Human Rights in Conflict Situation

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by
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Declaration

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ABSTRACT

Means and methods of war were always progressing. Guns, tanks, and remotely controlled aerial vehicles were all created to put as much of a safe distance as possible between a soldier and an adversary. Thus, the appearance of autonomous weapon systems became a natural continuation of it. Such weaponry can select and engage a target by itself without human intervention based on the data gathered from the sensors. It is an emerging technology that provoked various concerns and debates on how to approach AI-driven weaponry on a global level. Considering that, this thesis investigates the 2 questions. First one inquires about the reasons why international restraint on this military technology is necessary. Second one addresses the methods on how to achieve this restraint on development and use of autonomous weapons. To answer these questions, the thesis utilizes qualitative research methods and discourse analysis. Overall, this dissertation argues that an international restraint is necessary and the best way to attain it is through the creation of a new legally-binding instrument.

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LIST OF ABBREVIATIONS

AI - artificial intelligence

AWS - autonomous weapon systems

CCW - Convention on Certain Conventional Weapons

GGE - Group of Governmental Experts

ICRC - International Committee of the Red Cross

IHL - international humanitarian law

LAWS - lethal autonomous weapon systems

UNODA - United Nations Office for Disarmament Affairs

1. INTRODUCTION

Research Statement

The tools of war were always changing. From spears to guns, from guns to tanks, from tanks to planes. The technological and scientific advancements in the military were always following the same tradition, trying to put as much distance between a warrior and their foe as possible, to better protect the safety of the warrior. (Strawser 2010). This trajectory moved to a discovery of autonomous weapon systems (AWS). According to a definition of the International Committee of Red Cross (2021, p. 5), AWS - are "the systems that select and apply force to targets without human intervention. After initial activation by a person, AWS self-initiates or triggers a strike in response to information from the environment, received through sensors and on the basis of generalized target profile".

The autonomy in weapons is pursued due to various military advantages it offers. Marchant, Allenby, Arkin, Barret, Borenstein, Gauder, Kittrie, Lin, Lucas, O'Meara, Silberman (2014) highlighted several drivers of development of autonomous weapon systems (AWS). Firstly, they can reduce the number of soldiers necessary for a mission, with robots, one person can do a job that previously required a whole team. Secondly, deploying AWS would make it possible to cover a larger area that was previously unavailable. Finally, utilizing AWS would remove soldiers from the most dangerous and potentially lethal operations.

Despite all these advantages, states have been participating in negotiation on possible limitations and regulation of autonomous weapon systems (AWS) at the United Nations Convention on Certain Conventional Weapons since 2014. (Bode, Huelss, Nadibaidze, Qiao-Franco, Watts, 2023). The core of the discussions is creating a restraint on AWS on an international level. Based on the discussions of nuclear restraint (Rublee 2010, Kugler 1975, Jacob 2012, Hiim 2010, Tannenwald 2020), it can be conceptualized as the limitations in the development, deployment or utilization of autonomous weapon systems.

This understanding of restraint coincides with the definition of arms control by Jeffrey A. Larsen (2009), he defines it as "a restraint internationally exercised on armaments policy, which not only addresses the number of weapons, but also their character, development, and use." (p. 4). Larsen (2009) also points out the paradoxical puzzle of arms control agreements. Arms control limits military capabilities, the purpose of which is to protect national security and sovereignty of the state. It is a very sensitive matter. The regulations could force authorities to lower the number or level of arms, despite threat assessments demanding to increase them. In the case of inspections and verifications, a state gives access to sensitive information and facilities to foreign powers that could one day become adversaries. Why would a state, in an anarchic system with no central authority, make their national security dependent on cooperation with potential enemies? What are the possible reasons, that are so grave, to the point where states decide to create a system of trust in reciprocal restraint and pursue arms control?

As Larsen (2009, p. 5) sharply points out "arms control is not obviously better than its alternative—unilaterally providing for one's own security". Thus, it is worthy of academic examination to investigate the reasons for international restraint on autonomous weapons systems (AWS). This academic interest and initial curiosity led to the first, primary question of this thesis: **Why should autonomous weapon systems be restrained on an international level?** This question logically sparks a secondary question on methods of restraint: **How should autonomous weapon systems be restrained on international weapons?**

If it is established that there are significant reasons to create international restraint on autonomous weapon systems, it is also necessary to inquire how this restraint can be created. What are the limitations that should be imposed on development and use of AWS? How should they be enforced? Should they be mandatory or not? Should AWS be completely banned? Academic debate on limitations of AWS is divided with some scholars (Noel Sharkey 2012, Peter Asaro 2013, Frank Sauer 2016, Rosert and Sauer 2019, Robert Sparrow 2016, Altmann and Sauer 2017, Anne Gerdes 2018) arguing for a full ban . While others (Ronald Arkin 2010, Kenneth Anderson and Mathhew Waxman 2013, Armin

Krishnan 2009, Christian Alwardt 2021, Strawser 2010, Erich Riesen 2022) claim that AWS should be permitted in certain circumstances of operations. This polarization in opinions further points to the fact that academic inquiry is needed to establish possible paths for the AWS arms control regime.

Research questions

The central research question of this dissertation is: **Why should autonomous weapon systems (AWS) be restrained on the international level?**

The purpose of this inquiry is to investigate the underlying rationale behind the need to impose international restrictions on autonomous weapon systems (AWS). This thesis seeks to understand the causal factors that prompt the need for restraint. It is needed to examine whether international regulation of AWS is necessary or not in contemporary global order. The thesis explores the implications of AWS for existing international norms and seeks to explain why development and deployment of weapons with autonomy may require collective action at a global level.

The sub-question of the thesis is: **How should autonomous weapon systems (AWS) be restrained on the international level?**

This inquiry seeks to identify practical mechanisms and frameworks that could be utilized for effective restraint. This question examines whether the full ban would be more appropriate to address autonomous weapon systems (AWS), or whether there should be an agreement that allows development and deployment of AWS within certain limits. This question also addresses the processes through which states could cooperate and ensure compliance. In other words, what would verification mechanisms and enforcement measures look like?

Research significance

The significance of this dissertation stems from its contribution to the ongoing academic debate on whether or not there is a necessity to restrain autonomous weapon systems (AWS) on an international level, or whether this technology should be subject to national policies only. It contributes to the discussions why international restrictions are needed and

how they should be implemented. There is a substantial body of literature on the topic of AWS, their potential benefits and risks as well as their implications for global security, ethics and international law. However, current scholarship often focuses on isolated aspects of AWS. The articles provide individual narrow perspective, some authors focus solely on international humanitarian law (Noel Sharkey 2012, Neil Davison 2018, Robert Geiss 2015, Markus Wagner 2014, Matthias Brenneke 2019), while others discuss only ethical concerns based on the concept of human dignity (Rosert and Sauer 2019, Peter Asaro 2013, Sparrow 2016, Heyns 2017). Therefore, there is a lack of research that would integrate and present arguments from different disciplines, including IT, international human rights law, international criminal law etc.

This dissertation attempts to address this gap by drawing insights from norms scholarship and arms control theory. Karl-Dieter Opp (2001) argues that international norms, such as restraint on weaponry, appear because states cannot attain a certain good by themselves but only through collective action. Arms control theory helps identify these goods: reduction of the risk of war, the reduction of the cost of preparation for war, and the reduction of damage if war occurs. (Schelling and Halperin 1961) By drawing attention to the roots of the necessity of international cooperation, this thesis seeks to provide a broader perspective on why and how autonomous weapon systems should be restrained on an international level.

Moreover, the relevance and timeliness of this academic inquiry have become even more evident due to recent event, the international conference “Humanity at the Crossroads: Autonomous Weapon Systems and the Challenge of Regulation", which took place in Vienna on April 29-30, 2024, the statements from this conference constitute one of the primary sources of this dissertation. The significance of this thesis lies in its ability to incorporate such recent insights and arguments. Thus, it can enrich the existing body of knowledge of a relatively newly emerging field.

Roadmap to the thesis

The dissertation consists of 2 chapters: the theoretical and empirical. The theoretical chapter begins with a literature review that provides an overview of the authors who wrote on the topic of autonomous weapons regulation. Depending on their point of view in the debate, they can be divided into two camps: optimists and skeptics. Afterwards, the theoretical framework presents the conceptualization of key terms such as "restraint" and "autonomous weapon systems". Moreover, it also includes the concepts from the theories on arms control and norm emergence, which informed the formulation of hypotheses. The thesis then moves on to the methodology, which outlines the epistemological standpoint and the main methods of analysis of data. The dissertation takes the interpretivist approach and qualitative research method.

The empirical chapter is divided into 2 sections. The first section provides an answer to the research question: Why should autonomous weapon systems be restrained on an international level? Various arguments are presented such as the risk of enhancing the efficiency of genocides, the limits and biases present in training data of algorithms, and human rights considerations. The second section examines the sub-question: How should autonomous weapon systems be restrained on an international level? In this section, there are arguments why a new legally-binding instrument is the most appropriate method to mitigate risks posed by AI-driven weaponry. Both sections start with discussions on how the debates within the Convention on Certain Conventional Weapons (CCW) progressed throughout the period of 2017-2024.

2. LITERATURE REVIEW

Introduction

This section of dissertation first presents the definition of what autonomous weapon systems (AWS) are. Afterwards, it discusses the arguments that were previously articulated when answering why and how automatization of lethal weapons should be restrained on an international level. In the literature the authors are divided into two camps: skeptics and optimists. Skeptics are a group of researchers such as Noel Sharkey (2012) Peter Asaro (2013), Frank Sauer (2016), Rosert and Sauer (2019), Robert Sparrow (2016), Altmann and Sauer (2017), Anne Gerdes (2018) etc. What unites those scholars is the fact that they all advocate for an international ban on AWS, they believe this is how such technology should be restrained. The arguments provided to support this claim can be separated into two categories:

- Arguments of legal nature:

1) Incompatibility with International Humanitarian Law
2) Violation of human dignity and International Human Rights Law
3) The issue of accountability gap

- Arguments of international security

1) Risk of triggering arms race and proliferation among state and non-state actors
2) The unintentional escalation of conflict
3) Lowering the threshold of war

The camp of optimists includes authors like Ronald Arkin (2013), Kenneth Anderson and Mathhew Waxman (2013), Armin Krishnan (2009), Christian Alwardt (2022), Strawser (2010), Erich Riesen (2022). They disagree with skeptics on the opinion that a ban is the most appropriate way to address AWS. These scholars argue that prohibiting autonomy in weapons is too premature and there are other softer and more effective measures that can be taken. For instance, there can be an additional protocol to Convention on Certain Conventional Weapons that would describe in what circumstances and with what features the deployment of AWS is lawful. Arguments that are defending this position are following:

1) AWS can reinforce international security by working as deterrents
2) Ban is unrealistic to implement and verify
3) AWS are not necessarily incompatible with International Humanitarian Law
4) There is an obligation to deploy AWS based on principle of unnecessary risk
5) AWS can significantly reduce the number of casualties.
6) AWS can lift the fog of war

Overall, all authors that were examined in this literature review unanimously agree that AWS has to be somehow restrained on a global scale. However, the ideas of the methods on how to do it are different.

Definition

Part of the problem of discussions on autonomous weapon systems (AWS) is that there is no internationally agreed upon definition of what they are. The definitions found in the literature have different wordings. International Committee of Red Cross (2021, p. 5), derfines AWS as "*the systems that select and apply force to targets without human intervention. After initial activation by a person, AWS self-initiates or triggers a strike in response to information from the environment, received through sensors and on the basis of generalized target profile*". Peter Asaro (2013, p. 690) describes them as "*any system that is capable of targeting and initiating the use of potentially lethal force without direct human supervision and direct human involvement in lethal decision-making.* Scharre and Horowitz (2015 p.5) characterize them as "*a machine, whether hardware or software, that, once activated, performs some task or function on its own.*"

Even though the wordings of definitions are different, they still have similar elements that describe the core idea of autonomous weapons systems (AWS). Such weapons can sense and gather information from their environment through cameras and other sensory technology. Based on this data collected and algorithm embedded in the software, the machine can identify and engage a target by itself. Thus, it is possible to not have direct human control over the system's final decisions to apply violent force against a target.

