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**Automated weapons systems
& lethal autonomous weapons
system and new international
legal and humanitarian issues**

**Sistemas de armas
automatizados & sistemas
de armas letais autônomos e
as novas questões jurídicas e
humanitárias internacionais**

Rahul J Nikam

Bhupinder Singh

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INTERDISCIPLINARY APPROACHES TO BUSINESS &
HUMAN RIGHTS: AN ASSESSMENT OF THE FIELD 10+
YEARS FROM THE UNGPs

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Rahul J Nikam e Bhupinder Singh

Automated weapons systems & lethal autonomous weapons system and new international legal and humanitarian issues*

Sistemas de armas automatizados & sistemas de armas letais autônomos e as novas questões jurídicas e humanitárias internacionais

Rahul J Nikam**

Bhupinder Singh***

Abstract

New tactics and tools of warfare, including Automated Weapons Systems (AWS), Lethal Autonomous Weapons System (LAWS), cyberattacks, armed drones, and robots, have been made possible by technological advancements and the use of artificial intelligence (AI). These innovations have created new legal and humanitarian issues. A State must consider whether it conforms with international humanitarian law before creating or purchasing any new weapon, tool, or tactic of conflict driven by AI. The current article addresses whether existing legal norms apply to new technology and may prompt readers to consider whether the provisions of Customary International Law, International Law, and International Humanitarian Law are sufficiently clear in light of the unique features of the technology and its potential humanitarian implications. It also examines the positions taken by different nations about these weapons and whether or not AWS and LAWS should be outright prohibited or made legal via regulations and transparency in their usage. It concludes that these new technological weapons must adhere to the ethical norms and existing international legal frameworks that should regulate their creation and deployment and that either significant human participation or a restriction on the use of AWS and LAWS is necessary. This article analyses the assumption that AWS and LAWS create unprecedented legal and humanitarian challenges requiring robust international regulations. A doctrinal study of applicable laws, case studies, and expert views are utilized to examine compliance with international humanitarian law. The findings highlighted serious gaps in accountability, ethics, and human oversight and called for internationally unified governance as a matter of urgency. The article suggests that whilst AWS may be beneficial to military efficiency, the potential for indiscriminate harm caused by a lack of clear delineation of legal responsibility means that there is an urgent need for international discourse and policies to counter humanitarian threats caused in its deployment.

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** Marwadi University, Faculty of Law, International Law, Business Law.
E-mail: rahulsnikam@gmail.com

*** Professor at Sharda University.
E-mail: bhupindersinghlaw19@gmail.com

Keywords: automated weapons systems; Lethal Autonomous Weapons System; international law; international humanitarian law; international criminal law; artificial intelligence; The Martens Clause.

Resumo

Novas táticas e ferramentas de guerra, incluindo os Sistemas de Armas Automatizados (SAA), os Sistemas de Armas Letais Autônomos (SALA), os ciberataques, os drones armados e os robôs, tornaram-se possíveis graças aos avanços tecnológicos e à utilização da inteligência artificial (IA). Essas inovações suscitam novas questões jurídicas e humanitárias. Antes de desenvolver ou adquirir qualquer arma, ferramenta ou tática de combate baseada em IA, um Estado deve avaliar se ela está em conformidade com o direito internacional humanitário. O presente artigo examina se as normas jurídicas existentes são aplicáveis às novas tecnologias e convida o leitor a refletir sobre a suficiência das disposições do Direito Internacional Costumeiro, do Direito Internacional e do Direito Internacional Humanitário diante das características específicas dessas tecnologias e de suas potenciais implicações humanitárias. Analisa ainda as posições adotadas por diferentes Estados quanto a essas armas, bem como o debate sobre se os SAA e os SALA devem ser proibidos por completo ou regulamentados mediante normas claras e mecanismos de transparência em seu uso. Conclui-se que essas novas armas tecnológicas devem obedecer às normas éticas e aos marcos jurídicos internacionais já existentes que regulamentam sua criação e utilização, sendo essencial assegurar uma participação humana significativa ou impor restrições à sua utilização. O artigo parte da hipótese de que os SAA e os SALA representam desafios jurídicos e humanitários sem precedentes que exigem regulamentações internacionais robustas. Para isso, adota-se uma abordagem doutrinária, com o exame das normas aplicáveis, estudos de caso e pareceres de especialistas, a fim de avaliar a conformidade com o direito internacional humanitário. Os resultados apontam lacunas sérias em termos de responsabilidade, ética e controle humano, e defendem a necessidade urgente de uma governança internacional unificada. Embora os SAA possam trazer ganhos em termos de eficiência militar, o risco de danos indiscriminados causado pela ausência de uma definição clara de responsabilidade jurídica revela

a urgência de um debate internacional e da formulação de políticas capazes de mitigar as ameaças humanitárias associadas à sua implementação.

Palavras-chave: sistemas de armas automatizados; sistemas de armas letais autônomos; direito internacional; direito internacional humanitário; direito penal internacional; inteligência artificial; Cláusula Martens.

1 Introduction

Artificial Intelligence (AI) will drive the Fourth Industrial Revolution, which may have a profound effect on every aspect of life, including foreign policy, technology advancement, public policy, government, security, and even minute daily tasks like finding the nearest petrol stations. AI has both beneficial and harmful uses, with the potential to cause enormous, long-lasting, disruptive creative, and destructive disturbances. When AI is used for good, technology could mitigate climate change and enhance lifestyle, health, and educational outcomes.

Since there is no international agreement on foreign policy, national security, and other matters, as well as without regulation, there is a great deal of potential for abuse of such an unknown and formidable AI based technology. Furthermore, a lack of knowledge about the problems, risks, and uses of new technology like AI is caused by imprecise or vague definitions of terminology. Therefore, cooperation between the social sciences and hard sciences is imperative to address the moral, ethical, and legal issues that AI raises¹. Even military systems have been swept by the AI revolution, with AI-driven autonomy emerging as the new face of combat.

