Regulating the Absurd: 'Killer Robots' and the Morality Behind Arms Regulations

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Abstract

The rapid development of Lethal Autonomous Weapons Systems (LAWS) has intensified debates over the adequacy of existing legal and ethical frameworks governing armed conflict. This article examines how the ethical concerns associated with autonomous weapons can be adequately addressed through existing legal obligations or whether they introduce novel moral challenges demanding new regulatory standards. Methodologically, the study employs qualitative content analysis of academic, legal, and policy debates concerning the regulation of LAWS, identifying and categorizing the principal moral arguments advanced in contemporary discussions. The findings reveal three broad categories of concerns: challenges related to compliance with existing IHL principles, unprecedented ethical issues arising from the autonomous exercise of lethal force, and intensified moral risks shared with other unmanned weapon systems. The article argues that, regardless of their potential legal compliance, LAWS fundamentally transform the relationship between

human agency and lethal force, thereby necessitating additional normative standards centered on meaningful human control.

Keywords

artificial intelligence; autonomous weapons systems; international humanitarian law; lethal autonomous weapons systems; meaningful human control

Introduction

When studying arms regulations, one comes across apparently paradoxical legal reactions to technological developments, encountering prohibitions on blinding laser weapons for its human-blinding potential but acceptance of other weapons with human-killing performances. The advent of Lethal Autonomous Weapons Systems (LAWS) represents one of the latest —most disruptive— military technological breakthrough and unprecedented challenges to the moral principles behind these logically problematic regulations.

In recent years, automated weapons have been developed in a soaringly unstable rearming environment and used in —ever more recurrent— armed conflicts, reducing the political and military costs for decision-makers while further distancing them from the human consequences of warfare. Technological innovations have increasingly sought greater autonomy from human intervention, ostensibly in pursuit of a form of warfare ethics grounded in technological precision and the protection of non-combatants. In doing so, they have introduced unprecedented transformations not only in the characteristics of weapons and combatants, but also in the very nature and conception of armed conflict.

This article deals with the challenges posed by fully autonomous lethal weapons systems, the most groundbreaking of these innovations. Formally named Lethal Autonomous Weapons Systems (United Nations [UN], 2024c), they are also labelled 'killer robots' (Sparrow, 2007), and defined by the United Nations Convention for Certain Conventional Weapons (UN CCW) as "an integrated combination of one or more weapons and technological compo-

nents that enable the system to [...] select, and engage a target, without intervention by a human user" (UN, 2024c, p. 1). They are "human-out-of-the-loop weapons" (Docherty, 2012, p. 2), a category that is particularly concerning due to their potential capacity to independently perform critical functions such as target identification and engagement, including the use of lethal force in anti-personnel operations without human intervention and in contexts that may not be fully known or specified in advance (Arkin et al., 2019; Barbé & Badell, 2020; Docherty, 2012; Krishnan, 2009).

In fact, that is already a realized potential, since the UN Security Council (UNSC, 2021) affirmed they were used in Libya in 2020. Notwithstanding their contemporary appearance, the surrounding debates are over a decade old. Discussions within the United Nations began in 2013 at the Human Rights Council (HRC) and, from 2014 onward, continued under the framework of the Convention on Certain Conventional Weapons (CCW), given its established role in developing and refining norms through its protocols (Barbé & Badell, 2020; HRC, 2013; UN, 2014).

However, the specific moral concerns raised by LAWS remain insufficiently defined, as does their relationship to established normative principles and prospective legal regulation. Clearly, these systems represent not only the latest stage in technological innovation aimed at replacing the human combatant on the battlefield, but also a profound shift in the identity—and even the humanity—of the agent that exercises lethal force (Barbé & Badell, 2020; HRC, 2013). They present substantial ethical novelties that could challenge the legal structure and moral principles of International Humanitarian Law (IHL) (Sullins, 2013).

For this reason, the present study examines the normative and moral transformations associated with LAWS and their use in armed conflict, focusing on the principles and justifications advanced in debates over their regulation. It seeks to determine whether LAWS introduce moral transformations of such magnitude that they give rise to novel ethical concerns, thereby necessitating additional normative principles to complement existing obligations under international humanitarian law (IHL). Therefore, this study's

contribution rests on its comprehensive analysis of all moral and legal concerns advanced by LAWS and how these both challenge traditional normative principles and conceptions of arms regulations, and potentially demand expansions beyond them. Rather than positioning debated moral and legal arguments in opposition, it integrates them within a coherent analytical framework for the regulation of LAWS. As such, the study provides a comprehensive account of the moral challenges these systems pose and considers their implications for the normative governance of future technological developments.

