military Tribunal 1947; *In re Krupp and Others*, 15 Ann. Dig. 620, 622, US Military Tribunal 1948.

¹¹⁹ See paragraph 6 the United States Department of Army, *The Law of Land Warfare*, Manual Number 27-10, 1956; United States Department of the Air force, *International law – Conduct of armed conflict and Air-operations 1 – 7(b)*, AFP Number 110 – 31, 1976; Paragraphs 2,3 and 5 of the United Kingdom War Office, *The Law of War on Land, Being Part III of the Military Manual* (1958).



Notwithstanding that the ICJ did not resolve the issue on how it should be interpreted; it noted the significance of the Martens Clause as ‘an effective means of addressing the rapid evolution of military technology’.¹²⁰ To this end, I would start by emphasising that no matter which interpretation of the Martens Clause one would choose, it is relevant to the AWS debate as one of the most sophisticated forms of military technology.

To start with, a sincere consideration of the AWS technology clearly shows that these weapons – that is if they are weapons in the first place – are in a novel category of their own. The argument by Sassoli that the law is adequate to govern AWS is to treat AWS as if they are all the same. AWS come in various degrees and levels of autonomy – with those with high levels of autonomy or full autonomy presenting unresolvable challenges that have been discussed from chapter 2 to 5. Weapons law and humanitarian law only adequately cover situations where a weapon is a mere tool in the hands of the fighter. Where weapons are given the power to make important decisions and legal calculations as to the legitimacy of a target – power that for a long time has been the preserve of human combatants or fighters – then law surely is faced with some uncharted territories.

It is in the above sense that Peter Asaro notes that AWS present many challenges to the ‘existing assumptions and traditional interpretations of the law’ to the extent that new law might be necessary.¹²¹ He notes in particular that the potential of AWS acting as agents or combatants ‘challenges long held assumptions built into the law that only humans can act as agents’.¹²²

In as much as law recognises the responsibilities of non-human entities like corporations as was discussed in Chapter 5, the responsibilities of such non-human entities is only recognised and assumed ‘through the agency of their [human] employees, trustees,

¹²⁰ *Nuclear Weapons Case*, at 257 para 78; See also T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience.’ (2000) 94 *American Journal of International Law* p. 87.

¹²¹ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 1.

¹²² PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 1-2.



officers and executives'. It is to no wonder why in law we have the concept of 'lifting the corporate veil' for the purposes of holding the human responsible for the decisions of a company even if such decisions were taken in official capacity.¹²³ The fact that there are other weapon systems that have features like that of AWS and regulated by the current law does not dislodge the 'scale [of] sophistication and complexity that robotic and autonomous weapon systems appear poised to achieve in the coming years and decades'.¹²⁴ Likewise, Matthew Waxman and Kenneth Anderson note the potential inadequacy of the law in governing AWS when they suggest that in place of an outright ban, existing norms can be *adjusted* to regulate AWS.¹²⁵

In the same vein and in relation to the adequacy of IHL in regulating today's armed conflict, J.C. Boogard argues that because of the nature of armed conflict and contemporary challenges, there are always gaps in treaty law and customary law that govern this field.¹²⁶ In terms of customary law, he observes that gaps 'are caused by the fact that the existence customary international humanitarian law is sometimes hard to prove'.¹²⁷

As noted above, this is where the Martens Clause comes in handy since it can be used, like in the examples of case law stated above, to fill in elements of customary law that are impossible to prove in particular circumstances like state practice.¹²⁸ Thus, assuming that one would take the interpretation by Schmitt that the Martens Clause is only

¹²³ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 2,3.

¹²⁴ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 11.

¹²⁵ K Anderson & MC Waxman 'Law and ethics for autonomous weapon systems: why a ban won't work and how the laws of war can' (2013) 11 *American University Washington College of Law Research Paper* 26 available at <http://ssrn.com/abstract=2250126> (accessed 3 February 2015).

¹²⁶ See JC Boogard 'Fighting by the principles: principles as a source of international humanitarian law' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 10-16.

¹²⁷ JC Boogard 'Fighting by the principles: principles as a source of international humanitarian law' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 13.

¹²⁸ JC Boogard 'Fighting by the principles: principles as a source of international humanitarian law' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 17-20.



relevant when the law is inadequate or not clear, a sincere consideration of the AWS technology shows that this is the perfect case to invoke the Martens Clause.

In relation to the interpretation that says the Martens Clause is only an interpretation guide to existing law, such an approach still makes the Clause relevant and of importance to the AWS debate. Since in this approach the argument is that when interpreting treaty law and customary rules, regard must be to humanitarian principles and dictates of public conscience, the end result is to say that the acceptance or otherwise of AWS depends on the interpretation of rights and norms that are impacted by humanity and principles of public conscience. An example of such rights as articulated above is the right to dignity. Thus, one would ask the question for example: In light of the right to dignity, would one accept AWS in view of public conscience and principles of humanity?

Likewise, in the AWS debate, some commentators have invoked the argument that there is necessarily no treaty prohibiting the development and deployment of AWS. This is where the interpretation of the Martens Clause as an interpretive guide will also become applicable. Under this interpretation as highlighted above, the Martens Clause is to confirm the existence and relevance of customary law – by countering the *contracio arguments* – the suggestion that non-proscription of certain conduct in treaties does not necessarily mean that conduct is permissible.¹²⁹ The Martens Clause counters such an argument since it propounds the idea that ‘what is not prohibited by treaty may not necessarily be lawful’.¹³⁰ Thus in the AWS debate, the Martens Clause

¹²⁹ See G Schwarzenberger *The legality of new weapons* (1958) 10 -11; E Spetzler *Air war and humanity: The international legal position of civil persons in the air war* (1956) 129 -131; See also paragraph 11 of the Diplomatic Conference on the reaffirmation and development of international law applicable to armed conflicts, Official Records, Document CDDH/I/SR.3, (1978).

¹³⁰ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 87.



can ‘serve as a powerful vehicle for governments and NGOs to push the law ever more to reflect human rights concerns’.¹³¹

Even after a scathing criticism of the Martens Clause, Cassese admits that the Martens Clause is an ‘ingenious blend of natural law and positivism’¹³² that ‘has responded to a deeply felt and widespread demand in the international community: that the requirements of humanity and the pressure of public opinion be duly taken into account when regulating conflict’.¹³³ In the present case, it would be a loss if the international community and states ignore the requirements of humanity and dictates of public conscience as far as AWS are concerned.

The question of whether the drafters of the Martens Clause intended it to be an independent source of law may be immaterial. Even Cassese, the one who invokes the argument that the drafters had no such intention, observes as follows:

Here, as in any other path of life, what matters is the overall effect that a legal construct [the Martens Clause] may produce; regardless of the intentions of the author or proponent...it cannot be denied that advances in the world community may sometimes take strange and often mysterious paths. What counts is of course not so much *how* these advances are made, but rather they *be made*, lest this body of law remain encumbered by numerous fetters imposed by the traditional respect of state sovereignty’.¹³⁴

In response to scholars who seek to resist the broad interpretation of the Martens Clause and exclude its applicability to the AWS debate, Peter Asaro notes that it does not matter how one views issues of ‘legal positivism, naturalism and integrity’; without any doubt the law and by extension international law is a ‘human construct’ that is

¹³¹ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 88.

¹³² A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 189.

¹³³ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 212.

¹³⁴ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 216.



intended to codify social values.¹³⁵ In this sense, not only is the Martens Clause the ‘point where social and moral values weigh on IHL – it is in many ways the whole point of IHL’ as it embodies written and unwritten norms, customs and practices of the laws of war.¹³⁶

In any event, and as mentioned above, even if the Martens Clause is not to be taken as an independent source of law, it will serve as an important interpretation guideline when interpreting treaties and customary rules that may be applicable to AWS.¹³⁷ For what it is worth, the Martens Clause points to the fact that in addition to state practices, elementary principles of humanity and dictates of public conscience can be evidence of the existence of certain rules of customary international law.¹³⁸

For the reason that the Martens Clause propagates and advocates for humanity, it would be inhumane to argue that it is not relevant for the sole purpose that AWS be allowed regardless of the threat they may present to humans. If there is a chance that we err, it is better to err on the safe side. To that end, I reiterate that it does not matter which interpretation of the Martens Clause that one chooses – in any event, these interpretations seem to be intertwined and mutually reinforcing – it is relevant to the AWS debate and is of great importance. Furthermore, the impact of the principles of humanity and dictates of public conscience is visible in the historical governance and regulation of weapons and conduct in armed conflict.

6.3 Humanity in International Law

The spirit of humanity gives international law its philosophical foundation.¹³⁹

¹³⁵ PM Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 4.

¹³⁶ PM Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 4.

¹³⁷ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 212.

¹³⁸ A Cassese ‘The Martens Clause: Half a loaf or simply pie in the sky?’ (2000) *European Journal of International Law* 188.

¹³⁹ See Written Statement of the Government of Japan in the Nuclear Weapons case, at p2, available at <http://www.icj-cij.org/docket/files/93/8768.pdf> (accessed 29 January 2015).



For a very long time, lawyers, judges, special rapporteurs and policy makers have attempted to define humanity or principles of humanity. In general, it is difficult to ascertain exactly when and where the concept of humanity originated. However, there seems to be a number of scholars suggesting that it originated with Greek sophists where ‘humanitas’ was equated with the ability of man to reason as ‘mankind’s distinguishing feature’.¹⁴⁰ For example, according to Cicero, the only contrast among humans was not that of Romans and Barbarians but rather of ‘humanity and inhumanity’.¹⁴¹

Trying to ascertain the definition of humanity or what it entails is not an ‘academic pursuit’ – it is important because the term plays an important role in the governance of armed conflict, law enforcement situations or wherever weapons are used.¹⁴² It is in this sense that Robin Coupland has noted that humanity governs the ‘abilities of humans to make and use weapons and, in parallel, to restrain the use thereof’.¹⁴³ From a humanitarian perspective, Robin Coupland observes that one of the defining characteristics ‘of human existence has been the making of, threatening with or use of weapons’.¹⁴⁴ The only determinant factor as to whether use of weapons or threat is going to be humane or inhumane is the exercise of ‘restraint as to how, when and where weapons are used’.¹⁴⁵ If the international community is going to let use of

¹⁴⁰ See JL Blondel ‘The meaning of the word ‘humanitarian’ in relation to the fundamental principles of the Red Cross and Red Crescent (1989)273 *International Review of the Red Cross* 507-515.

¹⁴¹ JL Blondel ‘The meaning of the word ‘humanitarian’ in relation to the fundamental principles of the Red Cross and Red Crescent (1989)273 *International Review of the Red Cross* 507-515.

¹⁴² R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 972.

¹⁴³ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 970.

¹⁴⁴ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 971.

¹⁴⁵ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 971.



weapons or violence ‘slip the leash of restraint’, the results may be catastrophic for humanity.¹⁴⁶

Notwithstanding that its meaning has not been expressly articulated, humanity has been invoked in different branches of international law like International Humanitarian Law, International Human Rights Law and International Criminal Law. There is also a number of international organisations that have expressly stated that the principle of humanity is their operative guideline.

6.3.1 Humanity and International Humanitarian Law

The demand for humanity on the battle field is evident in the history of mankind. For example, it can be found in many practices of ancient states in Africa, China, India and many other regions. The main purpose of most of the rules of the battlefield was to safeguard the survival of a particular group albeit it being viewed or declared an enemy. Fighters were forbidden from engaging in acts that would cause unnecessary suffering as that was considered to be contrary to the elementary principles of humanity.

Most of those ancient rules are incorporated in the current rules of IHL on means and methods of warfare. Amongst these ancient rules, some of the most interesting come from the ancient *Laws of Manu* where for example, use of barbed, poisoned and fire blazing weapons, deliberately attacking those not taking part in hostilities, killing a surrendering fighter or a grievously wounded fighter was prohibited as it was considered to be contrary to the dictates of humanity.¹⁴⁷

In 1864, Henry Dunant after witnessing the horrors of Solferino wrote a book titled *A Memory of Solferino*.¹⁴⁸ In this book he appealed to humanity and public conscience

¹⁴⁶ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 971.

¹⁴⁷ See the Laws of Manu, Rule 90-93 available at <http://www.sacred-texts.com/hin/manu.htm> (accessed 31 December 2014).

¹⁴⁸ See JH Dunant *A Memory of Solferino* (2006).



which resulted in the drafting and adoption of the First Geneva Convention.¹⁴⁹ In the 1905 battle of Tsushima, the Japanese fleet was defeated by the Russian fleet and was left in a terrible shipwreck.¹⁵⁰ It shocked the conscience of humanity to the extent that governments agreed to have another Geneva Convention for those wounded, sick and shipwrecked at sea.¹⁵¹

Likewise, World Wars I and II saw many soldiers behind enemy lines and many were captured and millions suffered ill-treatment at the hands of their captors.¹⁵² Once again, conscience and humanity played a role in the drafting of the Third Geneva Convention on Prisoners of War to address situations like those of prisoners of war in World War I and II. It is not an untold story that civilians suffered the most in World War II that in 1949, another Geneva Convention was specifically drafted to deal with the protection of civilians in armed conflict.¹⁵³

The gruesome deliberate civilian attacks in the Vietnam War and rampant use of indiscriminate conventional weapons shock the conscience of the world community once again.¹⁵⁴ Added to this discourse was the quest for self-determination and wars that are fought for that right. This resulted in the two Additional Protocols to the Geneva Conventions in 1977 and the adoption of the Convention on Certain Conventional Weapons in 1980.

¹⁴⁹ JG Gardam *Non-combatant immunity as a norm of international humanitarian law* (1993)16.

¹⁵⁰ See Out of My Past *Memoirs of Count Kokovtsov* (1935) 550.

¹⁵¹ Geneva Convention III for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea. Geneva, 12 August 1949.

¹⁵² See H Jones *Violence against prisoners of war in the First World War: Britain, France and Germany, 1914-1920* (2011) 29-440.

¹⁵³ See Geneva Convention (IV) relative to the Protection of Civilian Persons in Time of War, Geneva, 12 August 1949.

¹⁵⁴ See G Bogaski *American protestants and the debate over the Vietnam War: Evil was loose in the world* (2014)12.



On account of these clear cut examples of the influence of humanity, a number of scholars note that humanity is the core and basis of international humanitarian law. For example, Matthee has extrapolated and nuanced the foundational basis of the law of armed conflict as follows:

International humanitarian law is built on the recognition of two opposite sides of humanity. On the one hand, the term ‘human’ refers to the sympathetic kindness of members of the human race, for instance the human capacity for compassion, which is reflected in the protective scope of international humanitarian law; the protection of those not directly involved in the armed conflict. On the other hand, it refers to the fragility of the human race, its ‘dark side’ and capacity to destroy.¹⁵⁵

To this end, Mariëlle Matthee has observed that the ‘human face is the special character of international humanitarian law itself’.¹⁵⁶ Many of the treaties and conventions in international humanitarian law are argued to have been influenced or founded on the basis of the principle of humanity as already indicated above. For example, in recognising the importance of the Martens Clause and its principles of humanity and dictates of public conscience, Peter Asaro notes that in as much as it is true that many conventions and treaties codify customary law ‘by putting into writing the norms of behavior already recognised and adopted by states’, in the case of IHL treaties like the Geneva Conventions, ‘written law emerged specifically because the widespread behavior of states ran counter to shared moral sensibilities and collective interests’.¹⁵⁷ Thus here, humanity is seen as influencing the adoption of certain laws even though it was not supported by state practice. To this end, the role of humanity in IHL as far as the making of laws and norms cannot be under-estimated.

¹⁵⁵ M Matthee *et al Armed conflict and international law: in search of the human face: Liber Amicorum in Memory of Avril McDonald* (2013)xvi.

¹⁵⁶ M Matthee *et al Armed conflict and international law: in search of the human face: Liber Amicorum in Memory of Avril McDonald* (2013)xvi.

¹⁵⁷ PM Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 3.



In international humanitarian law treaties, the concept of humanity first appeared late in the 19th century specifically in the 1868 Saint Petersburg Declaration.¹⁵⁸ Robin Coupland notes that it is surprising that states chose to invoke the concept of humanity and include it in the St Petersburg Declaration when its meaning was not ascertained.¹⁵⁹ It was 31 years later that humanity was expressly referred to again in the First Hague Peace Conference in 1899. Thenceforth, almost all the treaties and legal documents relating to the laws of war contained the concept of humanity.¹⁶⁰

J.C. Boogard observes that the rules of International Humanitarian Law ‘aim to preserve a sense of humanity in armed conflict’.¹⁶¹ All other rules of IHL, observes Hanna Brollowski, ‘merely function as means to actualise humanity’.¹⁶²

Before the inclusion of the term humanity in the laws of war, there was always an attempt by belligerents to treat their enemies as less human or ‘outside the human race’.¹⁶³ Even after the emergence of the term humanity in the laws of war and human rights, perpetrators of heinous acts always seek to exclude the perceived enemy from

¹⁵⁸ The declaration stated that states ‘having by common agreement fixed the technical limits at which the necessities of war ought to yield to the requirements of humanity, the undersigned are authorized by the orders of their Governments to declare as follows: Considering that the progress of civilization should have the effect of alleviating as much as possible the calamities of war: That the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy; That for this purpose it is sufficient to disable the greatest possible number of men; That this object would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable; That the employment of such arms would, therefore, be contrary to the laws of humanity; The Contracting Parties engage mutually to renounce, in case of war among themselves, the employment by their military or naval troops of any projectile of a weight below 400 grammes, which is either explosive or charged with fulminating or inflammable substances.’

¹⁵⁹ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 973.

¹⁶⁰ See for example Article 76 of the Lieber Code (1863); Article 3 Common to the Geneva Conventions; Article 12 of Geneva Convention I; Article 12 of Geneva Convention II; Article 13 of Geneva Convention III; Article 27 of Geneva Convention IV; Article 75 (1) of Additional Protocol I; Article 4(1) of Additional Protocol II.

¹⁶¹ JC Boogard ‘Fighting by the principles: principles as a source of international humanitarian law’ in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013)4.

¹⁶² H Brollowski ‘Military robots and the principle of humanity’ in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013)69.

¹⁶³ See C Schmitt *The concept of the political* (2007)54.



the human race for the easiness of committing crimes. In Rwandese genocide for example, certain groups were called names such as *inyenzi* – meaning cockroach or *inzoka* – meaning snake in Kinyarwanda.¹⁶⁴ This was a clear attempt to dehumanise them or remove them from humankind. To this effect, William Schabas observes that ‘the road to genocide in Rwanda was paved with hate speech’ – a clear lack of humanity and dehumanisation of another group.¹⁶⁵ This was also the same case in conflicts that are motivated by racial differences, for example, apartheid in South Africa. Parts of the infamous speech of Botha read as follows:

The fact that, blacks look like human beings and act like human beings do not necessarily make them human beings. Hedgehogs are not porcupines and lizards are not crocodiles because they look alike.¹⁶⁶

Likewise, Jan Joerden observes that after the Holocaust, the notion of human dignity was placed at the beginning of the new ‘German Constitution to underline its importance, especially after the Nazi era during which humanity, both of the individual and of mankind altogether, was completely set aside’.¹⁶⁷ Humanity in this regard, is a concept ‘that excludes the concept of the enemy’; if there is an enemy for example in armed conflict, ‘the enemy does not cease to be a human being’ - thus the need to treat them humanely.¹⁶⁸

It can also be deduced that the regulation of means and methods of warfare is greatly influenced by consideration of humanity. For example, Avril McDonald observes that the law of armed conflict is ‘called international humanitarian law not because it is obvious that humanity should exist in war but because it is not obvious at all to those who fight

¹⁶⁴ L Tirrell ‘Genocidal language games’ (2009)176 available at https://www.academia.edu/905194/Genocidal_Language_Games (accessed 4 February 2015).

¹⁶⁵ W Schabas ‘Hate speech in Rwanda: The road to genocide’ (2000) *McGill Law Journal* 144.

¹⁶⁶ See <http://ireport.cnn.com/docs/DOC-813552> (accessed 4 February 2015).

¹⁶⁷ JC Joerden ‘The promise of human dignity and some of its juridical consequences especially for medical criminal law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)217.

¹⁶⁸ C Schmitt *The concept of the political: expanded edition* (2008)54.



these wars'.¹⁶⁹ Humanity in this sense is there to restrain the 'most barbaric of human activities' during a time when it seems there is a 'natural human tendency to lose all inhibitions when fighting in armed conflict'.¹⁷⁰

For humanitarian reasons, 'international humanitarian law, as most particularly shown in its rules protecting persons *hors de combat*, is a statement of the extent, and limits, of our humanity in war'.¹⁷¹ In summary of the rules that govern the means and methods of warfare as contained in the Martens Clause, one United Nations Special Rapporteur on the situation in Kuwait noted as follows:

- (i) The right of parties to choose the means and methods of warfare is not unlimited, i.e the right of parties to choose the means of injuring the enemy, is not unlimited;
- (ii) A distinction must be made between persons participating in military operations and those belonging to the civilian population to the effect that the latter be spared as much as possible;
- (iii) It is prohibited to launch attacks against the civilian population as such.¹⁷²

Courts have also found violations of International Humanitarian Law on the basis that the conduct in question was inconsistent with the principles of humanity. For example, in the case of *Military and Paramilitary Activities in and against Nicaragua*, the ICJ found that the conduct of the US was contrary to general principles of IHL since they violated 'elementary considerations of humanity'.¹⁷³ The ICJ had earlier noted that considerations of humanity as part of the general principles of international law were

¹⁶⁹ A McDonald 'Hors de combat: post-September 11 challenges to the rules' in HM Hensel (ed) *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2008)244.

¹⁷⁰ A McDonald 'Hors de combat: post-September 11 challenges to the rules' in HM Hensel (ed) *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2008)244.

¹⁷¹ A McDonald 'Hors de combat: post-September 11 challenges to the rules' in HM Hensel (ed) *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2008)248.

¹⁷² E/CN.4/1992/26, Report of the United Nations Special Rapporteur on the situation of human rights in Kuwait under Iraq occupation, Walter Kälin, 1992, para 36.

¹⁷³ *Military and Paramilitary Activities in and against Nicaragua, Nicaragua v United States*, Merits, ICJ Reports (1986) para 218.



not only applicable to conduct of hostilities¹⁷⁴ but even in times of peace.¹⁷⁵ It was for that reason that in 1996 the United Nations Security Council censured the use of excessive force against civilian aircraft observing that the use of certain weapons against civilian aircraft is 'incompatible with the elementary considerations of humanity'.¹⁷⁶

It is in the same vein that Mr. Boutros Boutros-Ghali, the former United Nations Secretary General observed that it does not matter whether it is an international or non-international armed conflict; prohibitions that are in Common Article 3 to the Geneva Conventions resonate from those acts that are contrary to the 'elementary considerations of humanity'.¹⁷⁷

The ability to recognise and respect the human dignity and worth of another person is the basis on which the society and international community can survive. As observed by Thomas Hobbes in the 17th century, such respect must continue even in time of war, governing the way humans conduct themselves and consequently the weapons they use.

Whatsoever therefore is the consequent to a time of war, where every man is enemy to every man [therefore no respect of humanity]...wherein men live without security, than what their own strength, and their own *invention* shall furnish them withal [then]...there is no arts; no letters; no society; and which is worst of all, continual fear, and danger of violent death; and the life of man, solitary, poor, nasty, brutish and short.¹⁷⁸

From the foregoing, the United Nations, courts, commentators and treaty drafters believe in the importance of the principle of humanity in International Humanitarian Law albeit it not being specifically defined. This is the same under International Human Rights Law.

¹⁷⁴ See the *Corfu Channel case, United Kingdom v Albania*, Merits, ICJ Reports (1949).

¹⁷⁵ See the *Corfu Channel case, United Kingdom v Albania*, Merits, ICJ Reports (1949).

¹⁷⁶ Security Council Resolution 1067, para 6, 28 July 1996.

¹⁷⁷ Report of the UN Secretary General, Boutros Boutros-Ghali, UN Doc. S/25704 (1993) para 48.

¹⁷⁸ See T Hobbes *Leviathan* (2010) 56-57.



6.3.2 Humanity and Human Rights Law

Under Human Rights Law, B. Beers has observed that human rights only become meaningful if they are understood from a point of humanity.¹⁷⁹ Peter Asaro has thus linked humanity to the Universal Declaration of Human Rights noting that many conventions on human rights are in essence influenced by the concept of humanity.¹⁸⁰ He notes that the UDHR is underpinned by humanity, a ‘set of moral principles’ and ‘a hybrid of shared beliefs, sentiments, and attempts to derive principles from norms of belief and behavior’ common to all peoples that have been subsequently codified in various human rights treaties and conventions.¹⁸¹ There is a number of human rights treaties that refer to either the principle of humanity or human dignity as part of humanity.¹⁸² Likewise, the United Nations Human Rights Committee has emphasised the importance of the principle of humanity in some of its General Comments.¹⁸³ In General Comment 21 for example, it is categorically stated that:

Treating all persons deprived of their liberty with humanity and with respect for their dignity is a fundamental and universally applicable rule. Consequently, the application of this rule, as a minimum, cannot be dependent on the material resources available in the State party. This rule must be applied without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.¹⁸⁴

Thus in Human Rights Law, it is considered settled practice that ‘the treatment dispensed to human beings, in any circumstances, ought to abide by the principle of humanity which permeates the whole *corpus juris* of the international protection of the

¹⁷⁹ B Beers *et al* *Humanity across international law and biolaw* (2014)177; See also RG Teitel *Humanity’s law* (2011).

¹⁸⁰ PM Asaro ‘*Jus nascendi, robotic weapons and the Martens Clause*’ (2015) *Forthcoming* 5.

¹⁸¹ PM Asaro ‘*Jus nascendi, robotic weapons and the Martens Clause*’ (2015) *Forthcoming* 5.

¹⁸² Article 17(1) of the Convention on the Protection of Migrant Workers; Article 5 of the African Charter on human and Peoples’ Rights; Article 37(b) of the Convention on the Rights of the Child; Article 5 of the American Convention on Human Rights.

¹⁸³ UN Doc. HRI/GEN/1/Rev.1, Human Rights Committee, General Comment 9, Article 10, para 3 stating in part that ‘allowing visits (for those deprived of liberty), in particular by family members, is normally also such a measure which is required for reasons of humanity.’

¹⁸⁴ UN Doc. HRI/GEN/1/Rev.1 at 33, Human Rights Committee, General Comment 21, Article 10, para 4.



rights of the human person'.¹⁸⁵ Nevertheless, just like in the case of International Humanitarian Law, there is no express definition of humanity in the Human Rights Law regime.

6.3.3 Humanity and International Criminal Law

Again, reference to humanity is present in International Criminal Law. The preamble of the Rome Statute states that the international community is 'mindful that during this century millions of children, women and men have been victims of unimaginable atrocities that deeply shock the *conscience of humanity*'.¹⁸⁶ To the same end, courts have considered principles of humanity in adjudication of some cases. In the case of *Furundziya*, the International Criminal Tribunal of the Former Yugoslavia stated that torture is not only contrary to customary international law, but also principles of humanity as enshrined in the Martens Clause.¹⁸⁷ The ICTY also observed that deliberate attacks on the civilian population are contrary to the elementary consideration of humanity as derived from the Martens Clause.¹⁸⁸

It is in the light of the concept of humanity that in international criminal law 'crimes against humanity' were coined.¹⁸⁹ In this term, humanity is considered to be both the humankind and the ideologies and norms of humankind.¹⁹⁰ Thus a person committing crimes against humanity commits acts that shock the human conscience in that they are against the ideologies and universal or generally accepted norms of humankind, thereby offending both the descriptive understanding of humanity as mankind and the normative understanding of humanity as the value that is shared by all human beings.¹⁹¹

¹⁸⁵ R Kolb & G Gaggioli *Research handbook on human rights and humanitarian law* (2013)189.

¹⁸⁶ Pre-amble of the Rome Statute.

¹⁸⁷ See *Prosecutor v Furundziya* (1998) Judgement No. IT-95-17/1-T para 137.

¹⁸⁸ See *Prosecutor v Martić* (1996), Review of the Indictment Pursuant to Rule 61, No. IT-95-11-R61 para 48.

¹⁸⁹ MC Bassiouni *Crimes against humanity: historical evolution and contemporary application* (2011)10.

¹⁹⁰ See C Macleod 'Towards a philosophical account of crimes against humanity' (2010) *European Journal of International Law* 281-302.

¹⁹¹ See C Macleod 'Towards a philosophical account of crimes against humanity' (2010) *European Journal*



In the same vein, in international criminal law, the application of statutory limitations to war crimes is considered to be an affront ‘to world public opinion’ and humanity since it fuels impunity.¹⁹² Likewise, emerging international norms such as the responsibility to protect (RtoP) are premised on humanity and public conscience— where governments, albeit human rights violations not occurring against their own citizens or within their territories, reserve a right and obligation to intervene and protect civilians where the state responsible is either unwilling or unable to protect.¹⁹³

According to Michael Veuthey, humanity involves ‘demanding justice through criminal prosecution before national or international courts’.¹⁹⁴ In other words, it is in line with humanity that where a crime is committed, the perpetrator must be prosecuted and the victim remedied.¹⁹⁵ Now, this point is linked to the argument that AWS may create an accountability vacuum where it may be impossible to hold anyone responsible for a crime committed.¹⁹⁶

6.3.4 NGOs, International Organisations and Humanity

There are many international organisations who consider their work to be humanitarian. Indeed, they see the number one objective of their work being to further and protect humanity. An example of such an organisation is the International Committee of the Red

of International Law 281-302; R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)180, RG Teitel *Humanity’s law* (2011).

¹⁹² Convention on the Non-Applicability of Statutory Limitations to War Crimes and Crimes Against Humanity, 26 November 1968.

¹⁹³ See generally J Pattison *Humanitarian intervention and the responsibility to protect: who should intervene?* (2010); AJ Bellamy *The responsibility to protect: a defence* (2014).

¹⁹⁴ M Veuthey ‘Public conscience in international humanitarian law today’ (2004) in F Horst et al (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 626.

¹⁹⁵ M Veuthey ‘Public conscience in international humanitarian law today’ (2004) in F Horst et al (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 626.

¹⁹⁶ See Geneva Academy of International Humanitarian Law ‘Autonomous weapon systems under international law’ (2014) 8 *Academy Briefing Number 24*.



Cross which has humanity as one of its operating principles. Indeed, humanity is even the *raison d'être* of the ICRC if one considers the history of its foundation.¹⁹⁷

The principle of humanity stands out on its own in the doctrine of the Red Cross, and all the other principles hang from it. It is the fundamental basis of our institution, indicating both its ideal, the reason for its existence and its object. If the Red Cross were to have only one principle, this would be it.¹⁹⁸

Thus in its humanity principle, the ICRC considers that it was 'born of a desire to bring assistance without discrimination to the wounded on the battlefield', 'alleviate human suffering' by protecting lives and the health of those caught in the maelstrom of armed conflict and 'ensure respect for the human being' while promoting 'mutual understanding, friendship, co-operation and lasting peace amongst all peoples'.¹⁹⁹

Notwithstanding that humanity is provided for in International Humanitarian Law, UN law, Human Rights Law, International Criminal Law and founding documents of important international organisations, there is no express definition of what it is. This has prompted some scholars to argue that it is a vague term and as such, the Martens Clause which contains it cannot be relied upon in the AWS debate.²⁰⁰ Nevertheless, the fact that no express definition is provided does not necessarily mean that the term is incapable of meaning.