Wars have been a part of human culture for generations. As civilizations have developed, so too have conflicts, to the point where the development of technology has had a significant influence on military tactics. The effect of AI on the battlefield has increased significantly following the proliferation of AWS and LAWS, also known as revolutionary fire-and-forget weapons power-

¹ MCGANN, James G. 2019 *artificial intelligence and think tanks report*. Palo Alto, California: Think Tanks and Civil Societies Program, 2019. Available at: https://static1.squarespace.com/static/593e8c54e3df286fa006bd85/t/605660e17e7c406eebe88aa2/1616273633571/Copy+of+Palo+Alto_AI+Forum+Report.pdf. Access on: 14 Mar. 2024.

red by AI in its primary operations. Without human assistance, these weapons detect, track, and strike targets by processing data from on-board sensors and algorithms. Because AWS is considered deadly, it becomes LAWS when it targets people².

Though there is much promise for these autonomous weapons, the controversy around AWS and LAWS has escalated. Recently, the UN Secretary-General called for a worldwide prohibition on killer robots, describing their use as ethically repugnant³. There's no universal agreement on what constitutes a deadly or killer robot in the future due to disagreements over the meaning of autonomous and the receding of lines between acceptable usage and misuse. Therefore, conformity with International Humanitarian Law (IHL) is widely acknowledged as an essential criterion for determining the permissible use of AWS. However, in several critical areas, the extent to which existing IHL standards constrain the advancement and utilization of AWS & LAWS is still debated or unknown.

The present article aims to assist governments create and express their opinions on the legal measures that presently do or should control the advancement and use of AWS, notably in terms of the needed type and degree of human-machine interaction. It maps the constraints that IHL already sets on the advancement and usage of AWS & LAWS. What IHL requires from users of AWS & LAWS to fulfill and satisfy IHL responsibilities, whether those obligations are of a state, an individual, or both. Threshold issues about the type and extent of human-machine interaction necessary for IHL compliance.

The paper's findings and suggestions do not pre-judge the legislative response that should control AWS & LAWS. Instead, it seeks to provide an analytical framework for governments and experts to analyze how the normative and operational framework governing the development and use of AWS & LAWS might need to be clarified and expanded.

1.1 Research problem

The emergence of Automated Weapons Systems (AWS) and Lethal Autonomous Weapons Systems (LAWS) in the military field has triggered heated discussion on its legality and humanitarian law risks. These emerging technologies, which can independently select and engage targets without human involvement, have sparked significant ethical and legal implications related to accountability, adherence to international humanitarian law (IHL), and the concepts of proportionality and distinction in military engagement. The main research problem of this article is the currently not established comprehensive international regulatory framework on AWS and LAWS, blanket legal uncertainties of determining responsibility for the unlawful deeds, risk of breach of human rights, and obstacles to implementation of the already-established international regulations. This article goes in-depth to explore the many legal and humanitarian gaps surrounding AWS and LAWS including the implications for compliance with IHL, ethical dilemmas and accountability of military forces and developers. The study will look at whether existing legal instruments—like the Geneva Conventions and customary international law—are adequate to govern these technologies' complexities, or whether global treaties need to be made. Through a critical analysis of these elements, this essay hopes to impart some insight as to the need for stricter governance mechanisms to address the growing humanitarian risks accompanying the increasing autonomy of modern warfare systems.

2 Comprehending AI

AI is a branch of computer science focused on simulating aspects of human intelligence using computer algorithms. AI is the capacity of a computer to mimic intelligent human behavior. It is an all-encompassing word that covers a variety of technologies, such as computer vision, natural language processing, machine learning, neural computing, deep learning, machine reasoning, and powerful AI.⁴ AI is becoming more and more

² ROBOTICS: ethics of artificial intelligence. *Nature*, v. 521, n. 7553, p. 415-418, May 2015. Available at: <https://doi.org/10.1038/521415a>. Access on: 14 Mar. 2024.

³ PADHY, N. P. *Artificial intelligence and intelligent systems*. Oxford: Oxford University Press, 2005.

⁴ VALUATES REPORTS. Artificial Intelligence (AI) Software System Market Size to Grow USD 156800 Million by 2029 at a CAGR of 31.5%. *PR Newswire*, 9 Nov. 2013. Available at: <https://www.prnewswire.com/news-releases/artificial-intelligence-ai-soft>

integrated into every aspect of our daily lives, from healthcare to self-driving cars to everything in between. AI is becoming more and more commonplace in both the military and civilian spheres, which indicates that it cannot be restrained. The use of AI in combat zones is covered in the following section, with an emphasis on the technology that underlies it as well as several moral, ethical, and legal issues.

2.1 AI in the combat zone

By 2025, AWS and LAWS are expected to be integrated into warfare strategies by many countries, with global spending on AWS reaching \$16 billion.⁵ Between 2017 and 2021, UAVs and drone-based LAWS cost over 17 billion dollars in the US. Lingering weapons like Switchblade and Harop are used by countries like Israel, China, Iran, Russia, Germany, India, South Korea, and Azerbaijan and the USA.

The term LAWS is an extension of AWS and is used to refer to weapon systems designed to target humans. LAWS refers to those AWS utilized in this study to target humans, as opposed to AWS used to target non-human subjects such as Israel's Iron Dome defense system. While the fundamental technology is similar for both weapon systems, LAWS is a specific example of AWS, with some sophisticated algorithms for target identification. More details on LAWS technologies will be discussed in the next part.

2.2 Technology foundations

LAWS is a combination of advanced computers and armaments, using AI and computational vision (CV) to extract data from visual sources. Popular CV methods include facial recognition algorithms. LAWS differs from traditional weapon systems by executing compute-intensive algorithms. Various sensors are used to process data, distributed throughout an interconnected system for maximum effectiveness. The data is then used as ammo, such as underwater, ground-based, or

aerial-based LAWS, depending on the type of weapon being used.