This study is structured around three arguments. First, it highlights that arms regulation has traditionally been grounded in the normative principles of international humanitarian law (IHL) and international human rights law (IHRL), which are themselves rooted in moral and humanitarian justifications. Second, it argues that LAWS may be capable, at least in principle, of complying with IHL and its underlying moral foundations. Third, it posits that, irrespective of their uncertain capacity to comply with IHL, LAWS introduce transformations in weaponry and armed conflict so profound that they raise ethical questions about the sufficiency of traditional regulatory principles and generate new moral concerns that require additional normative standards for their regulation.

Accordingly, the remainder of this article will discuss previous literature about norms and principles on arms regulations and the main academic views around LAWS. In the subsequent section, the methodology followed will be laid out. Then, the results of the content analysis will be presented and ordered, clearly stating the moral principles gathered from debates around LAWS' regulation, which will provide three avenues: moral challenges to LAWS' compliance with IHL, unprecedented moral issues outside IHL and exacerbated moral risks shared with other unmanned weapons. Building on this framework, the findings will be examined through a critical discussion of competing perspectives, engaging the debate in a manner that ultimately supports the case for regulation grounded in meaningful human control. The conclusion will then offer addi-

tional reflections and avenues for future research on morality and war.

Literature Review: Normative Foundations of Arms Regulation and the Challenge of LAWS

Outside situations involving aggression, prohibited under the UN Charter, the use of armed force may be lawful under international law, although the right "to choose methods and means of warfare is not unlimited" (Anderberg et al., 1992, p. 287). Indeed, since the adoption of Additional Protocol I to the Geneva Conventions from June 8 1977, based on the principles established in the Geneva Conventions of 1949 (ICRC, 1949), every weapon or military technology innovation liable to be used in armed conflict has been assessed under, and validated against, the same international parameters.

Today's normative and legal framework about arms regulations stems from the basic principles of the international law of war (Khan et al., 2019; Watts, 2015) established in several broadly ratified treaties and conventions on *jus in bello* (McMahan, 2006). The forefather of war regulations and "laws of humanity" was the Saint Petersburg Declaration of 1868 (ICRC, 1988, para. 7). These developments were followed by the Hague Conventions of 1907, which further defined prohibited military practices (Anderberg et al., 1992; Krishnan, 2009). However, the core foundations of international humanitarian law (IHL), and the principles that continue to underpin contemporary arms regulation, were firmly established in the Geneva Conventions of 1949 and, more decisively, in Additional Protocol I of 1977 (UN, 1977). Moreover, subsequent treaties and conventions on disarmament, arms control, regulation, and prohibition have also drawn upon principles derived from international human rights law (IHRL) (Asaro, 2012; Brunet et al., 2021; Roumate, 2021).

It is pertinent to note that, despite the internationally consensual nature of many of these treaties, their creation and observance are highly conditioned by powerful states' influence and interests, and

usually involve considerable double standards (Hirst, 2002). Which weapons are regulated — and how — has largely depended on states' interests, historically those of Western powers. Technological innovations, particularly in weaponry, are not neutral; they are deeply shaped by existing power structures (United Nations Development Programme [UNDP], 2022). Thus, weapons and their regulations are always shaped by the norms, biases and inequalities that structure the societies within which they are created and, in this case, within which these weapons are programmed (Acheson, 2020b).

The "traditional organising principles" (Barbé & Badell, 2020, p. 145) of IHL, based on the international doctrine of civilian immunity, that were established in the Geneva Conventions of 1949 and consolidated in the Additional Protocol I of 1977, are the principle of distinction, the principle of proportionality and the principle of precaution, namely "precautions in attack" and "precautions against the effects of attacks" (UN, 1977; UN, 2023). Additionally, the Hague Conventions establish principles prohibiting weapons that cause excessive suffering or superfluous injury in relation to military advantage and necessity (Anderberg et al., 1992; Asaro, 2012). Furthermore, a provision from these conventions has crystallized into customary international law and serves as a valuable instrument for governing weapons innovations that evolve more rapidly than often reactive regulatory frameworks (Marchant et al., 2011). This is the Martens Clause, which affirms that, even in cases not covered by specific treaties, conduct remains subject to the principles of international law derived from established custom, "from the laws of humanity, and the dictates of public conscience" (Second International Peace Conference: The Hague, 1907, para. 7).

Meanwhile, a broad range of academic and institutional perspectives on LAWS converges on the view that these weapons challenge the existing international normative framework, as well as our understanding of how it operates (Boulanin & Verbruggen, 2017a; United Nations Secretary-General, 2018; Sullins, 2013). Most scholars argue that LAWS raise distinct ethical and normative

concerns, particularly due to their autonomy in performing critical functions (Boulanin & Verbruggen, 2017b; Rosendorf et al., 2022; Roumate, 2021). While some consider these challenges manageable and technically solvable (Arkin, 2009), others view them as an opportunity to rethink international law and ethics in armed conflict, orienting them more firmly toward humanitarian imperatives and human security in an increasingly technological future (Kaldor, 2020).