6.3.5 Definition of humanity

As highlighted above, there is no single definition of the term humanity.²⁰¹ B. Beers notes that an attempt to define humanity is usually characterised by a 'wide-spread tendency to translate particular and provisional moral convictions into universal truths

¹⁹⁷ See H Brollowski 'Military robots and the principle of humanity' in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013)69.

¹⁹⁸ JS Pictet 'Humanity' *International Review of the Red Cross* (1995) 158.

¹⁹⁹ A Durand *The International Committee of the Red Cross* (1981)54.

²⁰⁰ See TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 732.

²⁰¹ R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)181.



and symbols by identifying one's own ways with the ways of humanity as a reified whole'.²⁰² According to Hanna Brollowski, 'to define the concept of humanity is in itself a daunting task'.²⁰³ In general, however, Avril McDonald observes that humanity and international humanitarian law can be said to be summarised in the popular phrase 'do unto others as you would have them do unto you'.²⁰⁴

6.3.6 *Literal definition of humanity*

The ordinary, literal or grammatical definition of humanity should be the first port of call.²⁰⁵ The literal and descriptive meaning of humanity refers to 'humankind, that is, to the group of men and women who form the human race'.²⁰⁶ This literal understanding of humanity as meaning humankind is also present in case law. For example, in the *Nicaragua case*, the court noted that if certain rules of international law are not respected, it will 'lead to disastrous consequences causing untold misery to humanity'.²⁰⁷ In this sense, humanity is humankind. This literal understanding of the term humanity relevant to international law since international law, in the first place, 'is not made for anyone else but for the human race: international law is, in that sense, humanity's law'.²⁰⁸

²⁰² B Beers *et al* *Humanity across international law and biolaw* (2014)177.

²⁰³ H Brollowski 'Military robots and the principle of humanity' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013)68.

²⁰⁴ A McDonald *Hors de combat: post-September 11 challenges to the rules* in HM Hensel (ed) *The legitimate use of military force: the just war tradition and the customary law of armed conflict* (2008)243.

²⁰⁵ H Brollowski 'Military robots and the principle of humanity' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 68.

²⁰⁶ R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers *et al* (eds) *Humanity across international law and biolaw* (2014)180; R Coupland 'Humanity: What is it and how does it influence international law?' (2001) *International Review of the Red Cross* 969.

²⁰⁷ *Military and Paramilitary Activities in and against Nicaragua, Nicaragua v the United States of America* ICJ Reports 1986, pp. 143 and 146, Separate Opinion of President Nagendra Singh.

²⁰⁸ R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers *et al* (eds) *Humanity across international law and biolaw* (2014)180; See also R Teitel *Humanity's Law* (2011).



Literally, humanity is also understood to refer to ‘the character or quality of being humane; behaviour or disposition towards others such as befits a human being’.²⁰⁹ Jean Pictet has thus defined humanity as ‘a sentiment of active goodwill towards mankind’ that encompasses ‘a complex motive in which kindred elements such as kindness, pity, gentleness, generosity, patience, and mercy, are present in varying degrees’.²¹⁰ There is usually a link between these two literal definitions of humanity although it should be noted that ‘human existence is not necessarily associated with humane behaviour of individuals’.²¹¹

6.3.7 Defining humanity as a normative standard

The more important definition of humanity according to Rene Uruena, is to understand it ‘as a normative standard’ that presents a somewhat ‘empty vessel that empowers humanitarian institutions and their expertise’ to have the ‘last word on what humane behaviour really is’ in each particular circumstance.²¹² This is where values that have been long accepted by humankind are of importance in shaping what is meant by humanity.

Thus when trying to find the meaning of what is meant by the term humanity in terms of the laws of armed conflict, it should be understood that ‘humanity is linked to the idea of humane treatment – be it of the ill or the wounded, of non-combatants or of others whose protection is mandated’.²¹³ In this sense, a question on whether certain

²⁰⁹ See R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 972 referring to the dictionary meaning from the *Oxford English Dictionary* (1989).

²¹⁰ JS Pictet ‘Humanity’ (1995) *International Review of the Red Cross* 158, referring to the dictionary meaning.

²¹¹ See R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 972.

²¹² R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)178.

²¹³ R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)180.



conduct is consistent with requirements of humanity is the equivalent of whether your conduct is humane.²¹⁴

From the above understanding, humanity must be viewed as ‘a standard that serves as a yardstick to evaluate a certain conduct’.²¹⁵ In showing the close link between humanity, human dignity and other moral standards or yardsticks that appear to be universal to humankind, Coupland observes that:

Humanity-sentiment, limiting inhumanity, a collective human conscience, respecting human rights, the restraint of armed violence and ...morality are so closely knit within our psychology that they may only bear different names because of the poverty of language.²¹⁶

This view is supported by many scholars who postulate that human rights are born out of human dignity.²¹⁷ In other words, human dignity is the mother of all rights.²¹⁸ Many human rights treaties refer to the right to dignity or the importance of the dignity of the human person.²¹⁹ McCrudden observes that the importance of human dignity when human rights treaties were being negotiated and drafted as that of providing ‘a theoretical basis for the human rights movement in the absence of any other basis for consensus’.²²⁰

To this end, ‘an individual is capable of having rights if and only if his well-being is of ultimate value’.²²¹ According to this view, humanity then is that which is consistent with human dignity.²²² The only problem is that there is not much consensus in what exactly

²¹⁴ R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)180.

²¹⁵ R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in international law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)180.

²¹⁶ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 978.

²¹⁷ N McCormick *Legal right and social democracy: essays in legal and political philosophy* (1982)154.

²¹⁸ A Barak *Human Dignity* (2015)104.

²¹⁹ See for example Article 1 of UDHR; preamble to UN Charter; see also case of *Tyrer v UK* ECHR (1978)2.

²²⁰ C McCrudden ‘Human dignity and judicial interpretation of human rights’ (2008)19 *European Journal of International Law* 655-77.

²²¹ J Raz *The morality of freedom* (1986)166.

²²² R Uruena ‘Deciding what is humane: towards a critical reading of humanity as a normative standard in



human dignity entails irrespective of the fact that many scholars emphasise its importance and it being the basis of other rights.²²³

Nevertheless, the understanding of humanity as a normative standard that incorporates human dignity is that it is not only concerned with the protection of the individual but humankind as a whole. The Constitutional Court of Germany has articulated that 'human dignity means not only the individual dignity of the person but the dignity of man as a species'.²²⁴

The advantage of taking the principle of humanity as a normative standard is that it is not rigid; it 'allows a contextual assessment of situations, and permits flexibility while invoking a certain normative value'.²²⁵ From the view of international law - which is ever changing - it is argued that humanity and dignity must not be given a 'concrete meaning' since that would empower those who seek to interpret it in a negative way that demeans human rights when circumstances change.²²⁶ An example of such an interpretation is where Evans argues that Human Rights Watch missed the point on how to interpret humanity in its 2012 report titled *Losing Humanity: The case against killer robots*.²²⁷ He argues that 'a literally inhuman weapon system may prove to be far more humane than human soldiers could ever be'.²²⁸ Such an argument could be well supported if there was a rigid definition of what constitutes humanity. However, because the concept is flexible, Evans' argument can be attacked from all angles,

international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)184.

²²³ See generally D Kretzmer & E Klein *The concept of human dignity in human rights discourse* (2002).

²²⁴ See R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)188.

²²⁵ See R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)189.

²²⁶ See R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)189.

²²⁷ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 728.

²²⁸ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 728.



starting with the fact that the moment a weapon is termed to be inhuman, and then, the game is over.

As already noted above, Evans' arguments seem to advocate for the strengthening of states' powers to make decisions on the international level through exclusion of the Martens Clause and its humanity principles and dictates of public conscience. Schmitt has observed that in most cases where sovereigns or states invoke the principle of humanity to support their argument, it is not out of sincerity. Thus in his opinion and as far as states are concerned, 'whoever invokes humanity wants to cheat'.²²⁹

In the same vein, Erika de Wet has noted that one of the fundamental roles of humanity, understood as a normative standard, is that it provides 'a constitutional limit' to the powers of states at the global level.²³⁰ Such a constitutional limit is not rigid but flexible depending on the circumstances. With regard to flexibility of humanity and its importance, Uruena observes the following:

When everything fails, when the Security Council or the legal departments of Foreign Offices are entangled in discussions of vetoes, or arcane treaty provisions, the ethical imperative of humanity seems to trump all discussions. Humanity is out there, not in an office in Geneva or New York – but in Colombia, or Sudan, or some other place where the dignity of human beings needs to be protected by the international community as a whole.²³¹

Thus while the literal meaning of humanity is important, when understood as a normative standard, humanity becomes clearer but at the same time flexible. Other commentators have suggested that humanity can be defined in terms of disciplines

²²⁹ C Schmitt *The concept of the political: expanded edition* (2008)54. He notes for example that in the past states have used the principle of humanity to extend their borders while crushing the sovereignty of other states.

²³⁰ E De Wet 'The international constitutional order' (2006) 55 *International and Comparative Law Quarterly* 51.

²³¹ See R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014)189.



other than law. In view of the multi-disciplinary nature of the AWS debate, such an approach is also welcome.

6.3.8 Defining humanity in terms of other disciplines other than law

While Coupland recognises that there is much ambiguity as far as the term humanity is concerned in international law, he notes that in other disciplines such as security studies, health sciences like psychology, the meaning of humanity may be clear cut. To that end, he suggests that to find the meaning of humanity, one may resort to ‘interpreting humanity in terms of security and health’.²³² To justify why humanity must be interpreted in terms of health and security when it comes to weapons, Coupland argues that ‘weapons are the principal means by which personal security is eroded and therefore must be recognized as both security and health issues’.²³³

Humanity arises from and signifies restraining the capacity for armed violence and limiting its effects on security and health...Humanity interpreted in these terms encompasses humanitarianism, morality, development, human rights and human security... Humanity is not solely the domain of ‘humanitarian’ agencies or international lawyers. Other disciplines, especially those based on life sciences, can be brought to bear... humanity is a universal ethic and should be shared between all people involved with the process of going to war.²³⁴

Thus, to determine whether a particular conduct or weapon is inhumane; one may assess it in terms of its impact on security and health. He adds that maintenance of peace and security and protection of health is the ‘lowest common denominator’ that can tell what is humane and what is inhumane.²³⁵

²³² R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 979.

²³³ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 982; See also A Abass *Protecting human security in Africa* (2010)64; MH Kaldor & S Beebe *The ultimate weapon is no weapon: human security and the new rules of war and peace* (2010); M Kaldor *Human security* (2013); D Chandler & N Hynek *Critical perspectives on human security: rethinking emancipation and power in international relations* (2010).

²³⁴ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 988-9.

²³⁵ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International*



Security is the foundation on which all human relations are based. For this reason, the international community has never stopped in its quest to keep at bay all those who are viewed to be a menace to world peace and to keep in check all conduct that may disturb world peace. Establishment of methods such as the Congress System of 1815 and its principle of balance of power, the League of Nations and the current United Nations have all been efforts of humanity to ensure that there is peace and security.

To this end, the question may be asked whether development of AWS is in the interest of security, for example. The debate on AWS is sometimes obscured by an overemphasis of the importance of this kind of technology to states. In this regard, it should be understood that there is a difference between state and individual security as has been observed by Robert Jackson:

We should distinguish between personal security and national security. Personal security is a basic value because it is an essential requirement, or condition, of a successful and fulfilling existence: it liberates people (both physically and mentally) to get on with the business of building their lives without undue fear of those around them. Personal security is our individual insulation from threat, danger, or harm the source of which is always *other people*. It is also peace of mind: liberation from the anxiety and apprehension associated with fear of those who are in a position to harm us.²³⁶

There have been arguments by some commentators that AWS will lower the threshold on the use of force.²³⁷ In this sense, the AWS may be seen to potentially threaten the security of humanity and of course associated health rights. However, this may not be straightforward as it may seem. This is so because weapons can be both a means to erode security and a means to guarantee it.²³⁸

Review of the Red Cross 979, 988.

²³⁶ R Jackson *The global covenant: human conduct in a world of states* (2000) 186.

²³⁷ See P Asaro 'How Just Could a Robot War Be?' in P Brey et al (eds) *Current issues in computing and philosophy* (2008) 7; PW Khan 'The Paradox of Riskless Warfare' (2002)4 Faculty Scholarship Series available at http://digitalcommons.law.yale.edu/fss_papers/326 (accessed 20 January 2014).

²³⁸ R Coupland 'Humanity: What is it and how does it influence international law?' (2001) *International Review of the Red Cross* 980.



In terms of the protection of the right to life, Heyns notes that one of the layers of protection of the right to life is through *jus ad bellum* – the law relating to the use of force which is directly linked to security issues.²³⁹ Along the same lines, Pierre Perrin, a Chief Medical Officer with the ICRC observes the importance of security for the safeguard of both public health and right to dignity as an element of humanity.²⁴⁰ He notes that the right to health, dignity of individuals may only be effectively protected if ‘the security of victims of armed conflict is guaranteed’ since ‘security embraces the sustainable satisfaction of needs and respects basic rights of human beings.’²⁴¹

If it is agreeable that ‘the ultimate goal of humanity, human rights and humanitarian intervention’ is to promote human security and health, then humanity can be interpreted in light of the concepts of security and health.²⁴² Humanity, therefore, is ‘people living together in a state of security and health’.²⁴³ The overall consideration when interpreting and trying to find the definition of humanity is to remember that humanity must be ‘interpreted in terms of people’s security and well-being’.²⁴⁴

Both the literal and normative meaning of the term humanity – i.e. humanity as referring to mankind and humanity as a quality of being humane – play an important role in international law.²⁴⁵ In the end - regardless of the various viewst - as far as the issue of humanity is concerned (no matter how one might feels about it being applied in the AWS debate) ‘we have to live with the fact that international law decided to invest

²³⁹ A/68/30532, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 12 August 2013, para 23.

²⁴⁰ P Perrin War and public health: extending the concept of public health for the victims of armed conflict (1998) available at <http://www.who.int/hac/about/6676.pdf> (accessed 30 January 2015).

²⁴¹ P Perrin War and public health: extending the concept of public health for the victims of armed conflict (1998) available at <http://www.who.int/hac/about/6676.pdf> (accessed 30 January 2015).

²⁴² R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 984.

²⁴³ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 986.

²⁴⁴ R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 971.

²⁴⁵ See H Brollowski ‘Military robots and the principle of humanity’ in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 68.



all its capital in the empty [yet full] vessel of humanity as a normative concept – there is no changing that. Perhaps turning to the good sense of those defining humanity is the only road left'.²⁴⁶ In this sense, humanity remains 'a platform for emancipation and justice' – more fully, in this AWS debate, it should be a guiding star.²⁴⁷

6.4 Public Conscience in International Law

If there are three prime requisites for the rule of law, they are a strong bar, an independent judiciary *and an enlightened public opinion*. There can indeed be no greater indication of decay in the rule of law than a docile bar, a subversive judiciary and *a society with chocked or coarsened conscience*.²⁴⁸

Public conscience has always proved to be vital in championing social and political change. Many leaders who made a mark and shaped the history of mankind appealed to public conscience and used it as a weapon to champion change. Leaders such as Nelson Mandela in his fight against apartheid in South Africa, Victor Hugo against the death penalty, Martin Luther King against slavery and oppression of Afro-Americans in the United States, Harriet Stowe against slavery, François-Marie Arouet Voltaire against torture in France and beyond, all appealed to public conscience to drive the change they desired.

In the same vein, after the holocaust, the United States Holocaust Memorial Council took it upon itself to create the Committee on Conscience whose mandate was 'to alert the national conscience, influence policy makers, and stimulate worldwide action to confront and work to halt acts of genocide or related crimes against humanity'.²⁴⁹

²⁴⁶ See also R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014) 195.

²⁴⁷ See also R Uruena 'Deciding what is humane: towards a critical reading of humanity as a normative standard in international law' in B Beers et al (eds) *Humanity across international law and biolaw* (2014) 195.

²⁴⁸ Justice HR Khanna, former India Supreme Court Judge, 'Rule of law' (1977)2 available at <http://hcraj.nic.in/joc2014/2.pdf> (accessed 4 February 2015).

²⁴⁹ DF Orentlicher 'The law of universal conscience: genocide and crime against humanity' 1 available at



In general, public conscience is considered to have influenced the codification of international humanitarian law.²⁵⁰ In that sense, public conscience precedes treaty law, with some commentators considering it ‘the law before the law’.²⁵¹ Thus, for example, in the 1925 Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, ‘the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids materials or devices, has been justly condemned by the general opinion of the civilized world’.²⁵² This prohibition however, is considered to ‘be universally accepted as a part of international law binding alike the conscience and the practice of nations’.²⁵³ More importantly, public conscience has a role to play in the respect and enforcement of treaty law.

Appealing to conscience to champion a cause has become an important tool worldwide – an indispensable tool especially to Non-Governmental Organisations working in the human rights and humanitarian field. In the weapons law context, an example is that of the International Campaign to Ban Landmines which successfully campaigned for a total ban of anti-personnel landmines in the famous 1997 Ottawa Treaty.²⁵⁴ In the end, the role of public conscience is expressly emphasised in the Preamble of the 1997 Ottawa Treaty banning antipersonnel landmines which provides as follows:

Stressing the role of public conscience in furthering the principles of humanity as evidenced by the call for a total ban of anti-personnel mines and recognizing the efforts to that end undertaken by the International Red Cross and Red Crescent Movement, the International

<http://www1.ushmm.org/conscience/analysis/details/1998-12-09/orentlicher.pdf> (accessed 11 February 2015).

²⁵⁰ M Veuthey ‘Public conscience in international humanitarian law today’ (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 610.

²⁵¹ M Veuthey ‘Public conscience in international humanitarian law today’ (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 614.

²⁵² The 1925 Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, Geneva.

²⁵³ The 1925 Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, Geneva.

²⁵⁴ See <http://www.icbl.org/en-gb/home.aspx> (accessed 11 February 2015).



Campaign to Ban Landmines and numerous other non-governmental organizations around the world.²⁵⁵

In 1997, Jodi Williams, the campaign co-ordinator and the International Campaign to Ban Landmines were awarded the Nobel Peace Prize by the Norwegian Nobel Committee.²⁵⁶ Today, in realisation of this achievement, in memory of victims of anti-personnel landmines and as a reminder of public conscience against landmines, a huge broken chair (The Broken Chair) stands next to the United Nations Headquarters in Geneva, Switzerland.²⁵⁷ Now a similar organisation, with the support of Jodi Williams, the Campaign to Stop Killer Robots also appeals to public conscience to have a pre-emptive ban of AWS.²⁵⁸

6.4.1 Public Conscience in International Humanitarian Law

The right of war, therefore, is derived from necessity and strict justice. If those who direct the conscience or councils of princes do not abide by this maxim, the consequence is dreadful: when they proceed on arbitrary principles of glory, convenience, and utility, torrents of blood must overspread the earth.²⁵⁹

The phrase ‘public conscience’ was first used in 1899 in the First International Peace Conference that was held in The Hague.²⁶⁰ Notwithstanding that many scholars agree that public conscience as enunciated in the Martens Clause has a role to play in international law, there is no agreed definition of what constitutes public conscience.²⁶¹ This is so because a lot of background goes into the formulation of one’s conscience. For

²⁵⁵ See Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction.

²⁵⁶ See <https://www.peacejam.org/laureates/Jody-Williams-11.aspx> (accessed 11 February 2015).

²⁵⁷ See <http://www.geneve-tourisme.ch/en/seeing-doing/editors-choice/file/feed/a-symbol-for-peace-the-broken-chair/> (accessed 11 February 2015).

²⁵⁸ See <http://www.stopkillerrobots.org/> (accessed 11 February 2015).

²⁵⁹ Montesquieu quoted by Charles de Secondat Baron de Montesquieu in *The Spirit of the Laws* 1978.

²⁶⁰ Organised by Frederick de Martens also known as Fiodr Fiodorovich Martens who was a Russian Professor of International Law.

²⁶¹ See generally A Cassese *The human dimension of international law: selected papers of Antonio Cassese* (2008); D Thürer *International humanitarian law: theory, practice, context* (2011)398-402.



example, there is a cliché in armed conflict that one man's terrorist can be another man's freedom fighter.²⁶² This serves to show how diverse and diverging public conscience can be on a particular subject, event or matter.

Conscience has been defined as an inherent intuitive sense of moral awareness that allows an individual to know and distinguish right from wrong.²⁶³ Now that both humanity and dictates of public conscience refer to morality and a sense of knowing what is wrong and right, some commentators have concluded that there is an 'organic interdependence' between humanity and dictates of public conscience as provided in the Martens Clause.²⁶⁴

The sense of what is right or wrong is based on an individual's life experience as informed by cultural background, education, exposure and other factors.²⁶⁵ Thus, Steven Pinker has observed that a moral position is not formulated out of thin air. Rather, it is grounded in the dictates that govern a community from which one belongs.²⁶⁶ Today, the ideal community is that which is grounded in humanity as a normative standard and governed by the rule of law and human rights. To that end, public conscience refers to a set of positive human rights oriented values that are shared in a community which can be at the domestic, regional or international level.

Public conscience is sometimes taken simply to mean public revulsion.²⁶⁷ This raises the question whether public conscience is synonymous with public opinion. Peter Asaro notes that public opinion is not the equivalent of public conscience because in most cases public opinion is not only victim to government or civic society propaganda but is

²⁶² See L Weinberg *Global terrorism* (2009)8.

²⁶³ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst *et al* (eds) *Krisensicherung und Humanitärer Schutz – Crisis Management and Humanitarian Protection* (2004) 608.

²⁶⁴ AAC Trindade *International law for humankind: towards a new jus gentium* (2013)152.

²⁶⁵ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst *et al* (eds) *Krisensicherung und Humanitärer Schutz – Crisis Management and Humanitarian Protection* (2004) 608.

²⁶⁶ See Steven Pinker, *The blank slate: the modern denial of human nature* (2002).

²⁶⁷ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 617.



sometimes not ‘well informed of complex issues such as international law’.²⁶⁸ The temptation in those circumstances is to say where there are complex legal issues; only the opinion of international lawyers is the one that matters.²⁶⁹ However, again public conscience is not the equivalent of expert legal opinions.²⁷⁰ For it to be public conscience, public opinion must be infused with an explicit ‘moral inflection’.²⁷¹ Thus according to Asaro one must:

Not merely hold an opinion or belief on a moral issue but actually feel compelled by, or believing in, a specific moral obligation or duty. That is to say one may feel the weight of moral conscience even when one acts or believes against it (we may even feel it most acutely when violating it, as regret). Thus moral conscience is not simply a result of a moral deliberation – the choice of action, or ultimate belief or opinion about which action is appropriate. Moral conscience includes the felt forces of duty and obligation, and the moral sentiments attached to the processes of moral deliberation in their totality.²⁷²

Along the same lines, when public conscience is considered from a state perspective as part of an international community, it has some moral overtones that have a cohesive force on how a state behaves. World opinion as part of the conscience that influences state behavior thus contains:

- A moral component, which refers to values shared among nations;
- A pragmatic component, which refers to interests shared among nations;
- The power of world opinion, which refers to its apparent influence on world events and nations’ behaviours;
- The nation’s image or reputation in world opinion. As it is perceived by itself and other nations;

²⁶⁸ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 5.

²⁶⁹ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 5.

²⁷⁰ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 5.

²⁷¹ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 6.

²⁷² PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 6-7.



- The world considered as a unit, such as an international community which may judge and respond to other nations' behaviours and
- The threat of international isolation, which operates as a potential punishment for nations that do not heed the dictates of world opinion.²⁷³

As early as 1968, the United Nations noted the importance of an informed public opinion and conscience. The UN observed that such an opinion or conscience is 'so valuable at any stage of the process of codifying of international law' and thus it is imperative for states to seek and consider public opinion or conscience.²⁷⁴ The importance of public conscience in the codification of international law has also been emphasised by Franco Ferrari.²⁷⁵ He notes that although public conscience is often distorted by 'furrowed debates', 'heterogeneous viewpoints, tensions, inconsistencies, simplifications and trivialisations', it still plays 'an important role in the definition of the balance of values and principles that are the basis of the co-existence of different rights and types of rights'.²⁷⁶

From an international law perspective, public conscience can be understood from three standpoints. From the first point of view, public conscience can be seen as public opinion that has the force to influence and shape the law.²⁷⁷ According to Theodor Meron, this occurs when authorities are compelled by public opinion to adopt or promulgate certain publicly held views or norms as 'already declaratory of customary law or as *jus nascendi*'.²⁷⁸ An example of such a process is where the drafters of the

²⁷³ JG Geer *Public opinion and polling around the world: a historical encyclopaedia* (2004)505.

²⁷⁴ UN Doc. A/CN.4/205/Rev.1, 29 July 1968 para 47-48, available at http://legal.un.org/ilc/documentation/english/a_cn4_205.pdf (accessed 4 February 2014).

²⁷⁵ GF Ferrari 'The codification of human rights at national and international level' in W Wang (ed) *Codification in international perspective: selected papers from the 2nd IACL thematic conference* (2014)187.

²⁷⁶ GF Ferrari 'The codification of human rights at national and international level' in W Wang (ed) *Codification in international perspective: selected papers from the 2nd IACL thematic conference* (2014)187.

²⁷⁷ See N Arajärvi *The changing nature of customary international law: methods of interpreting the concept of custom in international criminal tribunals* (2014)64.

²⁷⁸ T Meron 'The Martins Clause, principles of humanity, and dictates of public conscience' (2000) 94 *American Journal of International Law* 83.



Rome Statute formulated certain war crimes on the basis of dictates of public conscience.²⁷⁹ For public opinion to have that compelling force, it must be geared towards the international obligations of the state, for example, human rights obligations. A state may not for example, make laws that oppress minority groups simply because the opinion of the majority is inclined to oppressing the minority groups. It is only public opinion that is consistent with human rights obligations of the state that would be acceptable in these circumstances.

From the second point of view, public conscience is understood to signify *opinio juris*.²⁸⁰ Of course, popular opinion or *vox populi* is not necessarily *opinio juris* because only the government opinion constitutes proper *opinio juris* and there are many cases where the government differs from public opinion.²⁸¹ However, without doubt, in many instances, *vox populi* influences *opinio juris* and there is evidence to this effect.²⁸² For example, public repulsion of biological and chemical weapons played a vital role in the proscription of such weapons – in the Nuclear Weapons case, Judge Shahabuddeen observed as follows:

The court would be entitled, in determining what in turn is the judgement of the States on the point, to proceed on the basis of a presumption that *the judgement of States would not differ from that made by the public conscience.*²⁸³ (My emphasis).

Theodor Meron observes that the fact of public opinion being influential in international law is not something new since as far back as the nineteenth century, a Spanish military manual categorically stated that ‘the principal authority, the most impartial and

²⁷⁹ T Meron *Law crimes law comes of age* (1998) 10.

²⁸⁰ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 83.

²⁸¹ *Nuclear Weapons Case* (1996) ICJ Reports, 403.

²⁸² See N Arajärvi *The changing nature of customary international law: methods of interpreting the concept of custom in international criminal tribunals* (2014)64.

²⁸³ *Nuclear Weapons Case* (1996) ICJ Reports, 403.



respectable judge, the organ and regulator, is public opinion... It condemns irregular acts, creates usages and customs'.²⁸⁴

The third standpoint on public conscience is the one already alluded to above – it is a product of the human rights discourse. Public conscience must be shaped by respect for human rights – in other words, if public opinion is not consistent with human rights, such does not suffice as acceptable public conscience.²⁸⁵ Thus, in the current world where human rights are so important, it may not be about the quantity of individuals holding a certain opinion but rather the quality of that opinion. These sentiments were sounded by Australia's presentations in the *Nuclear Weapons case*.²⁸⁶ In the same case, Judge Weeramantry made it clear that in today's society, whenever one wants to ascertain an international standard concerning a particular issue; it is inevitable to consider human rights which have become 'part of common global consciousness'.²⁸⁷

It remains to be seen whether public distaste for AWS will have the same effect. However, as already indicated above, it should be understood that 'weapons or means of warfare are seldom prohibited on the sole basis of their incompatibility with the dictates of public conscience'.²⁸⁸ All the same, even critics of the Martens Clause and its notions of public conscience and humanity agree that these elements can influence states to proscribe certain weapons.²⁸⁹

The core of public conscience is considered by many commentators to be universal because many of the concepts of public conscience are derived from natural law.²⁹⁰ As

²⁸⁴ See Article 826 of the Spanish Reglamento para el Servicio de Campana (1882). See also the United Kingdom Military Manual (1958) stating that 'no state can afford to be wholly regardless of public opinion.'

²⁸⁵ See JG Geer *Public opinion and polling around the world: a historical encyclopaedia* (2004)504.

²⁸⁶ See Australian Statement in the ICJ Requests for Advisory Opinions on the Legality of Nuclear Weapons (1996) *Australia Yearbook of International Law* pp. 685, 699.

²⁸⁷ *Nuclear Weapons Case* (1996) ICJ Reports, 490.

²⁸⁸ T Meron 'The Martens Clause, principles of humanity, and dictates of public conscience' (2000) 94 *American Journal of International Law* 83.

²⁸⁹ C Greenwood 'Historical development and legal basis' (1995) in D Fleck (ed) *Handbook of international humanitarian law in armed conflict* 129.

²⁹⁰ See JD Charles *Retrieving the natural law: a return to moral first things* (2008)56; L May *Crimes against*



Theodor Meron puts it, public conscience as enshrined in the Martens Clause is ‘rhetorically and ethically’ strong, graced by ‘ancient antecedents rooted in natural law and chivalry’ that clearly explains ‘its resonance and influence on the formation and interpretation of the law of war’.²⁹¹

In sum, although public conscience may differ in different regions, circumstances and situations,²⁹² in today’s world and for the purposes of formulating policy or promulgating new laws to deal with new challenges or technology, public conscience must be understood to be that and only that ‘force for good that invariably serves humanitarian causes’.²⁹³ Only that approach is the one that is compatible with human rights and which should be followed in the current debate on Autonomous Weapon Systems.

6.5 Humanity, Public Conscience and AWS

Military requirements must, in certain cases, give way to the requirements of humanity.²⁹⁴

As already highlighted, various questions arise as to whether AWS may be consistent with the principle of humanity and dictates of public conscience articulated above. As already mentioned, there is a number of scholars who argue that AWS with no ‘Meaningful Human Control’ will offend the principle of humanity since it is considered inhumane to let a machine make a decision as to who lives and who dies.²⁹⁵

humanity: a normative account (2005)35; Y Arai *The law of occupation: continuity and change of international humanitarian law, and its interaction with international human rights law* (2009)70.

²⁹¹ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 79.

²⁹² M Veuthey ‘Public conscience in international humanitarian law today’ (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 609.

²⁹³ T Meron ‘The Martins Clause, principles of humanity, and dictates of public conscience’ (2000) 94 *American Journal of International Law* 79.

²⁹⁴ Foreword to the 1995 *International Review of the Red Cross* (1995)11.

²⁹⁵ See R Sparrow ‘Robotic weapons and the future of war’ in J Wolfendale & P Tripodi (eds) *New wars and new soldiers: military ethics in the contemporary world* (2011) 11; AM Johnson ‘The morality of autonomous robots’ (2013) 134 *Journal of Military Ethics* 134; J Strawser *Killing by remote control: The ethics of an unmanned military* (2013) 239.