In order to complete a job more quickly and effectively, LAWS may potentially cooperate with other weapon systems. In 2020, Turkish troops used autonomous drones to eliminate Libyan National Army Troops/ Forces (LNAF), using LAWS's collaborative capability. The drones used onboard weaponry to identify and kill LNAF members. To cooperate with other drones, one drone could identify a high concentration of LNAF members and communicate its GPS coordinates to them, allowing for faster and more effective elimination.

2.3 LAWS may be divided into three general classes depending upon autonomy

Weapons that can be controlled remotely: These weapons may be mounted on a variety of military vehicles, both manned and unmanned. These guns are remotely handled, but they include some automatic characteristics that help them be as accurate as possible in difficult situations. Kongsberg, for example, has created a range of weaponry that includes military tank guns and handguns of various calibers.⁶

Partially autonomous weapons: This kind of system is also known as human in the loop. Target identification and detection may fall within the purview of this weapon system, or it may be handled by it. But before anything can be done, a person must give the go-ahead; a weapon cannot fire without human consent. One of the world's most advanced semi-autonomous weapons is the unmanned aircraft Taranis, which was created by BAE Systems⁷. It can detect targets, conduct wide-area surveillance, and get information about hostile regions. However, a human operator oversees every step and ultimately determines how things should be done.

Completely autonomous weapons: Have complete autonomy. For moral and legal reasons, many of the advancements in this field are proprietary and hotly debated. Should the Turkish drones under discussion indeed

ware-system-market-size-to-grow-usd-156800-million-by-2029-at-a-cagr-of-31-5--valuates-reports-301983669.html. Access on: 15 Mar. 2024.

⁵ MCMAHON, Bryan. The rise of "killer robots" and the race to restrain them. *SkyNet Today*, 7 Sept. 2020. Available at: <https://www.skynettoday.com/overviews/killer-robots>. Access on: 15 Mar. 2024.

⁶ ATHERTON, Kelsey. Commentary loitering munitions preview the autonomous future of warfare. *Brookings*, 4 Aug. 2021. Available at: <https://www.brookings.edu/articles/loitering-munitions-preview-the-autonomous-future-of-warfare/>. Access on: 15 Mar. 2024.

⁷ TARANINS: Taranis is an unmanned combat aircraft system advanced technology demonstrator programme. *Bae Systems*, c2025. Available at: <https://www.baesystems.com/en/product/taranis>. Access on: 15 Mar. 2024.

function without a human operator present, they would represent one of the first applications of fully autonomous LAWS. Another example is the SGR-1 weapon from South Korea, which is mainly a defensive tool but can also detect, target, and fire intruders from a distance of more than two miles.⁸ Following are the difficulties with the underlying technology

2.4 Range of independence

A major factor in the controversy surrounding semi-autonomous weaponry is the absence of human decision-making. Individuals are in position to justify why they choose to target a certain individual. The rationale doesn't matter provided the target was chosen appropriately. But if the incorrect individual is targeted, the person who chose the target will often be interrogated in detail and forced to justify their choice of target. On the other hand, to choose the target, LAWS uses AI algorithms that carry out several intricate mathematical optimizations. It is vital to design these algorithms so that their output can be understood, particularly when choosing targets.

LAWS, advanced weaponry, are limited by their imprecise algorithms, making mistakes inevitable. Therefore, explainability is crucial for algorithm-based identification of target systems. Performance measures like 95% face feature match, gun-in-hand identification, and target location matching can provide insights. The Defence Advanced Research Projects Agency states that AI-driven decision-making is a critical stage in combating future threats, emphasizing the importance of explaining AI-driven decision-making⁹.

2.5 Explainability

Explainability is critical due to an inherent bias present in every AI algorithm. There may be severe repercussions if biased algorithms make choices for LAWS. When biased data is used to train and feed an AI sys-

tem, the outcome is algorithmic bias. The problem is that the majority of real-world data is biased. Scientists from Harvard University showed that because humanity used to be racist, AI algorithms taught using historical data also tended to be racist. This finding provides a well-known and vivid example of algorithmic prejudice¹⁰. When used in combat, this kind of prejudice may cause innocent civilians to be mistakenly killed as the intended target.

2.6 Danger of cyberattack

Apart from the previously highlighted safety concerns about AI algorithms, there exists a possibility of adversarial hacking of these weapons. Collaboratively working with modern technology, LAWS needs a way to interact with one another. Their whereabouts would be revealed if the signals used for communication were somehow intercepted. Even worse, it is possible to modify the signals to confuse the LAWS, making them misfire or attack the incorrect target. An opponent may be able to access very sensitive data on LAWS's hard disc and pose a serious threat to national security if they manage to take it over.

2.7 Challenges in law and ethics

The increasing use of AWS and LAWS has raised ethical and legal concerns due to the lack of an agreed-upon legal framework for these technologies. The global discussion centers on initiatives advocating for the prohibition or restriction of LAWS, arguing that regulation is crucial for controlling advanced technology that could threaten global peace and security.¹¹ However, concerns include algorithmic prejudice, inconsistent computer programs, and unpredictable communication, which could endanger life and potentially lead to genocide or ethnic cleansing when used improperly.¹²

⁸ PRADO, Guia Marie Del. These weapons can find a target all by themselves: and researchers are terrified. *Business Insider*, 30 July 2015. Available at: <https://www.businessinsider.com/which-artificially-intelligent-semi-autonomous-weapons-exist-2015-7?IR=T>. Access on: 15 Mar. 2024.

⁹ DEFENSE ADVANCED RESEARCH PROJECTS AGENCY. *Broad Agency Announcement Explainable Artificial Intelligence (XAI)*. Vancouver: DARPA, 2016. Available at: <https://www.darpa.mil/attachments/DARPA-BAA-16-53.pdf>. Access on: 15 Mar. 2024.