Even so, the literature is divided into three broad strands when assessing the normative implications of LAWS, each grounded in distinct moral arguments. Some scholars contend that, despite their innovative features as fully autonomous weapons — or precisely because of them — LAWS can comply with international humanitarian law (IHL) principles as well as, or even better than, human combatants (Burri, 2018; Marchant et al., 2011; Müller, 2016; Singer, 2009; Young, 2021). They argue that LAWS may be ethically advantageous in their capacity to select targets with greater precision (Young, 2021), to act more conservatively in the use of force (Burri, 2018), and to avoid committing war crimes such as torture or rape driven by fear, anger, or revenge (Müller, 2016). Some even suggest that autonomous systems could be programmed to incorporate forms of moral monitoring in their operational behavior (Arkin, 2009).

Other scholars share the view that LAWS could, in principle, comply with existing IHL norms and therefore cannot simply be prohibited or heavily restricted under the current legal framework. However, they maintain that LAWS raise unprecedented moral concerns that require the expansion or adaptation of IHL and the broader normative architecture governing armed conflict, potentially through the development of new or alternative principles (Rosendorf et al., 2022; Solovyeva & Hynek, 2018).

A third strand of scholarship argues that LAWS are unlikely to operate within the requirements of the law of armed conflict (Khan et al., 2019). According to this perspective, fully autonomous "killer robots" are inherently incompatible with IHL due to their lack of meaningful human involvement and judgment (Docherty, 2015;

Krishnan, 2009; Sharkey, 2016). These accounts emphasize the fallibility of autonomous algorithms in applying the principles of distinction and proportionality in dynamic and unpredictable environments (Spazian et al., 2021), and they question the methods used to calculate civilian harm, which may obscure the true extent of LAWS' compliance with the principle of distinction (Qazi & Jillani, 2012). Moreover, proponents of this view argue that compliance with IHL requires a sufficient degree of meaningful human control over the use of force (Amoroso & Tamburrini, 2020).

Interestingly, although the concept of "meaningful human control" has gained prominence in recent debates on LAWS, it was already described as an "implicit organizing principle" in earlier arms control regimes grounded in IHL (Barbé & Badell, 2020, p. 137). This was the case, for example, with chemical and biological weapons (Barbé & Badell, 2020) and with landmines (Costa, 2009).

In light of these competing perspectives and moral arguments surrounding LAWS and their regulatory prospects, the present study seeks to provide a comprehensive analysis of their moral transformations and how these interact with traditional normative principles of arms regulation, as well as with possible expansions beyond them. Its objective is to assess the normative possibilities of LAWS through an exhaustive and integrative examination of both their positive and negative moral characteristics, as articulated in academic and institutional debates. Ultimately, this study argues that, notwithstanding the potential for LAWS to exhibit capabilities that may one day surpass human performance, they represent a technological and moral turning point. As such, they are unlikely to fully comply with IHL principles and raise moral challenges that extend beyond the current scope of IHL. Consequently, LAWS require both rigorous scrutiny under existing IHL standards and the development of additional normative principles to ensure comprehensive regulation — and, above all, to formally recognize and legally codify the emerging moral principles that will shape the governance of future, even more advanced, weapons systems.

Methodological Framework: A Content Analysis of LAWS Debates

To assess the normative consequences arising from the emergence of LAWS, this study systematically compiles and examines the full range of moral arguments advanced both in support of and against these weapons. This is undertaken through a qualitative content analysis, which involves the systematic coding and categorization of recurring themes, normative claims, and argumentative patterns across the selected texts (Erdem and Özbek, 2023). Our qualitative content analysis identified three overarching thematic clusters — (1) obstacles to compliance with IHL and IHRL (including deficiencies in qualitative judgment, intent recognition, non-discrimination, and human dignity), (2) unprecedented moral challenges beyond the scope of IHL (such as automated lethal deliberation, loss of moral agency and compassion, unpredictability, and accountability gaps), and (3) exacerbated systemic risks associated with autonomous warfare (including lowered conflict thresholds, civilian burden-shifting, escalation dynamics, proliferation, and cyber vulnerability).

The following section presents a comprehensive and critical examination of discourses contained in a series of texts produced by key actors — including states and civil society organizations — that have participated in the United Nations debates on the regulation of LAWS over the past decade. The analysis begins with the first official UN meeting dedicated to LAWS — then referred to as Lethal Autonomous Robots (LARs) — and their possible regulation, held in 2013.