Furthermore, use of AWS without ‘Meaningful Human Control’ may generally offend public conscience.²⁹⁶

There are however, other commentators who argue that robots may be able to comply with the principle of humanity better than humans because unlike human soldiers who, because of their emotions make them prone to abuse their power, robots will not suffer such weaknesses.²⁹⁷ Thus the other element of humans noted above – that dark side to do evil things – is not present in the case of AWS.²⁹⁸ Obviously, to talk of humanity as referring to humankind and human nature is not to say that humans always do well in as far as treatment of each other is concerned. Like one commentator has observed:

Humankind is a living paradox, combining a sublime capacity for rationality, charity and self-sacrificing nobility with a breath-taking capacity for cruelty, egotism, irrationality and prejudice. These two contending and essentially moral coordinates form a matrix in which the denouement of life on earth will be determined.²⁹⁹

To this end and in response to the argument above, Brollowski contends that ‘history has taught us that [in as much] as men can be cruel, there are impressive counter examples’ where humanity of man seized the day with impressive standards.³⁰⁰ There are various examples that support Brollowski argument. For example, during World War 1, individual combatants from Britain, German and France signed some unofficial and unauthorised ceasefires in the name of ‘Christmas Truce’ where enemy combatants chose not to attack each other during Christmas time but in fact exchanged gifts, ‘joined

²⁹⁶ See Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)40; See also C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

²⁹⁷ See M Walzer *Just and unjust wars* (2006)251; GE Marchant ‘International governance of autonomous military robots’ (2011) *Columbia Science and Technology Law Review* 280.

²⁹⁸ See M Matthee et al *Armed conflict and international law: in search of the human face: Liber Amicorum in Memory of Avril McDonald* (2013) xvi.

²⁹⁹ A Gilbert ‘Betting on the Better Angels’ (1999) The Inaugural Henry Dunant Lecture, Australian Red Cross, Melbourne, quoted in R Coupland ‘Humanity: What is it and how does it influence international law?’ (2001) *International Review of the Red Cross* 977.

³⁰⁰ H Brollowski ‘Military robots and the principle of humanity’ in M Matthee et al (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 85.



for carol singing, unofficial gatherings, and even friendly games of football'.³⁰¹ This is an exact example of what Heyns has referred to as the capacity of humans to rise above the standard.³⁰² Another example will be that of a young soldier, who when he was formerly deployed in the Falklands War overzealously believed that his duty was to kill every enemy or perceived enemy that came his way. However, while on the battle field and after capturing a prisoner of war, he began to appreciate the 'enemy prisoner as a fellow human being with whom he even shared certain character traits and hobbies'.³⁰³

Ron Arkin has argued forcefully that the current *status quo* as far as the conduct of hostilities by human soldiers is unacceptable.³⁰⁴ The same argument can be extended to situations of law enforcement. An example is what is currently happening in the US where police officers are accused of using unnecessary and excessive force against black men.³⁰⁵ Protests have since erupted in communities like Ferguson.³⁰⁶ The South African example is that of the Marikana incident where many mine workers who were protesting about working conditions clashed with police resulting in death of some mine workers and police officers.³⁰⁷ It can possibly be argued that if robots are used in these law enforcement situations, they can make better judgments than those that are made by human police officers for example.

However, the argument remains that even in these situations; robots may not understand the intricacies of humanity, which in some cases transcends the complications of a situation. An example is that of a photo that was taken in Ferguson

³⁰¹ H Brollowski 'Military robots and the principle of humanity' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 85.

³⁰² A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, para 97.

³⁰³ H Brollowski 'Military robots and the principle of humanity' in M Matthee *et al* (eds) *Armed conflict and international humanitarian law: In search for the human face* (2013) 85.

³⁰⁴ See RC Arkin *Lethal autonomous systems and the plight of the non-combatant* (2014) *Ethics and Armed Forces* 9.

³⁰⁵ See NM Moore *The political roots of racial tracking in American criminal justice* (2015) 8.

³⁰⁶ See <http://www.cbsnews.com/news/new-protests-near-ferguson-after-officer-kills-armed-suspect/> (accessed 11 February 2015).

³⁰⁷ See Jacana Media *Marikana: a view from the mountain and a case to answer* (2013).



during a demonstration against US police officers for arguably killing an innocent black man which others speculated to have been motivated by racism.³⁰⁸ In the heat of the moment, a young black boy, all teary, is seen hugging with a white police officer in what have come to be described as one of the emotional photos in a law enforcement protest situation. The article that reported the story stated as follows:

Amid the violence, destruction, protests, and nationwide division since a grand jury's failure to indict a white police officer who killed an unarmed black teen on November 25, hope in humanity has been restored, through what is being called, the hug shared 'round the world'...During an emotional rally in Portland, Oregon, a 12-year-old black boy, Devonte Hart, with tears in his eyes, embraced a white police officer, Portland Police Sgt. Bret Barnum.³⁰⁹ (emphasis mine).



³⁰⁸ See NM Moore *The political roots of racial tracking in American criminal justice* (2015) 8.

³⁰⁹ See C Adams 'A moment of peace amid Ferguson anger: Cop hugs emotional protester after befriendng him during march' (2014) available at <http://www.dailymail.co.uk/news/article-2853823/The-hug-shared-round-world-touching-moment-cop-hugs-emotional-Ferguson-protester-gesture-peace.html> (accessed 29 January 2015).



The photo shows that in as much as humans are capable of hurting each other, at the end of the day, they may identify with each other, feel each other's pain as humanity is what binds us all. This may sound as optimistic sentiments of a romanticist but the minimum standard of humanity is at least expected whenever and wherever a human is involved. In this discussion on AWS, it is inevitable to consider the role of the media since it directly impacts on issues of public conscience.

6.5.1 *The Media, Public Conscience and AWS*

The media plays a fundamental role as far as formulation of public conscience is concerned.³¹⁰ Depending on whether the one who is controlling the media is 'enlightened by empathy or tinged by prejudice' public conscience can be 'manipulated for the better or worse'.³¹¹ Examples are where radio stations were used in incitement of genocide in Rwanda.³¹²

Some commentators have argued that naming of the technology may have a positive or negative impact on the formulation of opinion on AWS.³¹³ For example, there has been criticism directed at the Campaign to Stop Killer Robots for referring to AWS as killer robots.³¹⁴ Some scholars feel that such terminology presents an unfair roboapocalyptic imagery that creates an adulterated impression about AWS.³¹⁵

³¹⁰ See II Lukashuk 'People's diplomacy and international lawyers' in WE Butler (ed) *Perestroika and international law* (1990)89-102.

³¹¹ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst *et al* (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 628; II Lukashuk 'People's diplomacy and international lawyers' in WE Butler (ed) *Perestroika and international law* (1990)89-102.

³¹² See A Thompson (ed) *The media and the Rwanda genocide* (2007) 10.

³¹³ See TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 711.

³¹⁴ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 727-731; See also PM Asaro '*Jus nascendi*, robotic weapons and the Martens Clause' (2015) *Forthcoming* 6.

³¹⁵ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 727-731; See also PM Asaro '*Jus nascendi*, robotic weapons and the Martens Clause' (2015) *Forthcoming* 6.



Evans, for example, accuses some NGOs who are working on AWS of using the media to disseminate 'sensationalist, fear-mongering rhetoric aimed at persuading the public, impressionable states, or NGOs that the challenged weapons are abhorrent and must be banned before they exist'.³¹⁶ He condemns, for example, the Human Rights Watch 2012 Report as a propagandist document, a product of 'yellow journalism' drawn from 'science fiction entertainment...a forum rich in horror, uncontrollable creations and malevolence'.³¹⁷ He contends that the natural reaction of a misled populace would be to 'demand for more control immediately whether or not it is advisable'.³¹⁸ As a solution to dispel the 'science fiction dystopia' allegedly propounded by NGOs, Evans suggests that 'states seeking to develop and use AWS should educate nations, the public, and the media about the true nature of the technological art and the incremental development of autonomy that will enable such weapons'.³¹⁹ Whether this is true or not will be discussed below.

The question arises as to how one can elicit unadulterated opinion and ascertain public conscience, and where that process should take place. According to Asaro, carefully structured, short and pointed questions are of significance in this regard.³²⁰ The content of public conscience must 'be elicited through public discussion, academic scholarship, artistic and cultural expressions, individual reflection, collective means' in 'public forums' and gleaned through the tools of social sciences.³²¹

Charli Carpenter is one of the scholars whose approaches in ascertaining public conscience on AWS reinforce the suggestions by Peter Asaro. In relation to the naming

³¹⁶ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 725; See also E Hughes & J Kitzinger Science fiction fears? An analysis of how people use science fiction in discussing risk and emerging science and technology (2008)3.

³¹⁷ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 728.

³¹⁸ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 728.

³¹⁹ TD Evans 'Note, at war with the robots: autonomous weapon systems and the Martens Clause' (2014) 41 *Hofstra Law Review* 729.

³²⁰ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 6.

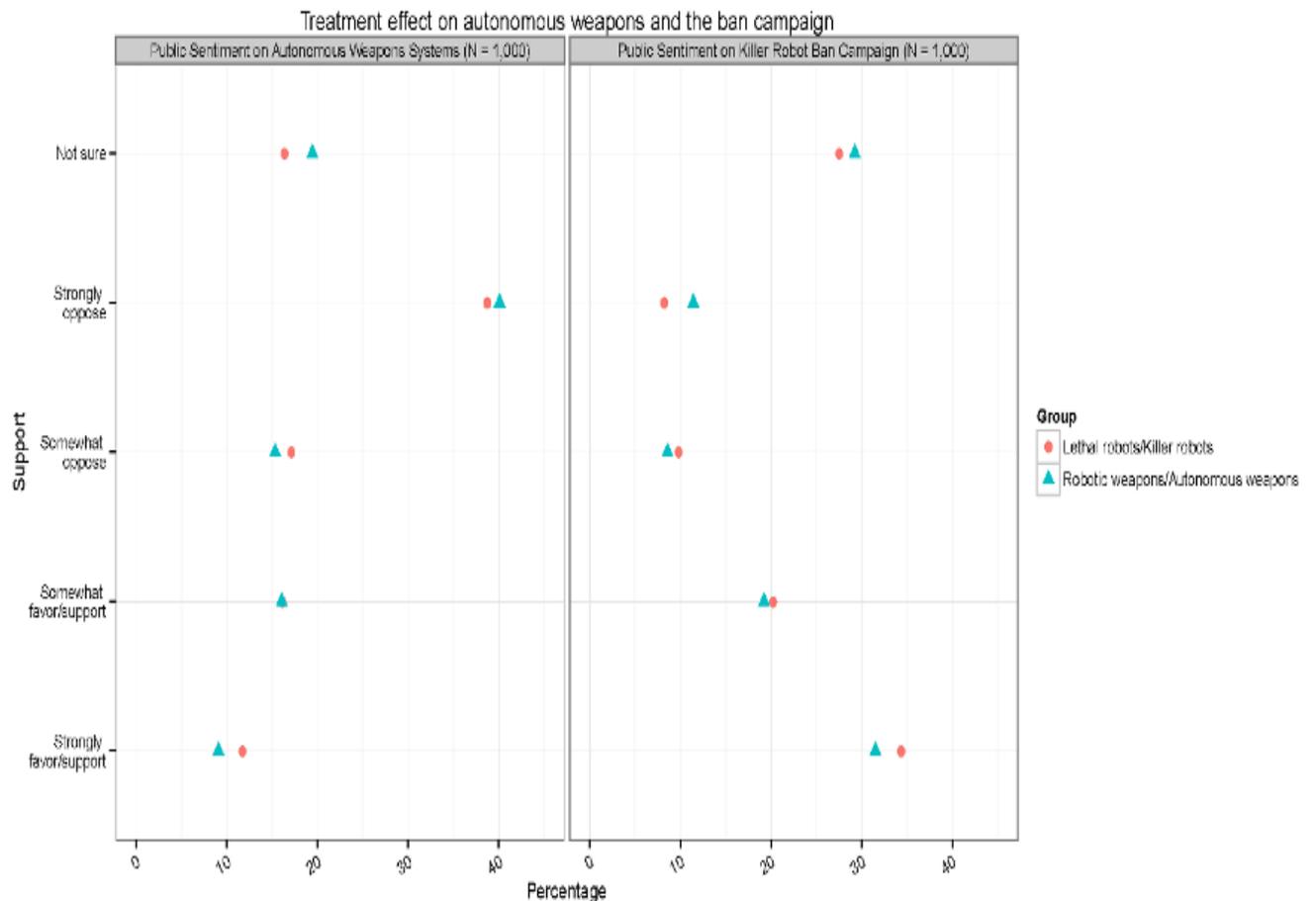
³²¹ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 7.



of the technology, she took a survey amongst Americans; the survey of which seems to suggest that the naming of the technology does not have much impact on the formulation of opinion.

About 500 individuals were asked about the technology as AWS and another 500 as killer robots and there was no tangible difference in their response suggesting that there may be not much in a name. People are concerned more about what the technology can do rather than the name. She presented the outcome of the survey in a graph as follows:

Graph on naming of the technology and public opinion³²²



³²² C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller->



In principle, for proper formulation of public conscience on the subject of AWS, it is vital that the media present correct information about the technology. A watered-down or 'inflamed public opinion is not necessarily public conscience but rather 'public in-conscience' [which] may incite further violations of international law'.³²³ Can public conscience on AWS be measured by polls? Are statements on AWS by organisations such as the Campaign to Stop Killer Robots, Human Rights Watch and other supporting organisations representative of the status of public conscience on AWS?

I have already noted above that sometimes public conscience may be sought on an issue that involves complicated issues of international law or other specialised fields.³²⁴ Although public conscience is not only the opinion of individuals from those specialised fields, their opinions must be taken seriously.³²⁵ The opinion of roboticists, lawyers and other specialised fields on AWS must therefore be given their due value. It is important that when such opinion is given, individuals must have a serious 'moral inflection' of the issue at hand.³²⁶ Something may be legal but it does not necessarily make it morally right or the right thing for humankind. What are laws without moral content? Thus in whatever opinion people from these specialised fields may want to give; 'the weight of moral conscience' coupled with 'the processes of moral deliberation in their totality' must inform 'the choice of action, or ultimate belief or opinion about which action is appropriate' as far as AWS without 'Meaningful Human Control' are concerned.³²⁷

6.5.2 Public Conscience, polls and AWS

Charli Carpenter also considers the question on whether polls can ascertain the status of public conscience in regard to AWS. In the introduction to her report following an empirical research, she notes that since IHL 'assumes that the dictates of public

robots%E2%80%9D-and-why-does-it-matter (accessed 11 February 2015).

³²³ M Veuthey 'Public conscience in international humanitarian law today' (2004) in F Horst et al (eds) *Krisensicherung und humanitärer schutz – crisis management and humanitarian protection* (2004) 628.

³²⁴ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 5.

³²⁵ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 5.

³²⁶ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 6.

³²⁷ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 6-7.



conscience constitute a barometer of appropriate conduct in military affairs, especially where existing rule-sets provide inadequate guidance and the concerns being raised have not yet come to pass', the issue of AWS raises one point of discussion that is subject to empirical inquiry: 'how do people feel about the idea of outsourcing targeting decisions to machines?'³²⁸

Charli Carpenter thus conducted a survey by way of asking 'how people feel about the potential for outsourcing lethal targeting decisions to machines'.³²⁹ Both experts and lay people expressed strong opinions on the issue noting great concern over 'death by algorithm'.³³⁰ Carpenter notes that amongst the 1000 American citizens who were surveyed, '55% of Americans opposed autonomous weapons, nearly 40% were 'strongly opposed,' and a majority 53% expressed support for the new ban campaign.³³¹ She explains that her survey was 'matched on gender, age, race, income, region, education, party identification, voter registration, ideology, political interest and [individuals were] asked about their military status'.³³² On the gender side, she notes that the majority of men unequivocally expressed their opposition to AWS while some women acknowledged that they did not have sufficient information to formulate a strong opinion.³³³

³²⁸ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³²⁹ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³⁰ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

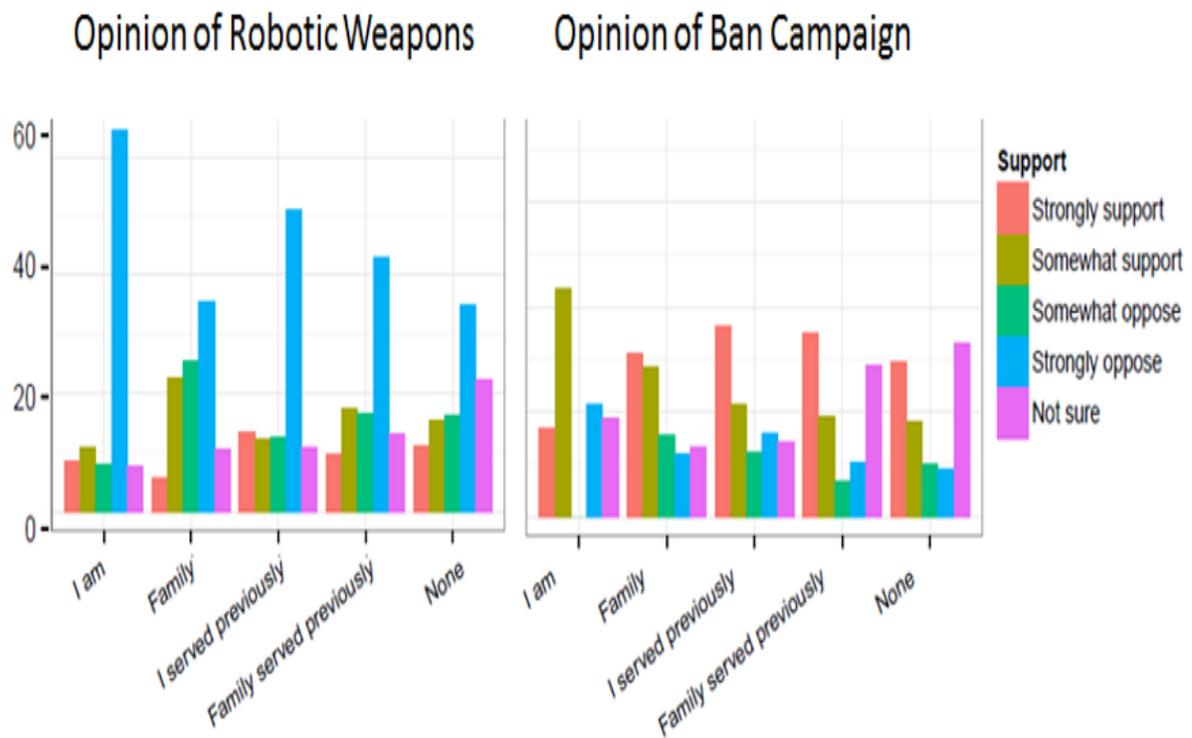
³³¹ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³² C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³³ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).



Carpenter notes that in most people’s responses, they expressed a concern that ‘machines cannot equal human beings in situational judgment’ and the idea of machines, tools without empathy, making the decision to kill with a possibility of machine error and without accountability is considered ‘terrifying and repulsive’.³³⁴ Thus in relation to AWS, some respondents are quoted saying that the idea is ‘too nightmarish’; ‘divorcing human intervention from the actions of these machines means surrendering all consideration of right and wrong from the decision making process’. Humans should and always be ‘the moral check on military actions’ and that ‘removing empathy or moral action in conflicts’ is undesirable since only ‘a person knows they are hurting others’.³³⁵



³³⁴ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³⁵ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).



The above graph represents the support and opposition of AWS and opinion on the proposed pre-emptive ban.³³⁶ It is interesting that both Human Rights Watch³³⁷ and Carpenter note that the main opposition came from those who are well informed on the issue of AWS– those among the highly-educated and the military.³³⁸ Most of those who were unsure expressed the opinion that it would be best to proceed in caution.

According to the statistics given by Carpenter, of those who supported AWS, only 10% strongly favoured them and of the 16% who somewhat favoured and of the 18% who were not sure, they emphasised that without more and accurate information it was hard to formulate an opinion but all the same there is need for great caution.³³⁹ In this sense, it is important not to take descriptive statistics literally because they may either underestimate or overestimate the actual opposition or support for AWS.³⁴⁰ To this end, carpenter gives examples of qualifications that were added by respondents who somewhat opposed or were not sure about how they feel about the technology. There are those who, without additional information, said they are opposed since it appears there is too much room for error; those who thought that even if it may be a good idea, the chances of the technology getting into wrong hands is scary; those who believe that weapons in the hands of man – who have some inherent restraint out of humanity – are already dangerous, how about in the hands of machines without any human qualities; and those who had no concrete opinion but stated that it sounded like something they

³³⁶ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³⁷ See Human Rights Watch ‘Losing humanity: the case against killer robots’ (2012)40.

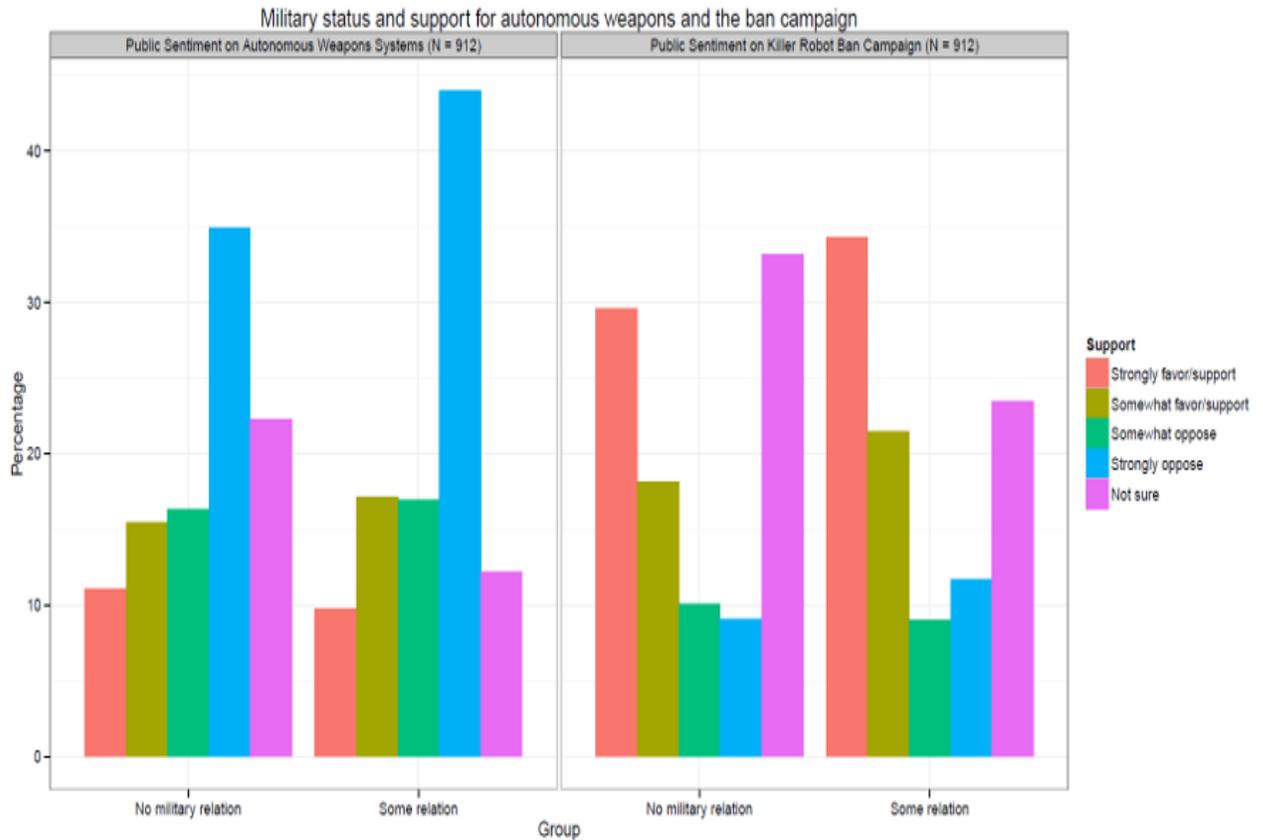
³³⁸ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³³⁹ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³⁴⁰ C Carpenter ‘How scared are people of ‘killer robots’ and why does it matter?’ (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).



would oppose.³⁴¹ Apparently and as represented in the graph, military personnel and those with family in the military more fully opposed the development and deployment of AWS.



An ex-soldier whose family is still serving is quoted as saying:

Why would we, as a race, allow machines to kill others of our race? A machine has no remorse, no compromise, nothing influences its decisions other than what it was programmed with. A human could see that what was thought to be enemy fighters is actually a group of children. A machine won't.³⁴²

³⁴¹ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³⁴² C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).



All in all, there were very few people who openly supported the idea of AWS which led Carpenter to conclude on the basis of that survey that AWS convey a sense of shock to the general public thus inconsistent with public conscience.³⁴³ Thus, Carpenter's survey is in line with the results reported in Human Rights Watch report of 2012 alluded to earlier.³⁴⁴

6.5.3 Public Conscience in support of AWS?

As mentioned above, public conscience is not merely public opinion. There is a compelling argument that public conscience must be shaped and aligned with notions that promote human rights.³⁴⁵ To this end, it may be suggested that if AWS can help protect the right to life, then proper public conscience would support the development of AWS or such kind of weapons. Some commentators have already observed that 'just as it is culpable negligence to send in the infantry without body armour and helmets, so—other things equal—it is also negligent to fail to develop AWS'.³⁴⁶

However, as noted by Asaro, the purpose of International Humanitarian Law is not only to save life or reduce risk to civilians, 'the goal of IHL is also to protect an essential core of humanity even amongst the great inhumanity of war'.³⁴⁷ Thus the fact that AWS may save life is not the end of the matter since 'IHL has many aims, not all of which are reducible to risk minimization'.³⁴⁸ To this end, considerations of the dictates of public conscience, the principle of humanity as it relates to dignity of every human being

³⁴³ C Carpenter 'How scared are people of 'killer robots' and why does it matter?' (2013) available at <https://www.opendemocracy.net/charli-carpenter/how-scared-are-people-of-%E2%80%9Ckiller-robots%E2%80%9D-and-why-does-it-matter> (accessed 11 February 2015).

³⁴⁴ Human Rights Watch 'Losing humanity: the case against killer robots' (2012)34.

³⁴⁵ See LH Leib *Human rights and the environment: philosophical, theoretical and legal perspectives* (2011) 67.

³⁴⁶ VC Müller and TW Simpson 'Killer robots: regulate, don't ban' (2014) *Oxford Blavatnik School of Government Policy Memo* 2.

³⁴⁷ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 9.

³⁴⁸ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 9.



should play an important role in the acceptability or otherwise of AWS without 'Meaningful Human Control'.

6.6 Conclusion

As the discussion on AWS is still on-going, every stakeholder - in fact every human being - who still believes that humans, no matter our failings, still need to exercise control over weapons if humanity is to be retained, should reflect and participate meaningfully in this debate. The Martens Clause is relevant to the current debate on AWS. In as much as no weapon in history has been outlawed on the basis of the Martens Clause alone, history shows the important role that the Clause has played in the regulation of weapons. The Martens Clause is instrumental in the interpretation of all the relevant laws that may apply to AWS. In as much as there are various interpretations of the Martens Clause, in the modern day where human rights play a central role, I contend that the Clause must be interpreted in the spirit that promotes human rights. It is that which is in the interest and promotion of the rights of the citizen that the state is obliged to do.

The international community should be wary of approaches like that of T.D. Evans seeking to exclude the Martens Clause from the AWS debate – viewing sovereign rights and interests of states to be superior to human rights and therefore taking precedence even if it means tramping on human rights. The purpose of sovereignty, after all, is to protect the rights of citizens. Precisely, in the words of Judge President Antônio Cançado Trindade:

The Martens clause as a whole has been conceived and repeatedly affirmed, ultimately, to the benefit of all human kind, thus remaining quite up-to-date. It may be considered as an expression of the reason of humanity imposing limits to the reason of the State (*raison d'État*). It is never to



be forgotten that the State was originally conceived for the realization of the common good. The State exists for the human being, and not *vice versa*.³⁴⁹

Acceptance or prohibition of AWS should not be about what the states want; it should be about what is right, it is about human rights. Gone are the days when sovereigns used to say ‘the thing is legal because I wish it’³⁵⁰ or tell the citizen that ‘you are nothing, your nation is everything’.³⁵¹ By the same token, the outcome of the debate on AWS should not be about what NGOs want, it should be what is right for mankind. Therefore, there should be utmost sincerity from states, NGOs, commentators and other stakeholders as far as their contribution and position on AWS is concerned.

The Martens Clause if interpreted in terms of the human rights standards, in full view of rights such as the right to life, dignity and worth of all human beings, reveals that AWS without ‘Meaningful Human Control’ are incompatible with the spirit of the Clause. If elements of humanity and dictates of public conscience are understood in terms of human rights norms and standards, it is not difficult to determine what is not in line with elementary principles of humanity and public conscience.

Thus, while some scholars may want to choose to view the Martens Clause as vague, useless and of no value to the AWS debate, it is of much value in interpreting the existing rules that have a bearing on AWS. As the historian David Thomson³⁵² has observed, at one moment in European history, the Holy Alliance of 1815 – a pact among some European countries pledging to treat their subjects according to religious dictates of justice and Christian sentiments – was once viewed as ‘a ludicrous contract’³⁵³, ‘a high

³⁴⁹ *Barrios Altos v Peru* IACHR (14 March 2001) para 24-25; See also AAC Trindade *The construction of a humanized international law: a collection of individual opinions 1991-2013* (2014)320.

³⁵⁰ C Jones *The Cambridge illustrated history of France* (1999)175 quoting Louis XVI the King of France during a consideration whether an edict he had passed was constitutional.

³⁵¹ ‘Du bist nichts, dein volk ist alles’ – a German slogan between 1933-1945 where the state was ‘not there for its citizens’ sake, but rather the citizens were only allowed to exist for the state’s sake.’ – see JC Joerden ‘The promise of human dignity and some of its juridical consequences especially for medical criminal law’ in B Beers et al (eds) *Humanity across international law and biolaw* (2014)197.

³⁵² D Thomson *Europe since Napoleon* (1999).

³⁵³ AP Tsygankov *Russia and the West from Alexander to Putin: honour in international relations* (2012) 64



sounding nothing³⁵⁴ and ‘a piece of sublime mysticism and nonsense’³⁵⁵ yet it ended up ‘serving as an important precondition’ for peace.³⁵⁶ It is interesting that the Holy Alliance of 1815 – appealing to dictates of religion, natural justice and Christian sentiment – was a product of Czar Alexander of Russia while the Martens Clause – appealing to humanity and dictates of public conscience – was a product of a Professor from Russia.

Finally, another very important facet of humanity as discussed in this Chapter is that it is linked to the concept of ‘Meaningful Human Control’ which I am going to discuss in the next Chapter – Chapter 7. In noting the link between humanity and the emerging notion of ‘Meaningful Human Control’, Peter Asaro observes the following:

‘Meaningful Human Control’ as it has thus far been articulated contains several elements. First, *it is fundamentally humanist* in its insistence on explicitly human control of targeting and firing decisions. *If any new principle might be convincingly derived from the principles of humanity as expressed in the Martens Clause, surely it would be a principle that ensures human control over the violence of war and war itself.*³⁵⁷ (Emphasis mine).