¹⁰ NAJIBI, Alex. Racial discrimination in face recognition technology. *Harvard University*, 24 Oct. 2020. Available at: <https://sitn.hms.harvard.edu/flash/2020/racial-discrimination-in-face-recognition-technology/>. Access on: 15 Mar. 2024.

¹¹ GARCIA, Denise. Killer robots: why the US should lead the ban. *Global Policy*, v. 6, n. 1, p. 57-63, Jan. 2015. Available at: <https://doi.org/10.1111/1758-5899.12186>. Access on: 15 Mar. 2024.

¹² PIPER, Kelsey. Death by algorithm: the age of killer robots is closer than you think. *Vox*, 21 June 2019. Available at: <https://www.vox.com/2019/6/21/18691459/killer-robots-lethal-autonomous-weapons-ai-war>. Access on: 15 Mar. 2024.

AI-based combat robots may prove more reliable and precise than human combat robots, but moral concerns remain about whether algorithms can choose and execute targets appropriately. LAWS are susceptible to issues like hacking, virus incursions, and signal jamming. In a crisis, lack of human intervention could compromise programmers' ability to halt or rework missions. Reduced human oversight during combat operations could lead to potential violations of war laws and compromise efforts. In the future, autonomous systems like airborne, ground, and surface units may work together. Legal regulatory frameworks should be examined to protect human rights and the use of AI-based combat robots.

3 IHL and AWS

The use of AWS in combat has been a topic of global academic debate, with IHL being used to analyze arguments for and against its use. IHL's normative structure, or *jus in bello*, is based on fundamental ideas for its legitimacy and ability to impact state practices. The principles may be summarised as follows.

Humanity ensures dignity and protection from abuse or intimidation. It's crucial to differentiate between combatants and civilians objectively. Military operations should be proportional, using force related to the intended goal. Avoidable injury or suffering, especially to civilians not actively participating in the fight is essential. Before the assault, all parties must confirm the target is not a civilian or under special protection.

The need arises to find effective methods to balance military requirements with humanitarian concerns, as IHL governs combat and government behavior during conflict, unlike International Humanitarian Rights Laws, which focus on forbidding it.

The 1949 Geneva Conventions and Additional Protocol I, are the foundation of customary international law, emphasizing the obligation to respect¹³ and ensure adherence to IHL in all circumstances. This duty inclu-

des both a positive duty¹⁴ to comply with applicable rules during peace or armed conflict, and a negative duty for states to refrain from violating humanitarian law including the duty not to encourage, aid, or assist the commission of a violation.

IHL places humans at the centre of how its principles are applied, and if protecting people is the primary goal, then states that abide by the law must take responsibility for that protection since robots and AWS cannot be fully relied upon to do so for a variety of reasons. In modern battlefields, human participation would be necessary to uphold the fundamental IHL principles.

AI-related technology in armed conflict may implicate numerous responsibilities in IHL and other relevant law disciplines, including State-responsibility notions of violation. Article 48¹⁵ of Additional Protocol I of 1977 requires parties to distinguish between civilian objects, military objectives, civilian populations, and combatants. As a result, they shall limit their operations to targeting military objectives. As a result, while using AWS technologies in warfare, it is essential to ensure the following: the distinct characteristics of the four categories of discernibility—civilian population, combatant, civilian object, and military goal. It may be argued that any use of AWS in a military action that is devoid of one or more of those characteristics is prohibited.¹⁶ This is due to the uncertainty around the AWS's ability to discern between legitimate and illegal targets based on information. Such judgments, particularly in combat zones where soldiers often try to hide their identities. This falls under the IHL's notions of differentiation and precautions.

¹³ INTERNATIONAL COURT OF JUSTICE. *Case concerning military and paramilitary activities in and against Nicaragua (Nicaragua v. United States of America)*: decision [1986] ICJ rep 14. 26 Nov. 1984. Available at: <http://www.icj-cij.org/sites/default/files/case-related/70/070-19841126-JUD-01-00-EN.pdf>. Access on: 15 Mar. 2024.

¹⁴ NASU, Hitoshi. *Artificial intelligence and the obligation to respect and to ensure respect for international humanitarian law* (accepted for publication by Routledge). Exeter, UK: Exeter Centre for International Law, 2019. Available at: https://socialsciences.exeter.ac.uk/media/universityofexeter/collegeofsocialsciencesandinternationalstudies/lawimages/research/Nasu_-_AI_and_IHL_-_ECIL_WP_2019-3.pdf. Access on: 15 Mar. 2024.

¹⁵ INTERNATIONAL HUMANITARIAN LAW. *Protocol Additional to the Geneva Conventions of 12 August 1949*: article 48 - basic rule. Available at: <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/article-48>. Access on: 15 Mar. 2024.

¹⁶ LEWIS, Dustin. International legal regulation of the employment of artificial-intelligence-related technologies in armed conflict. *Moscow Journal of International Law*, n. 2, p. 53-64, Nov. 2019. Available at: https://www.researchgate.net/publication/347075873_International_legal_regulation_of_the_employment_of_artificial-intelligence-related_technologies_in_armed_conflict. Access on: 15 Mar. 2024.

Additional Protocol I of 1977 states that an attack must be dismissed or suspended if the target is not military-related, under special protection, or if there is a reasonable expectation of incidental civilian casualties, injuries, or property damage outweighing any expected direct military advantage.¹⁷ State parties waging war with the AWS must ensure cancellability, suspensibility, distinctions regarding distinctions to non-military-objective and non-special-protection status, incidental civilian loss, harm, and damage, concrete military advantage, and the ability to determine if damage exceeds the anticipated military advantage, all based on the IHL «Proportionality» concept. States have various tools to ensure the application of IHL, including providing directives, providing legal counsel accessible to military commanders, and disseminating Geneva Conventions for good faith implementation.