Autonomous weapons began to be categorized depending on the degree of autonomy and human control present. Human Rights Watch presented 3 categories of the human control over a weapon: human-in-the-loop (people choose and engage with the target), human-on-the-loop (machine is picking and engaging the target but a supervising human can interfere), human-out-of-the-loop (fully independent weapons). For the sake of this paper, the operational definition of *AWS is a weapon that can select and attack a target without human intervention.* (Leys 2018)

Skeptics

Arguments of legal nature

A significant number of scholarly articles had taken a legal approach and analyzed the autonomous weapon systems (AWS) using the International Humanitarian Law (IHL) as a framework. Noel Sharkey (2012), Neil Davison (2016), Robert Geiss (2015), Markus Wagner (2014), Matthias Brenneke (2019) all argue that autonomous weapon systems are never going to be able to fulfill the two primary principles of IHL; the distinction and proportionality. The principle of distinction means that a weapon and combatants have to be able to distinguish civilians from combatants. The reason is that civilians and the civilian objects have to be protected from the attacks due to their status, only military objects and combatants can be lawful targets. The principle of proportionality refers to balancing between military advantage gained through the attack and the damage it causes to civilians and their property. Excessive, unnecessary collateral damage makes an attack unlawful.

Sparrow (2016), Noel Sharkey (2012), Neil Davison (2016) etc argue that AWS can never satisfy these principles. Firstly, because sensory technology (cameras, imagery recognition, acoustics) is not advanced enough to tell apart civilians and combatants. For instance, imagery recognition in dark, cluttered and realistic conditions of combat, would most likely confuse a person with a stick for a person with a rifle. Secondly, even if one day the research and development will come up with 100 % accurate and reliable sensory technology, AWS would still never be capable of fulfilling the principle of proportionality. The calculation to determine, if the military attack is proportionate and worth the damage, requires the skills that are inherent in human judgment:

- High situational awareness
- Ability to understand context clues
- Having knowledge of tactical and strategic implications of harm
- Understanding of socio-cultural and psychological conditions of people involved in a conflict

Thus, a machine will not be able to tell that a child was forced to carry a gun, it will just see an actively engaged combatant carrying a weapon. AWS in this case would deem such a target legitimate. Therefore, the principles of distinction and proportionality is a ground for a ban on autonomy in weapons.

However, Rosert and Sauer (2019) criticize the overemphasizing of international humanitarian law. They argue that a more appropriate grounds for a ban lies in the international human rights law and concept of human dignity. Elvira Rosert and Frank Sauer assert that principles of distinction and proportionality should not be a central argument when advocating for a prohibition of autonomous weapon systems (AWS). Because this idea implies that as soon as technology is advanced enough to discriminate between combatants and civilians, it would be okay to use it. However, Rosert and Sauer (2019), Peter Asaro (2013), Sparrow (2016), Heyns (2017) claim that deployment of AWS is fundamentally wrong and has to be prohibited no matter how far technological progress gets. They argue that both combatants and civilians alike have human dignity, which would be violated if they were to be targeted or killed by AWS. The central idea is that when AWS is used, people get reduced to mere data points, human-beings get dehumanized and treated like objects. Sparrow (2016) stated that deploying and sending AWS against enemy troops is like treating them as vermin. Thus, even if one day AWS would be able to accurately discriminate between civilians and combatants, the lethal decision of life and death still has to be taken by another human, who has capacity for compassion and empathy and will see an enemy soldier as a fellow human-being.

This notion that a lethal decision has to be made by a human-being at all times is supported by other researchers such as Dickinson (2018), Anne Gerdes (2018) and Asaro (2013). However, they support this opinion because a person, unlike a machine, can be held

accountable for the misdoings and will be able to explain before a court their thought process and reasons for committing a war crime. In the case of potential war crimes that can be committed by autonomous weapons systems, there is a question of who should be held accountable for unexpected accidents and loss of lives, the commander who launched it, the software developer who engineered the code or the people who built the hardware. Moreover, because a lethal decision was taken by a machine and not a human, there is a lack of intention. This raises the question of applicability of criminal liability for a war crime. Hypothetically, even if the software engineer is being held accountable through the court and during his/her defense they explain why the algorithm of AI made a wrong decision to kill a civilian, they can only offer technical quantitative reasons for the correlation between circumstances. Such reasoning will not comfort or give closure to the relatives of the victim. Besides, it can be dangerous to reveal pieces of code in court because it can be easily replicated by terrorists, armed groups, other non-state actors and jeopardize security of people

Arguments of international security

Replication of leaked codes and the utilization of dual-use (military and civilian) technology in development makes proliferation of autonomous weapon systems (AWS) highly likely, among both state and non-state actors. This argument for a ban is voiced by Frank Sauer (2016), Altmann and Sauer (2017), Chavannes (2020). They argue that proliferation among state actors would be due to the arms race. The ability of a machine to independently identify and engage targets is a revolutionary shift in military capabilities. It is attractive enough for at least one state to develop it. However, if one state develops and deploys AWS, the other countries might perceive it as a threat and feel obligated to develop similar, if not superior, weapons to protect national security. This fear would trigger an arms race, where states constantly feel the competition and continue to invest in their AWS programmes. The codes used in software by states might eventually leak on the internet, leading to proliferation among non-state actors too.

Besides the high risk of proliferation, Frank Sauer (2016), Altmann and Sauer (2017), Chavannes (2020) and Nathan Leys (2018) put forward the argument about unintentional conflict escalation. A conflict might transform into a full blown war because of the

unpredictability of autonomous technology or minor malfunctionings. For instance, if two drone swarms are positioned in close proximity, the control software would have to react in a split second timeframe by counterattacking at any sign of an attack. However, it may happen that a system had mistaken a sun glint for a rocket flame and launched an attack unprovoked. Thus, a crisis can escalate into war without human oversight and intervention. It actually almost happened in real life during the Cold War. The Soviet early warning systems gave false notifications of a nuclear attack several times. If it was not for lieutenant Stanislav Petrov, who did not act on them despite all protocols, the USA and Soviet Union would have escalated into a full blown nuclear war.

Altmann and Sauer (2017) and Horowitz (2021) argue that not only autonomous weapon systems (AWS) have the potential to escalate existing conflicts, but they also make it easier for states to enter into new ones. In other words, AWS can lead to lowering of the threshold for entering into conflict. The major deterrence from going into war is receiving body bags of the nation's combatants. However, since deployment of AWS would remove soldiers out of harm's way, no one will be actively risking their lives. Thus, the general public might not react negatively and pressure the authorities to not enter into conflict. Traditional warfare, on the other hand, creates significant emotional and political burden which makes state decision-makers think twice before waging a war. Overall, AWS alters the usual political and ethical calculations and may incentivize states to use force to resolve crises.

Optimists

However, there are authors such as Ronald Arkin (2013), Kenneth Anderson and Mathhew Waxman (2013), Armin Krishnan (2009), Christian Alwardt (2022), Strawser (2010), Erich Riesen (2022) who are more optimistic about possible use of autonomous weapons systems (AWS). They argue that with very specific conditions of use, AWS do not have to be banned necessarily. For instance, Armin Krishnan (2009) disagrees with Altmann and Sauer (2017) on the fact that AWS would destabilize international security and lower the threshold of entering into war. On the contrary, Krishnan argues that with strictly defensive posture, the AWS can actually be effective deterrents from conflict. He suggests that autonomous defensive weapons could make chances of a successful offensive attack so

slim, no state would actually take that risk and be an aggressor. He asserts that instead of a ban, there should be a treaty that puts certain limitations on AWS. For example, the range of missiles will have to be smaller in scale, just enough to be able to bombard only the defensive zone. Additionally, AWS would be restricted to very specific marked areas like military bases, borders, small combat zones. That way, AWS would be used only defensively and not-provocatively.

Kenneth Anderson and Mathhew Waxman (2013) also support the idea of a treaty that limits what would be appropriate use of autonomous weapons systems (AWS). They argue that it would be better suited to address the AWS internationally than an outright ban. They assert that a regulatory treaty or soft law guidelines are more realistic in terms of implementation than a ban. Firstly, the prohibitory treaty would most likely be signed and ratified by every other state, except for the ones that actually have a capability to develop and deploy AWS. Secondly, the verification regime would be quite problematic. The autonomy is created through code of software which can be easily concealed or deleted during inspections and then restored afterwards. Moreover, the hardware parts that are used to develop AWS have a dual-use (military and civilian) purpose and application. Therefore, it might not be obvious if some research and development is taking place. Thus, an all encompassing ban that covers both development and deployment of AWS would be very challenging to implement in practice.

Besides the reason for the unrealistic practical implementation of a ban, Kenneth Anderson and Mathhew Waxman (2013), Andreas Wilia and Diajeng Wulan Christianti (2019) argue that it is not necessary to prohibit the development and deployment of autonomous weapons systems (AWS). They challenge the idea of incompatibility of AWS with International Humanitarian Law (IHL) that was provided by Sparrow (2016), Noel Sharkey (2012), Neil Davison (2016) about principles of distinction and proportionality. Anderson and Waxman (2013), assert that just capability of autonomy does not automatically render a weapon system indiscriminate by nature. If it is possible to feed AWS the sufficiently reliable targeting information and make sure that a lawful target will be engaged, deploying autonomous weapons would not be against IHL. Similarly, Wilia and Christianti (2019)

share the same sentiment. They argue that if AWS is able to cancel or suspend an attack when sensors and information collected indicate a target as civilian, it should not be prohibited. Moreover, AWS could be deployed only in areas without civilians present (underwater, air, machine-on-machine combat).

On top of that, Strawser (2010) and Riesen (2022) suggest that there is actually a moral and ethical obligation to deploy autonomous weapon systems (AWS). Bradley J. Strawser (2010) bases his argument on the principle of unnecessary risk. The core idea is that it is unethical to send someone on a mission that would put a person to unnecessary, potentially life threatening risks, when there are safer alternatives available. Any risk has to be justified by strong, compelling reasons. AWS is just a logical continuation of a long historical tradition of trying to create as much distance as possible between a combatant and an enemy. In the development of weapons, spears, guns, tanks etc. were created to put a person at a safe distance and keep them from unnecessary risk. Every other new weapon provided a safer alternative to the precedent. Riesen (2022) provides a similar idea but adds to the argument the dimension of mental health. Soldiers do not only subject themselves to lethal risk to their life, but they also suffer from depression, anxiety, post-traumatic stress disorder and feelings of guilt. Thus, Riesen (2022) argues that it is unethical to put soldiers to unnecessary lethal, psychological and moral risk, when there are alternatives available. Additionally, deployment of AWS would finally put culpability on military defense contractors that were always shielded from responsibility before.

Strawser (2010) and Riesen (2022) argued that autonomous weapon systems (AWS) were a safer alternative that would keep soldiers from the lethal, psychological and moral risks. Similar notion was expressed by Boutin (2022), who asserted that development of AWS would eventually significantly reduce the number of casualties and could be useful for particularly challenging missions. The use of robotics can save soldiers' lives by replacing them in dangerous operations. For example, there is a development of an unmanned underwater anti-mine system that can identify and neutralize naval mines. Besides that, autonomous systems could clear territories from land mines, deliver supplies to contested areas, identify non-combatants and assist in evacuations, search and rescue missions. Such

systems could be sent to Anti-Access/Area-Denial environments that would have been lethal for human soldiers.

Arkin (2013) stresses that autonomous weapons systems (AWS) would not only be good for the well-being of soldiers, but also would lead to less deaths among civilian populations. He states that with enough time for research and development, AWS would eventually be able to act more humanely and follow international humanitarian law more efficiently than human combatants. The reasoning is that human-being can get lost in a fog of war, experience hunger, cold, frustration, fear and their self-preservation instinct forces them to make unethical decisions. A similar argument was raised by Kahneman (2011), Godé and Lebraty (2013). The idea is that in a difficult situation, a human's judgment is affected by many various factors such as feelings, emotions, memories, sensations. If a person also has to make those judgements and decisions in a short amount of time, they will have to rely on the intuition and subconscious analysis of circumstances. While it can still be effective, there is a high risk of bias and deviation from logic. Therefore, AWS can help with the fog of war. They could calculate enemy intent, compare current situational data to hundreds of previous simulations, wargame exercises and identify patterns that would have been unnoticed otherwise. A commander would have access to accumulated knowledge and be able to make informed, optimal decisions faster than the opponent.