Lastly, and in the words of Martin Luther King, it is ‘either [that] we live together as brothers, or we perish as fools’.³⁵⁸ Technology, if not approached with caution, can fool all of us.

quoting Charles Maurice de Talleyrand-Périgord, the French statesman to the Congress System (1815).

³⁵⁴ J Droz *Europe between revolutions* (1967)217 quoting the Austrian Empire’s Foreign Minister Klemens von Metternich and statesman at the Congress System (1815).

³⁵⁵ W Simpson & MD Jones *Europe, 1783 – 1914* (2000)93 quoting Lord Castlereagh, the British statesman at the Congress System (1815).

³⁵⁶ AP Tsygankov *Russia and the West from Alexander to Putin: honour in international relations* (2012)65.

³⁵⁷ PM Asaro ‘*Jus nascendi, robotic weapons and the Martens Clause*’ (2015) *Forthcoming* 13-14.

³⁵⁸ Martin Luther King Jr.



Chapter 7: AWS and the emerging notion of ‘Meaningful Human Control’

The principle of ‘Meaningful Human Control’ would appear to be something that has historically been taken for granted – assumed but never stated.¹

Summary

In this chapter, I discuss the emerging notion of ‘Meaningful Human Control’ as a possible solution to the challenges posed by increased autonomy in weapon systems. Since the notion is new, I seek to discuss some factors that could help in defining the term.

By way of introduction, I briefly discuss the notion of human control over weapons as understood in the history of weapons. There have been four transitions in the manner by which humans exercise control over weapons. At first it was direct control where weapons were mere tools in the hands of fighters. Then came the era where humans automated some control previously exercised over weapons. Within that era, computers and humans seemed to be in some sort of partnership in controlling weapons. Then came the drone technology era where there is remote control of weapons. Finally on the horizon are Autonomous Weapon Systems where humans seem to ‘surrender’ or delegate control of weapons to computers – inclusive of the ‘critical functions’ of weapons.

In order to facilitate an understanding of the subject of the discussion, I consider factors contributing to the lessening of human control over weapons. The main factors are related to convenience, efficiency and safety. To highlight the importance of human control over weapon systems - and that it has existed for a long time; I consider how the notion of human control over weapons features in rules of both international humanitarian and international weapons law.

¹ PM Asaro ‘Jus nascendi, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 13.



After considering how the notion of human control over weapons features in the drone technology debate and how it has been transformed into ‘Meaningful Human Control’ in the Autonomous Weapon Systems, I trace the origins of the term and how it appeared as a possible solution to challenges posed by Autonomous Weapon Systems in the recent United Nations Convention on Conventional Weapons Expert meeting on lethal Autonomous Weapon Systems. I consider some of the elements that have already been suggested to help in defining ‘Meaningful Human Control’. By way of contribution, I propose that three questions can help in the construction of the elements that define ‘Meaningful Human Control’. The international community must ask the following questions:

- i. What is the purpose of the notion of ‘Meaningful Human Control’? In other words, what is it which the international community is trying to resolve?
- ii. Who should exercise that ‘Meaningful Human Control’ over weapons and when? Is it manufacturers, programmers, the individuals who deploy them or all of them?
- iii. What are the exact aspects of Autonomous Weapon Systems over which ‘Meaningful Human Control’ must be exercised?

In answering the above questions, I note that one of the major concerns is that Autonomous Weapon Systems may create a legal responsibility vacuum. I argue that ‘Meaningful Human Control’ over weapons must be exercised by human fighters, and when discussing such responsibility, manufacturers, and programmers etc. must not be in the equation. I further argue that ‘Meaningful Human Control’ over a weapon system by a human fighter can only be that which makes the actions of Autonomous Weapon Systems entirely those of the fighter and consequently responsible for them. To define the nature of control that allows responsibility, I consider the international law jurisprudence on the notion of ‘control’ as developed on the law of state and command



responsibility and its relevance to the emerging notion of ‘Meaningful Human Control’ over weapons systems.

I conclude that it is only when a human fighter is in *strict control* of the ‘critical functions’ – those that relate to selection of the human target and decision to kill – of an autonomous system, to the extent that the system is completely dependent on the human input (in real time) to execute the ‘critical functions’, that he or she can be said to be in ‘meaningful control’ of the system. The nature of the control and dependence must be of such a nature that without the human input, the autonomous system is unable to complete the ‘critical functions’.

7.1 Introduction

The advent of Autonomous Weapon Systems has left commentators with questions whether humans are ‘surrendering’ control over weapons they use to computers. If humans are not surrendering control over weapons, the question is whether the human control that is claimed is still meaningful. Many commentators, organisations and some states feel that there is no proper human control in Autonomous Weapon Systems that are being developed. As a result, the technology of AWS is perceived to threaten important rights like the right to life and dignity. In addition, where there is no proper human control of Autonomous Weapon Systems, it is argued that it creates an accountability gap. Various solutions – amongst them a pre-emptive ban – have been proposed to solve the challenges posed by Autonomous Weapon Systems. Recently, NGO Article 36 proposed and coined the notion of ‘Meaningful Human Control’ over weapon systems. Various commentators, states and non-governmental organisations have supported this emerging notion as a possible solution. Most of those supporting this emerging notion have noted that it has not been defined. In this chapter, I seek to define and construct possible factors and elements that can build up this emerging notion of ‘Meaningful Human Control’.



It is inevitable - before discussing elements that can constitute 'Meaningful Human Control' - to look at the notion of human control over weapons from a historical perspective; to consider factors contributing to the lessening of human control over weapons; to discuss the role that the element of human control over weapons has played in International Humanitarian Law and International Weapons Law and to observe how the notion of human control over weapons is different with respect to drone technology. All these considerations built up to the important discussion on the emerging notion of 'Meaningful Human Control' over Autonomous Weapon Systems, and how the content of the term should be determined. At present, there is no much literature providing for the content of the term and how it can be possibly computed. This is where this paper seeks to contribute.

7.2 A Historical Perspective of Human Control Over Use of Weapons

'A sword never kills anybody; it is a tool in the killer's hand'.²

From time immemorial, weapons were understood to be mere tools in the hands of the fighter. Back in time, there was what Noel Sharkey termed 'direct control' over weapons by humans.³ Humans were completely responsible for the weapons they used. They were, in the strict sense of it, 'masters' of their weapons. The relationship between the weapon and the fighter was well summarised by the US retired Major General William H. Rupertus:

This is my rifle. There are many like it, but this one is mine. My rifle is my best friend. It is my life.

I must master it as I must master my life. My rifle, without me, is useless...I will learn its weaknesses, its strength, its parts, its accessories, its sights and its barrel... I will keep my rifle clean and ready. We will become part of each other. We will...Before God, I swear this creed.⁴

² Lucius Annaeus Seneca, available at <http://www.brainyquote.com/quotes/keywords/sword.html> (accessed 28 August 2014).

³ See Noel Sharkey presentation to the CCW Expert Meeting on Lethal Autonomous Weapon Systems (2014) [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/78C4807FEE4C27E5C1257CD700611800/\\$file/Sharkey_MX_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/78C4807FEE4C27E5C1257CD700611800/$file/Sharkey_MX_LAWS_technical_2014.pdf)

⁴ 'My Rifle: The Creed of a US Marine' by the retired Major General William H. Rupertus available at



The idea of weapons being mere tools in the hands of fighters and humans being the masters of such weapons has been echoed by the ICRC.⁵ The decision as to when to employ a weapon, against whom and with what severity remained the preserve of fighters.⁶

The aspect of 'direct control' of weapons by humans was captured in the Geneva Conventions and their Additional Protocols. There are provisions that invoke the idea that without human control or use, a weapon is nothing but just a tool of no harm.

An important rule of International Humanitarian Law that is part of Customary International Law is that it is only legitimate to kill 'those who are directly participating in hostilities'. In armed conflict, participating in hostilities has largely been shown by the 'bearing of arms'.⁷ Thus persons 'who have laid down their arms' are considered to be 'taking no active part in the hostilities'.⁸ More so, in non-international armed conflicts, one of the criteria of identifying organised armed groups is 'that of carrying arms openly'.⁹ In international armed conflicts, combatants are also required to carry arms openly.¹⁰

The idea invoked from above is that when an enemy combatant has 'laid down his arms', he or she is considered *hors de combat*.¹¹ This supports the idea that in the history of armed conflict and development of weapons, a weapon was only capable of doing harm when in the hands of a human fighter. Even with the advent of armed drones, weapons can still be said to be in the hands of the fighter albeit by remote

<http://usmilitary.about.com/od/marines/l/blriflecreed.htm> (accessed 28 July 2014).

⁵ Human Rights Watch Shaking the foundations: The human rights implications of killer robots (2014) 5 available at <http://www.hrw.org/reports/2014/05/12/shaking-foundations>. (accessed 5 August 2014).

⁶ Human Rights Watch Shaking the foundations: The human rights implications of killer robots (2014) 5 available at <http://www.hrw.org/reports/2014/05/12/shaking-foundations>. (accessed 5 August 2014).

⁷ See Third Geneva Convention, Preliminary remarks, page 26.

⁸ Article 3(1) Common to the Geneva Conventions.

⁹ See Article 13 (2)(c) of the Third Geneva Convention, Article 13(2)(c) of Second Geneva Convention.

¹⁰ Article 44(3) of Additional Protocol I. See also Article 42 of the Third Geneva Conventions.

¹¹ See http://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule47 (accessed 3 September 2014).



control. The same can no longer be said with the advent of certain Autonomous Weapon Systems as will be argued below.

State practice shows that from time immemorial, an intention to surrender can be shown by putting down your weapon.¹² Consequently, it would only be legitimate to harm the enemy combatant when they still carry weapons. Without the direct control of a human fighter, it was understood that a weapon was harmless. Autonomous Weapon Systems, on the other hand, will be able to do harm without direct human involvement. If a combatant holding an Autonomous Weapons System was to place it down upon seeing the enemy, one cannot say with certainty whether their intention is to surrender because the system can still function without the control of its 'master' once it has been activated.

Over the years, the aspect of humans' direct control over weapons has become untenable on account of various reasons. To that end, there have been many military weapon revolutions, where human control over certain aspects of weapons has been delegated to machines.

7.3 Factors contributing to the lessening of human control over weapons

There are three main factors that have influenced the reduction of control that is exercised by humans over weapons: safety, convenience and effectiveness. Delegating some degree of control to machines or computers is not only convenient but makes it safe for the user of the weapon while at the same time effectively achieving the military objective.

Ron Arkin, for example, has repeatedly argued that the situations on the battlefield have become so precarious that it is unreasonable to expect humans to operate in such environments.¹³ In the sense of 'direct control' over weapons referred to above, a

¹² See http://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule47 (accessed 3 September 2014).

¹³ Ron Arkin's presentation at the CCW Expert Meeting on Lethal Autonomous Weapon Systems available at



human being needed to be there to ‘pull the trigger’. This meant that the human fighters needed to physically avail themselves to make the weapon work. There are many examples of primitive explosive devices that required the human fighter to hide somewhere nearby, sometimes waiting for days, until such time as the enemy combatant appeared for him or her to detonate the explosive by way of pulling some wire or tripwire. Not only was that inconvenient, but that would entail the human fighter also placing his life at risk. Human control over many explosive devices was subsequently automated where a particular weapon would detonate when certain set parameters are met.¹⁴ An example would be that of anti-personnel landmines, although they were eventually outlawed.

Among other factors, success on the battlefield is largely determined by the speed at which one projects harm to the enemy and the extent at which one reduces risk to oneself. These factors have influenced the development of various military technologies whose contribution on the battlefield continuously reduces the role that humans play. In fact, developments in weapons and the changing nature of war have made humans ‘the weakest link’ on the battlefield.¹⁵ This is mainly because many developments in military technologies now involve computers that process their data in nano-seconds.¹⁶ In this regard, the role of humans - especially the control they exercise over certain weapons - has been decreasing. The poet Mike Berger, although on a different note, seems to capture what has become of humans in most weapon systems of today. The once so important role of humans in the battlefield and operation of weapons is

[http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (3 September 2014).

¹⁴ See for example http://en.wikipedia.org/wiki/Land_mine (accessed 7 September 2014).

¹⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 53.

¹⁶ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 41.



dwindling. Even the humans, who still remain in the so called ‘loop’¹⁷, seem only to be there to rubberstamp the decisions that are made by computers.

Lightning fast would be a gross understatement. He could draw, shoot and replace his gun in less than a second. Pedro was an ugly man both inside and out. He was a legend in his own time. His speed with a gun made people call him Sir. Pedro got old and lost his edge. He was forced to retire. His shooting hand had arthritis and he was gimp and lame. They once called him the fastest gun in the West but now they just call him no toes Gonzalez.¹⁸

The above paragraph can be anything but metaphorical; the human hand in the control of weapons is slowly gnawed by the ‘arthritis needs of armed conflict’. Humans, it appears, seem to lose their ‘edge’ in terms of the control they exercise over weapons. Technology is in a way forcing humans to ‘retire’. Although such reduction of control that is exercised over weapons by humans may be convenient, safe and effective in terms of military advantages that are gained, it also threatens some of the important tenets in both International Humanitarian Law and International Weapons Law. For example, human control over weapons or use of force has been an important factor in the shaping of International Weapons Law.

7.4 The Notion of Human Control over weapons and Rules of International Weapons Law

There are three basic principles of International Weapons Law: the prohibition of weapons that cause superfluous harm and suffering, the prohibition of weapons that cause damage to the environment and the prohibition of weapons that are indiscriminate in nature.

The indiscriminate rule is premised on the notion of human control over weapons they use. In terms of this rule, for a weapon to be legal, it must be capable of ‘being directed

¹⁷ The issue of the ‘human in the loop’ is defined and discussed below.

¹⁸ ‘The Fastest’ Gun By Mike Berger.



at combatants and military objectives’ and must not have ‘effects that an attacker cannot control’.¹⁹

The proscription against weapons that are by nature indiscriminate²⁰ which is also a customary norm²¹ is part of ‘cardinal principles’ of International Weapons Law and saw the restriction of use of weapons such as chemical, biological and nuclear weapons; poison; anti-personnel landmines; Katyusha rockets; Scud missiles; cluster bombs; booby-traps; incendiary weapons; and environmental modification methods.²²

There are two elements that are consistently referred to when deciding whether or not a weapon is indiscriminate by nature: the capability of being directed against a specific military object²³ and the capability to limit the effects of the weapon.²⁴ These elements ‘form part of the definition of indiscriminate attacks under Customary International Law’.²⁵

The first element succinctly points to the notion of human control over weapons. It is the human who ‘directs’ the weapon. It points to the mechanistic control that humans must exercise over weapons they use. The second element of the indiscriminate rule points to the requirement of human control over the effects of the weapons they use. The requirement of human control over the effects of weapons they use is echoed in numerous States’ military manuals, official reports²⁶ and case law.²⁷ Many states have

¹⁹ MN Schmitt ‘Autonomous weapon systems and international humanitarian law: A reply to the critics’ (2013) *Harvard National Security Journal Features* 35.

²⁰ Article 51(4) (b) and (c) of Additional Protocol I, See also Article 48 of Additional Protocol I; Article 8(2)(b)(xx) of the ICC Statute; Article 1(2) of Amended Protocol II to the Convention on Certain Conventional Weapons; See the preamble of the Ottawa Convention.

²¹ See ICRC IHL Customary Law Study Rule 71 on weapons that are by nature indiscriminate.

²² See ICRC IHL Customary Law Study Rule 71 on weapons that are by nature indiscriminate.

²³ Article 51(4)(b) of Additional Protocol I to the Geneva Conventions.

²⁴ Article 51(4)(c) of Additional Protocol I to the Geneva Conventions.

²⁵ See ICRC IHL Customary Law Study Rule 12.

²⁶ See for example the military manuals of Colombia, New Zealand, Switzerland and Yugoslavia.

²⁷ See for example the oral pleadings and written statements in the Nuclear Weapons case of Egypt, Japan and Zimbabwe.



already taken the position that where one cannot control the effects of a weapon, such a weapon is deemed to be an indiscriminate weapon.²⁸

As noted above, one of the reasons why states agreed to ban personnel land mines is because they are non-discriminative in nature, once they are buried in the ground, it can be said that the human fighter has no control over them.²⁹ This is notwithstanding that the human fighter might have planted them with a specific person or target in mind; once they are in the ground, it can be argued that anti-personnel landmines become unpredictable as to whom they will kill. The human fighter, to a larger extent can no longer control whom they will kill unless they are strictly monitored. Even the US is now considering being part to the treaty banning anti-personnel landmines.³⁰ This part of being unpredictable is one of the major concerns in relation to Autonomous Weapon Systems.

Thus, by looking at the history of human control over weapon systems and some rules of International Weapons Law that are premised on the notion of human control over weapons they use, it can be said that the notion of human control has always been important in this discourse. Yet, the developments in military technologies as noted above have seen humans slowly delegating the control they exercise over weapons to computers. Although not expressly stated, the concern over the manner and extent by which humans exercise control over weapons was present in the drone technology debate. In the drone debate, however, it was more of the manner in which human control is exercised over weapons while in the case of Autonomous Weapon Systems it

²⁸ Hackerts, Doswold Becks & Alverman Customary International Humanitarian Law Vol 1 p 248 on Rule 71 regarding Weapons That Are by Nature Indiscriminate. See also https://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule71 (accessed 27 October 2015).

²⁹ Convention on the Prohibition of Anti-Personnel Mines (Ottawa Treaty) (1997). This is more so where the person planting the anti-personnel landmines does not monitor it or take any other precautionary measures.

³⁰ D Nicks 'US takes steps toward signing Landmine Ban Treaty' (2014) available at <http://time.com/2933269/us-landmine-treaty-ottawa/> (accessed 8 September 2014).



is about the extent – that is if present at all – to which humans exercise control over weapons they use.

7.5 The Notion of Human Control over Weapons and Drone Technology

The lessening of human control that is exercised over weapons is linked to the humans’ desire to project harm while being unsusceptible to the same harm. This has been a major factor in influencing the development of long ranged and projectile weapons.

Drone technology introduced a new form of control over weapons – remote control of weapons – which raised various concerns. Drone technology largely transformed human control over weapons, from ‘direct control’ of weapons to ‘remote control’. Now, Autonomous Weapons Systems will see humans delegating control over weapon systems to computers. Both drones and Autonomous Weapon Systems have raised concerns which are almost similar.

However, from a legal point of view, the control that is exercised over weapons in drone technology – albeit it being by remote control – has been largely ruled to be sufficient and acceptable leading to the general agreement that drones are not illegal weapons *per se*.³¹

Nevertheless, some commentators have separated the legal acceptance of drones from ethical arguments. There are still objections to the use of drones as being unethical and against the morals of war. In other words, there are some ethical objections to the manner human control is exercised over drone technology.

The objections stem from the basis that drones allow the user to be physically removed from the battlefield.³² As a result, chances are high that the user of drones can be

³¹ A/68/30532, report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013, para 13.

³² A/68/30532, report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013, para 14; See also P Alston & H Shamsi ‘A killer above the law’ available at <http://www.guardian.co.uk/profile/philip-alston> (accessed 17 August 2014.)



psychologically removed, something that may lead them to be ‘trigger happy’. To that end, and from an ethical point of view, the quality of control that a drone operator exercises over weapons may be affected by the mode he or she is using to control the weapons. One commentator has this view about the aspect of remote control of weapons:

Equally discomfoting is the PlayStation mentality that surrounds drone killings. Young military personnel raised on a diet of video games now kill real people remotely using joysticks. Far removed from the human consequences of their actions, how will this generation of fighters value the right to life? How will commanders and policy makers keep themselves immune from the deceptively antiseptic nature of drone killings? Will killing be a more attractive option than capture? Will the standards of intelligence gathering justify a killing slip? Will the number of acceptable collateral civilian deaths increase?³³

Thus, although drones may not be illegal weapons *per se*³⁴, some commentators have objected to humans remotely controlling weapons.³⁵ Yet Autonomous Weapon Systems place the debate on human control over weapons at another level altogether. This kind of technology has left many commentators wondering if humans are still in control of weapons they use.

With weapons that are already in existence, for example semi-Autonomous Weapon Systems, it appears the relationship between the weapon and the fighter is no longer a ‘master-tool relationship’, but that of partners – albeit humans still exercising some level of control. However, the remaining ‘control’ which humans still exercise over weapons is potentially threatened with the advent of Autonomous Weapon Systems.³⁶

³³ P Alston & H Shamsi ‘A killer above the law’ available at <http://www.guardian.co.uk/profile/philip-alston> (accessed 17 August 2014.)

³⁴ A/68/30532, report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013, para 13.

³⁵ It can be noted however, that other scholars have argued that because drone operators are removed from danger, it allows them to control weapons in a better way compared to those who are on the ‘hot’ battlefield where most may act out of fear and the desire for self-preservation.

³⁶ They are also called killer robots or lethal autonomous robots.



As has already been indicated throughout this thesis, there is a number of states developing Autonomous Weapon Systems that have increased autonomy in their ‘critical functions’.³⁷ Although such Autonomous Weapon Systems are not as yet in existence, when they are finally deployed, they will be able to identify, search, track and decide who to kill without human assistance or intervention.³⁸ Various scholars, non-governmental and international organisations have expressed concern over such kind of weapons, indicating that without proper control by humans, such kind of weapons may not be able to comply with the law – for example, rules on the protection of the right to life and dignity.³⁹ Yet, at the same time, Autonomous Weapon Systems also have some positive aspects that can potentially save lives.⁴⁰

7.6 Autonomy in Weapon Systems and the Notion of Human Control over weapons

To understand the issues regarding human control and Autonomous Weapon Systems, it is important to understand three important points. Firstly, autonomy in weapon systems does not denote ‘free will’ as it is understood in the philosophical discourse.⁴¹

³⁷ See for example US Department of Defense, ‘Unmanned Systems Integrated Roadmap FY2011-2036’, p vi.

³⁸ Amnesty International ‘Losing Humanity The Case against Killer Robots’ Available at http://www.hrw.org/sites/default/files/reports/arms1112ForUpload_0_0.pdf (Accessed February 28, 2014); See also US Department of the Navy, ‘The Navy Unmanned Undersea Vehicle (UUV) Master Plan,’ November 9, 2004, www.navy.mil/navydata/technology/uuvmp.pdf (accessed February 28, 2014), p. xvii.; Taranis Unmanned Combat Air Vehicle (UCAV) Demonstrator, United Kingdom,’ <http://www.airforce-technology.com/projects/tanaris/> (accessed February 28, 2014).

³⁹ Human Rights Watch ‘Shaking the Foundations: The Human Rights Implications of Killer Robots’ (2014) p 8 available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 7 September 2014) ; see also C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland, p 5 available at <http://www.icla.up.ac.za/images/un/speeches/heyns%20ccw%20presentation%20aws%20and%20human%20rights.pdf> (accessed 7 September 2014).

⁴⁰ See RC Arkin ‘Lethal Autonomous Weapon Systems and the Plight of the Non-combatant’ (2014) presentation to the CCW Expert Meeting on Lethal Autonomous Weapon Systems. available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 7 September 2014).

⁴¹ See US Department of Defense, Defense Science Board, Task Force Report, p. 1 & 21; C Heyns Report on lethal autonomous robots to the Human Rights Council (2013) A/HRC/23/47 p 8, para 43.



Secondly, the autonomy in weapons systems that humans must be worried about is that which is related to the ‘critical functions’ of autonomous systems.⁴² ‘Critical functions’ of Autonomous Weapon Systems are those that relate to the selecting and making of the decision to kill human targets.⁴³

Thirdly, autonomy in weapon systems exists on a continuum or spectrum.⁴⁴ On that spectrum, for example, there can be a situation where the human thinks and assesses a target before enabling the weapon system to attack; a weapon system that provides a number of targets but leaving it to the human to choose which one to attack; a weapon system that selects targets from a pool and asks for a ‘go-ahead’ from a human before attacking; a weapons system that selects the target and only give the human operator restricted time to override its choices and those that select targets and initiate the attack without human involvement.⁴⁵ P. Scharre has summarised the spectrum of autonomy as follows:

If the human is selecting the specific target or particular group of targets to be engaged, then the weapon is *semi-autonomous*. If the machine is selecting the specific targets and the human is observing in real-time and can intervene if necessary, then the human is exercising on the loop control over a *human supervised autonomous weapon*. And if the machine is selecting the specific targets and the human is unaware or unable to intervene, then the human is out of the loop for the selection of specific targets and the weapon is *fully autonomous*.⁴⁶ (Italics are mine).

⁴² Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva p 3.

⁴³ Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva p 3.

⁴⁴ See P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part II’ (2014)6-7 available at <http://justsecurity.org/12712/autonomy-killer-robots-human-control-force-part-ii/> (accessed 1 August 2014).

⁴⁵ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11.

⁴⁶ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part II’ (2014)6-7 available at <http://justsecurity.org/12712/autonomy-killer-robots-human-control-force-part-ii/> (accessed 1 August 2014).

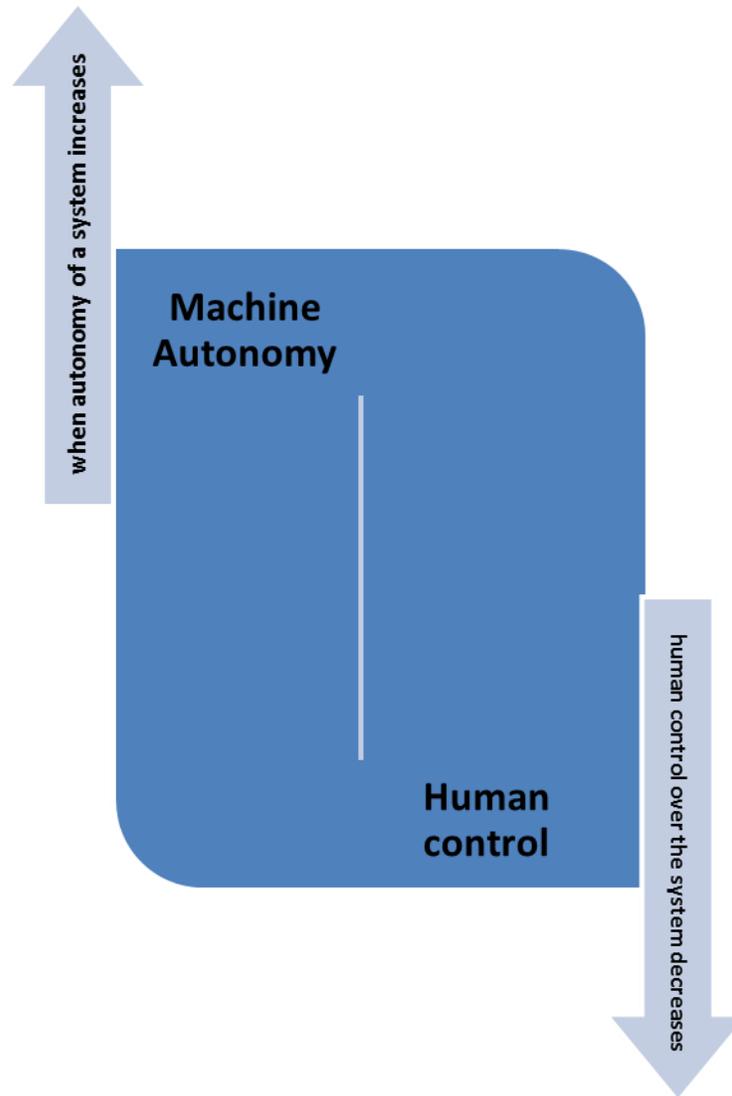


The relationship between autonomy in weapon systems and human control can be summarised as follows: the more the machine gains autonomy over the ‘critical functions’, the more humans exercise less control.

A decrease in human control might not be bad in itself; it is only when it is decreased to a certain extent or point that it becomes unacceptable. The important question is: At what point does decrease in human control over weapon systems become unacceptable?

The point made above that the involvement of machines in the execution of the ‘critical functions’ is not bad in itself stems from the fact that it cannot be denied that ‘computers are better and more efficient at performing some tasks than humans’.⁴⁷ At the same time, humans are better at other tasks that machines are not good at. A total exclusion of either humans or computers will not be in the best interest of humans.

⁴⁷ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 5.



The above graphic representation is not to suggest that the issue of machine autonomy versus human control is a game of numbers. Rather, it is to point out that in as far as the ‘critical functions’ of a weapon system is concerned, the more the system is allowed autonomy – that is to execute ‘critical functions’ without human input – the more human control - or rather, ‘Meaningful Human Control’ is reduced. This consideration is based on the fact that the more the system has autonomy in the ‘critical functions’ the more it is unpredictable thereby placing the individual deploying it in the dark.



Thus in the sense of the above, as much as humans must exercise control over weapon systems, it must be a balance between human and machine effort.⁴⁸ It is that balancing – not exclusion of the one or the other – that can ‘ensure precision and accurate targeting with less collateral damage and better predictable compliance with International Humanitarian Law’.⁴⁹ The same question still remains: At what point on the spectrum is the balance struck and at what point is it upset? It is necessary to clarify that the mere involvement of a human in the loop or in the execution of the ‘critical functions’ does not necessarily mean that he or she is exercising sufficient control of the weapon systems.

7.6.1 Human control versus ‘human in/on the loop’

When the debate on Autonomous Weapon Systems started, it can be noted that one of the major concerns has been the taking of humans *out of the loop*. Almost all the legal, moral and ethical objections to AWS resonated from the aspect of humans being out of the loop. Scholars like Heyns even point out that ‘taking humans out of the loop risks taking humanity out of the loop’.⁵⁰

Subsequently, questions have been asked whether, in Autonomous Weapon Systems, humans are *in the loop*, *on the loop*, *in the wider loop* or *out of the loop*.⁵¹ Leading roboticists like Ron Arkin maintain that human beings will always be in the loop. Likewise, the US has for long now maintained that notwithstanding the advanced stage of autonomous systems, humans will always remain in the loop.⁵² The US has

⁴⁸ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 5.

⁴⁹ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 5.

⁵⁰ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 16, para 89.

⁵¹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 9 April 2013, p 8, para 39.

⁵² PW Singer ‘In the loop? Armed robots and the future of war’ (2009) 1 quoting a US Air force Captain. Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014). Some military people, it is argued, maintain that there ‘will always be a need for the intrepid souls



subsequently designed a policy that endorses the idea of humans remaining in the loop.⁵³ Likewise, the UK has also come up with a policy that provides for the human involvement in the operation of Autonomous Weapon Systems.⁵⁴ Now, the question might be what is meant by ‘human in the loop’ and is it the equivalent of ‘Meaningful Human Control’ that is being proposed. The aspect of ‘Meaningful Human Control’ over weapon systems will be discussed below.

The term *human in the loop* and consequently *human out of the loop* started being used in the military⁵⁵ and other computing fields after John Boyd put forward a theory on the human decision-making processes.⁵⁶

According to Boyd, in making decisions, human beings ‘observe, orient, decide and act’.⁵⁷ This has come to be known as the OODA loop⁵⁸ wherein a person observes his/her surroundings through his/her human senses, orient themselves to the information observed, weighs possible reactions before deciding a course of action.⁵⁹

Machines and robots’ think-act paradigm follow the OODA loop as they do information acquisition, analysis, decision selection and action implementation.⁶⁰ In the case of

to fling their bodies across the sky’ in armed conflict.

⁵³ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 30 June 2014).