The High Contracting Party must determine if a new weapon, means, or warfare method is prohibited by this Protocol or an alternative international law rule, as stated in Article 36 of Additional Protocol I to the Geneva Conventions. Because of this, the nations must make sure that the use of AWS in international conflict does not result in needless suffering, harm, or indiscriminate use of force. As a result, conducting a weapons review will be required for any integration of AI within the current weaponry system or weapon development initiatives to create new capabilities. This has several drawbacks, too, such as the fact that only a few countries are believed to have a systematic method for the legal evaluation of new weapons.¹⁸

Since several countries that aren't typically recognised for developing weapons have begun experimenting with using AI in combat, it's possible that these countries don't have advanced mechanisms in place for reviewing weapons. Furthermore, due to this need for legal clearance, many AI applications could not be considered «weapons» or tools of war. The Additional Protocol I's Article 36 does not define these words.

3.1 Export control

The Geneva Conventions and its Protocols allow state parties to regulate the export of weapons without any control. Nonetheless, the application of the Arms Trade Treaty may guarantee the fulfilment of the IHL's requirements.

The Arms Trade Treaty prohibits the transfer of conventional weapons if they are expected to be used for genocide, atrocities against humanity, serious violations of the 1949 Geneva Conventions, assaults on civilian targets, or other war crimes specified by international treaties. States Parties must determine whether the weapons or other goods have the potential to be used in a way that would seriously violate IHL or to assist in one.¹⁹ Common Article 1 of the Geneva Conventions mandates High Contracting Parties to cease supplying weapons if they anticipate they will be used to violate the Conventions. There are several issues with this law, the first being that it only applies to certain types of conventional weapons. Secondly, it is impossible to supervise how these weapons are ultimately used, particularly in the case of AWS. In *R (Campaign Against Weapons Trade) v. Secretary of State for International Trade*²⁰ the UK High Court rejected a challenge to the legitimacy of weapons shipment to Saudi Arabia, citing serious IHL violations. The Court of Appeal later disregarded the High Court's ruling, stating that a final legal evaluation of Saudi Arabia's armed conflict behavior was necessary for a logical judgment. In addition, the Commission on International Law lists Cessation and Reparation as two legal repercussions of internationally illegal conduct that may fall within a state's purview. According to the general State responsibility notion of cessation, a State accountable for internationally unlawful conduct has to stop the act if it is ongoing and,

¹⁷ INTERNATIONAL HUMANITARIAN LAW. *Protocol Additional to the Geneva Conventions of 12 August 1949: article 57 - precautions in attack*. Available at: <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/article-57>. Access on: 15 Mar. 2024.

¹⁸ INTERNATIONAL COMMITTEE OF THE RED CROSS. A guide to the legal review of new weapons, means and methods of warfare: measures to implement article 36 of additional protocol i of 1977. *International Review of The Red Cross*, Geneva, v. 88, n. 864, Jan. 2006. Available at: https://www.icrc.org/en/doc/assets/files/other/irrc_864_icrc_geneva.pdf. Access on: 15 Mar. 2024.

¹⁹ UNITED NATIONS. *Treaties XXVI-8 Arms Trade Treaty*. New York, 24 Dec. 2014. Available at: https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVI-8&chapter=26#:~:text=The%20Treaty%20was%20adopted%20on,until%20its%20entry%20into%20force. Access on: 15 Mar. 2024.

²⁰ UNITED KINGDOM. Royal Courts of Justice Strand. London. *Case No: CO/1306/2016: Decision [2017] EWHC 1726 (QB) (Campaign Against Arms Trade) v. Secretary of State for International Trade*. 10 July 2017. Available at: <https://www.judiciary.uk/wp-content/uploads/2017/07/r-oao-campaign-against-arms-trade-v-ssfit-and-others1.pdf>. Access on: 15 Mar. 2024.

in some situations, to provide suitable assurances and guarantees of non-repetition²¹.

3.2 International criminal law and personal accountability

Personal responsibility stems from the objectives of criminal law as well as the particular obligations imposed by IHL and human rights law. *Mens rea*, or the mental aspect, attribution, forbidden behaviour, and other broad notions falls under individual responsibility. Regarding attribution, Article 25(I) of the International Criminal Court (ICC) legislation states that natural people are subject to ICC jurisdiction. ICC law prohibits certain actions and inactions that may be considered war crimes under Article 8.²² AI-enhanced AWS may be subject to these laws, which require *mens rea* or other mental components to be established under Article 30. This means that individuals must consider their choices and the effects of their actions while using AI-enhanced AWS in combat.

Critics argue that current legal frameworks hinder accountability for AI weapon use in combat, as fully autonomous weapons are not liable for crimes due to lack of intentionality, and are not natural persons, thus would not be subject to international court jurisdiction. Furthermore, unless it can be shown that human commanders had the *mens rea* to use autonomous weapons to commit crimes, it would be unreasonable to hold them accountable for the wrongdoings of a completely autonomous weapon. A different strategy would be to hold a programmer or a commander accountable for their carelessness in the illegal actions of robots that were reasonably foreseeable—even if they weren't planned. The amount of obligation imposed in this situation would differ from what should have been imposed on the person in question. The following legal framework, in addition to the one given above, may be used to control how AWS is used and deployed in contemporary combat.

²¹ UNITED NATIONS. International Law Commission. *Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries*. 2001. Available at: https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf. Access on: 15 Mar. 2024.

²² INTERNATIONAL CRIMINAL COURT. *Rome Statute of the International Criminal Court*. The Hague: International Criminal Court, c2021. Available at: <https://www.icc-cpi.int/sites/default/files/RS-Eng.pdf>. Access on: 15 Mar. 2024.