Conclusion

When answering why autonomous weapons systems (AWS) should be retrained on international level, there are various arguments being raised: the inability of AWS to fulfill principles of distinction and proportionality of international humanitarian law; the argument that AWS violate human dignity; the problem of allocating responsibility; the risk of AWS triggering arms race and proliferation; the unintentional escalation of conflicts due to malfunctioning; the lowering of political and ethical costs of war making it more attractive. The methods proposed on how AWS should be restrained are also diverse: outright ban on development and deployment of AWS; a moratorium on AWS; additional protocol to Convention on Conventional Weapons, outlining the conditions and

circumstances in which AWS are lawful (used only in defense, in restricted marked areas such as military bases, borders, small combat zones)

3. THEORETICAL FRAMEWORK

Introduction

Theoretical framework presents the concepts that are used to answer the 2 research questions of the dissertation:

- Why should automatization of lethal weapons be restrained on an international level?
- How should automatization of lethal weapons be restrained on an international level?

Firstly, the section introduces the concept of restraint. Later on, there is a discussion on the connection between restraint, norms and arms control theory. Afterwards, the assumptions why norms emerge and under what conditions they appear are presented. Finally, the section discusses how, under what conditions, restraint on weapons is the most effective.

Concept of restraint

The conceptualization of the term "restraint" is informed by the literature on nuclear restraint, since nuclear weapons raised similar issues of proliferation and arms race as autonomous weapon systems. (Rublee 2010, Kugler 1975, Jacob 2012, Hiim 2010, Tannenwald 2020)

Maria Rublee (2010) and Kugler (1975) when defining what is restraint, took a more general approach. They described it as *abstaining from developing and acquiring nuclear weapons, despite having capability to do it*. In their understanding of restraint, they emphasize the aspect of self-control, that despite having motivation and technical expertise, states impose limitations on themselves or not pursue nuclear weapons at all.

In contrast Neerada Jacob (2012) and Henrik Stålhane Hiim (2010) gave a more detailed definition of the concept. Jacob (2012) clarified 3 stages of restraint: slow, stop, roll back. Slow, meaning projects to acquire nuclear weapons move slower than the country would like to or anticipated. Stop - the project to acquire nuclear weapons is suspended or abandoned. Roll back - projects/facilities to develop nuclear weapons get dismantled or

destroyed. He also added the aspect of unintentionality of restraint. In other definitions by Rublee (2010), Kugler (1975), it was implied that abstaining from developing and acquiring nuclear weapons was an intentional decision.

Hiim (2010) took a more legal approach and conceptualized restraint as willingness to join existing treaties that put concrete limits on states' nuclear programs. Nina Tannenward (2020) framed restraint with an aspect of reciprocity, that restraint refers to reciprocal commitments to evade arms race and nuclear war by putting limits on the development of nuclear weaponry.

These authors highlighted different aspects of the concept: the intentionality of a decision to not pursue nuclear weapons; the unintentional, unanticipated slowing down of a nuclear programme, the legal aspect of joining international treaties that limit states's capability to pursue nuclear armament; the reciprocal nature of commitments to evade nuclear war. However, at the very core, they all talked about limitations on the development and deployment of nuclear weapons. The limitations could be self-imposed, or pursued because of international treaties or informal reciprocal commitments. Additionally, the development of a weapon can be unintentionally slowed down. Thus, for the purposes of this dissertation, restraint refers to *the limitations in the development, deployment or utilization of autonomous weapon systems.*

Arms Control and Restraint as a Norm

The definition of restraint as limitations in the development, deployment or utilization of autonomous weapon systems is quite similar to the concept of arms control. According to Jeffrey A. Larsen (2009), "Arms control is a restraint internationally exercised on armaments policy, which not only addresses the number of weapons, but also their character, development, and use." (p. 4). Thus, restraint regulates or limits different characteristics of military capability, including weapons, prescribing which ones are legitimate to use and which are not. Considering that, it can be said that restraint can be counted as a norm. As Klotz (1995) puts it, norms are "shared understandings of standards for behavior" (p. 14). In the context of autonomous weapon systems, restraint, as a norm,

provides an expectation that states will regulate or limit development, deployment and use of these weapons.

Emergence of a norm

As restraint can be conceptualized as a norm that provides an expectation of limitations on development and deployment of autonomous weapons systems, it is necessary to examine why and how norms emerge. The first research question is: Why should automatization of lethal weapons be restrained on an international level? This question inquires on the rationale, what are the reasons for restraint, why does it emerge? Hence, it is important to investigate why norms emerge in general. Karl-Dieter Opp (2001) proposes the following proposition, “If norms satisfy the needs of a collective of individuals it is likely that they emerge” (p. 105). In this proposition, norms have a functional characteristic, they act as instruments to achieve a certain goal or a good. In this case, norms emerge because actors cannot attain this good separately, there is a necessity to regulate behavior and act as a collective. Similar sentiment is also found in the work of Hechter (1987, p. 41), where he claims that "groups exist in order to supply their members with some desired joint good. This good can be attained only if members comply with rules that are designed to assure its production". Therefore, norms emerge to achieve a certain goal.

Conditions of emergence of a norm

However, the functionalist proposition about norms emerging to satisfy the needs of a collective group is only true in certain conditions. First, the members of a group have to have the same goal, there should not be conflicting views on what is a desirable result. Second, all members of a group have to believe that following a norm would result in achieving a goal. If some members think that a norm would be ineffective and fail to bring a desired result, the norm will not emerge. Third, the members of a group have to have a clear idea on what behavior constitutes a norm, what behavior generates it. Fourth, members of a group have to have positive incentives to perform a behavior that generates a norm. If they would think that behaving in accordance with the norm is too costly, the norm might not emerge. (Dieter-Opp 2001)

Collective goals

Despite all the conditions that have to be fulfilled, Dieter-Opp's argument still stands, norms emerge out of necessity to achieve a certain goal that would have been unattainable without collective regulated action. Thus, the next logical question is what are those goals? Arms control theory provides several answers. This theory was developed around 1958-1962 by the strategic analysts of that era. In that time period, strategists were trying to find ways to avoid nuclear war and proliferation, as Jeffrey a. Larsen (2009, p. 9) argues,

> "Arms control theory was based on the premise that the superpowers inherently shared an area of common ground (avoiding nuclear war), and that this element of mutual interest could serve as the basis for limited, cooperative arrangements involving reciprocal restraint in the acquisition of weapons of mass destruction."

Thus, reciprocal restraint, in this context, fulfills one of the conditions of norm emergence, articulated by Dieter-Opp (2001), for a norm to exist, members of a group have to share the same goal.

The theory proposes, on a more abstract level, 3 main goals that are the reason why arms restraints exist. They were articulated by Schelling and Halperin (1961) and include following:

1) reduction of risk of war;

The assumption is that war would most likely start due to a surprise nuclear attack. Such an attack would be possible because of unrestrained competition in the arms race. The states would be improving accuracy and speed of missiles to the point where the first strike advantage would be tempting. Thus, setting limits and restraining arms race behavior became essential to reduce the risk of war.

2) reduction of cost for preparing for war;

Arms race is detrimental for the state budget of a country. A lot of finances are spent on research and development, testing, weapon production and maintenance. If the states mutually agree to restrain or outlaw certain technologies, arms control could provide the same level of security at a lower cost. Additionally, the financial resources would be available for other objectives.

3) reduction of damage, in the case war does occur.

In the case where war does occur, restraints on certain weapons reduce the overall damage suffered. When fewer weapons, the ones that are not as destructive, are fielded, there is less harm than would have been otherwise.

Transparency and predictability

Additionally, Wolfsthal (2020), Ranger and Talbott (1982) point to the fact that restraints on weapons should be pursued because it provides transparency and predictability. Defense and security planners do not have to guess how many missiles an enemy has. Through agreed limitations on weapons, they are sure about the specific range of quantity of weaponry. Also, they have supporting evidence that is gathered through inspections and verifications, which deter and detect possible violations. As Talbott (1982) describes, in his work on SALT (Strategic Arms Limitation Talks) II, before the start of negotiations on arms restraint, spies used to be paid and killed for such information on military matters.

How should AWS be restrained?

The question on how automatization of lethal weapons should be restrained was addressed by Hartung (1992). It was mentioned that for international restraint on arms to be effective, the following conditions must be met:

1) All of the major suppliers must participate in the arms control regime
2) Arms control must have hard law characteristic, impose mandatory limits and set up enforcement mechanisms and clear sanctions for violations
3) Agreements must be informed by underlying political, economic and strategic incentives to develop, proliferate and deploy weapons.
4) Public should have access to information about arms development, sale and use, so that authorities could be held accountable.

Hartung (1992) stressed the importance of enforcement and punishment of violations. It was asserted that soft law and informal agreements could be a useful first step, but eventually to have a meaningful impact, arms restraint has to be mandatory. Similar argument is raised by Panke and Petersohn (2011), they argue that a norm dies because a violation can turn into a cascade of non-compliance and the norm loses its regulatory

function, it does not fulfill the collective need anymore. Thus, they claim that it is important for participants of arms control agreements to have incentives to punish violators.

Based on the insights gathered from the the theories on arms control and norm emergence, following hypotheses have been developed:

1) **Why should autonomous weapon systems (AWS) be restrained on the international level?**

- International restraint on AWS allows to achieve collective goals that cannot be attained separately: 1) reduction of the risk of war; 2) the reduction of the cost of preparation for war; 3)the reduction of damage if war occurs.

2) **How should autonomous weapon systems (AWS) be restrained on the international level?**

- The most effective form of international restraint on AWS is a complete ban on their development, deployment, and use
- The most effective form of international restraint is a multilateral treaty that regulates their development and use, allowing for limited, controlled applications

Conclusion

To answer the questions why and how should automatization of lethal weapons be restrained, the concept of restraint was defined as limitations in the development, deployment or utilization of autonomous weapon systems (AWS). Since, this definition has similar aspects to the notions of a norm and arms control, the explanatory mechanism were taken from theories on arms control and norm emergence. It was argued that norms emerge because they help achieve collective goals that cannot be attained separately by the group members. These goals are articulated in arms control theory: reduction of risk of war, reduction of cost of preparing for war; reduction of damage in case war does occur. Additionally, Hartung's (1992) conditions of effective restraint were discussed to answer how AWS should be restrained.

4. METHODOLOGY

Introduction

The chapter on methodology demonstrates what are the aims of the dissertation and what approach was taken in the study. It also outlines the data collection methods, data sources, the analytical techniques used to analyze and interpret the information and their limitations.

Aims of the study and the research approach

The study has a goal of exploring the reasons why international restraint on autonomous weapon systems is necessary and how it should be implemented.

Given the nature of the research questions:

1) Why should autonomous weapon systems (AWS) be restrained on the international level?
2) How should autonomous weapon systems (AWS) be restrained on the international level?

The dissertation adopts a qualitative research approach. The study touches upon the topic of international norms, the reasons why they emerge and how they stay in existence. Qualitative approach fits the constructivist and interpretive epistemological assumptions.

Research Method

The thesis makes use of the discourse analysis method for collecting and analyzing data. Since the research questions aim to examine the rationale for emerging international norms, it is necessary to utilize a research method that is nuanced and takes context into consideration. Discourse analysis fits the objectives of the research because it investigates how meanings are constructed, how language shapes social practices and identifies the power dynamics. It also demonstrates how language is used in contexts (Boréus and Bergström 2017, Potter 2004, Blommaert and Bulcaen 2000). This is especially important because there could be patterns in opinions and reasoning of speakers/countries based on regional affiliations, technological capabilities, economic growth etc.