⁵⁴ See <http://www.icrc.org/eng/resources/documents/report/05-13-autonomous-weapons-report.htm> (accessed 30 June 2014).

⁵⁵ Used by USA Marine Corps even today. At page 40, The Marine Corps’ War fighting Manual states that the party that completes the OODA loop cycle faster than the other gains the military advantage. Available at http://www.dtic.mil/doctrine/jel/service_pubs/mcdp1.pdf (accessed 18 March 2014).

⁵⁶ S McIntosh ‘The wingman-philosopher of MiG alley: John Boyd and the OODA loop’ 58 *Air Power History* (2011) 26.

⁵⁷ See generally R Coram *Boyd: The fighter pilot who changed the art of war* (2002); FPB Osinga *Science, strategy and war: The strategic theory of John Boyd* (2006); GT Hammond *The mind of war: John Boyd and American security* (2001).

⁵⁸ B Brehmer ‘The dynamic OODA loop: Amalgamating Boyd’s OODA and the cybernetic approach to command and control’ (2005) *Remarks at the 10th international command and control research and technology symposium, Department of War Studies, Swedish National Defence College 2*.

⁵⁹ B Brehmer ‘The dynamic OODA loop: Amalgamating Boyd’s OODA and the cybernetic approach to command and control’ (2005).

⁶⁰ See for example E Sholes ‘Evolution of a UAV autonomy classification taxonomy’ Remarks at the IEEE Aerospace Conference Digest, *Aviation and Missile Research, Development and Engineering Centre*; G Coppin & F Legras ‘Autonomy spectrum and performance perception issues in swarm supervisory control’



machines or robots, if faulty or incorrect information is taken in at the observe stage, it affects the rest of the loop.⁶¹ For that reason - and for many years - human beings have remained *in the loop* – that is, present in the linear of the OODA loop – for the purposes of monitoring and verification of decisions made by machines or robots. This has been the case especially where life and death decisions are involved.

The level of any robot or machine's autonomy has thus been measured by the extent with which it is dependent on humans when performing the OODA loop.⁶² Where an unmanned system interacts with humans to complete the OODA loop, then humans are said to be in the loop; and consequently where it does not, humans are considered to be out of the loop.

In summary, therefore, determination of whether an unmanned system is autonomous or has a human being in the loop is thus based on three factors. Firstly, the rate at which it requires *human in loop* in executing its 'critical functions'. If an unmanned system is largely independent once activated – requiring no further human intervention – the more the machine is considered to be autonomous.⁶³ Secondly, the ability or inability of an unmanned system to function successfully in an unstructured and unpredictable environment points to its level of autonomy. Where an unmanned system is able to adapt to an environment which was not predicted in the laboratory or at the time of activation, it largely passes as autonomous.⁶⁴ Thirdly, the level at which an unmanned system can assert its operational decisions when executing its functions also determines whether it is autonomous or automated. An unmanned system that has capacity to

(2012) 100 *Proceedings of the IEEE* (2012) 590-2; R Parasuraman et al 'A model for types and levels of human interaction with automation' (2000) 30 *IEEE Transactions on systems, man, and cybernetics* 286-8. All available at <http://ieeexplore.ieee.org/> (accessed 18 March 2014).

⁶¹ C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1148.

⁶² PW Singer *Wired for war: The robotics revolution and conflict in the 21st century* (2009)74; C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1150.

⁶³ A Krishnan *Killer robots: Legality and ethicality of autonomous weapons* (2010) 4.

⁶⁴ C William et al 'Understanding "the loop": regulating the next generation of war machines' (2013) 36 *Harvard Journal of Law and Public Policy* 1154.



exercise discretion in executing its task is more fully autonomous. Such an unmanned system may even independently alter the means by which it was supposed to complete a certain task but still achieving the same end.

Apart from the doubts which exist that states will keep humans in the loop,⁶⁵ it should be noted that in as much as 'being in the loop' may be a component of 'Meaningful Human Control', it is not its equivalent. Thus, the NGO Article 36 observes that 'having a person 'in', 'on' or 'touching' 'the loop' of a weapons system does not in itself ensure that 'Meaningful Human Control' is exercised'.⁶⁶

Sharkey points to an important issue; 'to say that a human is in-the-loop does not clarify the degree of human involvement'.⁶⁷ There is need to take note of the psychological limitations of humans; not only in certain environments, but also when they work alongside machines. In as much as humans are capable of deliberative reasoning, they can also be victims of notions of automatic reasoning such as automation bias, assimilation bias and confirmation bias.

Humans, in many cases, seem to trust machine judgement. In fact whenever a machine is involved; they seem to second guess themselves. There are many examples where humans were in doubt of the machine's judgment, yet they went on to execute the wrong judgment of the machine.⁶⁸ Such situations are known as 'automation bias in the supervisory literature'.⁶⁹

⁶⁵ Noah Shachtman, editor of the US Military Wired Magazine, is quoted commenting about the US's insistence that humans will always be in the loop: '[That] sounds more like brainwashing than actual analysis. Their mantra is a bit like the line they repeat again and again in the movie *The Manchurian Candidate*. Sergeant Shaw is the kindest, bravest, warmest most wonderful human being... [Saying humans will always be in the loop] helps keep people calm that this isn't the *Terminators*.' Quoted in PW Singer 'In the loop? Armed robots and the future of war' (2009) 2 Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014).

⁶⁶ Article 36 'Key areas for debate on Autonomous Weapon Systems' (2014) 2 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).

⁶⁷ N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica & Società* 5.

⁶⁸ See for example http://en.wikipedia.org/wiki/List_of_airliner_shootdown_incidents (7 September



Humans also suffer from what has been termed ‘assimilation bias in the human supervisory control literature’⁷⁰, wherein humans see what they want to see or hear what they want to hear. This is what the Nobelist Daniel Kahneman in his book ‘Thinking, Fast and Slow’ has termed ‘WYSIATI’ – ‘what you see is all there is’.⁷¹ An example is that of a human drone operator ‘seeking out patterns of behaviour to determine a lethal drone strike, then seeing people load bales of hay or shovels onto a truck could initiate a causal story that they were loading rifles for an attack’.⁷² In most of those cases where humans seek to verify the information, chances are high that they go only for information that supports their already conceived belief. Such a process in human supervision of machines is called ‘confirmation bias’.⁷³

Now, in defining what might be meant by the term ‘Meaningful Human Control’, it can be argued that scholars must not be tempted to either equate it to the mere involvement of a human being in the loop or complete control of the system. To ascertain what is meant by ‘Meaningful Human Control’, there may be a need to ask another question: When humans are in the loop, what is their actual role? What are they doing in that loop?

Now that I have already mentioned the term ‘Meaningful Human Control’ over weapons, it is important to track how this term came into being.

2014). It gives an account of civilian planes that have been short down intentionally or by accident. For some of those shot down by accident, human operators doubted the assessment and judgments of computers but proceeded to shot down the aircraft that turned to be civilian.

⁶⁹ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 9.

⁷⁰ JM Carroll and MB Rosson ‘Paradox of the Active User’ in JM Carroll (eds) *Interfacing thought: Cognitive aspects of human-computer interaction* (1987) 80-111.

⁷¹ See <http://mistakebank.caddellinsightgroup.com/2011/10/kahneman-what-you-see-is-all-there-is.html>

⁷² N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 9. See also KL Mosier & LJ Skitka ‘Human decision makers and automated decision aids: Made for each other?’ in M Mouloua (eds) *Automation and human performance: Theory and applications* (1996) 201-220.

⁷³ CG Lord et al ‘Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence’ (1979) *The Journal of Personality and Social Psychology* para. 1231-1243.



7.7 Towards finding a solution to challenges posed by AWS

The term ‘Meaningful Human Control’ over weapon systems came into being amidst debates on Autonomous Weapon Systems and participants seeking solutions to the challenges posed by the emerging technology.

Since 2013, there are various expert meetings that have been held on Autonomous Weapon Systems. Many solutions have been proposed as a response to the technology. Human Rights Watch and a number of organisations that constitutes the Campaign to Stop Killer Robots have called for a pre-emptive ban of Autonomous Weapon Systems.⁷⁴

In May 2013, the UN special rapporteur on extrajudicial killing, summary or arbitrary executions submitted a report to the UN Human Rights Council calling for national moratoria ‘at least on the production, transfer, acquisition, and use’ of Autonomous Weapon Systems.⁷⁵ His stance on the technology is that at least states must critically examine the technology and all the arguments that are made to come up with an appropriate solution. Christof Heyns’ report culminated in the issue being discussed by States parties to the Convention on Conventional Weapons.

In November 2013, the Convention on Conventional Weapons (CCW) placed the issue of Autonomous Weapon Systems on its 2014 agenda and subsequently held expert meetings on the matter in May 2014 and April 2015.⁷⁶ It was within this meeting that the notion of ‘Meaningful Human Control’ was repeated by various participants over and over again.

⁷⁴ See <http://www.stopkillerrobots.org/> (accessed 7 September 2014).

⁷⁵ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 113.

⁷⁶ See the UN 2014 Expert Meeting on Lethal Autonomous Weapon Systems <http://www.unog.ch/80256EE600585943/%28httpPages%29/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument> (accessed 7 September 2014) and the 2015 UN Expert Meeting on Lethal Autonomous Weapon Systems <http://www.unog.ch/80256EE600585943/%28httpPages%29/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument> (accessed 1 June 2015).



Human rights organisations have played an important role in the development of weapons and Autonomous Weapon Systems are not an exception.⁷⁷ The NGO Article 36, whose mission is ‘to prevent the unintended, unnecessary or unacceptable harm caused by certain weapons’ and a founding member of the Campaign to Stop Killer Robots proposed that the solution to the challenges posed by Autonomous Weapon Systems is to insist on ‘meaningful human control’ of weapons.⁷⁸ The notion of ‘Meaningful Human Control’ – albeit not having a specific definition – has, as noted above, attracted a lot of support and has been gaining traction.⁷⁹ Commentators have already begun to provide possible definitions to this notion as will be discussed below.⁸⁰

7.8 The emerging notion of ‘Meaningful Human Control’

In as much as other words and terms with more or less the same meaning – words and phrases such as ‘significant’, ‘appropriate’, ‘proper’, or ‘necessary’ ‘human judgement’ or ‘human involvement’ – may have been used in relation to weapons control before, NGO Article 36 was the first to coin the phrase ‘Meaningful Human Control’ in relation to Autonomous Weapon Systems.⁸¹ It pointed out that acceptability of a weapon or weapon system depends on the extent humans are in control of that particular weapon.⁸²

In the 2014 CCW meeting - and citing the principle of humanity as the fountain from which the notion of ‘Meaningful Human Control’ comes from - the NGO Article 36 emphasised the need for ‘deliberative moral reasoning, by human beings, over

⁷⁷ See <http://www.stopkillerrobots.org/> (accessed 7 September 2014).

⁷⁸ See www.article36.org (accessed 1 August 2014).

⁷⁹ See

<http://www.unog.ch/80256EE600585943/%28httpPages%29/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument> (accessed 7 September 2014).

⁸⁰ Under the section constructing the meaning of ‘Meaningful Human Control’.

⁸¹ Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 2 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).

⁸² Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 2 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).



individual attacks’ and reiterated the call for a ban on weapons that do not allow ‘Meaningful Human Control’.⁸³ According to the NGO Article 36, International Humanitarian Law requires ‘human commanders, the people upon whom the law bears, to make deliberative case by case judgements on the legality of individual attacks’.⁸⁴

It also stated that the requirement of ‘Meaningful Human Control’ in weapon systems ‘is implicit in existing international law governing the use of force’ making it ethically and legally unacceptable to develop or deploy weapons that are devoid of ‘Meaningful Human Control’.⁸⁵ As a result, the NGO Article 36 asked member states to the CCW ‘to negotiate a new international legal instrument that would establish a positive obligation for ‘Meaningful Human Control’ over individual attacks and by so doing prohibit weapon systems from operating without the necessary human control’.⁸⁶ The NGO Article 36 has repeated the importance of this notion of ‘Meaningful Human Control’ in other reports.⁸⁷

Other NGOs and international organisations have also supported or endorsed this emerging notion. In the context of law enforcement, Amnesty International voiced its concern that ‘weapon systems without ‘Meaningful Human Control’ would not be able to correctly assess complex policing situations and comply with relevant standards, which prohibit the use of firearms except in defence against an imminent threat of death or serious injury’.⁸⁸ To that end, Amnesty International argues that weapons

⁸³ Remarks by Thomas Nash, Director, Article 36 Informal Expert Meeting on Lethal Autonomous Weapon Systems Convention on Certain Convention of Weapons, Geneva (2014).

⁸⁴ Remarks by Thomas Nash, Director, Article 36 Informal Expert Meeting on Lethal Autonomous Weapon Systems Convention on Certain Convention of Weapons, Geneva (2014).

⁸⁵ Article 36 statement by Laura Boillot to CCW informal meeting on lethal Autonomous Weapon Systems available at <http://www.article36.org/statements/remarks-to-the-ccw-on-autonomous-weapons-systems-13-may-2014/> (accessed 1 August 2014).

⁸⁶ Article 36 statement by Laura Boillot to CCW informal meeting on lethal Autonomous Weapon Systems available at <http://www.article36.org/statements/remarks-to-the-ccw-on-autonomous-weapons-systems-13-may-2014/> (accessed 1 August 2014).

⁸⁷ See ‘Autonomous weapons, ‘Meaningful Human Control’ and the CCW’ (2014) available at <http://www.article36.org/weapons-review/autonomous-weapons-meaningful-human-control-and-the-ccw/> (accessed 31 July 2014).

⁸⁸ Statement by Brian Wood, Head of Arms Control and Security Trade, International Secretariat, Amnesty



without ‘Meaningful Human Control’ are in many ways likely to violate important human rights like the right to life.⁸⁹

Human Rights Watch also sounded the same clarion notes in the 2014 CCW Meeting on Autonomous Weapon Systems. It categorically stated that ‘there should always be ‘Meaningful Human Control’ over targeting and kill decisions’⁹⁰ and observed that the key to successful solutions on Autonomous Weapon Systems is ‘the emergence of a consensus that there should always be ‘Meaningful Human Control’ of the targeting and kill decisions in any individual attack on other humans’.⁹¹ Furthermore, Human Rights Watch observed that the determination of the meaning of the notion and its nature ‘is perfectly suited to CCW expert work’.⁹²

In its report on the International Committee of the Red Cross (ICRC) Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’ that was held from 26 to 28 March 2014, the ICRC reports that many participants in the

International (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/1E7C4FC2E94376D6C1257CD7006A8698/\\$file/NGOAmnesty_MX_LAWS_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/1E7C4FC2E94376D6C1257CD7006A8698/$file/NGOAmnesty_MX_LAWS_2014.pdf) (accessed 31 July 2014).

⁸⁹ Statement by Brian Wood, Head of Arms Control and Security Trade, International Secretariat, Amnesty International (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/1E7C4FC2E94376D6C1257CD7006A8698/\\$file/NGOAmnesty_MX_LAWS_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/1E7C4FC2E94376D6C1257CD7006A8698/$file/NGOAmnesty_MX_LAWS_2014.pdf) (accessed 31 July 2014)

⁹⁰ Statement by Human Rights Watch to the Convention on Conventional Weapons Informal Meeting of Experts on Lethal Autonomous Weapon Systems May 13, 2014, Delivered by Steve Goose, Director, Arms Division (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/\\$file/NGOHRW_LAWS_GenStatement_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/$file/NGOHRW_LAWS_GenStatement_2014.pdf) (accessed 31 July 2014).

⁹¹ Statement by Human Rights Watch to the Convention on Conventional Weapons Informal Meeting of Experts on Lethal Autonomous Weapon Systems May 13, 2014, Delivered by Steve Goose, Director, Arms Division (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/\\$file/NGOHRW_LAWS_GenStatement_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/$file/NGOHRW_LAWS_GenStatement_2014.pdf) (accessed 31 July 2014).

⁹² Statement by Human Rights Watch to the Convention on Conventional Weapons Informal Meeting of Experts on Lethal Autonomous Weapon Systems May 13, 2014, Delivered by Steve Goose, Director, Arms Division (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/\\$file/NGOHRW_LAWS_GenStatement_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6CF465B62841F177C1257CE8004F9E6B/$file/NGOHRW_LAWS_GenStatement_2014.pdf) (accessed 31 July 2014).



meeting emphasised the importance of the notion of ‘Meaningful Human Control’ over weapons systems.⁹³

In the 2014 CCW meeting on Autonomous Weapon Systems, the ICRC acknowledged that the notion of ‘Meaningful Human Control’ was gaining traction and that to understand the notion, there is need to ‘examine current weapons that have autonomy in ‘critical functions’ to see how ‘Meaningful Human Control’ is understood and considered to be implemented in practice today’.⁹⁴

At some point on an incremental process of increasing autonomy in the ‘critical functions’ of weapon systems, human control may no longer be meaningful. As we mentioned in our opening statement, we believe the crucial aspect is human control over the use of force, and what constitutes meaningful, appropriate and responsible human control over the ‘critical functions’ of weapon systems. Where humans are so far removed in time and space from control over the weapon system, the human decision-making process on the use of force may in effect be substituted with machine decision-making.⁹⁵

Aligning itself with other organisations, the Campaign to Stop Killer Robots indicated that ‘there is great concern with the prospect of future weapons that, once activated, would select and engage targets without ‘Meaningful Human Control’.⁹⁶ It highlighted

⁹³ Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva 9 May 2014 p.1, 2, 10, 12, 14 and 16 available at <http://www.icrc.org/eng/assets/files/2014/expert-meeting-autonomous-weapons-icrc-report-2014-05-09.pdf> (accessed 1 August 2014).

⁹⁴ ICRC intervention during the CCW Meeting (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/3A14BC199AF51935C1257CDA0071994D/\\$file/ICRC+LAWS+2014+technical+aspects.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/3A14BC199AF51935C1257CDA0071994D/$file/ICRC+LAWS+2014+technical+aspects.pdf) (accessed 31 July 2014).

⁹⁵ ICRC statement to concluding session CCW Expert Meeting on ‘Lethal Autonomous Weapon Systems’ 16 May 2014 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/8E6FED84C1D0308CC1257D1500522314/\\$file/ICRC_LAWS_FinalStatement_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/8E6FED84C1D0308CC1257D1500522314/$file/ICRC_LAWS_FinalStatement_2014.pdf) (accessed 31 July 2014).

⁹⁶ Campaign to Stop Killer Robots statement by Mary Wareham, Human Rights Watch to the Convention on Conventional Weapons meeting of experts Geneva, Switzerland 16 May 2014 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/16B608BD428C6D17C1257CDA0056AA62/\\$file/NGO+Campaign+StopKillBots_FinalStatement.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/16B608BD428C6D17C1257CDA0056AA62/$file/NGO+Campaign+StopKillBots_FinalStatement.pdf) (accessed 31 July 2014).



the ‘the importance of always maintaining ‘Meaningful Human Control’ over targeting and attack decisions’.⁹⁷

Likewise, the International Committee for Robot Arms Control took note of the strengths and weaknesses of both machines and humans and concluded that it is only ‘the combined strengths of humans and computers operating together, with humans always in ‘meaningful control’ of targeting and engagement decisions [that] best serves military objectives and is the wisest path from a strategic, legal and ethical perspective’.⁹⁸

A number of states has also referred to or supported this notion of ‘Meaningful Human Control’ indicating that it can possibly be the solution to the challenges posed by Autonomous Weapon Systems. The following are some examples of States who expressed their opinions about the notion of ‘Meaningful Human Control’ during the 2014 CCW meeting on Autonomous Weapon Systems.

In their statement to the Chairperson, the German delegation stated as follows:

Mr. Chairperson, we firmly believe that there should be a common understanding in the international community that it is indispensable to maintain ‘Meaningful Human Control’ over the decisions to kill another human being. We cannot take humans out of the loop. We do believe that the principle of human control is already implicitly inherent in international humanitarian law which, I said before, remains a binding and guiding line also with regard to the new weapons systems. And we cannot see any more any reason why technological development should all of the sudden suspend the validity of the principle of human control.⁹⁹

⁹⁷ Campaign to Stop Killer Robots statement by Mary Wareham, Human Rights Watch to the Convention on Conventional Weapons meeting of experts Geneva, Switzerland 16 May 2014 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/16B608BD428C6D17C1257CDA0056AA62/\\$file/NGO+Campaign+StopKillBots_FinalStatement.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/16B608BD428C6D17C1257CDA0056AA62/$file/NGO+Campaign+StopKillBots_FinalStatement.pdf) (accessed 31 July 2014).

⁹⁸ ICRC closing statement to the UN CCW Expert Meeting (2014) available at <http://icrac.net/2014/05/icrac-closing-statement-to-the-un-ccw-expert-meeting/> (accessed 1 August 2014).

⁹⁹ Statement of the German delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Germany.pdf (accessed 31 July 2014).



While acknowledging the newness and lack of definition of the notion, the German delegate observed that the notion of ‘Meaningful Human Control’ is in fact ‘an indispensable principle of international humanitarian law’.¹⁰⁰ The element of the notion of ‘Meaningful Human Control’ being part of International Humanitarian Law was also supported by the delegation from Croatia.¹⁰¹

Switzerland also expressed strong sentiments regarding the issue of ‘Meaningful Human Control’. It noted that development and deployment of weapon systems that operate without ‘Meaningful Human Control’ raises far reaching ethical concerns.¹⁰² The delegation from Switzerland thus highlighted the notion could be the solution to the problem of Autonomous Weapon Systems and delegates should strive to find what would constitute ‘Meaningful Human Control’.¹⁰³

During the 2014 CCW Meeting on Autonomous Weapon Systems, Norway contrasted weapon systems that are in existence with weapon systems with increased autonomy, noting that existing weapon systems have some form of ‘Meaningful Human Control’.¹⁰⁴ As a point in the direction of what might be meant by the term ‘Meaningful Human Control’, Norway recalled that for weapon systems that are already in the employ of

¹⁰⁰ Statement of the German delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Germany.pdf (accessed 31 July 2014).

¹⁰¹ Statement of the Croatia delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/16May_Croatia.pdf (accessed 31 July 2014).

¹⁰² Statement of the Switzerland delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Switzerland.pdf (accessed 31 July 2014).

¹⁰³ Statement of the Switzerland delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Switzerland.pdf (accessed 31 July 2014).

¹⁰⁴ Statement of the Norway delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Norway.pdf (accessed 31 July 2014).



states are only operated in ‘tightly constrained spatial and temporal limits so that ‘Meaningful Human Control’ is ensured’.¹⁰⁵

Although the United Kingdom did not point to the notion of ‘Meaningful Human Control’ during the 2014 CCW Meeting on Autonomous Weapon Systems, she has done so elsewhere. One of the parliamentary representatives of the United Kingdom has already pointed out ‘that the operation of weapon systems will always be under human control’.¹⁰⁶

The delegation from the US also made some detailed comments on the merging notion of ‘Meaningful Human Control’ in its closing statement in the 2014 CCW Meeting on Autonomous Weapon Systems. The delegation made some important remarks about this notion and I repeat it verbatim below because in this paper I will continue to make reference to the sentiments expressed therein. The US delegation remarked as follows:

There remains a lack of clarity regarding the notion of autonomous weapons decision making. As we have said, it is *important to remind ourselves that machines do not make decisions; rather, they receive inputs and match those against human programmed parameters...* We have heard some discussions about the relationship between humans and machines...they have been many references this week to the notion of ‘*Meaningful Human Control*’. But from our perspective, *this formulation does not sufficiently capture the full range of human activity that takes place in weapons systems development, acquisition, fielding and use; including a commander’s or an operator’s judgment to employ a particular weapon to achieve a particular effect on a particular battlefield.* Crucially we also need to consider whether through effective training of personnel, autonomous features of weapons system may be made more predictable; for instance, ensuring that Autonomous Weapon Systems are only used as intended and with full knowledge of its

¹⁰⁵ Statement of the Norway delegate to the CCW Meeting of Experts Lethal Autonomous Weapon Systems (2014) available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2014/statements/13May_Norway.pdf (accessed 31 July 2014).

¹⁰⁶ Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 2 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014) quoting Lord Astor of Hever, Parliamentary Under Secretary of State, Defence, L Deb, 26 March 2013, c959.



functioning could enhance precision and thus reduce collateral damage and risks to non-combatants.¹⁰⁷ (Italics mine)

These observations from the US will be discussed below. However, there is no doubt that the notion of ‘Meaningful Human Control’ was one of the themes that consistently ran through the 2014 CCW meeting on Autonomous Weapon Systems with the Chairman of the meeting observing as follows in his final report:

Many interventions stressed that the notion of ‘Meaningful Human Control’ could be useful to address the question of autonomy. Other delegations also stated that this notion requires further study in the context of the CCW.¹⁰⁸

A number of scholars have also referred to the notion of ‘Meaningful Human Control’’. In his presentation at the CCW Meeting, roboticist Noel Sharkey emphatically stated that the international community ‘must maintain ‘Meaningful Human Control’ in weapon systems.¹⁰⁹ The role of the human in the loop has been and must remain a legal principle,¹¹⁰ its erosion must be resisted and the international community must ‘lock down human supervisory control as a legal principle of human control’.¹¹¹ Sharkey argues that because of the inadequacy of current technology to make distinctions on objects – between military and civilian objectives – ‘we must ensure that the decision to kill remains firmly under human control’.¹¹² As a precautionary measure to counter any

¹⁰⁷ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).

¹⁰⁸ Chairman’s Report of the 2014 informal Meeting of Experts on Lethal Autonomous Weapon Systems (LAWS) para 20 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/\\$file/Report_AdvancedVersion_10June.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/350D9ABED1AFA515C1257CF30047A8C7/$file/Report_AdvancedVersion_10June.pdf) (accessed 31 July 2014).

¹⁰⁹ Noel Sharkey presentation available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/78C4807FEE4C27E5C1257CD700611800/\\$file/Sharkey_MX_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/78C4807FEE4C27E5C1257CD700611800/$file/Sharkey_MX_LAWS_technical_2014.pdf) (accessed 31 July 2014).

¹¹⁰ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 13-14.

¹¹¹ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 14.

¹¹² N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 1.



problems resulting from autonomy – problems such as ‘malfunctions, communications degradation, software coding errors, enemy cyber-attacks’ etc – Sharkey suggests that humans have to exercise ‘Meaningful Human Control’ over weapon systems’.¹¹³

Robotist Ron Arkin has also acknowledged the use of the term noting that ‘there remains a long way to go even in terms of shared definitions and terminology regarding autonomy and ‘Meaningful Human Control’.¹¹⁴

Christof Heyns argues that the first step ‘would be to take a collective decision now, before such weapons are deployed; that humans, whether in the narrow or wider loop, should retain meaningful control over each decision to launch a potentially deadly attack – and to ensure that this line is not crossed’.¹¹⁵ Recently in 2014, he pointed to the urgent ‘need to develop a clearer picture of what ‘meaningful’ or ‘appropriate levels of’ human control would entail’.¹¹⁶ He observed that the notion ‘provides a popular standard to be used to distinguish acceptable from unacceptable uses of increasingly autonomous systems’ that is worth of study.¹¹⁷

P. Scharre has acknowledged that military people are likely to prefer ‘Meaningful Human Control’ of any weapon system observing that:

¹¹³ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 1.

¹¹⁴ J Morley ‘Autonomous Weapons Stir Geneva Debate’ (2014) available at https://www.armscontrol.org/act/2014_06/news/Autonomous-Weapons-Stir-Geneva-Debate (accessed 1 August 2014).

¹¹⁵ C Heyns ‘Speech delivered at the ‘Conference on Autonomous Weapons – Law, Ethics, Policy’ on 24 – 25 April 2014 hosted by the European University Institute in Florence, Italy.

¹¹⁶ C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014), Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/\\$file/Heyns_LAWS_otherlegal_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/$file/Heyns_LAWS_otherlegal_2014.pdf) (accessed 31 July 2014).

¹¹⁷ C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014), Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/\\$file/Heyns_LAWS_otherlegal_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/$file/Heyns_LAWS_otherlegal_2014.pdf) (accessed 31 July 2014).



All things being equal, militaries are likely to favour weapons that have greater connectivity with human controllers for sensible operational reasons. Keeping humans in the loop decreases the chances of weapons striking the wrong target, resulting in fratricide or civilian casualties, or that they simply miss their target entirely, wasting scarce and expensive munitions.¹¹⁸

Mark Hagerott rightly observes that the notion of ‘Meaningful Human Control’ is more applicable to Autonomous Weapon Systems and asks an important question: ‘Where does ‘Meaningful Human Control’ fade away?’¹¹⁹

Some have maintained the call for a pre-emptive ban on fully autonomous weapons on the basis of the notion of ‘Meaningful Human Control’, arguing that a ban ‘is necessary to ensure the retention of ‘Meaningful Human Control’ over targeting and attack decisions, which in turn is necessary to ensure that we uphold the principles of humanity as much as possible in the face of the already existing horrors of war and conflict’.¹²⁰

P. Asaro noted that if the notion of ‘Meaningful Human Control’ does not exist in international law as yet, there is need to establish it.¹²¹ Therefore, there is no doubt that the notion of ‘Meaningful Human Control’ is seen as a possible solution to the problems that are posed by Autonomous Weapon Systems. What is crucial is finding what is meant by this emerging notion.

¹¹⁸ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part II’ (2014) available at <http://justsecurity.org/12712/autonomy-killer-robots-human-control-force-part-ii/> (accessed 1 August 2014).

¹¹⁹ Mark Hagerott Unclassified Lethal Autonomous Weapon Systems (LAWS): Offering a Framework and Suggestions UN Geneva CCW 15 May 2014 available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FE3C0C2BDE9FE12EC1257CF30040982D/\\$file/Hagerott_LAWS_military_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FE3C0C2BDE9FE12EC1257CF30040982D/$file/Hagerott_LAWS_military_2014.pdf)

¹²⁰ See ‘Autonomous weapons firmly on international agenda’ (2014) available at <http://www.reachingcriticalwill.org/news/latest-news/8895-autonomous-weapons-firmly-on-international-agenda> (accessed 1 August 2014).

¹²¹ See Peter Asaro presentation to the CCW Meeting (2014) available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/79F6199F74DC824CC1257CD8005DC92F/\\$file/Asaro_LAWS_ethical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/79F6199F74DC824CC1257CD8005DC92F/$file/Asaro_LAWS_ethical_2014.pdf) (accessed 31 July 2014).



7.9 Constructing the elements of ‘Meaningful Human Control’

There is no doubt that the notion of ‘Meaningful Human Control’ over weapon systems can provide some solutions to the problems posed by autonomy in weapons systems. However, such a solution will only succeed if the constitutive elements of the notion of ‘Meaningful Human Control’ are carefully and correctly articulated.

As noted above, in their closing statement at the 2014 CCW Meeting of experts, the delegate from the US observed as follows:

There remains a lack of clarity regarding the notion of autonomous weapons decision making. As we have said, it is *important to remind ourselves that machines do not make decisions; rather, they receive inputs and match those against human programmed parameters...We have heard some discussions about the relationship between humans and machines...they have been many references this week to the notion of ‘Meaningful Human Control’*. But from our perspective, this formulation does not sufficiently capture the full range of human activity that takes place in weapons systems development, acquisition, fielding and use; including a commander’s or an operator’s judgment to employ a particular weapon to achieve a particular effect on a particular battlefield. Crucially we also need to consider whether through effective training of personnel, autonomous features of weapons system may be made more predictable; for instance, ensuring that Autonomous Weapon Systems are only used as intended and with full knowledge of its functioning could enhance precision and thus reduce collateral damage and risks to non-combatants.¹²² (Italics are mine)

In the consideration of the fundamental question of what is meant by the term ‘Meaningful Human Control’, the above statement from the US delegation raises questions as to whether:

- i) ‘Meaningful Human Control’ can be pre-exercised through programming it into a machine?