3.3 International Customary Law (ICL)

ICL is the body of norms that, apart from codified treaty laws, comprise common practice that is recognized as law. *Opinio Juris* and state practice are its two main constituents.²³ State practice refers to uniform, consistent, and established laws implemented by states over time, promoting the belief that they are required by the rule of law. *Opinio Juris* is the term used to describe the international community's arbitrary recognition of practice as law. It's noteworthy to note that LAWS remain in their infancy. As a result of the Martens Clause, governments are more likely to rely on verbal state practice and *opinio juris*, even as they continue to spend in LAWS. However, there is a lack of substantial state practice since it is opaque.²⁴

3.4 The Martens Clause

It is a special clause in IHL that creates a standard of protection for combatants and civilians in situations when there is no applicable treaty or body of law.²⁵ Fyodor Fyodorovich Martens presented it, and it has since been defined in the Geneva Convention's²⁶ Additional Protocol II (Article 1) and the preamble to the Hague Convention II (1889–23).²⁷ It means that as technology advances, there will come a day when robots will decide who lives and dies in wars without taking into account

²³ INTERNATIONAL COURT OF JUSTICE. *North Sea Continental Shelf (Federal Republic of Germany/ Denmark; Federal Republic of Germany/Netherlands)*: decision [1968] ICJ rep 9. 20 Feb. 1969. Available at: <https://www.icj-cij.org/case/52>. Access on: 15 Mar. 2024.

²⁴ CASSESE, Antonio. *Cassese's international law*. 2nd ed. [S. l.]: OUP Oxford, 2004.

²⁵ SONI, Anoushka; DOMINIC, Elizabeth. *Legal and policy implications of autonomous weapons systems*. India: The Centre for Internet and Society, India, 2020. Available at: <https://cis-india.org/internet-governance/legal-and-policy-implications-of-autonomous-weapons-systems>. Access on: 15 Mar. 2024.

²⁶ UNITED NATIONS. *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II)*: Adopted on 8 June 1977 by the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law applicable in Armed Conflicts. 1977. Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/protocol-additional-geneva-conventions-12-august-1949-and-0#:~:text=This%20Protocol,%20which%20develops%20and,12%20August%201949,%20and%20relating>. Access on: 15 Mar. 2024.

²⁷ TICEHURST, Rupert. The Martens Clause and the laws of armed conflict. *International Review of the Red Cross*, v. 317, p. 125-134, 1996. Available at: <https://www.icrc.org/en/doc/resources/documents/article/other/57jnh.htm>. Access on: 15 Mar. 2024.

the needs of people. IHL regulations and the Martens Clause's extra requirements must be followed by AWS.

The two pillars of the Martens Clause are the humane principle and the public conscience's rules. AWS must act as sentient beings and uphold certain human rights, such as treating people with compassion and respecting human life and dignity. AWS must make situation-sensitive decisions and use proportionate force to avoid unnecessary loss of lives and targets while adhering to the public conscience's moral precepts by developing a legal and ethical judgment threshold for complex case-by-case actions.

The use of AI in warfare has prompted a review of IHL norms to determine their application to AI's role in battlefield tasks. The need for due diligence should be examined whether it applies to military personnel and private citizens within a state's jurisdiction, or to non-state actors like terrorist organizations and mutants.

3.5 International Human Rights Law (IHRL) and AWS

IHRL mandates states to protect civilian rights, requiring them to assess their commitments to citizens. AI's use in law enforcement is seen as a reflection of a state's success, but its use in foreign conflicts has been a topic of debate. In 2016, Dallas police used a remotely controlled bomb disposal robot to kill a public order threat. This is just one example of how armed robots, also known as drones, have been used in domestic law enforcement instances.²⁸ South Korea uses Samsung's SGR-A1 AI robotic weapon system to protect its demilitarized zone from North Korea²⁹, while also monitoring borders through robots in other regions. For example, the Gaza Strip³⁰ boundary between Israel and Palestine is patrolled by robots, which have lately been

used in what Israel is promoting as the first AI battle in history. The first policing robot was deployed and made public in Dubai in May 2017. Although it is only capable of a few tasks, it may nevertheless be useful in locating wanted individuals, gathering evidence, policing crowded sections of the city, and other tasks.³¹

IHRL mandates that state actors must protect the fundamental rights of inhabitants, including the right to life, bodily integrity, and privacy, even in states with large populations or difficult terrain, where human deployment poses a threat.³²

The cornerstone of the laws controlling the usage of force by law enforcement is the right to life. This is the fundamental and natural right that sets contemporary countries apart from the savage era of antiquity. Life deprivation is only acceptable when it takes place within the bounds of the law. The word «arbitrarily» is used by the ICCPR and the ACHR to denote circumstances in which taking a life is not acceptable. The European Convention on Human Rights is more specific: No one may be purposefully deprived of their life unless it is in carrying out a court order after they have been found guilty of an offence for which they are legally punished. Three main human rights treaties have one thing in common: the first criteria controlling the use of force in IHRL stipulate that deprivation of life may only be accepted if it has a «sufficient legal basis.» A proper legal foundation is a difficult standard; in fact, the ECHR's jurisprudence set the standard high, requiring that every law enforcement action be both duly authorised by the law and adequately governed by it³³.

The right to life is fundamentally protected by the stringent necessity premise in addition to the legality principle. Even if a deprivation has a strong legal foundation, it may nevertheless be ruled to be unlawful if it is not required. Force should only be used as a last option, when all other non-violent methods have failed,

²⁸ SINGER, Peter W. Police used a robot to kill – the key questions. *CNN*, 16 July 2016. Available at: <https://edition.cnn.com/2016/07/09/opinions/dallas-robot-questions-singer/index.html>. Access on: 15 Mar. 2024.

²⁹ VELEZ-GREEN, Alexander. The foreign policy essay: the South Korean sentry—a “killer robot” to prevent war. *Lawfare*, 1 Mar. 2015. Available at: <https://www.lawfaremedia.org/article/foreign-policy-essay-south-korean-sentry—killer-robot-prevent-war>. Access on: 15 Mar. 2024.