The study develops a structured categorization and ordered mapping of the views and moral considerations repeatedly articulated across these texts. Through discursive content analysis of these reports, it identifies the principal arguments that should inform a genuinely comprehensive and integrative debate on the regulation of LAWS. As a preliminary clarification, it is important to emphasize that the "moral principles" examined in this content analysis are not defined normatively by the author. Rather, they encompass all arguments advanced by participating actors that make claims

about what is right or wrong in a universal sense — even where such normative intent is not made explicit.

The primary sources analyzed in this study consist of official reports issued by key United Nations bodies that have hosted debates on LAWS. These include the United Nations Human Rights Council (2013) and the framework of the United Nations Convention on Certain Conventional Weapons (CCW), encompassing the Informal Meetings of Experts held between 2014 and 2016 and the subsequent sessions of the Group of Governmental Experts from 2017 to 2025. In addition, the study examines reports produced by the most influential civil society organizations participating in these debates, including Human Rights Watch (Docherty, 2012; HRW, 2016), the Campaign to Stop Killer Robots (2013, 2016, 2021), and the International Committee of the Red Cross (2021).

Empirical Investigation on LAWS' Moral Challenges

As previously discussed, arms control regimes have historically been consolidated through international treaties and conventions grounded in broadly shared normative principles and moral considerations. Most of these agreements — particularly in the post–Second World War period — have been promoted, negotiated, or adopted within United Nations bodies and forums, including the United Nations Office for Disarmament Affairs (UNODA), the Human Rights Council (HRC), and the framework of the United Nations Convention on Certain Conventional Weapons (CCW). In the case of LAWS, debates began within the HRC in 2013 but soon shifted to the CCW in 2014, given the latter's institutional structure and its protocols' potential for normative development. Delegations from all UN member states, along with numerous other representatives, participated in these discussions.

Notably, the moral challenges associated with LAWS identified within the CCW process and by the three organizations examined in this study — Human Rights Watch (HRW), the Campaign to

Stop Killer Robots (CSKR), and the International Committee of the Red Cross (ICRC) — largely converge. Their concerns broadly fall into three overlapping categories: moral obstacles to compliance with international humanitarian law (and international human rights law), unprecedented ethical issues that extend beyond the current scope of IHL, and the intensified moral risks associated with increasingly autonomous unmanned systems.

Given this significant convergence between institutional and civil society perspectives, and in order to provide a comprehensive account of the debates surrounding LAWS, these concerns and claims will be critically examined alongside contrasting academic viewpoints, including those that adopt more permissive or skeptical positions regarding the need for stringent regulation.

Moral Obstacles to Comply with IH(R)L

Qualitative Judgment and Situational Awareness

Both the UN CCW reports and the submissions of the organizations examined express skepticism about whether fully autonomous weapons can comply with international humanitarian law (IHL) and international human rights law (IHRL). They emphasize the necessity of meaningful human judgment, control, or at least the possibility of human intervention in order for the laws of war to be respected (CSKR, 2016; Docherty, 2012; HRW, 2016; UN, 2014; UN, 2016; UN, 2017; UN, 2018; UN, 2019; UN, 2021a; UN, 2021b; UN, 2023; UN, 2024a; UN, 2024b; UN, 2024c). Early reports stressed the indispensability of subjective human judgment and qualitative deliberation for compliance with the IHL principles of proportionality and precaution (CSKR, 2021b; Docherty, 2012; HRC, 2013; HRW, 2016). Later contributions further highlighted the importance of situational awareness in armed conflict contexts — a capacity considered deficient in LAWS (CSKR, 2013; ICRC, 2021; UN, 2016).

These allegedly missing features are likewise regarded in academic literature as essential for complying with the principles of

proportionality and precaution (Asaro, 2012), as well as for assessing military necessity in situations that resist precise quantification (Khan et al., 2019). By contrast, other scholars contend that LAWS do not pose a fundamental challenge to IHL (Müller, 2016), and some even argue that autonomous systems could comply more effectively than humans, given their lack of self-preservation instincts and their potential to act conservatively, applying precaution and proportionality without emotional impulse (Arkin, 2009; Burri, 2018).

Intuition, Recognition of Intent, and Discriminatory Risks

With regard to the IHL principle of distinction, UN bodies and the organizations examined identify two inherent limitations of LAWS — "intuition" (HRC, 2013, p. 10) and the human ability to interpret intentions (HRW, 2016; ICRC, 2021; UN, 2016) — as crucial for protecting civilians and vulnerable combatants. This position is echoed in academic scholarship (Zehfuss, 2011). In addition, automated algorithmic decision-making is viewed as unlikely to ensure accurate distinctions, particularly because of the risk of "amplification of discriminatory social — gender and racial — biases" embedded in data and design processes (UN, 2021b, p. 13).