Triangulation: *Sources of data*

In order to improve the research design, increase its robustness and eliminate potential investigator biases, the dissertation utilizes the triangulation of data sources. Triangulation metaphor was exported to research from navigation at sea, where two known points are used to locate an unknown third point through forming a triangle. In the context of research methods, triangulation refers to the combination of two or more aspects of the research activity; it can be a mix of data sources, methodological approaches, theoretical frameworks, analytical tools and investigators in the same study. (Thurmond 2001)

For the purpose of this study, the following data sources were triangulated:

1) Conference data. The conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation" (April 29–30, 2024) provides the most recent insights into states' stances on AWS.
2) Working papers and reports from the Convention on Certain Conventional Weapons Group of Governmental Experts (CCW GGE) process. The documents which are available cover the period of 2017-2024, they are published on the website of the United Nations Office for Disarmament Affairs. (https://disarmament.unoda.org/meetings-of-the-group-of-governmental-experts/)
3) Expert interviews. The interviews of 4 experts provide specialized knowledge on the topic and help with filling the gaps in the available data. Additionally, they can approve or disapprove the conclusions drawn from other data sources mentioned.

The triangulation of data sources allows for cross-checking the findings and inclusion of different perspectives. Interpretations that are drawn from a single source or event, for instance, only the conference would reflect a snapshot of the opinions and discussions at a specific point of time, which would lead to biased conclusions that could miss how perspectives might have changed over a period of time. Thus, additional data from working papers and reports of CCW GGE process and interviews with experts are used to triangulate the data and improve the reliability of the research.

Case Justification: Critical Case

The main source of data is the statements from the international conference 'Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation' that took place in Vienna on 29-30 April 2024. It is the most recent and only international conference held on the topic, and it can provide the most up-to-date information that can be crucial for the findings of this research.

Data Collection

The data is collected from the national statements of the states at the conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation", held between 29th and 20th of April 2024 in Vienna, Austria. These statements are publicly available at the online repository of the Austrian Federal Ministry for European and International Affairs (https://www.bmeia.gv.at/en/european-foreign-policy/disarmament/conventional-arms/autonomous-weapons-systems/2024-vienna-conference-on-autonomous-weapons-systems/statements). The primary focus is on the 25 statements of the participating countries.

The second source of data are the working papers and reports from the Convention on Certain Conventional Weapons Group of Governmental Experts (CCW GGE) process. This source was chosen because it is the most relevant and prominent multilateral forum which directly addresses the question of potential normative and regulatory framework on autonomous weapon systems. Moreover, during the thesis proposal review, a reviewer raised a concern that if findings would be drawn only from the conference statements, which were published in 2024, it would be more of a snapshot of opinions. The working papers and reports from CCW GGE process cover a longer period of time, from 2017 until 2024, which allows the investigation of broader temporal trends and shifts in the debate.

The data from conference submissions and CCW GGE working papers is triangulated with expert interviews. The interviews are semi-structured and conducted through zoom. The respondents are selected based on their expertise and involvement in the discussions and publications that are related to autonomous weapons systems, international arms control and humanitarian law. This selection method can be called purposive sampling, which is a

non-probability sampling technique where an investigator chooses participants based on very particular characteristics that align with research objectives. There is focus on relevance, a very small group of individuals that are most capable of providing insights. This sampling technique is especially useful when there is not much empirical evidence in an area and a high level of uncertainty. (Tongco 2007)

Data Analysis Techniques

The data will be analyzed through discourse analysis. The first step is familiarization with data and thorough reading. Afterwards, the analysis involves the coding and identification of recurring descriptions, metaphors, arguments and themes. There will also be examination of antagonistic discourses, the alternative meanings and arguments that have the potential to structure a common understanding. (Boréus and Bergström 2017). The preliminary coding scheme was based on the literature review and hypotheses and includes themes such as human rights, human dignity, dehumanization of warfare, accountability, unpredictability of AWS, conflict escalation, and proliferation risk.

Ethical Considerations

As one of the data sources are expert interviews, the dissertation takes into consideration the ethical standards of research to ensure the safety and well-being of respondents. The study takes into account the importance of informed consent, voluntary participation, confidentiality and data protection. All of the participants are informed about the research objectives, the intended use of the information obtained, and the right to withdraw from the study at any moment. Before the start of the interview, the respondents are asked to provide their explicit consent and confirm the full understanding of the terms of their involvement. The participation in the research is fully voluntary, there was no coercion or inappropriate influence used in the recruitment process.

The study was conducted keeping in mind the significance of the confidentiality of participants. In order to protect the identity of the respondents, all personal data was anonymized. The sensitive identifying information such as names, emails, contacts, specific job titles, is removed from the transcripts of the interviews. Any information

obtained in the interview that could help trace it to the informant is obscured or generalized to safeguard confidentiality.

The confidentiality of the respondents also depends on the accessibility of information and devices that store them. Thus, measures to ensure data protection were also taken to safeguard the integrity of the information. All of the materials used in the research process such as interview transcripts, recordings and other sensitive files are stored on password-protected devices that have a restricted access available only to the primary researcher. The data will be kept for the time period that is necessary to complete the dissertation and fulfill the academic requirements for the completion of the master programme.

Limitations

The study is subjected to several constraints that are inherent in the methodological approach chosen, in particular data availability and potential biases. Regarding the accessibility of data, because of the nature of the topic and its connection to themes like military technology and defense of national security, some governmental reports might not be available to the public, or some states may not actively participate in international discussions. To mitigate this limitation, the dissertation utilizes the triangulation method of data sources and gains insights from interviews with experts and conference statements as well. Additionally, the inherent nature of discourse analysis might pave the way for subjectivity as different interpretations and conclusions could be drawn from the same data set.

Another limitation of the study is the potential bias in other two sources of data: expert interviews and conference statements. In interviews there is a possibility of social desirability bias, where respondents' answers would be affected by the desire to be liked, so they would provide information they think researchers would like or expect. There is also a risk of researcher bias, where the investigator's beliefs and expectations skew the results to confirm them. Regarding the conference statements, they provide views of states in a particular time, only providing a snapshot of discussions. To minimize those risks, the

data is cross-checked between all three sources mentioned; interviews with experts, conference data, CCW GGE working papers.

5.1.WHY SHOULD AUTONOMOUS WEAPONS BE RESTRAINED ON INTERNATIONAL LEVEL?

Introduction

This section of the dissertation examines the arguments why autonomous weapon systems should be restrained on an international level. The first part of this section demonstrates the progression of discussions at the Convention on Certain Conventional Weapons throughout the period of 2017-2024. It provides the reasons for the necessity of an international normative framework, such as to ensure compliance with international humanitarian law, to protect human dignity, to prevent security-related risks of arms race and proliferation. The second, third and fourth parts of the section examine the newly emerging arguments why there is an urgency to restrain autonomous weapons, which were not covered by a literature review. They include the risk of enhancing efficiency of genocide, limitations and biases in training data and human rights considerations.

5.1.1. Progression of debates on autonomous weapon systems within Convention on Certain Conventional Weapons (2017-2024)

The working papers and reports from the Convention on Certain Conventional Weapons Group of Governmental Experts (CCW GGE) process do not go into much detail on the reasons why autonomous weapon systems should be restrained. Rather, this source is more focused on the "how?" aspects, states were considering and describing what are the potential options or recommendations to address the risks posed by autonomy in weapons. Therefore, those actual risks that trigger the necessity for international action are mentioned in general terms. Moreover, the reasons that were mentioned were already covered by the literature review, such as

- Impossibility to use autonomous weapon systems in compliance with international law
- Issue of attributing responsibility and accountability in cases of violations of law
- Dehumanisation of war and violation of human dignity
- Security destabilisation due to arms race and proliferation

Discussions on the reasoning why international restraint is needed for autonomous weapon systems stayed consistent through all 7 years. Same rationale was reiterated and repeated. This is evident from excerpts from the reports and chair summaries that were published from 2017 until 2024. However, the concerns about compliance with humanitarian law and security risks appeared significantly more than ethical and human rights risks concerning human dignity. Security risks were elaborated more and appeared more frequently. It can be observed in Table 1.

Table 1: Progression of discussion on risks posed by autonomous weapon systems

2017	Delegations stressed the ethical and moral concerns raised by the prospect of the development and deployment of LAWS, particularly the delegation of decisions on the life and death of a human being to a machine. They also discussed potential international security implications of LAWS, including an arms race in LAWS technologies, accentuating the technology gap between developed and developing States and the possible lowering of the threshold for the use of force. Concern was expressed about proliferation to and use by non-State actors. (UNODA 2017, p.8)
2018	Delegations raised a diversity of views on potential risks and challenges posed by emerging technologies in the area of lethal autonomous weapons systems including in relation to harm to civilians and combatants in armed conflict in contravention of IHL obligations, exacerbation of regional and international security dilemmas through arms races and the lowering of the threshold for the use of force. Proliferation, acquisition and use by terrorists. Delegations discussed possible gaps in legal and political responsibility and accountability frameworks, and ethical questions raised by increased machine autonomy in the use of force. (UNODA 2018, p.6)
2019	Delegations thought that emerging technologies in the area of LAWS could pose potential uncertainties and challenges for IHL. Many delegations underlined that only humans can comply with IHL and that human responsibility for the use of force must be retained. (UNODA 2019, p.2)
2020	The risks inter alia of civilian casualties, as well as precautions to help minimize the risk of incidental loss of life, injuries to civilians and damage to civilian objects must be considered. Other types of risks should be considered, as appropriate, including but not limited to the risk of unintended engagements, risk

	of loss of control the system, risk of proliferation, and risk of acquisition by terrorist groups (UNODA 2020, p.10)
2021	During the design, development, testing and deployment of weapons systems based on emerging technologies in the area of lethal autonomous weapons systems, the risks inter alia of civilian casualties, as well as precautions to help minimize incidental loss of life, injuries to civilians and damage to civilian objects must be considered. Other types of risks should be considered, as appropriate, including but not limited to the risk of unintended engagements, risk of loss of control of the system, risk of proliferation, and risk of acquisition by terrorist groups (UNODA 2022, p.13)
2022	International law, in particular the United Nations Charter and International Humanitarian Law (IHL) as well as relevant ethical perspectives, should continue to guide the work of the Group (UNODA 2022, p.3)
2023	The rules and principles of IHL, including inter alia distinction, proportionality and precautions in attack, must be adhered to in the development, deployment and use of weapon systems based on emerging technologies in the area of lethal autonomous weapon systems. Such weapons systems must not be deployed or used if their effects in attacks cannot be anticipated and controlled, as required by international humanitarian law in the circumstances of their use. (UNODA 2023)
2024	Several categories of risks were highlighted by participants, such as humanitarian, ethical, security and geopolitical, as well as technical and system security risks (UNODA 2024, p.4)

However, there are also additional reasons why restraint on autonomous weapon systems is necessary. Besides the rationale already discussed in literature review, there are such issues like

5.1.2 Risk of enhanced efficiency in committing genocide

There is already an argument based on the idea of human dignity that autonomous weapon systems should not be designed to target humans. Other people such as Jaan Tallinn (prominent Estonian computer programmer) argue that anti-personnel autonomous weapons have to be prohibited not just because of reduction of people to objects/data points, but because AI powered weapons would make it so much easier to commit international atrocities such as genocides and ethnic cleansing. In his statement at the

Vienna conference “Humanity at the Crossroads: Autonomous Weapon Systems and the Challenge of Regulation”, he explained that,

> “No autonomous weapon should be designed or used to target a human, nor should it be used to distinguish between one human and another. However, even when autonomous weapons become able to perfectly distinguish between humans, they will make it significantly easier to carry out genocides and targeted killings that seek specific human characteristics.” (Austrian Federal Ministry for European and International Affairs 2024, p.2)

If a weapon’s algorithm is designed to target humans, it would collect and analyze such identifying information such as gender, race, age, disability, height, weight etc. It would make it significantly easier to target a specific group, a weapon would just have to be programmed to kill persons with certain characteristics. There has to an international restraint to prevent making committing genocide more efficient. This sentiment was also reflected in the statement of Palestine at the same conference

> “We warned GGE cycle after GGE cycle that AI-power systems are likely to be used to accelerate international crimes including genocide, and to be tested on populations of the Global South. Our pleas to stop this trend fell on deaf ears. We are now seeing the direct consequences of the failure to establish new international rules. We are now witnessing an automated genocide, an AI-powered genocide” (Austrian Federal Ministry for European and International Affairs 2024, p.1)

Thus, when answering a question why should autonomous weapon systems be restrained on international level, another answer may be to prevent AI-powered genocide. Autonomy in weapons has the potential to make the job of international criminals easier. As was pointed out by SYRIZA-Progressive Alliance, “autonomous weapons are ideal for tasks such as assassinations, destabilizing nations, subduing populations and selectively killing a particular ethnic group” (Austrian Federal Ministry for European and International Affairs 2024, p.1) making those tasks more efficient is a significant reason for collective international action.