³⁰ ROGERS, James. Robot patrol: Israeli Army to deploy autonomous vehicles on Gaza border. *Fox News*, 1 Sept. 2016. Available at: <https://www.foxnews.com/tech/robot-patrol-israeli-army-to-deploy-autonomous-vehicles-on-gaza-border>. Access on: 15 Mar. 2024.

³¹ ROBOT police officer goes on duty in Dubai. *BBC News*, 24 May 2017. Available at: <https://www.bbc.com/news/technology-40026940>. Access on: 15 Mar. 2024.

³² SPAGNOLO, Andrea. Human rights implications of autonomous weapon systems in domestic law enforcement: sci-fi reflections on a lo-fi reality. *Questions of International Law Journal*, v. 1, n. 43, p. 33-58, 2014. Available at: http://www.qil-qdi.org/wp-content/uploads/2017/10/03_AWS_Spagnolo_FIN-3.pdf. Access on: 15 Mar. 2024.

³³ EUROPEAN COURT OF HUMAN RIGHTS. *Makaratzis v. Greece* [GC]: 50385/99. 20 Dec. 2004. Available at: <https://hudoc.echr.coe.int/eng?i=002-4066>. Access on: 15 Mar. 2024.

due to need. The ECHR's Article 2(2) enshrines such a notion. It's also critical that the use of force adhere to the proportionality principle, which calls for State agents to choose tactics to prevent undue injury.

Every established or developing nation that has permitted the penalty that violates this principle has, in one way or another, justified the action. Similarly, the right to life is protected in India under Article 21 of Chapter III, Fundamental Rights of the Indian Constitution. While the death penalty is permitted, it must be used in line with the legal process. The level of automation of the machine determines the extent of the States' affirmative responsibility to defend the right to life while using AWS. In actuality, it is well recognised that IHRL puts affirmative obligations on governments to safeguard citizens from abuses of human rights, particularly those about the right to life, in addition to restricting the use of state power³⁴.

States have a responsibility to look into claims of life deprivation as part of their positive responsibilities to safeguard life. Even further, the proposed general observation on the right to life stipulates that inquiries into claims of Article 6 violations must always be impartial, independent, timely, full, efficient, trustworthy, and open.³⁵ Automated procedures may be used if robots are empowered to carry out police officer tasks. Algorithms will be used to gather, store, analyse, and utilise data to make such decisions. As AI lacks the fundamental human qualities of empathy, suffering, shame, feeling, emotions, love, caring, etc., They can only make decisions based on software that assists them in anticipating the possibility of a certain event. Therefore, it makes sense to question whether a computer could determine the need, proportionality, and, finally, legality of any given activity. To provide an example, the following situation may be investigated: A is a thief, taking water for its little kid, who would perish from thirst if left without it. Additionally, B is a robber who is taking a costly perfume bottle from the same multi-purpose shop. When it comes to stealing liquid from a

shop, A and B are on an equal footing for an AI, yet one is unnecessary and may go unnoticed by a human enforcement agency. It is unrealistic to expect AI to possess such subtle emotional and mental abilities. The lives of civilians would therefore be in danger if machines were given law enforcement responsibilities because their decision-making processes may prove unpredictable and their autonomy can range from a low degree of dependence to a high degree of independence, all of which are combined with a lack of human comprehension.

3.6 Right to individual privacy and body integrity

The primary concerns about the right to privacy in today's digital world are related to the rapid and ongoing advancement of technology, which will make it possible for people everywhere to use new ICTs while also enhancing government capabilities for data collection, monitoring, and interception³⁶. IHRL states that States may only impose restrictions on the right to privacy if their actions adhere to the principles of legality, legitimacy, and proportionality. Art. 17 of the ICCPR forbids any unjustified or illegal interference with privacy.

It is indisputable that if AWS were to be used for continuous surveillance, people would be the target of ongoing government monitoring and surveillance operations. This is a serious issue that is the topic of intense global discussion and debate. There are incidents, which claimed that the current administration was spying on judges and opposition leaders among other individuals using this software. The behavior in question is likely considered profiling, an automated data processing technique that applies a profile to an individual for decision-making or analysis of their preferences, behaviors, and attitudes, as recommended by the Council of Europe.³⁷ Profiling individuals' personal information might potentially violate their right to privacy, right to

³⁴ EUROPEAN COURT OF HUMAN RIGHTS. *Case of Öner yildiz v. Turkey*: Application 48939/99. Strasbourg, 30 Nov. 2004. Available at: <https://hudoc.echr.coe.int/fre?i=001-67614>. Access on: 15 Mar. 2024.

³⁵ UNITED NATIONS. International Covenant on Civil and Political Rights. *General comment No. 36*: article 6: right to life. 2019. Available at: <https://documents.un.org/doc/undoc/gen/g19/261/15/pdf/g1926115.pdf?token=9vSeEuSYk4RWkod2ca&am;fe=true>. Access on: 15 Mar. 2024.

³⁶ UNITED NATIONS. General Assembly. *Resolution adopted by the General Assembly on 18 December 2013*: The right to privacy in the digital age: resolution: A/RES/68/167. 21 Jan. 2014. Available at: <https://digitallibrary.un.org/record/764407?ln=en&v=pdf>. Access on: 15 Mar. 2024.

³⁷ THE PROTECTION of individuals with regard to automatic processing of personal data in the context of profiling: recommendation CM/Rec(2010)13 and explanatory memorandum. Strasbourg: Council of Europe Publishing, 2011. Available at: <https://rm.coe.int/16807096c3>. Access on: 15 Mar. 2024.

life, and right against discrimination.³⁸ Article 17 of the ICCPR and Article 8 of the ECHR prohibit discrimination in human rights treaties. However, algorithm-based decision-making may be biased towards certain factors like colour, caste, gender, and states with clear legislative frameworks have a greater obligation to prevent such incidents.