Arbitrary Digital Dehumanization

Algorithmic life-and-death decision-making — seen by some as "arbitrary" (HRC, 2013, p. 7) — is described as constituting an unprecedented form of "digital dehumanisation threat" (CSKR, 2021b, para. 5). Such decision-making is regarded as incompatible with core IHRL principles, including human dignity (HRW, 2016; ICRC, 2021; UN, 2014; UN, 2016), as well as the rights to life and to a fair trial (UN, 2014; UN, 2016).

This form of non-human decision-making — unprecedented in the history of warfare — is also widely characterized in academic literature as a serious normative threat (Brunet et al., 2021; Rosendorf et al., 2022; Roumate, 2021). Nevertheless, dissenting

perspectives argue that LAWS would not necessarily undermine the dignity of combatants to a greater extent than human actors, who may themselves act in ways shaped by emotion, prejudice, or disrespect (Burri, 2018; Lim, 2019; Young, 2021).

Unprecedented Moral Issues Outside IHL

Moral Lethal Deliberation versus Automation

Beyond concerns related directly to IHL compliance, LAWS raise additional unprecedented moral challenges that are largely deontological in nature and intrinsic to their defining characteristics. Debate reports frequently argue that the automation of life-and-death decisions is ethically problematic in itself (CSKR, 2013; UN, 2014; UN, 2016; UN, 2017). Some maintain that the act of killing must remain a moral decision grounded in human deliberation, rather than a — potentially "arbitrary" (HRC, 2013, p. 7) — data-driven automated process (ICRC, 2021; UN, 2021b). This concern is amplified by claims that algorithmic decision-making may reproduce and intensify structural inequalities embedded in data systems (CSKR, 2021b; UN, 2021b).

Academic perspectives that advocate expanding regulation beyond IHL similarly regard the delegation of lethal decisions to algorithms as an intrinsic moral problem (Tegmark et al., 2021), describing it as dehumanizing, arbitrary, and discriminatory due to the amplification of social biases (Limata, 2023). By contrast, scholars who interpret the challenges of LAWS as technologically resolvable argue that human actors in armed conflict often behave arbitrarily themselves, particularly under the influence of negative emotions. From this perspective, it may be preferable for a machine to kill correctly according to legal standards than for a human to kill for the wrong reasons (Burri, 2018). Some suggest that an "ethical governor" (Arkin, 2009, p. 127) and forms of moral conditionality could be preprogrammed into algorithms (Burri, 2018), enabling autonomous systems to approximate morally reasoned decisions (Wagner, 2014). Nonetheless, others maintain that it is highly

unlikely that LAWS could perform such essential tasks as "distinguish[ing] legal from illegal orders" (HRC, 2013, p. 11).

Moral Burden and Compassion

Several reports express concern over the absence of moral and emotional burden in LAWS' decision-making processes (CSKR, 2021b; HRC, 2013; HRW, 2016; ICRC, 2021; UN, 2017), as well as the lack of compassion (Docherty, 2012; HRC, 2013; HRW, 2016), given that such systems cannot be regarded as moral agents. From a consequentialist perspective, this absence of moral responsibility and empathy may increase the risk of unintended escalation and destructive violence (CSKR, 2021b; HRC, 2013; HRW, 2016; ICRC, 2021; UN, 2021a; UN, 2021b).

The absence of moral character, compassion, and empathy in autonomous systems is widely acknowledged in academic literature (Asaro, 2012; Wagner, 2014). However, some scholars argue that the safety of just combatants — potentially enhanced through automation — may, in certain cases, take precedence over the preservation of "humanity" in killing (Burri, 2018; McMahan, 2006), particularly if future technological developments were capable of embedding forms of artificial emotional responsiveness into machines (Lim, 2019).

Unpredictability and Incomprehensibility

Given their full autonomy, LAWS are also criticized — from both deontological and consequentialist perspectives — for the unpredictability of their decisions (CSKR, 2021b; HRC, 2013; ICRC, 2021; UN, 2014; UN, 2016; UN, 2017; UN, 2018; UN, 2019; UN, 2021a; UN, 2024b) and for the potential incomprehensibility of their internal mechanisms to human operators (CSKR, 2021b; ICRC, 2021; UN, 2024b). These concerns are particularly acute in the fluid, complex, and open-ended contexts of armed conflict (CSKR, 2013; CSKR, 2021b; HRC, 2013; UN, 2014; UN, 2021a). Unpredictability is regarded as morally objectionable in itself

(Sharkey, 2016), as well as dangerous in its potentially catastrophic consequences, which may stem not from human error but from system malfunction and unforeseeable interactions (HRW, 2016; Rosendorf et al., 2022).