5.1.2 Biases and limitations of data

Another reason why there is a need to restrain autonomous weapon systems is that there is

no data available to sufficiently teach an algorithm to navigate an armed conflict environment in a responsible manner. This was reflected in an interview with Expert #3, where he elaborated that

> "A lot of what people are really interested in now, are those generative AI models like Chat GPT and these large language models that generate text. And there are different strategies in trying to apply these to robotics, to try to get a general robotics approach that can solve a lot of different problems. You know, in theory, you can apply these techniques but the real world is so much more complicated that we don't have all the data that we need. The way with text, well, we already digitized all the data. The data sets were there, you just kind of need a big enough neural network to put it all in there. But if you think, like, a robot that needs to navigate an urban environment in warfare, where is that data gonna come from?"

Therefore, manufacturers who are planning to produce autonomous weapon systems are going to train the algorithms on limited data, which will be prone to mistakes that can result in deaths of civilians or a destruction of vital civilian objects. Jimena Viveros (member of the UN Secretary General's High-Level Advisory Body on AI) at the Vienna conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation" also shared a similar argument, as she explained "Considering AI is only as effective as the data used to train it, how much and what kind of data would be enough to train a system to understand our human values and dignity? Is that even possible?" (Austrian Federal Ministry for European and International Affairs 2024, p.2), as a consequence, there has to be at least a positive obligation to review and assess data sets that are used in the development process.

The data sets which could be available are very limited and could inherit the biases that are already present in the society. The concern over encoding and perpetuating discrimination and social biases was mentioned in working papers submitted to CCW GGE by International Committee of the Red Cross in 2018 and 2019; Brazil in 2020; Palestine in 2023; Pakistan in 2023; Austria in 2024; Austria, Belgium, Canada, Costa Rica, Germany, Ireland, Luxembourg, Mexico, Panama and Uruguay in 2024. The last group articulated it in a precise manner, stating that

> "Biased data sets and poorly programmed algorithms could mean that, for instance, women of colour may be misrecognized at a higher rate, leaving them exposed to differential risks, or that an autonomous system may miscategorise civilian men as combatants, due to their traditional roles in warfare." (UNODA 2024, p.3)

The same argument for international restraint is found in statements from the conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation" as well. It was underlined by Canada, Germany and Ireland. Therefore, encoded social biases are another reason why there is an urge to create some form of regulatory framework to achieve restraint on development and use of autonomous weapon systems. One option mentioned by the states is to prohibit anti-personnel use of AI-powered weaponry.

Not to mention that data which is used to train autonomous weapon systems is not going to be representative at all. As was pointed out in the working paper of Austria, Belgium, Canada, Costa Rica, Germany, Ireland, Luxembourg, Mexico, Panama and Uruguay, published in 2024, there are "limits and risks of relying on data from the internet of being representative of all humankind," (UNODA 2024, p.3) due to the digital divide. Not everyone has access to the internet which leads to disbalance in available data. Wealthier, urban populations are overrepresented, while marginalized groups or people from regions with less internet connectivity are underrepresented, or completely absent in the information available.

Moreover, the information used to train the algorithm can be manipulated or falsified, this phenomenon is called AI spoofing. Malicious actors can use other programmes to create very realistic but fake content; it can be images, videos, audios so convincing that it can trick an autonomous weapon system into believing that it is real data. Thus, the risk of data spoofing, hacking and cyberattacks also creates an urgent need for an international restraint on AI-driven weaponry. A weapon, which was trained on false information can lead to dire consequences, such as unintended engagements and deaths of civilians. This concern was very prominent in CCW GGE working papers throughout the years. It was mentioned by Belgium in 2017; International Committee of the Red Cross in 2019; Argentine, the

Republic of Costa Rica, the Republic of Ecuador, the Republic of El Salvador, the Republic of Panama, the State of Palestine, the Republic of Peru, the Republic of the Philippines, the Republic of Sierra Leone and the Eastern Republic of Uruguay in 2021; Australia, Canada, Japan, the Republic of Korea, the United Kingdom and the United States in 2022; Palestine in 2023; Russia in 2023, Austria in 2023, Luxembourg in 2024.

5.1.3 Human Rights Considerations

Besides the rationale based on technological aspects, there is also a human rights dimension of the answer why autonomous weapon systems should be restrained. Previously, as was evident from literature review, there was already a fundamental concern that delegating a life and death decision-making to a machine would undermine human dignity. Additionally, a human right to effective remedy would also be jeopardized. In a situation, where a civilian was unjustly killed by a machine, who would be held accountable and be able to explain why such injustice happened. There is a possibility that in judicial proceedings the victim's family might only hear that the algorithm decided on mathematical calculations or, perhaps, malfunctioned. It would not comfort or give a feeling of satisfaction.

Other than those aspects which also appeared in literature review, there is also a concern about autonomous weapon systems eventually seeping into the civilian sphere. There is a risk that AI-driven weaponry would be used for crowd control during protest or for border control in refugee crises or in policing and law enforcement work. This argument to advocate for international regulation had been present in all three sources. It was mentioned in the CCW GGE working paper by Switzerland in 2017. Jimena Viveros, in her statement at the Vienna conference, also brought attention to this stating that “it will not be long before the same autonomous weapons that the military uses start being used by police or immigration authorities”, (Austrian Federal Ministry for European and International Affairs 2024, p.3) highlighting that such technology would eventually find uses outside of armed conflicts. In a semi-structured interview with Expert #3, a person also underlined that civil and political rights might be threatened through abuse of newly emerging technology, as he stated “if you use robots to control crowds or demonstrations and things

like that you obviously do not want robots shooting everybody who is protesting the government", thus there is a huge potential for autonomous weapon systems to violate not just international humanitarian law, but also international human rights law.

Although, it is important to note that there are diverse opinions on human rights connection with autonomous weapon systems. Expert #2 during an interview actually had a unique and positive outlook on the impact of AI-powered weapons on human rights. During the discussion, an expert highlighted that such weapons might actually be useful in enforcing human rights and stopping or, one can say, interfering with international crimes such as genocide. He brought an example of genocide in Rwanda and how Western world failed to act and was unwilling to do something to stop it. Because why would other states put lives of their own soldiers at risk to save people from massive human rights violations in a far off land. As he articulated

> "Perhaps, drones, autonomous weapons, perhaps, they could be helpful in allowing us to fight wars that we really should have fought in the first place. Like wars of humanitarian intervention, which typically we are never going to fight because it is too unsafe for our own soldiers. If we can use autonomous weapons, so that less of our soldiers are put in harm's way, maybe that is one way of justifying wars of humanitarian intervention"

In this interview, there is an argument that it would be easier to justify humanitarian intervention, if there is no risk to human soldiers. Even though intervening to stop gross human rights violations from happening is morally justified, there are always practical or legal issues with giving grounds for it, for example, the argument of violation of a state sovereignty. However, it is an interesting perspective that autonomous weapon systems might have potential to bring Responsibility to Protect doctrine into reality.

Conclusion: Why should autonomous weapon systems be restrained on an international level?

Overall, this section provided various answers to the first research question. Some of them are frequently cited, non-compliance with international law, violation of human dignity, and the risk of destabilizing international security. However, some new insights were also

gathered. Firstly, there is a possibility that autonomous weapon systems could be used to locate and target humans with specific characteristics, making committing genocide easier and more efficient. Secondly, there is a lack of data to properly train weapon machinery how to navigate an urban environment during war. Thirdly, weapons with autonomy might infiltrate the civilian internal sphere and be used by law enforcement to silence the protesters. This, consequently, destroys the enjoyment of civil and political rights. Thus, it can be said that the reasons for the necessity of restraint are multidisciplinary and cover different fields.

5.2. HOW SHOULD AUTONOMOUS WEAPON SYSTEMS BE RESTRAINED ON AN INTERNATIONAL LEVEL?

Introduction

This section of the dissertation addresses the second research question on how autonomous weapon systems should be restrained on an international level. It is divided into four parts. The first part discusses how the discussions on the potential normative framework have progressed within the Convention on Certain Conventional Weapons (CCW) throughout the period of 2017-2024. It also introduces the methods that have been proposed during those years; existing international humanitarian law, non-binding document with guidelines and best practices, political declaration, new legally-binding instrument. The second part provides the arguments why out of those 4 options, a legally-binding instrument is the most suitable method to restrain the development and use of autonomous weapons. The third part demonstrated the draft structure and elements of this potential treaty which were most frequently mentioned in working papers of Convention on Certain Conventional Weapons Group of Governmental Experts (CCW GGE) and statements from the conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation". The fourth part examines the insights of experts gathered from the interviews on possible enforcement and verification mechanisms to ensure proper implementation of the treaty.

5.2.1 Progression of debates on autonomous weapon systems within Convention on Certain Conventional Weapons (2017-2024)

2017

In 2017, most of the delegations that submitted working papers to the CCW GGE (Convention on Certain Conventional Weapons Group of Governmental Experts) discussions emphasized that there is no need to develop a new legal instrument to restrain the use and development of autonomous weapon systems. It was stressed by the US that weaponry does not exist in a legal vacuum, there are already established international rules under International Humanitarian Law (principles of distinction and proportionality), "the

law of war (also called international humanitarian law) provides a robust and appropriate framework for the regulation of all weapons in relation to armed conflict" (UNODA 2017, p.1). Most of the states (Netherlands, Switzerland, France, Germany, USA, Russia) assert that risks associated with autonomous weapon systems can be mitigated through the already established rule of Legal Weapon Review that is written in Article 36 of Additional Protocol I, it was mentioned that there should just be additional soft law documents like political declaration which would encourage information sharing and

"voluntary measures that could enhance compliance with the existing regulations (Article 36 of Additional Protocol I on weapons reviews):

- Establishing transparency and facilitating the identification of best-practices in conducting weapons reviews (Article 36) of future LAWS;
- Allowing, on a voluntary basis, other States to participate, as observers, in demonstrations of future LAWS;
- Exchange of information between States on future LAWS;
- Agreeing on a code of conduct providing a politically binding set of rules for the development and use of LAWS" (UNODA - working paper of France and Germany 2017, p.2)

This argument was also raised by the Expert #2 during the qualitative interview. A respondent stressed that normative, regulatory instruments have already been established, there are rules of distinction between civilians and combatants, there is already a necessity to assess if the collateral damage would outweigh the military advantage. The rules of war are good enough for the context of autonomous weapon systems. During the discussion, an interviewee stated that weaponry with autonomous functions are neutral, they are not inherently indiscriminate to warrant a prohibition like in the case of chemical, biological, nuclear weapons. A poisonous gas would by its very nature kill everyone, civilians and soldiers alike. However, autonomous weapons, like guns and tanks, can be used in a responsible and criminal manner. Thus, everything depends on the way a tool of war is used.

The problem is figuring out how the existing rules would apply to the context of AI, for instance, how an algorithm is going to recognize an act of surrendering. Another issue is enforcement of the rules and punishing criminals for inappropriate use of weapons that leads to deaths of civilians. As was stated by the Expert #2,

> "I think the basic framework has already been worked out, the problem is enforcing it, war crimes happen all the time, very rarely, war criminals actually get punished for the war crimes they commit. Autonomous weapons are just another weapon that can be used for good or for ill"

Therefore, in this point of view, there is no necessity to create new laws for the use of AI in weaponry. The emerging technology, in this case, is neutral and depends on the user/operator that is going to utilize it during the conflict. The real issue is the question on how to enforce the existing rules that were already developed. Moreover, there is also a fundamental question on how to deter people from committing war crimes and properly punish them if they eventually do commit them.