¹²² US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



- ii) Or, can it only be exercised by a human in real time, which is at the time when force is released?

The dictionary meaning of the word ‘meaningful’ points to what is ‘significant, relevant, important, consequential, material, telling, pithy, weighty, valid, worthwhile, purposeful’¹²³ while the word ‘control’ refers to ‘the power to influence or direct...behaviour or the course of events’ through ‘charge, management, direction, guidance, supervision, superintendence, oversight influence’.¹²⁴

The literal meaning of ‘Meaningful Human Control’ over weapon systems will therefore be the significant, material or purposeful exercise of power over machines to influence or direct their behaviour through taking charge of them, directing their actions or supervision.

In the sense of the above and from the point of view of the US delegation at the 2014 CCW meeting on autonomous weapons, the question becomes whether control that is ‘programmed’ into a system and that set the bounds of the mission (such as the geographical area of operation, the time dimension, what to do in case of an ambiguous situation) — can form a ‘meaningful form of human control’.

In the debate on Autonomous Weapon Systems, arguments such as that machines or robots can perform better than human soldiers have already been made. There is no doubt that such arguments may be raised as to who can actually exercise better or ‘Meaningful Human Control’ over weapons, a computer algorithm with an ethical governor that is pre-programmed or a human being in real time? For example, most of the systems that have been approved as lawful weapons are to some degree under the control of machine chips where a ‘computer program mediates human control’.¹²⁵ The question of who may exercise ‘meaningful control’ over weapons between a

¹²³ See <http://www.oxforddictionaries.com/definition/english/meaningful> (accessed 7 September 2014).

¹²⁴ See <http://www.oxforddictionaries.com/definition/english/meaningful> (accessed 7 September 2014).

¹²⁵ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 1.



preprogrammed control software and a human being in real time may boil down to the issue of the 'quality' of control that is exercised.

Now, as I have noted above, where machines are involved on the battlefield, humans have become the weakest link. Sharkey observes that machines process information in 'a matter of seconds and thus render it extremely difficult for human operators to exercise meaningful supervisory control'.¹²⁶ US Colonel Thomas Adams has echoed the same sentiments noting that machines may be 'too fast, too numerous and will create an environment too complex for humans to direct'.¹²⁷

Coupled with the factor of humans being the weakest links in terms of speed, humans who have remained in the loop have, after all, been trusting machines - rubberstamping the decisions or judgments made by computers even where they have clear doubt. A consideration of some of these factors can make one to reach the conclusion that in a battlefield that is characterised by high-tech weapons, only advanced computers with high-tech software can offer meaningful control over such weapons. It is common cause that most of the human fighters or commanders are not computer-nerds or that well conversant to understand their operations. These considerations may be in favour of the suggestions made by Ron Arkin, to develop an ethical governor that can control weapon systems. It may appear to be the only reasonable to qualitatively control high-tech weapons.

Yet, the weaknesses of human beings 'should not be taken as a good reason for saying that machines could do the task better. It is simply a good reason for saying that we need a better-designed interface', an inter-face that allows meaningful human input in real time.¹²⁸

¹²⁶ N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica & Società* 13.

¹²⁷ Quoted in PW Singer 'In the loop? Armed robots and the future of war' (2009) 4 Available at <http://www.brookings.edu/research/articles/2009/01/28-robots-singer> (accessed 25 March 2014).

¹²⁸ N Sharkey 'Towards a principle for the human supervisory control of robot weapons' (2014) *Politica &*



In order to correctly articulate the constitutive elements of ‘Meaningful Human Control’, I propose that important questions be asked. I consider the following questions to be helpful in finding such elements:

- i. What is the purpose of the notion of ‘Meaningful Human Control’? In other words, what is it which the international community is trying to resolve?
- ii. Who should exercise that ‘Meaningful Human Control’ over weapons and when? Is it manufacturers, programmers, the individuals who deploy them or all of them?
- iii. What are the exact aspects of Autonomous Weapon Systems over which ‘Meaningful Human Control’ must be exercised?

To answer the first question, it is inevitable to look at the major challenges that are posed by weapon systems with increased autonomy. The purpose of the notion of ‘Meaningful Human Control’ over weapon systems is mainly to address those challenges. Although there is an array of challenges posed by Autonomous Weapon Systems, the three chief concerns are that if Autonomous Weapon Systems are able to make the decision to kill and implement it without human involvement, it may:

- i. Violate the right to life both in war and peace¹²⁹
- ii. Violate the right to dignity¹³⁰

Società 16.

¹²⁹ Human Rights Watch ‘Shaking the Foundations: The Human Rights Implications of Killer Robots’ (2014) p 8 available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 7 September 2014) ; see also C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland, p 5 available at <http://www.icla.up.ac.za/images/un/speeches/heyns%20ccw%20presentation%20aws%20and%20human%20rights.pdf> (accessed 7 September 2014).

¹³⁰ Human Rights Watch ‘Shaking the Foundations: The Human Rights Implications of Killer Robots’ (2014) p 8 available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 7 September 2014) ; see also C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014)



iii. Lead to an accountability vacuum for such violations.¹³¹

Peter Asaro shares the same sentiments I expressed above when he argues that in seeking to find what is meant by ‘Meaningful Human Control’, ‘we should focus on the threats posed to fundamental norms of responsibility and accountability, and to the threats to human rights and human dignity that these new technologies present’.¹³²

There is no doubt that human soldiers equally threaten the right to life and can violate the right to dignity as can be seen in current armed conflicts.¹³³ The difference in comparison to Autonomous Weapon Systems, however, is that humans can be held accountable for their actions. AWS that have a degree of autonomy that leaves an accountability gap is thus, in my view, the greatest challenge. Therefore, in as much as the desire for humans to retain ‘Meaningful Human Control’ over weapons may not prevent violations of the right to life and dignity – as it can still be violated by humans themselves, even so, at a higher level¹³⁴ – it will ensure that they are held accountable for their actions.

Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland, p 5 available at <http://www.icla.up.ac.za/images/un/speeches/heyns%20ccw%20presentation%20aws%20and%20human%20rights.pdf> (accessed 7 September 2014).

¹³¹ See M Walzer *Arguing about war* (2004) 287; 6 Perri ‘Ethics, regulation and the new artificial intelligence, part II: autonomy and liability’ (2001) *Information, Communication and Society* 406-434; KE Himma ‘Artificial agency, consciousness, and the criteria for moral agency: what properties must an artificial agent have to be a moral agent?’ (2007) 7th *International Computer Ethics Conference*; R Sparrow ‘Killer Robots’ (2007) 24 *Journal of Applied Philosophy* 73-74; W Wallach ‘From robots to techno sapiens: Ethics, law and public policy in the development of robotics and neurotechnologies’ (2011)3 *Law, Innovation and Technology* 194.

¹³² PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 15.

¹³³ See RC Arkin ‘Lethal Autonomous Weapon Systems and the Plight of the Non-combatant’ (2014) presentation to the CCW Expert Meeting on Lethal Autonomous Weapon Systems. Available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 7 September 2014).

¹³⁴ See RC Arkin ‘Lethal Autonomous Weapon Systems and the Plight of the Non-combatant’ (2014) presentation to the CCW Expert Meeting on Lethal Autonomous Weapon Systems. Available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/\\$file/Arkin_LAWS_technical_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/FD01CB0025020DDFC1257CD70060EA38/$file/Arkin_LAWS_technical_2014.pdf) (accessed 7 September 2014).



The starting point of defining ‘Meaningful Human Control’ over weapons therefore is that the control exercised by humans must be of such a nature that it is the human operator who is directly responsible for the ‘intent and action’ carried out by the machine.

There should always be some hands to cuff whenever a crime is committed.¹³⁵ If there is a chance, even the slightest of chances that the fighter will not be held accountable for the ‘actions of the machine’ he deployed, then, he/she is not exercising ‘meaningful control over it’. In fact, the machine should not be an actor; every action must be the direct brain-child and act of the fighter (in real time) for which he is completely responsible.

The second question as to who should exercise ‘Meaningful Human Control’ over weapons and when, is also very important. When discussing the issue of accountability, questions have been raised by commentators as to whether manufacturers, programmers, roboticists and other players in the development of AWS are part of the responsibility equation.¹³⁶ Other scholars have even suggested the sharing and splitting of responsibility amongst all these actors.¹³⁷

It is in the same vein that the US delegation’s statement in the CCW Expert meeting on AWS suggested that ‘Meaningful Human Control’ starts right from manufacturing of different components of AWS, programming of software up to the final deployment of Autonomous Weapon Systems.¹³⁸ Thus, there was a suggestion that in considering what ‘Meaningful Human Control’ means, there should be a ‘capture [of] the full range of

¹³⁵ See M Walzer *Arguing About War* (2004) 287.

¹³⁶ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, 2013 para 79.

¹³⁷ G Verugio & K Abney ‘Roboethics: The Applied Ethics for a New Science’ in Lin p 114; R Sparrow ‘Killer Robots’ *Journal of Applied Philosophy* (2007)24.

¹³⁸ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



human activity that takes place in weapon systems development, acquisition, fielding and use; including a commander's or an operator's judgment to employ a particular weapon to achieve a particular effect on a particular battlefield'.¹³⁹ In as much as this suggestion may sound attractive, I contend that it is a distraction. 'Meaningful Human Control', as noted above, must be that which is exercised by a law enforcement official, combatant or fighter over a weapon he or she chooses to employ.

For the purposes of holding someone responsible for war crimes for example, International Humanitarian Law and International Criminal Law is not concerned about programmers or manufacturers of the weapon that was used in the violation; it is concerned about the one who bears the weapon and who chose to use that particular weapon. The reasoning behind this is that it is the user who is in control of the weapon and who makes choices regarding that weapon.

Therefore, when defining what constitutes 'Meaningful Human Control' of Autonomous Weapon Systems, focus should be on the control that is exercised by the law enforcement official or combatant, not that which is reduced into an algorithm by the programmer or roboticists.

The above is not to say that these other players are freed from any form of responsibility. There are other laws, ethics and codes of conducts that govern the conduct of manufacturers, programmers and roboticists. However, they should never share responsibility over the final use of a weapon and the consequential violation of a rule by a combatant or law enforcement official because that will dilute the 'Meaningful Human Control' that the latter must exercise over weapons they choose to use. We have no weapon in use today where the user of the weapon after committing a war crime for example, will say 'it was really not me; ask the manufacturer of the weapon'.

¹³⁹ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



There is no doubt that autonomy in weapon systems also has certain advantages that humans may exploit in an acceptable manner.¹⁴⁰ This is where Sharkey has called for the delicate balancing of the contribution of machines and humans for the common good.¹⁴¹ Humans are good at certain jobs and weak for others, the same applies to machines.¹⁴² This goes to the third question I raised above: What are the aspects of Autonomous Weapon Systems over which ‘Meaningful Human Control’ must be exercised? Again, this question must be answered in perspective of the need to make sure that there is no accountability gap.

It is suggested that responsibility over the consequential violations by an Autonomous Weapon System may only accrue where the individual who deployed it had ‘meaningful control’ over its ‘critical functions’. ‘Critical functions’ are those functions that relate to the making of the decision to kill, selection of the target and release of force.¹⁴³ Thus, while autonomous systems may have the maximum degree of autonomy in all the other functions, humans must retain ‘Meaningful Human Control’ over ‘critical functions’ – control of a nature that makes them completely responsible for all the ensuing acts.

Before discussing the elements of control that have been developed in international law for the purposes of responsibility of states and individuals, it is important to note elements that have already been proposed for the notion of ‘Meaningful Human Control’. Already, even though sometimes in passing, scholars have suggested a number of elements that can constitute the ‘notion of ‘Meaningful Human Control’’. In the following paragraphs, I examine such elements, noting their strengths and weaknesses.

¹⁴⁰ See N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁴¹ See N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁴² See N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁴³ See Report of the ICRC Expert Meeting on ‘Autonomous weapon systems: technical, military, legal and humanitarian aspects’, 26-28 March 2014, Geneva, p 3.



- i. *The decision as to ‘how, when and against whom to use weapons’ must be largely exercised by a human.*

It has been suggested that the first element of ‘Meaningful Human Control’ is to make sure that all critical decisions are made by a human.¹⁴⁴ This is a very important concept as far as the notion of ‘Meaningful Human Control’ is concerned. For what it is worth, this factor will address one of the major concerns regarding the right to dignity. Scholars have suggested that allowing machines to make decisions as to who to kill is the ‘ultimate indignity’.¹⁴⁵

All weapon systems that have been accepted to date show that machines do not make a decision as to who to kill. The decision is made by a human and in real time. Weapons such as air to air missiles, air-to-ground area weapons like the US’s sensor fused weapon¹⁴⁶, defensive systems such as the US’s Aegis ship-based defensive system¹⁴⁷ and the Patriot land-based missile defense system¹⁴⁸, the Brimstone, the UK anti-tank missile¹⁴⁹ and the US miniature air-launched decoy jammer (MALD-J)¹⁵⁰, enjoy a large degree of autonomy but the kill decision is made by a human. Some of those weapons systems are not used specifically against human target in the first place.

¹⁴⁴ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁴⁵ C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) p 8, Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/\\$file/Heyns_LAWS_otherlegal_2014.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/DDB079530E4FFDDBC1257CF3003FFE4D/$file/Heyns_LAWS_otherlegal_2014.pdf) (accessed 31 July 2014).

¹⁴⁶ See <http://www.textronsystems.com/capabilities/smart-weapons/sfw> (accessed 1 August 2014).

¹⁴⁷ See <http://www.naval-technology.com/projects/aegis-ballistic-missile-defence-bmd-us/> (accessed 1 August 2014).

¹⁴⁸ See <http://www.33-minutes.com/33-minutes/patriot-missile-system.htm> (accessed 1 August 2014).

¹⁴⁹ Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 2 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014); See also B Handy *Royal Air Force Aircrafts & Weapons* (2003).

¹⁵⁰ See <http://www.airforce-technology.com/projects/miniature-air-launched-decoy-mald-flight-vehicle/> (Accessed 1 August 2014).



However, a question that is not answered in this regard is when should this decision to kill be made by a human and how should it be executed. In other words, can a decision to kill be ‘automated’? This is where the human makes a decision to kill certain individuals – specified either by ‘facial recognition’ or limited to specific behavioural criteria – before-hand. The question becomes whether, when the machine finally executes the decision prior made by a human, is acting autonomously or is simply automated.

When defining ‘Meaningful Human Control’ - an aspect that involves the issue of decision making - it is fundamental to understand what making a decision means and at what point that decision can be made. The US and some commentators have indicated that machines never make the decision to kill, but rather the decision is made by humans.¹⁵¹ With all due respect, that appears to be a simplistic understanding of what the making of the decision to kill means. Making of the decision to kill is a process.

Agreeably, the binary decision to kill or to release force can be made by humans when they program an Autonomous Weapons System that when certain set parameters are met, force must be released. However, that is not the whole process of the making of the decision. It is the computer that will have to analyse a situation - more often than not a very unpredictable situation - and have to tick the boxes of the set parameters before it can release force. It is this ticking of the boxes – albeit against parameters set by humans – that is fundamental to the making of the decision to kill. A flawed analysis of the real time situation as measured against the set parameters may lead to either an incorrect or correct final decision to release force.

The making of the decision to kill by machines can even be likened to the one made by human combatants or fighters. When a commander deploys his human soldiers, he does

¹⁵¹ US Delegate closing statement at the CCW Informal Meeting of Experts on Lethal Autonomous Weapon Systems (2014) Audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/\\$file/1019.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/6D6B35C716AD388CC1257CEE004871E3/$file/1019.MP3) (the transcription is mine) (accessed 1 August 2014).



so with a specific command – to go and kill the enemy. Human soldiers’ understanding of who is the enemy is defined by certain parameters, largely defined by International Humanitarian Law. They are supposed to kill only those who are directly participating in hostilities. When human soldiers arrive on the battlefield, they will only release force after analysing the target and fitting it in the pre-defined parameters of who is the enemy or who has to be targeted. Now that it is the human soldier, the foot soldier on the ground that makes the analysis of the situation at hand, albeit doing it according to set parameters, we say it is the human soldier who made the decision to kill a particular individual notwithstanding that the order was given right from the military base.

It is the above reasoning which is applicable to Autonomous Weapon Systems. Humans may pre-define parameters within which an Autonomous Weapons System will have to release force, but it is the analysis of facts and fitting them to the pre-defined parameters that constitute the real making of the decision. So where a human being recuses himself/herself from the analysis or at least verification of facts or real situations, then he or she cannot argue to be the one making the decision to kill. The situation at the battlefield is so unpredictable that if Autonomous Weapon Systems are given a high degree of autonomy in analysing whether a situation meets set parameters and subsequently release force without human involvement, then it is in principle making the decision to kill.

In the same light and as far as making of decisions is concerned, Peter Asaro observes that ‘existing IHL imposes specific requirements on decision makers, who are implicitly human’.¹⁵² Thus, even if one is to argue that AWS ‘are creations of humans’, their decisions are not necessarily the decisions of humans.¹⁵³ In this regard, Asaro makes an important argument when he states as follows:

In order for decisions to use force to count as legal decisions, or moral decisions, they must be the considered judgements of a human in a given situation, assessing the available information.

¹⁵² PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 9.

¹⁵³ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 9.



An automated process designed in advance, based in sensor data, is neither a legal judgement nor a moral judgement. Similarly, rules of engagement are not decisions to engage or use force – rather they are guidance to human decision makers who will [finally] make those decisions and carry the responsibility for them.¹⁵⁴

This issue will be further discussed below under the notion of control and responsibility in international law.

ii. The ability of a human to observe and act in real time

In light of the above arguments on the aspect of making of the decision to kill as an element of ‘Meaningful Human Control’, the human controller must not only actively participate in the analysis of the target and making of legal judgements, but must also be able, in real time, to ‘perceive and react to any change or unanticipated situations that may have arisen since planning the attack’.¹⁵⁵ This points to the important fact that in as much as set parameters may help a machine to analyse situations, and make the decision to release force, situations on the battlefield often have unexpected turns and twists which requires a human being with a better understanding to exercise control by redirection, for example. It is to this end that the International Committee for Robot Arms Control has observed that human operators normally ‘have full contextual and situational awareness of the target area’ and are ‘able to perceive and react to any change or unanticipated situations that may have arisen since planning the attack’.¹⁵⁶

iii. The human controller’s active participation in ‘the reasoning behind the attack’

In the sense of the above, pre-setting of parameters on which Autonomous Weapon Systems are supposed to make their decision is not sufficient as ‘Meaningful Human Control’. The human controller must actively participate in the analysis of the target or

¹⁵⁴ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 9.

¹⁵⁵ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁵⁶ See <http://icrac.net/2014/05/icrac-statement-on-technical-issues-to-the-un-ccw-expert-meeting/> (accessed 1 August 2014).



‘ticking of the boxes’ referred above, right from the reasoning behind the attack to the point where force is released. In other words, merely being ‘in the loop’ is not sufficient either.¹⁵⁷

iv. The availability of sufficient time for deliberation on the legality of the target

The question that comes to mind when one talks of active human participation in machine deliberation process is the issue of time that was noted above. Now that machines or computers process their data in nano-seconds¹⁵⁸, how can a human, who has become the weakest link on the battlefield¹⁵⁹, actively participate in the deliberation and analysis of a target or situation?

The important point is that a human being must participate. Thus, as an element of ‘Meaningful Human Control’, it has been suggested that there should be sufficient time for the human operator’s ‘deliberation on the nature of the target, its significance in terms of the necessity and appropriateness of attack, and likely incidental and possible accidental effects of the attack’.¹⁶⁰ This should be done even if it means the slowing down of the process. After all, like Noel Sharkey says, ‘there should be no hurry for humans to kill each other’.¹⁶¹

The above sentiments are also supported by the International Committee for Robot Arms Control. It noted that for there to be ‘Meaningful Human Control’ over AWS,

¹⁵⁷ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁵⁸ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, para 41.

¹⁵⁹ A/HRC/23/47, Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns, para 53.

¹⁶⁰ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁶¹ See Noel Sharkey, presentation at the 2014 CCW Expert Meeting on Lethal Autonomous Weapon Systems audio available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/D11C3EF955B32937C1257CED0046204D/\\$file/1063.MP3](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/D11C3EF955B32937C1257CED0046204D/$file/1063.MP3) (accessed 7 September 2014).



‘there must be active cognitive participation in the attack [by a human being] and sufficient time for deliberation on the nature of the target, its significance in terms of the necessity and appropriateness of attack, and likely incidental and possible accidental effects of the attack’.¹⁶² This is the same argument that is made by NGO Article 36 that all legal judgments regarding the status of each particular target must be made by a human.¹⁶³

v. Time frame and space limitation on operation

Suggestions have also been made that the notion of ‘Meaningful Human Control’ should be defined in terms of timeframe and space that a particular weapon covers. The more time and space that a particular weapon with increased autonomy covers, the more it is likely not to have ‘Meaningful Human Control’ and therefore unacceptable.

The NGO Article 36 notes that although most of the existing weapon systems can operate autonomously once they are activated, the ‘critical aspects of how human control is exercised over such weapons pertain to the programming of the target parameters and sensor mechanisms, and to the area within which and the time during which the weapon operates independently of human control’.¹⁶⁴

Thus, NGO Article 36 concludes that in as much as human control over existing weapon systems is exercised through legal, policy and technical limitations, the ‘size and geographical location of the target area and the time window are important determinants of human control exercised over weapon systems’.¹⁶⁵

¹⁶² See <http://icrac.net/2014/05/icrac-statement-on-technical-issues-to-the-un-ccw-expert-meeting/> (accessed 1 August 2014).

¹⁶³ See statement on NGO Article 36 at the CCW Expert Meeting on Lethal Autonomous Weapon Systems available at [http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/E7C7042E553EB220C1257CD7006A962A/\\$file/NGO+Article+36+MX+LAWS.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/E7C7042E553EB220C1257CD7006A962A/$file/NGO+Article+36+MX+LAWS.pdf) (accessed 7 September 2014).

¹⁶⁴ Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 3 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).

¹⁶⁵ Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 4 Briefing Paper available at



The idea of space and time limitations may seem lucrative. On the contrary, it poses some challenges: Firstly, it is not how much space or time that a system can operate without human control; it is about how much a machine can do and should be allowed to do without human control. A second without human control where it matters or where it is needed may be more disastrous than years without human control where it does not matter.

Secondly, the idea of time and space limitation may potentially be inconsistent with rules of International Humanitarian Law. An example is where an Autonomous Weapon System searches for an individual on the basis of facial recognition. It may not matter for how long the machine searches for the individual for the purposes of targeting as long as the combatant who deployed it is aware that the individual being sought is still a legitimate target. Such awareness is achieved through constant monitoring of the weapon system and the verification of the status of the targeted person. In an armed conflict, as long as someone continues to actively take part in hostilities, that individual is a legitimate target. So it may not matter how long the machine stays in combat searching for that particular individual. This can be the case with leaders of armed groups.

The same argument is also applicable in relation to the area covered by the Autonomous Weapon Systems. It may not be about how large the space is that the AWS is searching, but the nature of the area. An Autonomous Weapon System deployed in a desert for example to search for terrorists may face less difficulty compared to the one that is deployed in a high density suburb. Therefore, issues of time frame and space covered may not be helpful in calibrating the elements of what is meant by 'Meaningful Human Control'.

<http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).



Thirdly, it would appear that defining ‘Meaningful Human Control’ in terms of time and space limitations may vitiate the already existing weapon systems that have been accepted like the Israel Harpy.¹⁶⁶ The Israel Harpy can scout a wide area for many hours.¹⁶⁷ However, it can be argued that the fact that the weapon is already in existence or that there have been no protests about it does not necessarily mean that it has ‘Meaningful Human Control’. For example, in the case of the Israel Harpy, in as much as its ability to search a wide area for hours may not be an issue, its capacity to search for ‘targets not necessarily known to the individual who launched it but those that meet the Harpy’s programmed parameters’¹⁶⁸ still raises concerns with regard to the first point made above – that the decision to kill must be made by a human and that the important part of that decision is not when parameters are set but when assessments of facts and situations are made on the battlefield to ascertain whether those parameters are met. Furthermore, in the case of the Harpy, there may be no issues because it is not being used to make decisions to target humans.

vi. The availability of ‘abort’ mechanisms

Another equally important factor that has been suggested as a constituent of ‘Meaningful Human Control’ is the existence of ‘means for suspension or abortion of an attack’.¹⁶⁹ This has been suggested and supported by NGOs like the International Committee for Robot Arms Control.¹⁷⁰

¹⁶⁶ See <http://www.israeli-weapons.com/weapons/aircraft/uav/harpy/HARPY.html> (accessed 1 August 2014).

¹⁶⁷ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part I’ (2014)9 available at <http://justsecurity.org/12708/autonomy-killer-robots-human-control-force-part/> (accessed 1 August 2014).

¹⁶⁸ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part I’ (2014)9 available at <http://justsecurity.org/12708/autonomy-killer-robots-human-control-force-part/> (accessed 1 August 2014).

¹⁶⁹ N Sharkey ‘Towards a principle for the human supervisory control of robot weapons’ (2014) *Politica & Società* 11-12.

¹⁷⁰ See <http://icrac.net/2014/05/icrac-statement-on-technical-issues-to-the-un-ccw-expert-meeting/> (accessed 1 August 2014).



Some commentators, however, argue against this element, noting that some weapons that are already in existence; for example, weapons such as homing munitions that are fire and forget missiles, have no abort mechanisms. Once the decision to launch them has been made, it cannot be recalled.¹⁷¹ For that reason, commentators argue that the element of ‘abort mechanisms’ may find various weapon systems that are otherwise legal on the wrong side of the law - a situation that would be objectionable.¹⁷²

To the same end, some scholars thus observe that ‘some of the notions put forward for minimum necessary standards for meaningful control assume a level of human control far greater than exists with present-day weapons’.¹⁷³ P. Scharre argues that the discussion about the notion of ‘Meaningful Human Control’ thus ‘occurs in a vacuum, divorced from an understanding of how weapons actually exist today’.¹⁷⁴ He concludes that a strict interpretation of the proposed standards so far will result in the banning of ‘virtually every weapon since the invention of the catapult’.¹⁷⁵

Nevertheless, it is either that the suggestion of ‘abort mechanisms’ has been phrased wrongly or that the critics fail to appreciate what is at hand. Once again, the issue is linked to the issue of when the decision to kill is actually made and by whom.

What commentators have referred to as ‘abort mechanisms’ is not after the final decision to kill has been made and force has been released. It is about the ability for

¹⁷¹ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part I’ (2014)2 available at <http://justsecurity.org/12708/autonomy-killer-robots-human-control-force-part/> (accessed 1 August 2014).

¹⁷² P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part I’ (2014)2 available at <http://justsecurity.org/12708/autonomy-killer-robots-human-control-force-part/> (accessed 1 August 2014).

¹⁷³ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part I’ (2014)2 available at <http://justsecurity.org/12708/autonomy-killer-robots-human-control-force-part/> (accessed 1 August 2014).

¹⁷⁴ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part II’ (2014)6 available at <http://justsecurity.org/12712/autonomy-killer-robots-human-control-force-part-ii/> (accessed 1 August 2014).

¹⁷⁵ P Scharre ‘Autonomy, ‘Killer Robots and Human Control in the Use of Force – Part II’ (2014)6 available at <http://justsecurity.org/12712/autonomy-killer-robots-human-control-force-part-ii/> (accessed 1 August 2014).



exercise of discretion to abandon an attack. In no case is one required to call back a bullet that has left the barrel. If one can, the better, but it is not a legal requirement.

To start with, an attack is a process. This includes time during which a human deliberates and assesses the legality of a target. During that assessment - even at the very last minute - if it appears to the human controller that something is not right, he should not proceed with the release of force. In that case, an attack would have been aborted. Thus, the case of homing munitions is different, when a missile is activated, force has been released, and it is like a bullet out of the barrel of a gun – you cannot call it back.

The abort mechanism can refer first to the point where a fighter's finger is still at the trigger, if something changes, he can choose not to fire; now that is aborting an 'attack'. Secondly, a fighter may make an assessment and conclude that certain targets are legitimate. Upon starting the release of force, even killing some, he or she may recognise that the targets are not legitimate or are no longer legitimate, the fighter will stop firing. Again that is abortion of an attack. That is an element that is being proposed in Autonomous Weapon Systems as form of 'Meaningful Human Control'.

After an assessment of the legitimacy of targets with the active participation of a human who then agrees to the release of force, if it may still appear to him, just like in the case of a simple gun, that targets are in fact not legitimate or no longer legitimate, there must exist a mechanism in Autonomous Weapon Systems to stop or abort the firing. This does not refer, as the critics seem to interpret it, the recalling of bullets already fired, but rather stopping those still in the barrel. Such a requirement, does not contradict existing weapon systems at all.

These suggested factors are very important as build-ups of 'Meaningful Human Control'. They address some of the concerns that have been raised with Autonomous Weapon Systems. If a human will actively participate in the making of the decision to kill, this better protects the right to life and will also address the moral and dignity argument



that humans must not be killed by machines. In this regard, the decision to kill remains that of a human.

In the beginning of this section I highlighted that one of the major concerns regarding AWS is that they may create an accountability vacuum. To that end, I suggested that if the notion of ‘Meaningful Human Control’ is to be meaningful, control that is exercised by humans over weapon systems must be of such a nature as to be able to still hold accountable the fighter who uses that particular weapon.

In the above sense, I argued that it is a distraction to entertain suggestions that programmers, manufacturers, roboticist must be fitted in taking up the legal responsibility of specific violations committed in war time by their products. It is fighters who have, from time immemorial, been responsible for the weapons they use. Like the US Marine Creed goes, a fighter’s weapon is his or hers alone, it is his or her best friend, it is his or her life; he or she must master it like his or her life, he or she must learn its strengths and weaknesses - for without the fighter, a weapon is useless, in the case of Autonomous Weapon Systems, actually dangerous.¹⁷⁶

In the following section, I will discuss the international law jurisprudence on the notion of ‘control’ as a basis of holding states and individuals responsible for certain conduct. I will analyse how the developed notion of control can influence the emerging notion of ‘Meaningful Human Control’ over weapons systems.