Moreover, the problems of unpredictability and "uninterpretability" (Spazian et al., 2021) are expected to intensify with advances in machine learning (CSKR, 2021b; Docherty, 2012; ICRC, 2021; UN, 2016) and with the development of autonomous collective intelligence in swarm systems (Docherty, 2012). While some scholars argue that predictability and comprehensibility can be enhanced through strict technical reliability standards during system development (Müller, 2016), even more permissive academic perspectives acknowledge the risks associated with future machine learning developments (Acheson, 2020b; Kallenborn, 2020; UNDP, 2022).

Accountability Gap and Responsibility

Reports from UN debates further emphasize the accountability gap that LAWS may create, particularly in light of their lack of moral agency and the potential difficulty of tracing decision-making processes (CSKR, 2013; CSKR, 2021b; Docherty, 2012; HRC, 2013; HRW, 2016; UN, 2014; UN, 2017; UN, 2018; UN, 2019; UN, 2021a; UN, 2021b; UN, 2024b; UN, 2024c). The absence of clear legal responsibility for lethal errors or violations of IHL is viewed as deontologically troubling and consequentially harmful, as it may undermine the authority and enforceability of IHL in addressing unaccounted-for war crimes (Docherty, 2012; HRC, 2013; UN, 2017; UN, 2021a; UN, 2022; UN, 2024b).

Academic commentators likewise argue that if a weapon's design renders meaningful responsibility and accountability for its consequences unattainable, its use should be considered both unethical and unlawful (Docherty, 2015; Sparrow, 2007; Wagner, 2014). However, opposing views maintain that responsibility can always be attributed to human actors involved in the design, deployment, or command chain — and in some cases even to machines themselves

when malfunctions occur (Burri, 2018). Some further suggest that LAWS may enable more accurate data collection regarding battlefield conduct, potentially improving the attribution of responsibility and even reducing the incidence of war crimes (Müller, 2016).

Immediate Threat to Life

Finally, certain reports highlight the morally significant issue of the "lack of mortality" (HRC, 2013, p. 17) or the incapacity of LAWS to experience or appreciate an "immediate threat to life" (UN, 2016, p. 10). Although this characteristic is shared with other unmanned systems, including remotely operated ones, LAWS arguably intensify the concern. Not only would human combatants face weapons or adversaries incapable of experiencing vulnerability or death, but the systems making lethal decisions would themselves be devoid of any sense of existential risk. This constitutes a novel feature with both deontological implications and morally consequential effects.

Exacerbated Moral Risks Shared with Unmanned Systems

Lower Threshold for Armed Conflict

The final cluster of moral concerns identified in these reports relates to the broader risks that LAWS may pose to the dynamics of armed conflict. Many of these risks are already associated with partially autonomous or remotely operated unmanned systems but are considered significantly intensified in the case of fully autonomous weapons. Although some reports acknowledge that such systems might reduce the "human costs of war" (Docherty, 2012, p. 4) — at least for technologically advanced actors — they express concern that lowering the human and political costs of warfare would reduce the threshold for resorting to armed conflict (CSKR, 2013; CSKR, 2021b; UN, 2018; UN, 2019; UN, 2021a). If the use of force becomes less costly in terms of soldiers' lives and domestic political repercussions, armed violence may become easier to initiate and, therefore, more likely (Docherty, 2012; Müller, 2016; Singer, 2009).

Shifting the Burden of War from Combatants to Civilians

Civil society organizations, in particular, warn that reducing the presence of human combatants on the battlefield could "shift the burden of war from combatants to civilians" (CSKR, 2021b, para. 16; Docherty, 2012, p. 4). Such a development would be normatively troubling under IHL and morally problematic more broadly, as some scholars argue (Brunet et al., 2021), since it risks increasing civilian exposure to harm while insulating decision-makers and operators from direct danger.

Arms Races and Escalation

Both UN reports and civil society submissions highlight the dangers of arms races and unintended international escalation that could result from the unregulated development and deployment of LAWS (CSKR, 2013; CSKR, 2021b; UN, 2017; UN, 2018; UN, 2019). Academic analyses similarly caution that these risks, combined with a lowered threshold for armed conflict, could intensify the disruption of human welfare and environmental stability (Arkin et al., 2019; Asaro, 2012).