During this year, there was also a consensus that the human control over weapons has to be preserved, however, it is just a vague principle that can have various meanings as was pointed out by the Russian delegation, "States agree on the inadmissibility of loss of meaningful human control of such weapons systems. However, it should be recognized that it will be very difficult to develop criteria for the "meaningfulness" of such control without politicizing this issue," (UNODA 2017, p.3) nevertheless there is a view that human control could be lost or jeopardized when using autonomous weapon systems. There is a contradicting perspective to this, presented by Netherlands, who argue that even if operators are not directly controlling weapons, human control is still present in different stages of the lifecycle of a weapon. Human-beings are still in charge of weapons with AI, because people are the ones creating software which selects targets based on the characteristics chosen by human developers, implementation planning (choosing the location and duration of a mission) is also decided by human commanders. After all, the decision to deploy an autonomous weapon system is also made by living, breathing persons who are capable of common sense. Therefore, the accountability is not lost, a person who

made a decision to use a weapon with autonomy bears the responsibility for the consequences. (UNODA 2017)

2018

In 2018, discussions on legal weapon review under Article 36 of Additional Protocol I were more elaborated, although different views contradict each other. For example, Argentina argues that just a general obligation to review weapons is not enough, it does not specify how states should actually conduct it. There is a lot of room for non-compliance, for one state the exact same weapons could be declared as legal, while for another, it can be established that it violates principles of distinction and proportionality. Thus, there is an argument that legal weapon review has to be standardized. However, China stresses that it is practically impossible to harmonize all of the diverse methodologies of the review mechanism,

> "national policies and practices in this regard differ quite significantly, it is difficult to have a uniform standard for such reviews. There is much uncertainty with regard to the results of these reviews and how the results are treated. Therefore, any initiative or proposal based on such reviews can hardly solve, in a fundamental way, the concerns caused by LAWS." (UNODA 2018, p.2)

Moreover, there is no guarantee how review outcomes are treated internally in each country, so legal weapon reviews cannot solve the problems that arise with the use of AI in weaponry

The concept of meaningful human control also progressed. France, Estonia, Finland, UK and USA have all pointed out, to have meaningful human control, operating commanders have to be able to understand how autonomous weapon systems operate and sufficiently predict what factors and conditions of the environment could trigger an algorithm. This requires personnel training, weapon system tests, assessments and validation mechanisms. Validation mechanism refers to a situation where an autonomous weapon system suggests to change some aspects of military operation, but this change has to always be validated and authorized by an operator. (UNODA - working paper by France 2018).

Estonia and Finland presented a different interpretation on how to exercise a human control over a weapon with autonomy, they argue that "human control could be exercised through various design features (e.g. self-destruction or self-neutralization mechanism), decisions relating to the emplacement and other precautionary measures (e.g. warning the civilian population)," (UNODA 2018, p.4) so AI powered weapons are not necessarily illegal, if they are under human control. Moreover, they could lead to less civilian casualties after the conflict ends. A lot of explosive devices are still active even after the end of the war, so an innocent child might step on them by accident and get seriously harmed. Autonomous weapons with self-destruction function can prevent this scenario from happening.

The same sentiment is shared by the USA, they argue that as long as autonomous weapon systems can function as predicted, they can actually reduce the number of violations of international humanitarian law and avoid accidents. For example, in the US Air Force, "the system assumes control of the aircraft when an imminent collision with the ground is detected and returns control back to the pilot when the collision is averted" (UNODA 2018, p.2). The American delegation asserted that autonomous weapons should not be stigmatized and banned, when they can actually reinforce objectives of international law.

A drastically different position is taken by Non - Alignment Movement countries, who argue for an international legally binding instrument that establishes prohibitions and regulations of autonomous weapons. This delegation states that softer measures, such as political declaration, voluntary exchanges of information on legal weapon review can not be a substitute for a new instrument.

2019

In 2019 discussions on universalization of legal weapon reviews continued. Belgium, Ireland and Luxembourg stated that a legal review of a weapon is a useful tool to ensure

that it can and will adhere to international humanitarian law. Therefore, it would be wise to share information on best practices and crystallize a common standard. A counter argument was presented by Russia, the delegation argued that it is unnecessary to universalize legal weapon review procedures just for autonomous weapons, "it is more important to universalize AP I and for the States to withdraw their reservations made after ratifying this IHL instrument." (UNODA 2019, p.5).

Japan, Russia and the USA have all argued in favor of the development of autonomous weapons. While they agree with the principle that a weapon without human control should be prohibited, they also pointed out that further research and development on AI should not be discouraged, because future science discoveries can bring significant benefits, such as

> "reduction of collateral damages (e.g. through improving strike accuracy toward attack targets) and of human errors (e.g. by having a part of various miscellaneous duties conducted by autonomous weapons systems), and such weapons systems would not be worn out even in operation for long hours." (UNODA, working paper by Japan 2019, p.4)

Therefore, these states assert that autonomous weapons which cannot be controlled should be prohibited, but usage of AI in weaponry should be allowed as long as there are risk mitigation measures that would ensure control, accountability attribution and compliance with international law. The Russian delegation provided an example that an upper-level operator could supervise a machine and, if necessity occurs, change the parameters of operation or deactivate a weapon. The US stated that a meaningful human control can be achieved through testing on reliability of performance (a machine functions according to the intent of the developers consistently), legal reviews and development of doctrine and training of the operators.

Moreover, the American delegation argues that autonomous weapons can address the accountability through "having system logs that automatically record the operation of the weapon system. This kind of recording could facilitate investigations of both the weapon system's performance and use" (UNODA 2019, p.6). This idea of verification mechanism

was also voiced during a semi-structured interview with Expert #1. During our discussion on how to verify if the autonomous weapon systems were, in fact, used under meaningful human control, a respondent shared this concept of system logs. There are a lot of practical problems with traditional verification mechanisms, when it comes to autonomous weaponry. One cannot verify whether or not a weapon was designed to allow human control by just sending international inspection, because it is not visible from the outside. The software most likely will not be released. Even if it is shown to inspection, the code can always be changed after the visit. Thus, as a respondent highlights, "the only thing my colleague and I came up with is this idea of secure recording of all the information around an attack by a remotely controlled system. Later to allow checking, proving that an attack was directed by a responsible and accountable human", so a system can record exactly how an attack was launched by itself.

2020

In 2020, the position of some states shifted in the debate on the necessity of the international instrument. For example, Germany stated in 2017 that already established international law is enough to regulate autonomous weapon systems, especially with the obligation to review new means and methods of war under Article 36 of Additional Protocol I. However, the German delegation changed their stance arguing that "while IHL applies to LAWS, it does not provide all the answers as to what limits should be put on autonomy in weapon systems. This underscores the need for internationally-agreed limits." (UNODA 2020, p.3). This view is shared by Brazil, it even goes a step further and claims that the limits placed on autonomous weapons should be legally binding and the most desired result of discussions at the CCW GGE is the creation of a new protocol under the CCW. Although, they provided ideas on other options that would include other stakeholders such as "political declarations, corporate codes of conduct, market rules and restrictions, system architecture, programming benchmarks and shared military doctrines" (UNODA 2020, p.2)

There are various arguments for the establishment of a new legally binding instrument. One was presented by NAM states, who argue that a new protocol is needed to avoid an

arms race. The other reasoning, presented by Brazil, is that a new legal text could help keep the balance between a right to pursue technological development for the purpose of defense and the compliance with international humanitarian law. As the Brazilian delegation pointed out

> "The codification of new IHL rules could establish a balance between, on the one hand, defense and security needs and technological development without establishing asymmetries among "haves" and "have nots" and, on the other, compliance with humanitarian principles and normative." (UNODA 2020, p.4)

Thus, a legally binding instrument could also prevent a digital divide between countries from getting even more significant.

The concept of human control started to take shape. Most delegations reached a consensus that meaningful human control has to be understood as a process. There are different measures that could be implemented at different phases of the process that would ensure that humans retain the control. The phases include "political direction; research and development; testing, evaluation and certification; deployment, training, command and control; use and abort; and post-use assessment" (UNODA working paper by UK 2020, p.6). Some concrete measures to ensure control were to set limits on where and how long autonomous weapons can be used, in which environment they are allowed to be deployed, the intervention of an operator to abort a mission. It is well articulated in the working paper of Germany,

> "1) Constraints on the operation including spatial and temporal limits may enable the human commander to thoroughly assess the effects and scope of the sytems' operation to ensure the identification of lawful targets as well as to ensure that the planning assumptions remain valid throughout the whole operation.
>
> 2) Providing the human operator with the ability to supervise and intervene in the operation during the attack taking into account that most military environments are inherently dynamic resulting in the need to ensure human supervision and providing human operators with the capacity to abort a system's operation." (UNODA 2020, p.3)

Every state puts emphasis on the fact that a human has capabilities that cannot be attained by an algorithmic machine. Even though autonomous weapon systems are logical, they still do not have reasoning or common sense. Thus, the discussions at CCW GGE are working on operationalizing the general principle that human control has to be preserved.

Before, in 2018, several delegations pointed out the condition that, in order to exercise human control, operators have to sufficiently understand how a weapon system works. The UK took this idea further and elaborated in what conditions human control is truly meaningful. Firstly, a human has to have a freedom of choice and have several options of possible courses of action. An operator has to have the ability to impact, intervene and change the behavior of a weapon system. Not only that, but before this intervention, an operating commander has to have enough time to process information and decide if it is needed to intervene. For that, a person has to have situational awareness, understand the real-world context of events during an operation. Additionally, an operator has to be able to predict how autonomous weapons will interact with the environment.

2021

By 2021, a concept of two-tier approach started to crystalize, with most states (Australia, Canada, Japan, Republic of Korea, United Kingdom, United States, France and Germany) agreeing that fully autonomous weapons that cannot guarantee compliance with international humanitarian law should not be developed and have to be prohibited. However, for other partially autonomous weapons that can be under human control, their use can be lawful and legitimate but they have to be regulated by risk mitigation measures. These measures have to be guided by several principles:

- "Assurance of compliance with international humanitarian law
- Preservation of responsibility and accountability of human operator
- Sufficient human-machine interaction to ensure meaningful human control" (UNODA working paper by France and Germany 2021, p.2).

However, there is a contradictory opinion presented by the Russian delegation. They argue that separating autonomous weapon systems into acceptable and unacceptable categories would just politicize the issue, "it is unacceptable to artificially divide weapons into «bad»

and «good» ones based on the political preferences of certain States" (UNODA 2021, p.2), so two-tier approach is not an adequate way to restrain autonomous weapon systems. Moreover, hasty decisions on prohibitions could hold back technological progress and research on peaceful use of AI, creating a chilling effect on scientific discovery. Although Russia agrees that human control has to be preserved, they argue that forms and methods on how to do it should be left to the judgement of states individually, without a need for standardization.

2022

In 2022, the states' delegations started to submit concrete drafts of an international instrument that would restrain the use of autonomous weapon systems. The drafts all have 2 sections that reflect a two-tier approach: prohibitions and regulations. Prohibitions restate the already existing obligations under international law, for example, that autonomous weapons which cause superfluous injury or unnecessary suffering are prohibited. But prohibition also included a newly emerging principle of human control, that autonomous weapon systems which cannot be meaningfully controlled by humans are prohibited. The regulations section in each draft had measures on various themes such as:

- Human control (example: Training personnel to enable system operators and commanders to understand the functioning, capabilities, and limitations of the system's autonomy)
- Accountability gap (example: conducting assessments, investigations, or other reviews of incidents that may involve violations)
- Measures to mitigate risk of unintended engagements (example: control, limit, or otherwise affect the types of targets that the system can engage) (UNODA working paper by Australia, Canada, Japan, the Republic of Korea, the United Kingdom, and the United States 2022)

Only the Russian delegation disagreed with the necessity of a new instrument and restated that already existing frameworks are already sufficient enough to govern the development and use of autonomy in weapons.

Additionally, this year, for the first time, working papers by Argentina, Costa Rica, Guatemala, Kazakhstan, Nigeria, Panama, Philippines, Sierra Leone, State of Palestine, Uruguay and Australia, Canada, Japan, the Republic of Korea, the United Kingdom, the United States mentioned the risk of reinforcing the existing gender and racial biases while using autonomous weapon systems. Since AI is built on data available, it reflects the historical injustices.