7.10 International Law Jurisprudence on the notion of ‘control’ and its relevance to the emerging notion of ‘Meaningful Human Control’ over Weapons Systems

There should always be some hands to cuff whenever a crime is committed. If there is a chance, even the slightest of chances that the fighter will not be held accountable for

¹⁷⁶ My Rifle: The Creed of a US Marine’ by the retired Major General William H. Rupertus available at <http://usmilitary.about.com/od/marines/l/blriflereed.htm> (accessed 28 July 2014).



the ‘actions of the machine’ he or she deploys, then, he/she is not exercising meaningful control over it. Accountability in this regard does not mean finding the person guilty; it means the existence of potential responsibility of the weapon user. In fact, the machine should not be an actor; every action must be the direct brain-child and act of the fighter for which he is responsible.¹⁷⁷

It is in this light that Peter Asaro also correctly seeks to define ‘Meaningful Human Control’ with the objective of being able to hold weapon users responsible for the weapons they use – the control that the fighter has over the weapon and the dependence relationship between the fighter and the weapon to complete certain task.¹⁷⁸ He argues that the concept of ‘Meaningful Human Control’ must aim ‘to prevent weapon systems that use humans instrumentally as approval mechanisms’.¹⁷⁹ For example, where an Autonomous Weapon System orders ‘a soldier to press a fire button every time a light comes on’ is some sort of control by the fighter, but does not constitute ‘Meaningful Human Control’ over the weapon since the fighters ‘effectively have no meaningful control over what the system is targeting, or how and when it is using lethal force against those targets’.¹⁸⁰ ‘Meaningful Human Control’ over a weapon is only where ‘control entails taking responsibility for the use of the weapon system and being accountable for the consequences of that use’.¹⁸¹ That kind of control is only possible where ‘the effects and potential consequences of using a weapon system are predictable’.¹⁸² This is essential because for someone to be held criminally liable, *mens rea* is very important as I discussed in Chapter 5. Thus, for one to state that a fighter has ‘Meaningful Human Control’ over a weapon, ‘the performance of the system must

¹⁷⁷ This is my summary of what the crux of the notion of ‘Meaningful Human Control’ must be about.

¹⁷⁸ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.

¹⁷⁹ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.

¹⁸⁰ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.

¹⁸¹ PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.

¹⁸² PM Asaro ‘*Jus nascendi*, robotic weapons and the Martens Clause’ (2015) *Forthcoming* 14.



conform to the intentions of the operator such that it is possible to distinguish when a system is under control or when an operator has lost control'.¹⁸³

To further support this point, Asaro questions under what circumstances killing of another human may be considered to be meaningful. In this regard, he notes the following:

For the killing of a human to be meaningful, it must be intentional. That is, it must be done for reason and purpose. Philosophically, intentionality requires understanding the meaning and significance of an act. While autonomous systems may be programmed to act in a certain way, given a certain set of conditions, they cannot understand the significance of their acts. This is in part why they cannot make legal or moral judgments. But this also relates to the question of human dignity. If a combatant is to die with dignity, there must be some sense in which that death is meaningful. In the absence of intentional meaningful decision to use violence, the resulting deaths are arbitrary and their significance along with the dignity of those killed is dismissed.¹⁸⁴

The task is then to define what degree of control suffices for responsibility to attach. As suggested above, it is only control that makes the controller potentially responsible for all ensuing acts that can be termed 'meaningful'. The aspect of control as an element of establishing responsibility is not new in international law.¹⁸⁵ It has been discussed and given meaning in branches of international law such as state responsibility for internationally wrongful acts¹⁸⁶, state responsibility in international human rights law¹⁸⁷

¹⁸³ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14.

¹⁸⁴ PM Asaro 'Jus nascendi, robotic weapons and the Martens Clause' (2015) *Forthcoming* 14-15.

¹⁸⁵ See A Tan 'Responsibility and Control in International Law and Beyond' (2013) available at http://www.thehagueinstituteofglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).

¹⁸⁶ See A Tan 'Responsibility and Control in International Law and Beyond' (2013) available at http://www.thehagueinstituteofglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).

¹⁸⁷ See A Tan 'Responsibility and Control in International Law and Beyond' (2013) available at http://www.thehagueinstituteofglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).



and command responsibility in international criminal law.¹⁸⁸ In the following paragraphs, I will discuss and analyse how the concept of control have been defined for the purposes of establishing responsibility. I contend that there is a lot that can be learnt and imported from the existing jurisprudence on the notion of control to the emerging notion of ‘Meaningful Human Control’ over weapons systems.

7.11 Control as an element of responsibility in international law

In 2013, a group of international law experts gathered to discuss the notion of ‘control’ in international law as a mode of responsibility and how it affects other fields of law.¹⁸⁹ One of the experts, Kristen Boon indicated for example, that the international criminal law notion of ‘command responsibility’ – in particular its element of ‘effective control’ – has an impact in other branches of law such as the law of occupation, the law of state responsibility, and international human rights law only to mention a few.¹⁹⁰

In the expert meeting on the notion of control in international law, it was noted that the notion of ‘effective control’ is more than often applied ‘differently in different contexts’ however with ‘the basic compulsion behind the legal inquiry [being] the same – *who is the aggregator of power, who can be held accountable*, and which facts are required to satisfy those tests?’¹⁹¹ In this regard, I propose that for a fighter to be said to ‘exercise

¹⁸⁸ See A Tan ‘Responsibility and Control in International Law and Beyond’ (2013) available at http://www.thehagueinstituteforglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).

¹⁸⁹ Dr Kristen Boon (Seton Hall University), Dr Carsten Stahn (University of Leiden) and Dr Dov Jacobs (University of Leiden) made presentations at a discussion forming part of The Hague Institute for Global Justice’s Supranational Criminal Law Lecture Series.

¹⁹⁰ See A Tan ‘Responsibility and Control in International Law and Beyond’ (2013) available at http://www.thehagueinstituteforglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).

¹⁹¹ See A Tan ‘Responsibility and Control in International Law and Beyond’ (2013) available at http://www.thehagueinstituteforglobaljustice.org/index.php?page=News-News_Articles-Recent_NewsResponsibility_and_Control_in_International_Law_and_Beyond&pid=138&id=108 (accessed 4 August 2014).



‘Meaningful Human Control’ over a weapon, he or she must be the ‘aggregator’ of power in execution of the ‘critical functions’.

7.12 Control as an element of state responsibility

Articles 4 and 7 of the International Law Commission’s Articles on State Responsibility provide for the attribution of conduct of any State organ.¹⁹² The attribution can either be *de jure* or *de facto*. The rules in Article 4 and 7 are part of customary international law.¹⁹³ The *de facto* mode of attribution is important when dealing with actions of non-state entities who are otherwise acting on behalf of a State or when State organs act *ultra vires*.¹⁹⁴

When responsibility is attributed on the basis of the *de facto* mode, what matters most is the nature of control that a state exercises over the non-state entity. The International Court of Justice (ICJ) has discussed two types of control tests in order to establish responsibility of the State; the *strict control test* and the *effective control test* in the Nicaragua and Bosnia Genocide cases.¹⁹⁵ From the beginning, it is important to note that the level of control in both tests is determined by the level of dependence that a non-state entity has on the state.

When discussing the notion of ‘human in the loop’ above, I pointed out that one of the factors considered when determining the level of autonomy of a machine is its

¹⁹² Article 4(1) provides that ‘the conduct of any State organ shall be considered an act of that State under international law, whether the organ exercises legislative, executive, judicial or any other functions.’ Article 7 also provides that all conduct of state organs is considered conduct of the state even when they are *ultra vires*.

¹⁹³ See http://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf (accessed 7 September 2014).

¹⁹⁴ See A Hoogh ‘Articles 4 and 8 of the 2001 ILC Articles on State responsibility, the Tadić case and attribution of acts of Bosnian Serb Authorities to the Federal Republic of Yugoslavia’ (2001) 76 British Year Book of International Law 255-292 at 268, 269, 289-290.

¹⁹⁵ See the Separate and dissenting opinion of Judge McDonald in *Prosecutor v Tadić* Case No IT-94-1-T (1997) 36 ILM paras 22, 34; *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, paras 106, 111; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986, 14; M Milanovic ‘State responsibility for genocide’ (2006) 17 European Journal of International Law 553-604 at 576.



dependence on humans when executing the OODA loop.¹⁹⁶ In its jurisprudence on the notion of control, the ICJ has reiterated that ‘dependence creates the potential for control’.¹⁹⁷

To the same effect, Stefan Talmon observed that ‘dependence and control are two sides of the same coin’.¹⁹⁸ Thus, to ascertain whether a state exercised control over a non-state entity to the extent of it being responsible for the actions of the non-state entity, the ICJ considers the ‘degree of dependency’ of the non-state entity on the state.¹⁹⁹

The ‘dependence factor’ as developed by the ICJ can be helpful in formulating the elements of what is meant by ‘Meaningful Human Control’. Towards that end, I would propose that ‘Meaningful Human Control’ over Autonomous Weapon Systems should be reflected by dependence of Autonomous Weapon systems on humans to be able to execute its ‘critical functions’. Their degree of dependence on humans to execute the ‘critical functions’ can be formulated based on some of the factors that have been developed by the ICJ in the ‘strict control’ and ‘effective control’ tests.

i) ‘Strict Control’ test and the notion of ‘Meaningful Human Control’

The ‘strict control’ test is applicable where there is what has been termed the ‘complete dependence factor’ between the state and the non-state entity.²⁰⁰ In many cases, non-

¹⁹⁶ See B Brehmer ‘The dynamic OODA loop: Amalgamating Boyd’s OODA and the cybernetic approach to command and control’ (2005) Remarks at the 10th international command and control research and technology symposium, Department of War Studies, Swedish National Defence College 2.

¹⁹⁷ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 277.

¹⁹⁸ S Talmon ‘The various control tests in the law of state responsibility and the responsibility of outside powers for acts of secessionist’ (2009)58 *International and Comparative Law Quarterly* 6; See also *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109.

¹⁹⁹ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 391, 393; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 109, 111-113, 115.

²⁰⁰ See A Abass ‘Proving State responsibility for genocide: The ICJ in *Bosnia v Serbia* and the International Commission of Inquiry for Darfur’ (2008) 31 *Fordham International law Journal* 890; A Cassese ‘The



state entities fighting against a state receive support from another sovereign state or states. However, notwithstanding such support, such non-state entities enjoy some degree of autonomy from the supporting state or states. Questions arise as to what degree of control should the supporting state exercise over the non-state entity for the state to be held responsible for the actions of the non-state entity.

The ICJ has held that under the 'strict control' test, for a state to be accountable for the actions of the non-state entity, the relationship between the two parties must be 'so much one of dependence on the one side and control on the other'.²⁰¹ In the Nicaragua case, the court explained that dependence must be in all the important activities of the non-state entity and the state must exercise a 'high degree of control'.²⁰²

Thus, when dealing with the 'strict control test', there must be 'complete dependence' on the state²⁰³ to the extent that the non-state entity lacks 'any real autonomy and is 'merely an instrument' or 'agent'.²⁰⁴ In a bid to highlight and emphasise complete dependence, the ICJ explained that under the 'strict control test', having common objectives, acting as allies or having 'a general level of coordination between (parties)' – the non-state entity and the state²⁰⁵ is not sufficient to invoke responsibility of the

Nicaragua and Tadic tests revisited in light of the ICJ Judgment on genocide in Bosnia' (2007) 18 *European Journal of International Law* 653.

²⁰¹ *Counsel for Nicaragua in Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109; See also *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* Judgment of 19 Dec 2005, ICJ Rep 2005, para 160; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 391, 397.

²⁰² *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109.

²⁰³ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109-110; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 392-3.

²⁰⁴ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 114; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 394.

²⁰⁵ See also *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* Judgment of 19 Dec 2005, ICJ Rep 2005, para 10; *Prosecutor v Tadić* para 604.



state.²⁰⁶ Likewise, it does not suffice that the state ‘merely took advantage of the existence of a non-state entity’ and factored in its own agendas and policies.²⁰⁷

In the Nicaragua case, the ICJ observed that ‘complete dependence’ is inferable²⁰⁸ where there are high levels of assistance by the state to the non-state entity to the extent that it cannot conduct its activities without that particular assistance.²⁰⁹ Control and dependence were thus held to be absent in circumstances where the non-state entity has a choice to choose from available options to the extent of differing from the supporting state.²¹⁰

There is a number of important points that can be deduced from the ‘strict control test’ under state responsibility, points that can be useful in fleshing out the emerging notion of ‘Meaningful Human Control’ over weapon systems. An example is the notion of ‘dependence’²¹¹ as a means of establishing responsibility. While under the ‘strict control test’ the factor of ‘complete dependence’ requires a non-state entity’s dependence not only to cover the ‘crucial or most significant activities’²¹² but to extend to ‘all fields’.²¹³ In the case of Autonomous Weapon Systems, the proposal is that the factor of ‘complete dependence’ be applied and limited to the ‘critical functions’ of Autonomous

²⁰⁶ *Prosecutor v Tadić* paras 601-606.

²⁰⁷ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 108.

²⁰⁸ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 93, 94, 108; *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* Judgment of 19 Dec 2005, ICJ Rep 2005, para 160.

²⁰⁹ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 109-110, 111.

²¹⁰ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 394.

²¹¹ See A Abass ‘Proving State responsibility for genocide: The ICJ in *Bosnia v Serbia* and the International Commission of Inquiry for Darfur’ (2008) 31 *Fordham International Law Journal* 890; A Cassese ‘The Nicaragua and Tadic tests revisited in light of the ICJ Judgment on genocide in Bosnia’ (2007) 18 *European Journal of International Law* 653.

²¹² *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 394.

²¹³ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 391.



Weapon Systems. Complete dependence in the case of AWS should not be mistaken for ‘complete control’. A certain level of autonomy is acceptable in weapon systems. However, in executing critical functions such as the making of the decision as to who to kill, AWS should depend on the human input.

In line with the factor of ‘complete dependence’ and limited to the ‘critical functions’ of Autonomous Weapon Systems, ‘Meaningful Human Control’ over weapon systems will require the following:

- i) The relationship between fighters and Autonomous Weapon Systems’ ‘critical functions’ must be ‘one of dependence on the one side and control on the other’.²¹⁴
- ii) In execution of the ‘critical functions’, the power to ‘choose’ or select from available human targets must be exercised by the human fighter. This is the same in the case of ‘strict control test’ as a mode of state responsibility where non-state entity cannot have a choice to choose from available options to the extent of differing from the supporting state.²¹⁵ The aggregator of power of choice must remain the human fighter.
- iii) Autonomous Weapon Systems may not complete the ‘critical functions’ loop without human assistance. The nature of the assistance that is given by humans for the Autonomous Weapon Systems in the critical function loop must be of such a nature that the Autonomous Weapon System ‘cannot conduct its ‘critical functions’ without that particular assistance.’²¹⁶ To that

²¹⁴ *Counsel for Nicaragua in Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109; See also *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* Judgment of 19 Dec 2005, ICJ Rep 2005, para 160; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 391, 397.

²¹⁵ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 394.

²¹⁶ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 109-110, 111.



end, Autonomous Weapon Systems must be ‘mere instruments’ in the hands of human fighters.²¹⁷

‘Meaningful Human Control’ may thus only be achieved where human assistance is provided to Autonomous Weapon Systems to execute ‘critical functions’ and conversely where Autonomous Weapon Systems depend on humans to execute the said functions.²¹⁸

In explaining the ‘strict control test’, the ICJ gives examples of what does not satisfy that test. In the same spirit, ‘general levels of coordination or control’²¹⁹ of weapons systems’ ‘critical functions’ is not sufficient to invoke responsibility²²⁰ and therefore may not constitute ‘Meaningful Human Control’. The suggestion by the US that it is humans who make decisions over life and death and that Autonomous Weapon Systems only act on what was ‘factored in’ is not sufficient for responsibility to attach to the fighter – just like in the case of state responsibility, ‘factoring in’ agendas and policies to the non-state entity is insufficient.²²¹ This is so because the moments Autonomous Weapon Systems have autonomy on what to do in the final moments of use of lethal force they become unpredictable, making it untenable to attribute responsibility to the fighter who deployed them. If anything, human control over the ‘critical functions’ of Autonomous Weapon Systems must continue up to the last point.

²¹⁷ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 114; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 394.

²¹⁸ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 109; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 391.

²¹⁹ See also *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* Judgment of 19 Dec 2005, ICJ Rep 2005, para 10; *Prosecutor v Tadić* para 604.

²²⁰ *Prosecutor v Tadić* paras 601-606.

²²¹ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 108.



Furthermore, it has been observed that ‘a relationship of dependency establishes nothing more than the potential for control’.²²² Thus a state may only be said to be in ‘strict control’ of the non-state entity when and only when it makes use of that potential control over it.²²³ I have pointed out earlier that being ‘in the loop’ is not the equivalent of ‘Meaningful Human Control’. The human in the loop must, as a matter of principle, exercise the importance of his presence by being in ‘control’ of the ‘critical functions’ of Autonomous Weapon Systems.

ii) *‘Effective Control’ test and the notion of ‘Meaningful Human Control’*

The ICJ has also developed the ‘effective control’ test²²⁴ which, just like the ‘strict control test’, has elements that are worth taking note of. The ‘effective control’ test is applicable where there is a ‘partial dependence factor’ between the state and the non-state entity.²²⁵ It is important to point out that in Autonomous Weapon Systems’ ‘critical functions’, ‘partial dependence’ on humans will not suffice for ‘Meaningful Human Control’. It is only the other elements and factors of the ‘effective control test’ that are relevant.

As already stated above, the effective control test is a secondary test²²⁶ that is only considered when the notion of complete dependence under ‘strict control test’ cannot be proved but there is evidence of ‘partial dependency’.²²⁷ Just like complete dependence, partial dependence also creates ‘potential for control’ that needs to be

²²² *Prosecutor v Tadić* paras 602, 605.

²²³ *Prosecutor v Tadić* para 598; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 110; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 393.

²²⁴ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 111; *Prosecutor v Tadić* para 585.

²²⁵ See A Abass ‘Proving State responsibility for genocide: The ICJ in *Bosnia v Serbia* and the International Commission of Inquiry for Darfur’ (2008) 31 *Fordham International Law Journal* 890; A Cassese ‘The Nicaragua and Tadic tests revisited in light of the ICJ Judgment on genocide in Bosnia’ (2007) 18 *European Journal of International Law* 653.

²²⁶ M Milanovic ‘State Responsibility for Genocide’ (2006) 17 *European Journal of International Law* 577.

²²⁷ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 para 160.



exercised if responsibility is to attach. Expectedly, with partial dependence, responsibility for specific acts is established on a case-by-case basis. The case by case attaching of responsibility is established in terms of Article 8 of the ILC Articles on State Responsibility which provides that:

The conduct of a person or group of persons shall be considered an act of a State under international law if the person or group of persons is in fact acting on the instructions of, or under the direction or control of that State in carrying out the conduct.²²⁸

Article 8 of the ILC Articles on State Responsibility is part of Customary International Law. The important question in the effective control test is not that of dependence but that of control.²²⁹ Thus, for the internationally wrongful conduct of the non-state actor to be attributable to the state, it must be proved that state organs exercised 'effective control' of an operation from which the act was committed.²³⁰ For the court to hold that a state was in effective control, the state must in fact be 'involved in planning the operation, choosing targets, giving specific directives and instructions, and providing operational support'.²³¹ Thus, the state 'must be able to control the beginning of the operation, the way it is carried out, and its end'.²³² It must be noted that mere support, exercising 'general control', unspecified claims of 'involvement' by the State²³³ do not suffice as 'effective control'.²³⁴

²²⁸ Art 8 ILC Articles on State Responsibility.

²²⁹ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 400; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 113.

²³⁰ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 399; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 115.

²³¹ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Reports 1986 para 112.

²³² S Talmon 'The various control tests in the law of state responsibility and the responsibility of outside powers for acts of secessionist' (2009)58 *International and Comparative Law Quarterly* 9.

²³³ *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 400; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras



Just like in the case of ‘effective control’ under state responsibility, for ‘Meaningful Human Control’ of weapon systems to be satisfied, it is suggested that Autonomous Weapon Systems must:

- a) Act ‘on the instructions of’, and be ‘under the direct control’ of humans in carrying out the ‘critical functions’.²³⁵
- b) In each case of targeting, have a human involved in the planning of the targeting and choosing of targets. The human must be responsible for giving ‘specific directives and instructions’ in the provision of assistance in the execution of the ‘critical functions’.²³⁶
- c) The fighter must be in control of the execution of the ‘critical functions’ of Autonomous Weapon Systems from the beginning to the end.²³⁷ To that end,
- d) General control and ‘unspecified acts of involvement’ in the execution of ‘critical functions’ will not suffice as ‘Meaningful Human Control’ of weapons systems.²³⁸

iii) ‘Overall control’ test and the notion of ‘Meaningful Human Control’

The International Criminal Tribunal of the Former Yugoslavia (ICTY), notwithstanding being a criminal tribunal, also discussed the notion of control for the purposes of

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²³⁴ *Bosnian Genocide case*, CR 2006/16, 13 Mar 2006, 39, para 116.

²³⁵ Art 8 ILC Articles on State Responsibility.

²³⁶ *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Reports 1986 para 112.

²³⁷ S Talmon ‘The various control tests in the law of state responsibility and the responsibility of outside powers for acts of secessionist’ (2009)58 *International and Comparative Law Quarterly* 9.

²³⁸ *Bosnian Genocide case*, CR 2006/16, 13 Mar 2006, 39, para 116; *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)*, Judgment of 26 Feb 2007, ICJ Rep 2007, paras 400; *Military and Paramilitary Activities in und against Nicaragua (Nicaragua v USA)*, Merits, Judgment, ICJ Rep 1986 paras 115.



establishing state responsibility.²³⁹ The ICTY developed the overall control test when it was called upon in the *Tadić case* to decide whether or not the accused person was guilty of violating Article 2 of the ICTY statute and the Geneva Conventions.²⁴⁰ As a matter of International Humanitarian Law, grave breaches can only be committed in the context of International Armed Conflict (IAC).²⁴¹

Notwithstanding the fact that the question under consideration was that of individual criminal responsibility; the issue of state responsibility also arose with the court asking whether the Former Yugoslavia was responsible for the acts of a non-state entity – the armed forces of the Republika Srpska.²⁴²

The ICTY Appeals Chamber held that the ICJ’s ‘effective control’ test is only appropriate for ‘private individuals’ or ‘unorganized groups of individuals’.²⁴³ As for other entities like organised armed groups, the Appeals Chamber held that the appropriate test is the ‘overall control test’.²⁴⁴ For that reason, it held that the former Yugoslavia was responsible for the actions of non-state entities on the reason that the non-state entities were under its ‘overall control’.²⁴⁵ The threshold of overall control is lower; all the group needs to have done is ‘perforce engage the responsibility of that state for its activities’.²⁴⁶

Overall control test can be proven by provision of training, finances, ‘military equipment, operational support and participation in the organisation, coordination or planning of military operations’.²⁴⁷

²³⁹ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, para 124.

²⁴⁰ Art 2 of the ICTY Statute, S/RES/827 (1993).

²⁴¹ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, para 83.

²⁴² *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, para 98.

²⁴³ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, para 124.

²⁴⁴ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, paras 120, 124, 125, 128, 145.

²⁴⁵ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, paras 120, 131, 144; *Prosecutor v Rajić*, Case No IT-95-12-R61, See also A Cassese ‘The Nicaragua and Tadic tests revisited in light of the ICJ Judgment on genocide in Bosnia’ (2007) 18 *European Journal of International Law* 654, 657.

²⁴⁶ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, paras 120,122.

²⁴⁷ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, paras 131, 137, 138, 145; *Prosecutor v Kordić*



The purpose of discussing the overall control test as developed by the ICTY in the *Tadić* case is to highlight one important point referred to above. There can be many kinds of control that can be exercised over Autonomous Weapon Systems; however, the question is: Which one is meaningful? In this thesis, I have argued that it is only control that can establish the individual responsibility of the one deploying it that would suffice as ‘meaningful’.

The ICTY correctly noted that the notions of ‘strict control’ and ‘effective control’ are indispensably important when establishing responsibility over ‘private individuals’ or ‘unorganized groups of individuals’.²⁴⁸ It is not the case with organised groups because there is already some form of responsibility. Autonomous Weapon Systems have no moral responsibility whatsoever. For that reason, someone should be completely responsible for them. It is in that light that factors that were developed under the strict and effective control test are of much relevance to Autonomous Weapon Systems. The overall control test as developed by the ICTY only serves to highlight the type of control that would not suffice as ‘Meaningful Human Control’ for the purposes of establishing responsibility over weapon systems.

iv) ‘Effective overall control test’ and the notion of ‘Meaningful Human Control’

The European Court for Human Rights (ECHR) also developed what it termed the ‘effective overall control test’ when it was called to examine alleged violations of rights provided for in the European Convention on Human Rights (the Convention) by Turkey in Cyprus.²⁴⁹ According to Article 1 of the Convention, in order for the ECHR to find a violation, the complained conduct must have been committed by a High Contracting

and *Čerkez* Case No IT-95-14/2-T, para 115; *Prosecutor v Naletilic and Martinovic* Case No IT-98-34-T, para 198.

²⁴⁸ *Prosecutor v Tadić* Case No IT-94-1-A (1999) 38 ILM 1518, para 124.

²⁴⁹ See Article 33 and 34 of the Convention for the Protection of Human Rights and Fundamental Freedoms as amended by Protocols 3, 5, 8, and 11.



Party and the victim must have been within the jurisdiction of the High Contracting party.²⁵⁰

The ECHR takes note of extraterritorial application of human rights on condition that the concerned State exercises 'effective overall control'.²⁵¹ In the *locus classicus* of *Loizidou v Turkey*, the ECHR was called to answer whether the presence of a state's armed forces where some armed group was operating established control over that armed group.²⁵² Consistent with the state responsibility rules²⁵³, the court considered the element of 'control' on the basis of extraterritorial 'jurisdiction' which is capable of showing the responsibility of a state.²⁵⁴

In discussing the element of control, the court referred neither to the ICJ or ICTY control tests.²⁵⁵ Rather, it developed its own test – overall effective control test.²⁵⁶ For there to be 'overall effective control', a state must exercise 'effective authority' and 'decisive influence' over an armed group whose survival is dependant on the aid of the state.²⁵⁷

Noting that such 'overall effective control' can be exercised by the presence of a huge number of a state's troops in the territory of the non-state entity²⁵⁸, the court also

²⁵⁰ See *Ilaşcu and Others v Moldova and Russia*, Application No 48787/99 (2004) ECHR Reports 2004-VII, 179, para 311; *Solomou and Others v Turkey* Application No 36832/97 (2008) para 43

²⁵¹ See *Issa and Others v Turkey*, Application No 31821/96, Judgment of 16 Nov 2004, para 74.

²⁵² *Loizidou v Turkey* (Merits), Application No 15318/89 (1996) ECHR Rep 1996-IV, 2216, para 56; *Loizidou v Turkey* (Preliminary Objections) (1995) ECHR Ser A, Vol 310, 1, para 64.

²⁵³ *Loizidou v Turkey* (Preliminary Objections) (1995) ECHR Ser A, Vol 310, 1, paras 59-64, and *Loizidou v Turkey* (Merits), Application No 15318/89 (1996) ECHR Rep 1996-IV, 2216, para 57.

²⁵⁴ *Loizidou v Turkey* (Merits), Application No 15318/89 (1996) ECHR Rep 1996-IV, 2216, para 57.

²⁵⁵ C Kress 'L'organe de facto en droit international public, réflexions sur l'imputation à l'Etat de l'acted'un particulier à la lumière des développements récents' (2001) 105 RGDIP 93-141 at 108.

²⁵⁶ *Loizidou v Turkey* (Merits), Application No 15318/89 (1996) ECHR Rep 1996-IV, 2216, paras 52, 56; See also KM Larsen 'Attribution of conduct in peace operations: The 'ultimate authority and control test' (2008) 19 *European Journal of International Law* 522; *Berić and Others v Bosnia and Herzegovina*, Application No 36357/04 et al (2007) paras 27-28.

²⁵⁷ See *Ilaşcu and Others v Moldova and Russia* Application No 48787/99 (2004) ECHR Rep 2004-VII, 179, para 392; *Cyprus v Turkey* Application No 25781/94, (2001) ECHR Rep 2001-IV, 1, para 77; *Assanidze v Georgia*, Application No 71503/01, (2004) ECHR Rep 2004-II, 221, para 139.

²⁵⁸ *Loizidou v Turkey* (Merits) (n above) para 56.



emphasised on the ‘duration of such presence’, coverage of whole territory by troops, ‘constant patrols’ and ‘checkpoints on all main lines of communication’.²⁵⁹

Coming from a human rights court, it is not surprising that the ‘effective overall control test’ is the most expansive compared to other tests.²⁶⁰ The design of the effective overall control test was purposive – it was developed to safeguard against what the ECHR called a ‘regrettable vacuum in the system of human rights protection in the territory in question’.²⁶¹

As has been noted above, when designing or formulating the elements of what is meant by ‘Meaningful Human Control’, the international community must take a pose and ask what it is they seek to address. One of the huge issues with Autonomous Weapon Systems with increased autonomy is the aspect of responsibility and accountability. The notion of ‘Meaningful Human Control’ must be couched in a way that weapons that are used by fighters just remain ‘tools’ in their hands, therefore making fighters accountable for all the wrongful conduct of Autonomous Weapon Systems. That can only happen when the fighter strictly controls the ‘critical functions’ of Autonomous Weapon Systems.

Thus, although the control test developed by the ECHR was expansive, factors of dependence and high levels of control as discussed by the ICJ in the strict and effective control tests were followed.²⁶² The ultimate aim of all the control tests as they were developed and adjusted was to establish the responsibility of the state.

Thus, as derived from the law of state responsibility, one could say as the state is responsible for the wrongful acts or omissions by its agents and non-state entities it is in

²⁵⁹ See *Loizidou v Turkey (Merits)* (n above) para 16; *Issa and Others v Turkey* (n above) para 75; *Ilaşcu and Others v Moldova and Russia* (n above).

²⁶⁰ C Kress ‘L’organe de facto en droit international public, réflexions sur l’imputation à l’Etat de l’acte d’un particulier à la lumière des développements récents’ (2001) 105 RGDIP 93-141 at 108.

²⁶¹ *Cyprus v Turkey* (n above) para 78; *Loizidou v Turkey (Merits)* (n above) para 49.

²⁶² See *Loizidou v Turkey (Merits)* (n above) para 16; *Issa and Others v Turkey* (n above) para 75; *Ilaşcu and Others v Moldova and Russia* (n above).



control of, so should the fighter be responsible for the weapon he employs. He or she must strictly and effectively control its 'critical functions'; the weapon must completely depend on the human operator to execute the 'critical functions', so that where an infraction of the law is done, the responsibility of the wrongfulness is on the shoulders of the human operator.

7.13 Control as an element of command responsibility

The notion of control for the purposes of establishing responsibility has also been developed under International Criminal Law. Like in the cases of control tests developed by the ICJ and the ECHR, a lot can be deduced from the control test under International Criminal Law.

Under International Criminal Law, there are two modes of liability – individual criminal responsibility and command responsibility. Individual criminal responsibility is the mode that is used where an individual directly commits a crime.²⁶³ Individual criminal responsibility may also be through an individual's direct contribution to the crime which may be in form of ordering, planning, instigating, inciting, co-perpetration, joint criminal enterprise, aiding and abetting.²⁶⁴

On the other hand, command responsibility is where an individual is held accountable for actions of his subordinates by virtue of him or her failing to prevent or punish the commission of the crime.²⁶⁵ Thus, while individual criminal responsibility focuses on the commission of the crime by the particular individual, command responsibility focuses on the omission of the commander.²⁶⁶

²⁶³ See http://werle.rewi.hu-berlin.de/07_Individual%20Criminal%20Responsibility-Summary.pdf (accessed 7 September 2014).

²⁶⁴ See http://werle.rewi.hu-berlin.de/07_Individual%20Criminal%20Responsibility-Summary.pdf (accessed 7 September 2014).

²⁶⁵ See http://wcjp.unicri.it/deliverables/docs/Module_10_Superior_responsibility.pdf (accessed 7 September 2014).