Cyberattacks and Non-State Actors

UN reports additionally emphasize the risks of proliferation, including the potential acquisition of LAWS by terrorist groups or other non-state actors (UN, 2017; UN, 2018; UN, 2019; UN, 2021a; UN, 2021b), as well as the vulnerabilities posed by cyberattacks (UN, 2014; UN, 2017; UN, 2018; UN, 2019; UN, 2021a; UN, 2021b). The prospect of hacking, system manipulation, or unauthorized use amplifies concerns about the destabilizing effects of these technologies.

Opposing academic perspectives, however, counterbalance these risks with what they regard as potentially broader benefits. They argue that LAWS could reduce the physical human costs of war (Müller, 2016), as well as the "mental and emotional harm" experi-

enced by human combatants tasked with killing (Burri, 2018, p. 182). Furthermore, they maintain that increasing technical precision could reduce collateral damage as autonomous systems become more clinically effective in target selection (Young, 2021). For some scholars, these anticipated benefits are sufficient not only to resist a ban but to oppose it even on moral grounds (Arkin, 2017).

Critical Discussion and Interpretation

This study has brought together the diverse — deontological and consequentialist — concerns raised by LAWS in order to conduct a comprehensive assessment of their three principal moral and normative dimensions: first, the inherent obstacles that may prevent LAWS from complying with traditional IHL and IHRL principles; second, the claim that they generate unprecedented moral issues beyond the scope of IHL; and third, their intensification of moral risks — many of them consequentialist in nature — already associated with earlier unmanned weapons systems. Across all three dimensions, the requirement for some form of human control, supervision, or judgment consistently emerges as central.

Building on the structured presentation of the findings, this section offers a critical interpretation aimed at identifying possible regulatory pathways. On the basis of the evidence gathered, the argument that LAWS may be capable of complying with IHL principles and their humanitarian foundations appears significantly weakened, as many of the moral concerns identified seem difficult to reconcile with full IHL compliance. At the same time, the claims that LAWS introduce unprecedented transformations and far-reaching challenges are strongly supported by both academic and institutional debates, which express concern not only about IHL compliance but also about broader moral threats and risks that extend beyond its framework.

Given the breadth and depth of the moral concerns articulated, designing appropriate regulatory responses for LAWS is far from straightforward. Some proposals advocate a "two-tier approach" (UN, 2024b, p. 6), distinguishing between elements deemed inher-

ently incompatible with IHL — which should be prohibited — and those capable of compliance, which should be subject to strict regulation. According to the ICRC (2021), such regulation could include limitations on target types; restrictions on duration, geographical scope, and scale of use; constraints on contexts of deployment; and clear requirements for human–machine interaction.

Among these elements, the latter — human–machine interaction — is widely regarded as the most critical. UN discussions repeatedly emphasize the necessity of meaningful, "context-appropriate" (UN, 2025, p. 5) human control or supervision over critical functions. Yet uncertainty remains as to whether such control should be understood as an implicit requirement under existing IHL (UN, 2021a) or as a complementary "new legally binding provision" (UN, 2018, p. 20) or "organizing principle" (Barbé & Badell, 2020, p. 138). For some scholars, Meaningful Human Control (MHC) constitutes both a fundamental ethical requirement for any weapon and the primary solution to the ethical dilemmas and risks posed by LAWS (Amoroso & Tamburrini, 2020).

There appears to be broad consensus that regulation of critical lethal functions is necessary to ensure some degree of human control or supervision. At the same time, there is notable resistance to what has been described as a "double ban" (Anderberg et al., 1992, p. 295) on both the means and methods of warfare (Arkin et al., 2019), particularly given claims that LAWS may significantly outperform humans in certain functions or operations in morally clear contexts (Burri, 2018).

Fundamentally, many participants in the debate seem to seek a constructive partnership between human and machine capacities (Sharkey, 2016). This aspiration has fueled calls to modernize arms control frameworks (Paoli et al., 2020) and to rethink aspects of international law (Roumate, 2021) in order to address forthcoming non-human developments more effectively. The aim is not to dilute normative standards in response to technological change, but rather to strengthen them and prevent adaptation to declining ethical thresholds (Asaro, 2012; Sullins, 2013). In institutional forums, this has translated into demands for effective MHC and sustained IHL

compliance throughout the entire lifecycle of such systems (CSKR, 2021a; UN, 2024a), in accordance with Article 36 weapons review obligations (UN, 1977). Some have even called for pre-development assurances that human-controlled LAWS would demonstrably outperform human actors in complying with IHL (Amoroso & Tamburrini, 2020; Arkin et al., 2019).