2023

In 2023, discussions put more attention to international human rights law, the problem of encoding biases and historical injustice, the issue of human dignity and right to privacy. Especially in the working paper of Palestine that argued for the prohibition of autonomous weapons which are designed or used to target humans directly. The argument is based on international human right law, under which a use of force against a human is permitted only with legal basis present. There has to be a due process and careful consideration that requires a complex human judgment, "the process of autonomy in weapons systems risks execution of force absent the required legal processes or judgements to be fulfilled" (UNODA 2023, p.6). Therefore, it can be said that in using autonomous weapons, human lives are taken arbitrarily.

Additionally, for developing autonomous weapon systems designed to target humans, there is a need for a lot of biodata, so that algorithms can learn from it to recognize and distinguish different people. Therefore, it "would fuel bulk collection of data, including individuals' biodata" (UNODA working paper by Palestine 2023, p.6), which would make surveillance and interception of personal information easier. Thus, autonomous weapon systems designed to target humans would compromise the human right to privacy. This limitation on type of target is also present in Austria's working paper, which argues that targeting humans with AI-driven weaponry violates inherent human dignity of both civilians and combatants alike. Therefore, if one takes into consideration public conscience and the moral principles, anti-personnel use of such technology has to be prohibited.

This year most states that submitted working papers (Argentina, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Kazakhstan, Nigeria, Pakistan, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay) agreed on the desirable qualities of acceptable autonomous weapon systems. They have to be predictable, reliable, understandable and traceable. Autonomous weapons should not change any parameters without explicit validation by a human operator. It has to perform consistently according to the design and intent of a user. A person using such a weapon has to understand how it functions and what conditions of the environment trigger it. Additionally, the use of force has to be traced back to the operator to ensure accountability and individual responsibility. Even though these ideas were present before in previous years, in 2023 they were more organized and articulated.

Overall, through 7 years of discussions at CCW, the following options on how to restrain autonomous weapon systems on international level were proposed:

1) International Humanitarian Law is already applicable to autonomous weapon systems. There is no necessity to create new instruments to ensure governance over them
2) A document that would contain practical measures, best practices and information sharing mechanism to improve compliance of International Humanitarian Law, especially obligation to carry out a legal weapon review under Article 36 of the Additional Protocol I to the Geneva Conventions
3) A political declaration that would stipulate a general principle of meaningful human control.
4) A legally binding instrument, containing prohibitions and regulations to ensure that weaponry will be under human control.

5.2.2. Why is a legally binding instrument a better policy option?

In the debate on restraint of autonomous weapon systems, all states and experts agree that there has to be some regulation and limits on them, but the opinions diverge regarding the nature of a regulating instrument. In this dissertation, it is argued that among 4 options of international response to challenges of AI in weaponry, the most desirable and suitable is

the legally-binding instrument that would provide prohibitions and positive obligations, utilizing the two-tier approach.

One could argue that a new legally binding instrument is not a viable option to restrain the development and use of autonomous weapon systems. The central idea of such an argument would be that a new treaty would lack ratifications, especially by those states that actually produce autonomous weapons. Thus, in this line of reasoning, such an option is not feasible or realistic. Moreover, there is already established international humanitarian law that applies to all kinds of means and methods of war. Thus, why should we create a new treaty for something that is already covered by previous legislations.

However, law is living, changing and progressing along with society. Additionally, even if a new instrument is not ratified by every single country, it would still have a huge impact and influence. A new treaty would provide normative standards which will still affect, at least a private sector, a defense industry that actually develops and sells new weaponry. As Mirjana Spoljaric, president of the International Committee of the Red Cross, articulates in her speech at the conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation",

> "International Humanitarian Law is not static. States have recognised the need to progressively develop IHL, and in just the last three decades we have seen the adoption of seven new IHL treaties. These treaties have been effective and continue to save lives, even if they are not ratified by all states. They have influenced government policies, and the choices of the defence industry sector worldwide." (Austrian Federal Ministry for European and International Affairs 2024, p.3)

Therefore, despite a lack of ratifications, especially by major military powers, a legally binding instrument would still provide at least some protection to people against uncontrollable, unpredictable weaponry. Such an instrument would demonstrate how international humanitarian law is changing and adapting to new realities and scientific discoveries.

In fact, even without a global instrument, international law is already changing. There are

different regional and national regulations being developed in order to mitigate risks connected with autonomous weapon systems. This fact also provides grounds to argue for the development of a new international legally binding instrument. There is a necessity to harmonize all of those efforts and create a universal treaty. This sentiment was demonstrated by Jimena Viveros (member of the UN Secretary General's High-Level Advisory Body on AI) at the Vienna conference, where she stated

> "We are seeing the emergence of regional and national institutional responses to this end. However, we cannot have a patchwork of different regulations, instead, we need something that is harmonious, and we need it fast because these technologies are being increasingly deployed already as we speak." (Austrian Federal Ministry for European and International Affairs 2024, p.4)

While regional and national policies are a good step forward, there are risks that they would be fragmented. An issue might arise that different initiatives on regulation would contradict each other.

This argument was also expressed by a representative of Egypt at the same conference, who emphasized the need to coordinate all efforts under the UN umbrella,

> "We take note of the multiple international initiatives on the development of guidelines and rules for the military applications of AI, which demonstrate the increasing international awareness of the associated risks. Nevertheless, there is a clear need for streamlining these initiatives and to bring them under the UN umbrella to ensure their inclusivity and effectiveness." (Austrian Federal Ministry for European and International Affairs 2024, p.3)

Thus, just national or regional guidelines and policies would not be enough to address the challenge of autonomy in machines designed for war. There would be too much room to justify non-compliance and create very loose restrictions.

This exact problem of fragmentation was also articulated by delegation of Pakistan at the CCW GGE process in 2023, it was argued that if national authorities would take over the creation of restrictions on autonomous weapons, the laws would be too inconsistent and all over the place, there would be a lot of possibility for violations of international law that

would be excused under national doctrines. Additionally, it was voiced by Chile and Mexico at CCW GGE in 2022,

> "The need to avoid a fragmented approach through national measures, which might give leeway to dispersion and lack of homogeneity in the adopted measures, contrary to the interest of having an international benchmark from which compatible national measures are implemented," (UNODA 2022, p.4)

Therefore, an international legally binding instrument is necessary to have standards, something to compare national regulations with, to ensure that they are adequate to protect human-beings from uncontrollable use of AI in the military.

The setting of those standards through international legally binding instrument is necessary to ensure that they were created in an inclusive, participatory and transparent manner. In the case of absence of universal standards on autonomous weapon systems, norms and customs would be created chaotically and would not be appropriate to safeguard humanity. As was argued by Article 36 Civil Society at the Vienna conference, "If we do not act together to set legal rules on autonomous weapons systems, norms of behaviour will still be set – by the practice of countries using these systems. We must not leave norm-setting to these states alone, or to their veto" (Austrian Federal Ministry for European and International Affairs 2024, p.1) so an international legal instrument is needed to create a symmetry between countries who can produce and utilize autonomous weapon systems and those who cannot. A similar sentiment was shared by Morocco in their statement at the Vienna conference on regulation of autonomous weapons, it was claimed that the regulatory vacuum would inevitably be filled by practices which would appear naturally. There is no guarantee that standards, which would develop by themselves from state practice, will be able to provide sufficient protection of people from indiscriminate use of autonomous weapons.

Undoubtedly, there are already established standards under the Geneva Conventions and Additional Protocols that are already written to protect people, especially civilians from use of force. However, as was stated before, law has to adapt to the new realities of the current time. Existing international humanitarian law might not be sufficient to govern

autonomous weapon systems and their use, because it has a human-centric design. Chile and Mexico in CCW GGE 2022 articulated this argument, stating that

> "Existing international law, including international humanitarian law, while still applicable, is insufficient because its fundamental rules regarding the use of force were designed when humans made value judgements notably vis-à-vis the principles of distinction, proportionality, precautions in attack and military necessity at the moment of the application of force." (UNODA 2022, p.4)

Nowadays, those value judgments on the use of force can be made by a machine, which was not expected at the time of drafting Geneva Conventions. Therefore, a new legally binding instrument could set in stone a new principle or a custom of international law about meaningful human control. It would establish a rule that critical functions of any weapon (selection of target and engagement) has to always be under human control who can make decisions using empathy and common sense. This idea is presented in working paper of Brazil in 2020,

> "Existing IHL rules are insufficient to ensure fully responsible use of AWS, nor provide adequate means for enforcing the principles of distinction, proportionality, precaution, and protection. A new protocol could establish a general obligation of maintaining meaningful human control over the use of force through the activation of AWS, as well as specific obligations regarding critical functions" (UNODA 2020, p.4)

Thus, a new instrument is needed to respond to the scientific progress and patch the gaps of existing international legal frameworks.

Additionally, while arguing why a legally binding instrument is a better policy option to restrain the development and use of autonomous weapons, it is worth mentioning that it is a widely supported option. According to a research project created by the International Committee of the Red Cross which monitors the state positions (https://automatedresearch.org/state-positions/?_state_position_negotiation=undecided), 129 states support the adoption of a new legally binding instrument. There are only 12 countries which are against this regulation option, this group includes Australia, Belarus, Democratic People's Republic of Korea, Estonia, India, Israel, Japan, Poland, Republic of

Korea, Russian Federation, United Kingdom and United States. The rest of states' positions are undeclared. It is important to remember that for the international rules to be effective, there has to be a consensus. One can see through working papers at CCW GGE and statements in "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation" conference that there is a consensus even on the format of the legally binding instrument, the two-tier approach which would provide prohibitions and positive obligations.

Even among the experts, during the interviews, 2 out of 4 expressed that the legally-binding instrument is the best method to restrain the development and use of autonomous weapon systems. Expert #1 had asserted that "the best option would be a Protocol VI to CCW Convention on Certain Conventional Weapons. The second best could be negotiation and then a treaty that has been concluded outside a CCW context", those two options were chosen as optimal because of the legally-binding characteristic. Expert #4 also shared the same insight as he stated that the best way to address the risks posed by AI in weaponry is "through a legally binding international treaty with characteristics that encompass Disarmament, Human Rights, International Cooperation, and Transparency", and which would include negative and positive state obligations. Expert #3 supported the two-tier approach but did not specify the nature of the possible regulatory and normative framework. Only one respondent argued that existing rules of war would suffice. Thus, even though the number of interviewees is small, since they were used for triangulation and cross-checking of data, at least a half of the sample agreed that a regulatory instrument should be legally-binding.

Among the arguments provided by experts about why legally-binding instrument is the best way to address autonomous weapon system, the most intriguing one was raised by Expert #4. This respondent provided an analogy with dysfunctional marital relationships, where the problems are not really solved but just filled with pretty promises and declarations. As was articulated, "disastrous marital relationships have often been filled with good words and declarations. Legally binding norms not only bring seriousness to the obligation but also carry a potential symbolism that tends to deter practices prohibited by

them," thus a new treaty would create a power of taboo that would discourage the states from violations. From these insights, it is clear that in order to mitigate risks and effectively restrain autonomous weapons, there is a need for concrete commitments and appropriate level of seriousness. Undoubtedly, not every state would ratify such an instrument because of the weight of restrictions. However, codifying rules on AI in weaponry can lead to creation of new rules of customary international law. Thus, new customs would be binding even on non-state parties.

5.2.3. Structure and Elements of an instrument

At the time of writing this thesis, there is a significant consensus that a two-tier approach is the most suitable to address the risks posed by autonomous weapon systems and restrain their development and use. The central idea of this approach is division of autonomous weapons into 2 tiers, those that have to be prohibited and those that are allowed but under specific circumstances and conditions. This consensus is evident in working papers submitted at CCW GGE discussions in 2024.