²⁶⁶ See http://wcjp.unicri.it/deliverables/docs/Module_10_Superior_responsibility.pdf (accessed 7 September 2014).



i) *Effective control test and the notion of ‘Meaningful Human Control’*

For the purposes of finding elements of the notion of ‘Meaningful Human Control’ over Autonomous Weapon Systems, this section will focus on command responsibility; in particular its element of ‘effective control’.

In order to be held accountable for the actions of his or her subordinates, the commander must have exercised ‘effective control’ over them. That control may be exercised *de jure* – that is ‘formal authority to command and control subordinates’²⁶⁷ – or *de facto* – that is ‘informal authority and command and control’.²⁶⁸ However, the issue is not whether a commander exercised *de jure* or *de facto* control²⁶⁹; determination of responsibility is an issue of ‘effective exercise of power or control and not to formal titles’.²⁷⁰ Thus it is possible that an official commander or superior may be found to have exercised no effective control over his or her subordinate to bear responsibility of the actions of the subordinate.²⁷¹

To that end, ‘effective control is the central element of the doctrine of [command responsibility.]’ In international tribunals, the prosecution has thus been required to prove two things: First that the commander had effective control²⁷² and second, that he or she failed to exercise it.²⁷³

²⁶⁷ *Prosecutor v Zejnil Delalic Čelebici* Case No. IT-96-21-T, Trial Judgement, 16 November 1998 p 354.

²⁶⁸ *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 193.

²⁶⁹ See G Mettraux *The law of command responsibility* (2009) 163-164; See also *Momčilo Mandić*, Case No. X-KR-05/58, 2nd instance Verdict, 18 July 2007, p 110.

²⁷⁰ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 32,54 ; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 197; *Prosecutor v Stanislav Galic*, Case No. IT-98-29-T, Trial Judgement, 5 Dec. 2003, p 173 ; *Prosecutor v Rašević et al.*, Verdict at First Instance, p 149.

²⁷¹ *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Appeal Judgement, 3 July 2008, p 91; *Prosecutor v Milorac Krnojelac* Case No. IT-97-25-A, Trial Judgement, p 197.

²⁷² *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 197.

²⁷³ *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 256.



ii) *Elements of effective control*

Effective control can only be satisfied where there is a high degree of control by the commander over his or her subordinates and their actions.²⁷⁴ The International Criminal Tribunal of the former Yugoslavia, the International Criminal Tribunal of Rwanda and the International Criminal Court have all articulated some elements of what constitutes ‘effective control’ for the commander to be held responsible. Below are some of the most important elements that prove that the commander was in ‘effective control’ of his subordinates:

- a) Existence of superior-subordinate relationship.²⁷⁵ The commander must have a genuine expectation that his orders will be obeyed²⁷⁶ and the subordinate must also have an expectation of subjection to the commander’s authority.²⁷⁷ This can be proven by subordinates constantly reporting to the commander, the commander controlling the finances of the subordinates, his ability to promote or remove a subordinate and ‘the fact that in the superior’s presence subordinates show greater discipline than when he or she is absent’.²⁷⁸
- b) The commander’s ability to require subordinates to engage in or withdraw from hostilities²⁷⁹ and other orders that are respected by subordinates.²⁸⁰ In this sense ‘effective control’ is defined as where ‘there is an enforceable expectation of

²⁷⁴ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 35.

²⁷⁵ *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 417.

²⁷⁶ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; See also G Mettraux *The law of command responsibility* (2009) 142.

²⁷⁷ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; See also G Mettraux *The law of command responsibility* (2009) 142.

²⁷⁸ *Prosecutor v Enver Hadžihasanović Amir Kubura*, Case No IT-01-47-T, Trial Judgement, 15 March 2006 p 83; *Prosecutor v Naser Oric*, Case No. IT-03-68-A , Trial Judgement p 312.

²⁷⁹ *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, January 2009, p 417.

²⁸⁰ *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 207.



- obedience on the part of the giver of that order, and a mirror expectation of compliance on the part of those receiving that order’.²⁸¹
- c) Commander’s ability to prevent or punish the commission of an offence.²⁸²
 - d) Effective control can only be satisfied if it existed during the time that the subordinate committed the crime.²⁸³
 - e) Effective control can also be proved where the commander was frequently present in the area that subordinates operated.²⁸⁴

Effective control must, in the strict sense of the word be ‘effective’; it should not be merely theoretical or potential.²⁸⁵ The courts have thus held that there can never be assumption and presumption of the existence of effective control, it must be real.²⁸⁶ The prosecution needs to establish ‘conclusive evidence of the actual exercise of command and control over an identifiable group of subordinates’²⁸⁷; it must prove beyond

²⁸¹ *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 148.

²⁸² *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 210; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Appeal Judgement, 3 July 2008, p 20; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Trial Judgement, p 311; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 256; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Trial Judgement p 354; *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 411-419; See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 148; See also G Mettraux *The law of command responsibility* (2009) 157.

²⁸³ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 80; *Prosecutor v Enver Hadžihasanović Amir Kubura*, Case No IT-01-47-T, Trial Judgement, 15 March 2006 p 76-77. See also G Mettraux *The law of command responsibility* (2009) 190.

²⁸⁴ *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 149.

²⁸⁵ *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 108; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 197.

²⁸⁶ *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 108; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 197.

²⁸⁷ *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 109.



reasonable doubt that there was a ‘concrete exercise of superior authority’ for the commander to be held responsible.²⁸⁸

Courts have also established some elements that prove that the commander did not exercise effective control over the subordinates. In the *Hadžihasanovic case* and the *Blagojevic case*, it was held that where a unit of an army or armed group maintains a ‘significant degree of independence’ from the commander, then ‘effective control’ is not satisfied.²⁸⁹

In that sense, ICTY case law, like in the cases of *Čelebici*, *Stupar et al* and *Krnjelac* the court reasoned that a ‘substantial influence over subordinates’ does not meet the threshold of ‘effective control’ over subordinates.²⁹⁰ The ICC has also followed the ICTY case law that ‘substantial influence’ alone is not enough to establish ‘effective control’ for the purposes of holding a commander responsible for the actions of his or her subordinates.²⁹¹ It does not suffice that the commander has charisma, is persuasive and is respected; effective control goes beyond that.²⁹²

There are various constitutive elements of ‘effective control’ under the doctrine of command responsibility that can help the framing of elements of ‘Meaningful Human Control’ over Autonomous Weapon Systems. Thus, like in the case of a commander’s control over his or her subordinates, whose actions he or she can be responsible for, a

²⁸⁸ *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 108; *Prosecutor v Rasim Delic*, Case No. IT-04-83-T, Trial Judgement, 15 Sept. 2008, para 364 – 8; *Prosecutor v Clément Kayishema*, Case No. ICTR-95-1-T, Trial Judgement, 21 May 1999, para 479-489; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Trial Judgement, paras 722-767; *Prosecutor v Zlatko Aleksovski*, Case No. IT-95-14/1-A, Trial Judgement , paras 90-106; *Prosecutor v Ignace Bagilishema*, Case No. ICTR 95-1A-A, Appeal Judgement, 3 July 2002, p 35.

²⁸⁹ *Prosecutor v Vidoje Blagojevic and Dragan Jokic*, Case No. IT-02-60-A, Appeal Judgement, 9 May 2007, p 303; *Prosecutor v Enver Hadžihasanović Amir Kubura*, Appeals Judgement, p 231.

²⁹⁰ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 37.

²⁹¹ *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 Jan. 2009, p 414-6.

²⁹² *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 121.



fighter can only be said to be in ‘Meaningful Human Control’ of Autonomous Weapon Systems if:

- a) The control that the human fighter exercises over the weapon systems’ ‘critical functions’ is ‘concrete’. That control cannot be assumed or presumed; it must be real not ‘theoretical or potential’.²⁹³ The human fighter must remain the master of his or her weapon.
- b) Autonomous Weapon Systems’ ‘critical functions’ remain ‘subordinated’²⁹⁴ to the human controllers in the sense that only the human controller can authorise them to engage or not to engage a human target.²⁹⁵
- c) The control can be exercised in a preventative manner. ‘Meaningful Human Control’ over Autonomous Weapon Systems should allow the human controller to ‘prevent’ them from committing crimes.²⁹⁶ This would mean in

²⁹³ For the same reasoning in the commander subordinate relationship, see the cases of *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009 , p 108; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 197; *Prosecutor v Rasim Delic*, Case No. IT-04-83-T, Trial Judgement, 15 Sept. 2008, para 364 – 8; *Prosecutor v Clément Kayishema*, Case No. ICTR-95-1-T, Trial Judgement, 21 May 1999, para 479-489; *Prosecutor v Zlatko Aleksovski*, Case No. IT-95-14/1-A, Trial Judgement , paras 90-106; *Prosecutor v Ignace Bagilishema*, Case No. ICTR 95-1A-A, Appeal Judgement, 3 July 2002, p 35.

²⁹⁴ On the issue of subordination to the commander as a requisite of effective control and responsibility see *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 417; *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Enver Hadžihanović Amir Kubura*, Case No IT-01-47-T, Trial Judgement, 15 March 2006 p 83; *Prosecutor v Naser Oric*, Case No. IT-03-68-A , Trial Judgement p 312; See also G Mettraux *The law of command responsibility* (2009) 142.

²⁹⁵ On the aspect of commanders issuing orders that are respected see *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, January 2009, p 417; *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 207; *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 148.

²⁹⁶ *Prosecutor v Sefer Halilović* Case No. IT-01-48-A, Appeals Judgement, 16 October 2007, p 210; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Appeal Judgement, 3 July 2008, p 20; *Prosecutor v Naser Oric*, Case No. IT-03-68-A, Trial Judgement, p 311; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Appeal Judgement, 20 February 2001 p 256; *Prosecutor v Zejnil Delalic Čelebici* Case No IT-96-21-A, Trial Judgement p 354; *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 January 2009, para 411-419; See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 34; *Prosecutor v Rašević* Case No. X-KR/06/275,



the least, presence of the human controller in real time²⁹⁷ when ‘critical functions’ are executed and the ability to stop anything offensive the moment it is inconsistent with the law.

d) The control is exercisable and exercised at the time ‘critical functions’ are executed. ‘Meaningful Human Control’, just like in the case of ‘effective control’ can only be satisfied if it existed and is exercised precisely at the time of targeting.²⁹⁸ In contrast to suggestions noted above, meaningful control over weapon systems cannot be pre-programmed. Pre-programming can potentially be effective, but if it is to be ‘Meaningful Human Control’, the one that would allow the fighter to be held responsible for the actions of the Autonomous Weapon Systems, human control must be exercised in real time. There is no doubt that through pre-programming or algorithms humans exercise ‘substantial influence’ over weapon systems. However, pre-programmed control still makes Autonomous Weapon Systems unpredictable - especially when acting in unpredictable environments - therefore obfuscating the important issue of legal responsibility. For the purposes of responsibility of the fighter over the weapon, pre-programmed influence does not meet the threshold of ‘Meaningful Human Control’ being proposed in this paper.²⁹⁹

e) Where Autonomous Weapon Systems maintain a ‘significant degree of independence’ in the ‘critical functions’ from the human controller, then

First Instance Verdict, 28 February 2008, p 148; See also G Mettraux *The law of command responsibility* (2009) 157.

²⁹⁷ See *Prosecutor v Rašević* Case No. X-KR/06/275, First Instance Verdict, 28 February 2008, p 149.

²⁹⁸ See *Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 80; *Prosecutor v Enver Hadžihasanović Amir Kubura*, Case No IT-01-47-T, Trial Judgement, 15 March 2006 p 76-77. See also G Mettraux *The law of command responsibility* (2009) 190.

²⁹⁹ For the same reasoning in the commander subordinate relationship, see the cases of *See Prosecutor v Stupar Milos et al*, No. X-KRŽ-05/24-3, Verdict at Second Instance, 28 April 2010 p 37; *Prosecutor v Jean-Pierre Bemba*, Case No. ICC-01/05-01/08, Confirmation of Charges Decision, Pre-Trial Chambers, 12 Jan. 2009, p 414-6; *Prosecutor v Momčilo Mandić* Case No. X-KRŽ-05/58, Second Instance Verdict, 1 September 2009, p 121.



‘Meaningful Human Control’ over the weapon systems may not be satisfied.³⁰⁰

Although I have used the notion of control from the commander-subordinate relationship in International Criminal Law, it is important to note that I insist in referring to the relationship between weapons and humans as that of fighter-weapon relationship not commander-subordinate. Some commentators have referred to human controllers of weapon systems as commanders. Such a referral and terminology has implications of perceiving weapons as combatants. I have argued elsewhere³⁰¹ that if the control that humans exercise over weapons is to be well understood, weapons must remain weapons; at no point should they cross the line by being tasked to carry out obligations that have been strictly reserved for human fighters.

In the debate on Autonomous Weapon Systems, arguments have generated into whether AWS can perform better than humans when it comes to International Humanitarian Law rules of distinction and proportionality, for example. I argue that in as much as that consideration is relevant, it may be that an important initial hurdle regarding autonomous weapons has been jumped. On the one hand, there is a push to consider Autonomous Weapon Systems as weapons yet on the other – when it comes to the assessment of their legality – rules that are supposed to govern combatants – who, from time immemorial have been human beings – are invoked without proper deliberation of the implications thereof. Such an approach is tantamount to attempting to have the cake and it eat it at the same time.

If ‘Meaningful Human Control’ over Autonomous Weapon Systems is to be maintained, AWS must enter the battlefield as weapons not as combatants. For them to be weapons, they must simply be mere ‘tools’ in the hands of the fighters, something that

³⁰⁰ See the same reasoning in the case of commanders and subordinates in the cases of *Prosecutor v Vidoje Blagojevic and Dragan Jokic*, Case No. IT-02-60-A, Appeal Judgement, 9 May 2007, p 303; *Prosecutor v Enver Hadžihanović Amir Kubura*, Appeals Judgement, p 231.

³⁰¹ See Chapter 2 of this thesis.



can only be achieved if ‘strict control’ over their ‘critical functions’ is exercised by humans. A weapon has never – in the history of mankind – been allowed to perform the critical combatant function of making the decision on who to kill, on making proportionality calculations and other human considerations before such a kill. The NGO Article 36 correctly observes that:

The linking of ‘Meaningful Human Control’ to individual attacks is significant because it is in relation to individual attacks that existing rules of international humanitarian law apply – *it is over individual attacks that commanders must make legal judgements...States should be very wary of adopting a line of thinking that sees weapons as making legal judgements...it must be clearly acknowledged that the responsibility for legal judgements remains with the person or person(s) who plan or decide upon an attack.*³⁰² (Italics are mine)

I argue that there can never be meaningful or proper human control of the use of force where the decision to use lethal force is made by a machine with no human being in the real time. The moment one starts asking whether the supposedly ‘new weapon’ can be able to distinguish and make proportionality calculations, rules that traditionally – and rightly so – have been consistently applied to human combatants, then humans have lost any meaningful control over weapons.

7.14 Summary of what can be learnt from the jurisprudence on the notion of control

There are important pointers that can be summarised from the existing jurisprudence on the notion of control for the purposes of establishing responsibility. As pointed above, the major concerns on Autonomous Weapon Systems are that they threaten the right to life, dignity and accountability mechanisms.

³⁰² Article 36 ‘Key areas for debate on Autonomous Weapon Systems’ (2014) 4 Briefing Paper available at <http://www.article36.org/wp-content/uploads/2014/05/A36-CCW-May-2014.pdf> (accessed 1 August 2014).



The right to life may be threatened in the sense that Autonomous Weapon Systems may take away life in contravention of law.³⁰³ They may not be able to factor in all the considerations that are made both in times of war and peace before taking life. In that regard, there is a potential that they may deprive life in an arbitrary manner. In the sense of the right to dignity, it has been observed that death at the instance of an algorithm may be the ‘ultimate indignity’.³⁰⁴

The concern on the right to life and dignity may be remedied by a human exercising control over the critical function of Autonomous Weapon Systems – in particular the making of the decision to kill. That decision, as argued above, is more fully made on the battlefield when the machines assess real time situations against pre-set parameters. A human must be present in those moments, not only to verify the legality of the targets, but also to participate in the assessment itself.

One of the important points I have emphasised in this paper is that determination of the degree of control that must be exercised over the ‘critical functions’ can only be articulated correctly by reference to the third concern raised by Autonomous Weapon Systems – the threat that AWS may create an accountability vacuum.

I have noted and stressed above that when the international community discusses ‘Meaningful Human Control’ over weapon systems, it must be clear that we are talking of ‘Meaningful Human Control’ by fighters who deploy these weapons. Defining ‘Meaningful Human Control’ of weapon systems must focus on the fighters, the users of

³⁰³ Human Rights Watch ‘Shaking the Foundations: The Human Rights Implications of Killer Robots’ (2014) p 8 available at http://www.hrw.org/sites/default/files/reports/arms0514_ForUpload_0.pdf (accessed 7 September 2014) ; see also C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland, p 5 available at <http://www.icla.up.ac.za/images/un/speeches/heyns%20ccw%20presentation%20aws%20and%20human%20rights.pdf> (accessed 7 September 2014).

³⁰⁴ See C Heyns ‘Autonomous Weapon Systems and human rights law’ (2014) Presentation made at the informal expert meeting organized by the state parties to the Convention on Certain Conventional Weapons 13 – 16 May 2014, Geneva, Switzerland, p 5 available at <http://www.icla.up.ac.za/images/un/speeches/heyns%20ccw%20presentation%20aws%20and%20human%20rights.pdf> (accessed 7 September 2014).



the weapons on the battlefield, the ones on whom responsibility rests when an infraction of the law is made.

In line with the existing jurisprudence on the notion of control and responsibility, for an individual fighter to be liable for infractions as a result of the use of Autonomous Weapon Systems, the human fighter must exercise a high degree of control over its 'critical functions', the degree of that control must be of such a nature that without it, the Autonomous Weapon Systems cannot function.

On the other hand, in order to execute their 'critical functions', Autonomous Weapon Systems must completely depend on the human input in real time. The power of selection of human targets and the decision to neutralise and kill them must remain with humans. The human input in the execution of the 'critical functions' must satisfy the condition that the AWS cannot proceed or complete the loop without such input.

In that context of 'critical functions', Autonomous Weapon Systems will only act on the specific instructions of a human operator in the real time so that all ensuing acts are acts of the human at the controls. To that end, pre-programmed control is insufficient, because if the Autonomous Weapons System still has autonomy in 'critical functions' its actions are unpredictable. Thus, while Autonomous Weapon Systems must be completely dependent on humans to execute the 'critical functions', humans' control over them must be specific, strict, concrete and in real time so that in the event of error the human controller is still able to prevent the worst. Unless humans exercise such kind of control, it cannot be meaningful.

7.15 Conclusion

The nature of control that humans exercise over weapons has been changing over the years. Previously, humans used to directly control weapons they used. It was a case of master-tool relationship. However, the changing nature of the battlefield led to the developments in military technologies that were more geared towards weapons that



are effective, convenient and safe. This saw the changing of the relationship between humans and weapons to that of ‘partners’ – where humans delegated certain functions or control to machines. Such a situation was understandable because the control exercised by humans over weapons in that ‘partnership’ was and still is considered sufficient for all legal purposes. Drone technology saw another twist in the manner in which humans exercise control over weapons they use. From direct control and ‘partnership’, with drone technology humans exercise their control remotely. Although remote control of weapons has raised – and still raises – objections from some commentators, the remote control of weapons is legally acceptable since it can still comply with all the legal tenets.

The advent of Autonomous Weapon Systems, however, has raised questions on whether the level of control that humans exercise over weapons is still acceptable. This has seen the emerging notion of what has been termed ‘Meaningful Human Control’ over weapon systems.³⁰⁵ There is no doubt that an approach based on ‘Meaningful Human Control’ has the advantage of focusing on the responsibilities of humans, rather than focusing on the ever evolving technology. This notion, if properly defined may provide solutions to the problems that are raised by the ever increasing autonomy in weapon systems.³⁰⁶

It is important to understand however, that the notion of ‘Meaningful Human Control’ will only be applicable to those weapon systems that are not fully autonomous in the strict sense of the word. For those that are fully autonomous, which at present no-one seems to support in principle, it might be necessary to pronounce a ban on them.

³⁰⁵ For example, Article 49(1) of the 1977 Additional Protocol I to the 1949 Geneva Conventions defines ‘attacks’ as ‘acts of violence against the adversary, whether in offence or in defence.’

³⁰⁶ The United Nations Institute for Disarmament Research (UNIDIR) ‘Framing Discussions on the Weaponisation of Increasingly Autonomous Technologies’ (2014) p 9 -10.



As to what would constitute ‘Meaningful Human Control’, I proposed in this chapter that the international community must have a purposive approach – what is the purpose of this emerging notion, what is it which the international community is trying to resolve? In this chapter, I pointed out that one of the major issues or concerns with Autonomous Weapon Systems is that they may create an accountability gap in specific relation to fighters who use these weapons. Therefore, I have argued that ‘Meaningful Human Control’ over weapon systems can only be that which allows the user of the weapon to be held accountable for the ensuing acts of an Autonomous Weapon System, in the same way when he uses an ordinary rifle. That would require the fighter to participate in the selection and making of the decision to kill in real time; the fighter must be in control of the system to the extent that it is incapable of executing the ‘critical functions’ without the human input. In other words, the system must depend on the human input while the human fighter or controller exercises high degree of control. Only that would, in my view, constitute ‘Meaningful Human Control’.



Chapter 8: Conclusions and Recommendations

8.1 Conclusions

Increasing autonomy in weapon systems has various advantages, some of which were discussed in Chapter 1. However, in as much as one is aware of such advantages, the ever increasing autonomy in weapon systems may pose a great danger to humanity – a situation where there is no ‘Meaningful Human Control’ of weapons. Autonomy in such a situation has far reaching ramifications for the protection of the right to life and other important rights as was discussed throughout this thesis. On account of the potential impact of AWS, I have emphasised throughout the thesis that the challenges posed by this technology should be understood in a broad context, to cover all those weapon systems that do not have any ‘Meaningful Human Control’ over the use of force whether lethal or non-lethal, in law enforcement or armed conflict situations.

In assessing how AWS fare against some of the important rules of international law, my first consideration was in relation to Article 36 of Additional Protocol I to the Geneva Conventions on the legal review of new weapons. When conducting a legal review of Autonomous Weapon Systems in terms of Article 36 of Additional Protocol I to the Geneva Conventions, I highlighted the importance of ascertaining whether what is being put under review is a weapon or means of warfare. My conclusion as far as this aspect is concerned is that AWS without ‘Meaningful Human Control’ are outside the scope of traditional weapons since a weapon must be under proper and meaningful control of a human.

I further explored in Chapter 2 the importance of ascertaining whether a particular technology squarely fits as a weapon for the purposes of Article 36. Hereupon, the main argument and conclusion is that there is a fundamental difference between international weapon rules on the prohibition of weapons that are indiscriminate in nature, those that cause superfluous harm and the international humanitarian law



targeting rules of distinction and proportionality as applicable to combatants. Although there is a relationship between these rules, they are not the same. To this end, I conclude that when IHL rules of distinction and proportionality are applied to machines, it is tantamount to accepting these weapons as robo-combatants; since decisions as to who to kill and calculation of the legality of an attack is the preserve of human combatants.

I also considered whether AWS without ‘Meaningful Human Control’ can comply or make it possible for fighters to comply with some specific rules of certain branches of international law. To start with, I came to the conclusion that as far as rules of international humanitarian law such as humanity, distinction, precaution, proportionality and military necessity are concerned, AWS without ‘Meaningful Human Control’ make it impossible to comply. The mentioned IHL rules are fundamental as they are the core in the protection of those not directly taking part in hostilities. The major reasons why AWS are likely not to comply with these rules are: the technology is not advanced enough to capture some of the intricacies of humanitarian law, the terms that are used in IHL are so imprecise that it is impossible to translate them into a computer, contemporary conflicts take forms that make it difficult to distinguish protected persons and those who are directly taking part in hostilities, thereby demanding human judgment and input in real time.

The relevance and importance of human judgment whenever force is used against the human person is more evident when rules of International Human Rights law are considered. One of the issues that characterised the debate on AWS is whether the issue should be considered in the human rights fora since certain commentators and states felt that it is a disarmament issue, especially within the United Nations. In this thesis I argued in support of those commentators who point to the relevance of human rights law in the AWS debate. Given the importance of human rights as an overall guideline in international law; that human rights law continues to apply in times of armed conflict; that AWS may also end up being used in law enforcement situations to



which human rights is applicable, I came to the conclusion that not only is this body of law relevant, but also that the AWS issue must be discussed in human rights fora.

When measured against rules that seek to protect important rights such as the right to life and dignity of the human person, I come to the conclusion that AWS without ‘Meaningful Human Control’ are largely inconsistent and will raise chances of such important rights being violated. Just like in the case of armed conflict, rules on the use of force such as necessity, precaution and proportionality demand human judgment, something that is absent where there is no ‘Meaningful Human Control’. I also come to the conclusion that even if AWS could be capable of complying with these rules – even better than humans, there is still the underlying consideration of human dignity which makes AWS undesirable all the same. It is not in line with the demands of the right to dignity as a constitutional value that machines should make the decision to take another person’s life or to use force on a human person. Such a decision must and should always be taken by a fellow human being who understands the implications of his or her actions. This issue of dignity is tied to the aspect of humanity and the dictates of public conscience as enshrined in the Martins Clause. In this case, I come to the conclusion that when dictates of public conscience and principles of elementary humanity are properly understood – especially from a human rights perspective – it is unacceptable that machines should decide to take a human life without human input.

Whenever there is a violation, victims are entitled to a remedy. To this end, I considered the question of accountability as a form of remedy in case AWS end up violating someone’s rights. I came to the conclusion that AWS without ‘Meaningful Human Control’ lead to an accountability gap. To deal with the issue of an accountability gap, commentators have suggested a number of solutions, from invoking the concept of command responsibility to suggesting the splitting of responsibility among manufacturers, programmers, roboticists and those deploying AWS for example.



In this thesis, I come to the conclusion that the concept of command responsibility is inapplicable to the relationship between a human and a machine or robot. AWS are not human subordinates – command responsibility is only applicable in the relationship between a *human commander* and his or her *human subordinate*. The relationship between the AWS and the person deploying it must remain that of a *weapon* and a *warrior*. Referring to the person deploying an Autonomous Weapon System as the ‘commander’ may thus be misleading. To that end, command responsibility only remains applicable to the extent that the human commander is responsible for the actions of the human subordinate deploying the AWS if he knew or ought to have known that the human subordinate was programming or deploying an Autonomous Weapon System in a way that would violate international law and failed to prevent, stop the human subordinate or punish him or her after the fact. As far as splitting of responsibility is concerned, not only is this foreign in International Criminal Law, but it is also untenable especially if issues of *mens rea* as an important part of criminal law are taken into perspective.

Having concluded that certain levels of autonomy in AWS pose huge challenges in international law - in particular to the rules of IHL, human rights and accountability - I also considered one of the suggested solutions: maintaining ‘Meaningful Human Control’ over weapons. I agree that this is a plausible solution; the only challenge is that neither is this term defined nor is its content clear in international law.

As to what would constitute ‘Meaningful Human Control’, I propose that the international community must have a purposive approach. The two main questions one should ask are: what is the purpose of this emerging notion and what is it which the international community is trying to resolve? To this end, I point out that one of the major issues or concerns with Autonomous Weapon Systems is that they may create an accountability gap in specific relation to fighters who use these weapons. Therefore, I have argued that ‘Meaningful Human Control’ over weapon systems can only be that



which allows the user of the weapon to be held accountable for the ensuing acts of an autonomous weapon system, in a way that it is when he uses an ordinary rifle. That would require the fighter to participate in the selection and making of the decision to kill in real time; the fighter must be in control of the autonomous weapon systems to the extent that the system is incapable of executing the ‘critical functions’ without the human input. In other words, the system must depend on the human input while the human fighter exercises control. Only that would, in my view, constitute ‘Meaningful Human Control’’. To this end and in Chapter 7, I consider in detail the jurisprudence on the notion of control in international law as a way of establishing responsibility and noting what can be borrowed in the formulation of what is meant by ‘Meaningful Human Control’ in weapon systems.

8.2 Recommendations

Having come to the conclusion that AWS without ‘Meaningful Human Control’ cannot comply with the rules of IHL, human rights and those on accountability, I recommend as follows:

a) To the United Nations

8.2.1 The United Nations must place a pre-emptive ban on AWS with full autonomy or those without ‘Meaningful Human Control’’. The importance and advantage of that ban is that it will serve as a yardstick for acceptable weapon systems and those that are not. Besides the argument that they can save lives – an argument that is problematic in itself – there is no other compelling argument in support of fully-autonomous weapon systems. The question is only about what level of autonomy - below that of ‘fully-autonomous’- is acceptable.

8.2.2 The on-going discussions on AWS within the United Nations Disarmament Committee are welcome. The Disarmament Committee should set up a working group or expert panel to work and come up with a document defining what constitutes



‘Meaningful Human Control’ over weapon systems. This definition is important in placing a ban on fully autonomous weapon systems referred to above. To that end, the ban on fully - autonomous weapon systems must be crafted after the definition of what constitutes ‘Meaningful Human Control’. Such documents must be an outcome of wide consultations.

8.2.3 In crafting the definition of ‘Meaningful Human Control’, I largely refer to the arguments I developed in chapter 7. In summary, the important points that the group or panel must take into consideration when defining ‘Meaningful Human Control’ are:

- i. ‘Meaningful Human Control’ is only that which will make weapons remain tools in the hands of the fighters – weapon systems must not make legal judgments like the decision to kill or the calculation of proportionality.
- ii. ‘Meaningful Human Control’ is only that control which will make fighters potentially responsible for all ensuing acts following the use of Autonomous Weapon Systems.
- iii. ‘Meaningful Human Control’ can only be achieved in the above two points by making sure that weapon users are in control of the ‘critical functions’ of a weapon system in real time and that weapon systems are dependent on human input to execute the ‘critical functions’.

b) To Regional Organisations

8.2.4 I recommend that the regional organisations should take similar or parallel measures like those I have recommended to the United Nations above.

c) To States

8.2.5 All UN member states should participate in the AWS discussions within the United Nations fora. I particularly encourage African countries and those from the developing world to make their voices heard on this particular issue.



8.2.6 To the states that are developing or have intention to develop AWS, I recommend that they place a national moratorium on such development until the issue is resolved at the international and regional level.

8.2.7 When conducting legal review of AWS in terms of Article 36 of Additional Protocol I to the Geneva Conventions, states should ask the question whether or not what they are reviewing are weapons in the strict sense of the word. States should also take into account human rights norms and principles of humanity as provided for in the Martens Clause.

d) To Civil Society

8.2.8 I recommend that the civic society, in particular non-governmental organisations like the Campaign to Stop Killer Robots, must continue to be seized of the matter, spreading and teaching the public from an honest point of view. Honesty is important in this regard because publications and information from these organisations play an important role in creating public opinion and conscience on the matter. I recommend that non-governmental organisations on the African continent and other developing regions must also take up on this issue.

e) To the General Public

8.2.9 I recommend that the general public should seek to acquire knowledge on this important issue. It is important to question oneself as an individual, without unnecessarily being academic or emotional about the issue. Are we, as humans, ready to take this leap? What do we create for the generations to come? What legacy are we leaving behind?



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