The diversity and tension within these debates invite several critical reflections. In certain instances, it is not entirely clear whether the moral — particularly deontological — objections raised are directed specifically at lethal autonomous weapons or at automated decision-making systems more broadly. Institutional and academic analyses alike have noted limited social acceptance of autonomous weapons and algorithmic control (Arkin, 2009; Rosendorf et al., 2022; UN, 2014), as well as intuitive moral rejection of lethal LAWS (Skerker et al., 2020). There appears to be a broader societal unease with the dehumanization of killing (Asaro, 2012), arguably rooted in a "veil of ignorance" perspective (Rawls, 1972, p. 11), though attitudes may shift when the prospect of protecting one's own forces is introduced (Horowitz, 2016).

Some perspectives go further, expressing an overarching deontological rejection of robotic warfare, of both the absurdity and the dehumanization of automated killing and of the inhumane and undignified deaths it produces. From this standpoint, war is already a morally compromised political instrument, and robotics compounds this dishonor. Such critiques reject not only asymmetric automated warfare — seen as violating moral equality among combatants (McMahan, 2006; Skerker et al., 2020) — but also hypothetical robot-versus-robot conflicts, which risk normalizing war as an automated yet still destructive industrial process (Korać, 2018).

More broadly, it is evident that all innovations in weaponry, including those designed to enhance compliance with IHL, raise moral dilemmas because their ultimate purpose remains lethal. Contemporary war ethics, particularly in the context of LAWS, increasingly revolve around the elusive ideal of absolute precision (Zehfuss, 2011) and improved compliance, potentially diverting

attention from the traditional normative objective of restricting and humanizing war (Hirst, 2002; Rappert, 2013). Indeed, recent technological developments do not necessarily appear motivated by a genuine aspiration to make warfare more humane or just (Sullins, 2013; Wagner, 2014; Zehfuss, 2011). Rather, the automation of killing often seems driven by strategic and technical imperatives — avoiding "baroque" inefficiencies (Kaldor, 1982) and enhancing performance in terms of effectiveness, that is, lethality (Schwarz, 2018; Wagner, 2014).

Ultimately, a deeper dilemma arises. While regulation is practically indispensable, it may appear conceptually paradoxical to regulate weapons when what is being regulated — war itself — can be understood as inherently "absurd" (Camus, 1942). Unless the objective is to render war obsolete (Beebe & Kaldor, 2010), arms control may inadvertently legitimize the violence it seeks to constrain (Ferl, 2024). Regulation implicitly acknowledges that killing can be permissible under certain conditions (Zehfuss, 2011), thereby contributing to the normalization of war (Krishnan, 2009). In contrast, in light of the dangers of future large-scale conflicts, some argue that war should be approached with profound moral caution and regarded as fundamentally deplorable (Lo, 2015), a practice that humanity ought ultimately to reject as a legitimate means of pursuing political ends.

Conclusion

This study has provided a comprehensive account of the moral and normative considerations surrounding LAWS, their deployment, and their regulation. Drawing on a necessarily limited yet systematic analysis of reports produced within UN institutional debates — including contributions from the United Nations, the Campaign to Stop Killer Robots (CSKR), Human Rights Watch (HRW), and the International Committee of the Red Cross (ICRC) — the study has undertaken an informed examination and critical discussion of the principal moral arguments, alongside opposing perspectives. It concludes that LAWS not only generate significant challenges with

respect to compliance with IHL, but also raise unprecedented moral concerns that extend beyond its framework, while intensifying moral risks already associated with other unmanned systems. Accordingly, any meaningful discussion of their regulation — particularly through the lens of meaningful human control — must rest on a comprehensive and integrative analysis of all three dimensions of moral concern identified in this study.

Given the unprecedented transformations introduced by these technologies — transformations that are likely to deepen in the future — a reconsideration of the prevailing theoretical framework may be warranted. Debate on LAWS has largely focused on whether new weapons can attain legitimacy or ethical acceptability by improving compliance with IHL, enhancing precision, and reducing human costs. If this remains the dominant paradigm, then at a minimum the objective should be to ensure a level of meaningful human control capable of fostering innovative human–machine partnerships that are more humanitarian than either humans or machines operating alone (Sharkey, 2016).

Yet greater precision does not necessarily equate to greater ethicality, and humanity may have an indispensable role to play in moral decision-making. Even if technological improvements enhance compliance with legal standards, the core question should not center solely on the sophistication of weapons systems or their capacity to minimize civilian harm. Future debates and policy responses should move beyond technological adjustments (Zehfuss, 2011) and reactive normative adaptations designed merely to maintain formal adherence to IHL. Instead, they should engage in deeper ethical and political reflection on what morality and justice demand in relation to technological military innovation (McMahan, 2006). The future international order requires sustained and serious deliberation not only on the regulation of emerging weapons technologies, but also on the moral foundations of warfare itself.

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