Table 2: Consensus on the two-tier approach in CCW GGE process

Bulgaria, Denmark, France, Germany, Italy, Luxembourg and Norway	There is growing support among High Contracting Parties that the 'normative and operational framework' governing LAWS needs to be developed further and that one possible way to proceed is through a two-tiered approach. (UNODA 2024, p.1)
Austria	Generally, we perceive a technology-neutral approach to the regulation of autonomous weapons systems (AWS) and functional understanding of AWS as the most feasible. We support the so-called two-tier approach, according to which certain autonomous weapons systems will require prohibition and all others regulation. (UNODA 2024, p.1)
Pakistan	The ongoing efforts in the Convention on Certain Conventional Weapons (CCW) should continue with an aim to develop international legal rules through a new Protocol on Lethal Autonomous Weapons Systems (LAWS). Such a Protocol will need to clearly spell out prohibitions and restrictions governing LAWS to ensure compliance with the International Humanitarian Law (IHL) and consistency with the objectives and purposes of the CCW (UNODA 2024, p.1)

Japan	Weapon systems that cannot be used in compliance with these principles, such as those designed to kill or injure people indiscriminately or to target civilians or civilian objects, must not be developed or used. On the other hand, Japan believes that weapon systems that include an appropriate level of human judgment, operated under a responsible chain of human command and control, and with some autonomous functions that ensure human involvement can reduce human error and contribute to improved compliance with IHL, as well as providing efficiencies in labor and manpower, which can provide significant benefits for security. (UNODA 2024, p.3)
United Kingdom, and United States	Draft articles on autonomous weapon systems – prohibitions and other regulatory measures on the basis of international humanitarian law ("IHL") (UNODA 2024, p.1)

The growing support for this format is also evident in states' statements at the Vienna conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation", which is demonstrated in Table 3.

Table 3: Consensus on two-tier approach at the Vienna conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation"

Brazil	The report of the 2023 session of the GGE represented a fine balance among dissonant viewpoints. The report represented a step forward for the acquis of common understandings built by GGE, in particular by consolidating the need for a two-tier approach and the centrality of control. (Austrian Federal Ministry for European and International Affairs 2024, p.1)
Croatia	We support the so-called "two-tier" approach to weapon systems in the LAWS area and in this regard we will remain committed to strengthening the mandate of the GGE on LAWS. (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Cuba	Cuba supports the urgent adoption of a legally binding international instrument prohibiting the manufacture, possession and use of fully autonomous weapons and establishing regulations for the use of semi-autonomous ones. (Austrian Federal Ministry for European and International Affairs 2024, p.1)
Egypt	Egypt is of the view that pursuing a two-tiered approach, comprising the prohibition of fully autonomous weapons while regulating other military

	applications of AI represents the most realistic and effective course of action (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Germany	In our view, this two-tier approach, mentioned by many participants, can provide a basis for the set of elements of an instrument currently under discussion in the GGE on LAWS (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Ireland	Further to years of comprehensive discussion within GGE LAWS, there is now growing international consensus around a two-tier system – under which autonomous weapons which cannot be used in compliance with IHL must not be developed, deployed or used (Austrian Federal Ministry for European and International Affairs 2024, p. 2)
Japan	Discussions based on these proposals led to a consensus report last year which reflects the concept of a two-tier approach of prohibitions and regulations based on international humanitarian law (IHL). (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Morocco	The United Nations Secretary General has recommended, as part of his report on Common Agenda for Peace, to conclude, by 2026, a legally binding instrument to prohibit Lethal Autonomous Weapon Systems that function without human control or oversight, and which cannot be used in compliance with international humanitarian law, and to regulate all other types of Autonomous Weapons Systems (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Pakistan	Pakistan has called for a two-tier strategy: outright prohibition of systems that function outside human control and fail to conform to IHL standards, and restrictions for other weapons systems to guarantee compliance with International Law, the principles of IHL, and the imperatives of ethics and security at all levels (Austrian Federal Ministry for European and International Affairs 2024, p.2)
Peru	I would like to reiterate Peru's concern about the urgent need to adopt a treaty banning and regulating autonomous weapons systems. (Austrian Federal Ministry for European and International Affairs 2024, p.1)
Switzerland	Switzerland endorses a two-tier approach that would allow for specific prohibitions and regulations notably to ensure compliance with international humanitarian law, while also taking into account other considerations. (Austrian Federal Ministry for European and International Affairs 2024, p.2)

The two-tier approach was also supported by Expert #3. During our discussion, a

respondent was asked, what is the best method to restrain autonomous weapon systems and why is it the best method available. The answer was that it is the most realistic, feasible and technology neutral way of regulation. Ideally, it would be best to prohibit the development and use of autonomous weaponry, but the fact is many states want them. Thus, a total ban would be supported at all. Especially with the concerns that such a ban would create a chilling effect on the current research and development, meaning people would be too scared to violate a law to pursue new scientific knowledge and discovery on AI. This could undermine the possibility to enjoy civilian application of this technology.

Moreover, some uses of autonomous weapons are morally justified when they benefit civilians and effectively protect them. For instance, missile defense systems. Therefore, "the concern is really to have a regulatory structure that permits those kinds of uses of autonomy in the military, but also really protects civilians where they are most vulnerable and most at risk in current conflicts". The respondent provided an example that people are more likely to be in danger and get killed in apartment buildings rather than in tanks. Consequently, the decision to launch an attack at an apartment building with civilians, because there are some key adversary military personnel present, is a huge question of proportionality that cannot be delegated to a machine. This type of use of autonomy in weapons should be prohibited, because it does not target an intrinsically military object. Overall, there has to be a framework of prohibitions and regulations that could allow responsible use but prohibit the loss of control over important decision-making. This is reflected in the measures that were found in CCW GGE working papers:

Prohibitions

- Autonomous weapon systems that, by design, inherently are impossible to use in compliance with international humanitarian law. For instance, those weapons that are indiscriminate, target civilians, or can cause superfluous injury or unnecessary suffering
- Autonomous weapon systems that are able to function completely outside of human control. Complete autonomy would make effects of autonomous weapons unpredictable, untraceable and impossible to explain. Without proper human

control/supervision, there is a huge risk of non-compliance with international humanitarian law.

Regulations/Risk mitigation measures

- People, who decide to deploy autonomous weapon systems, must limit the temporal and geographical scope of the operation. The number of attacks that autonomous weapon systems can launch also has to be limited, as well as types of targets it can engage. All of those aspects have to be limited to make sure human commanders would be capable of making informed calculations/evaluations of anticipated consequences of the use of force.
- Operators have to always be able to interrupt, adapt or deactivate an autonomous weapon system in a situation where a weapon starts to function in an unexpected manner.
- An autonomous weapon system has to always be tested and assessed in a realistic environment to ensure predictability and consistency. It is necessary to make sure that weapons would function reliably and reflect the human intent of developers and users.
- An autonomous weapon system can change the parameters of an operation only after receiving authorised validation/approval by a human operator.
- Datasets used to inform the algorithm have to be carefully documented to ensure transparency, traceability and explainability of autonomous weapons. Moreover, they need to be monitored to ensure that they do not perpetuate existing social biases.
- In order to ensure accountability, there have to be national mechanisms of investigation/internal oversight into the use of autonomous weapon systems. Since, any suspected, reported or documented violations have to be traced back to a human being with agency. The use of force has to always be able
- Operators have to be trained to sufficiently understand in what circumstances a particular autonomous weapon system can be used, how it functions. They have to be able to predict the outcomes of an algorithm's interaction with the environment.

5.2.4 Enforcement and verification mechanisms

It is important that no matter how well developed the measures or elements of the treaty are, there is still a huge question of how to enforce the implementation of those measures. There is also an issue on how to verify if autonomous weapon systems are being developed with the principle of meaningful human control in mind. On verification, there was some information on the possibility of recording logs of the operation to later investigate whether or not a weapon was controlled by an accountable human operator. This idea was provided in a working paper published by the US in CCW GGE in 2019. It was also mentioned in an interview with Expert #1. However, when it comes to enforcement, there was no information on this in 2 sources: CCW GGE working papers and statements at the Vienna conference "Humanity at the Crossroads: Autonomous Weapons Systems and the Challenge of Regulation". Therefore, to address this aspect, only data from expert interviews is available.

During discussions with experts, they were asked if they can think of any enforcement or verification mechanisms. In an interview with Expert #2, a respondent stated that they truly do not have any ideas on that matter, because there is no international body that can take the role of the police for the whole world. The international system is chaotic, there is no central authority, so the question of enforcement is challenging in that aspect. Expert #1, contrary to statement of Expert #2, claimed that there is an international body that can authorize enforcement or order compliance, which is the Security Council of the United Nations. However, because of the veto powers of permanent members, this body would be ineffective since any decision on enforcement can be blocked through a veto. Therefore, enforcement of any international law is a bigger question of the need to reconsider the UN system.

Expert #3 stated that a diplomatic answer to the question of enforcement is that, if countries truly cared about compliance with the treaty provisions, they would have built enforcement mechanisms into the treaty. However, some people could argue that it is impossible to do because it would dissuade states from even engaging in treaty negotiations. Thus, as was suggested by the respondent

> "a lot of it is about establishing the norms and shaping what is acceptable for states to do. If you think about the law in general, people do not stop killing each other because murder is illegal, we made murder illegal. Because it should be illegal. But people still kill each other. So you do not get perfect enforcement just because you make a law."

However, an interviewee asserted that just because perfect compliance is not achievable does not mean we should not create laws and norms of behavior. Because setting the norms would still change the behavior of the majority. Therefore, in this perspective enforcement comes just from the act of establishing the norms.

The follow up question in the discussion with Expert #3 was: How does a new norm get established to that point where everyone just follows it? How does the norm get internalized? A respondent shared that law by its nature is reactive, not proactive. A norm is just observed for a really long, significant period of time and then people decide to write it down and codify it. However, it presumes that this norm already exists which is not the case with the situation of rapidly changing and developing technologies. Therefore, it was argued that an old model of how norms become laws needs revising to not only react to the problems, but also prevent those problems from even emerging.

An Expert #4 emphasized the role of national authorities in ensuring compliance with international treaties. The states might have already developed committees on the AI and its use internally; these committees can play a role in enforcing the treaty and creating the verification mechanisms. In their own words

> "National authorities, special commissions on AI, and other institutions might already be part of the structure of each State. Through them, it might be possible to stimulate compliance program initiatives in the private sector at the same time as establishing verification methods.

Therefore, enforcement, in this point of view, would come from the internal structure of the state and how it would cooperate with the private sector to encourage compliance with a new legally-binding instrument.

Overall, from these 4 interviews, it can be summarized that the enforcement of the international law on autonomous weapon systems might come from:

- UN reform
- Act of establishing the norms
- National authorities.

Conclusion: How should autonomous weapon systems be retrained on an international level?

Overall, this section of the thesis argues that the most appropriate and suitable method to restrain the development and use of autonomous weapon systems is the international legally-binding instrument, which would reflect a two-tier approach, with prohibitions on weaponry without human control and regulations on systems that can be controlled and interfered with. There are various reasons why this method is a better policy option. For instance, a legally-binding instrument would prevent fragmentation of regulation in different parts of the world. Moreover, it would set the standards of appropriate behavior for states. Without it, the process of standard setting would not be inclusive and be shaped only by countries with military-technological advantages.

6. CONCLUSION

The dissertation addressed two research questions on the topic of autonomous weapon systems. The first one examines the rationale why international restraint is necessary in the case of AI-driven weapons. The second one investigates what are the possible methods available to achieve this goal of restraint on the development and use of autonomous weaponry. The findings to the first inquiry include technological aspects such as the lack of available data to properly train algorithms on the navigation of armed conflict environments. It also touched upon the risk of making the process of committing international atrocities easier. Regarding the methods on how to mitigate these risks, there is a central argument that the best way to address this issue internationally is through legally-binding international instrument. In the future, it would be interesting to research the impact of autonomous weapons on a particular state's behavior. For instance, Israel, with the introduction of AI-driven weaponry, became more careful about complying with international humanitarian law? Or on the contrary, a state with a new capability stops caring about the laws of war? This could be an intriguing topic for future research.

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8. APPENDIX A

Interview Guide

1) What do you understand by restraint in the context of autonomous weapon systems (AWS)?

2) Do you believe international restraint on autonomous weapon systems is necessary?

3) Why? Why not?

4) What is the best way to address AWS on an international level?

5) Why do you think this approach is the most effective?

6) Can you provide examples of verification and enforcement mechanisms that might be feasible in AWS context?

7) What is the connection between AWS and human rights considerations?

8) What developments or topics should I look at when researching AWS?

9) Would you recommend any experts I should consult for my thesis?