The AWS usage regulations for domestic law enforcement must adhere to the quality of law standard to safeguard both life and privacy rights. A standard that is satisfied by easily available domestic legislation that sets a precedent for future government acts and provides a sufficient and reliable safeguard against misuse.

4 The Convention on Conventional Weapons (CCW Convention) regulates the use of weapons that may be deemed harmful or discriminatory

One of the most important tools for putting IHL principles into practice is the CCW, which was implemented under the UN between 1979 and 1980. Its origins may be found in the principles of IHL. It acknowledges that political preferences exist and has an impact on the developing human-machine interaction. It also acknowledges the significance of the human-in-the-loop AWS paradigm as well as the comprehensive nature of research, development, and evaluation.

The Fifth Review Conference of UN Member States discussed the use of AWS, leading to the formation of an open-ended Group of Governmental specialists.³⁹ These concerns range from ensuring compliance with IHL, IHRL, and moral and ethical issues.⁴⁰

³⁸ UNITED NATIONS. General Assembly. *Report of the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance, Mutuma Ruteere*. 20 Apr. 2015. Available at: <https://www.refworld.org/reference/mission/unhrc/2015/en/105383>. Access on: 15 Mar. 2024.

³⁹ CONVENTION ON CERTAIN CONVENTIONAL WEAPONS. *Fifth Review Conference of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*. Geneva, 12-16 Dec. 2016. Available at: [https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-_Fifth_Review_Conference_\(2016\)/FinalDocument_FifthCCWRevCon.pdf](https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-_Fifth_Review_Conference_(2016)/FinalDocument_FifthCCWRevCon.pdf). Access on: 15 Mar. 2024.

⁴⁰ HUMAN RIGHTS WATCH. *Losing humanity the case against killer*

The CCW currently has 125 high-contracting parties and has added additional protocols for certain types of conventional weapons. Because of its adaptability, it can better adapt to technological advancements, which might result in the creation of new armaments, ammo, and associated military supplies. The five Additional Protocols to the Convention on the Prohibition of the Use of Mines, Booby-Traps, Incendiary Weapons, Blinding Laser Weapons, and Explosive Remnants of War addressed member nations' concerns.⁴¹

Participating nations at the informal CCW discussions on deadly AWS began in 2014. However, since decisions were made by consensus vote and because the process was informal as the name implies, very little to no advancement was accomplished. At first, China was the only one of the 55 permanent members of the UN Security Council that was willing to debate openly the possibility of creating a framework that would effectively control the use of AWS in combat. Following its formation, the Group of Governmental Experts' 2017 Report's suggestions provided some hope. This was mostly because of how the issue was framed, even though there was still no clear plan for international discussions. The 2017 CCW report emphasizes the application of IHL to all weapon systems and states' responsibility for deployment during armed conflicts. It also emphasizes the need for accountability for lethal action following international law, particularly IHL. The report also stresses the need for discussions on the characterization of LAWS to address humanitarian and international security challenges, considering past, present, and future proposals.

Russia and the US rejected a new convention on AWS weapons at the CCW conference in August 2019 as AWS is at a premature stage. The opportunity presented by the September 2020 conference on deadly autonomous weapons systems for supporters of a new treaty to express support for certain elements of the agreement and pinpoint areas of agreement was significant. Although these parties will have to work out the details of their differing perspectives, the fundamental

robots. New York: The International Human Rights Clinic (IHRC) at Harvard Law School, 2012. Available at: https://www.hrw.org/sites/default/files/reports/arms1112_ForUpload.pdf. Access on: 15 Mar. 2024.

⁴¹ GARCIA, Eugenio. Artificial intelligence, peace and security: challenges for international humanitarian law. *Cadernos de Política Exterior*, Brasília, n. 8, 2019. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3595340. Access on: 15 Mar. 2024.

ideas behind their plans to outlaw and control autonomous weapon systems are similar and might serve as the cornerstone of a new agreement. Finding these points of agreement is essential to moving on to the next stage of the procedure, which is approving a negotiating mandate at the Review Conference or, should that fail, adopting a legally enforceable document outside of the CCW.⁴²

Given the trends of international conflict that we are currently seeing—a growing number of deadly civil wars, complex asymmetric conflicts, bloody urban battles, and various forms of intrastate conflagrations—it is possible that developing nations and underdeveloped nations will be the most impacted by future deployments. Given these circumstances, it is thus necessary to create a legally enforceable agreement governing AWS that requires the state parties to abide by the accepted principles of IHL and IHRL. Let us understand various countries positions on AWS.

5 States' positions regarding AWS

The geopolitical positioning of various State parties determines why certain State parties' favour or reject the notion of utilising entirely AWS in conflict. States that have installed AWS on their borders, like South Korea and Israel, are under continual pressure to keep up a combat defensive system on their borders because they are engaged in a conflict with their close neighbors. Yet, in their quest to become the world's superpowers, some States are trying to reach the pinnacle of AWS perfection. The disparate stances taken by various State parties on the regulation and use of AWS set them apart from one another. This section will examine the positions made by several States on the usage and regulation of AWS.

5.1 USA

DODD 3000.09 defines AWS categories for US military use and outlines US doctrine on autonomy in weapon systems, focusing on the human operator's role in target selection and engagement choices, rather than technical complexity.⁴³ All systems, including Lethal AWS, must be built in a way that permits commanders and operators to employ reasonable degrees of human judgment when deciding how much force to deploy, according to DODD 3000.09. Human judgment on force use does not require manual control of weapon systems but requires greater involvement in decisions about weapon usage. DODD 3000.09 mandates that system operators and commanders have access to sufficient training and doctrines to understand the system's autonomy under practical operating conditions. The weapon's human-machine interface must be easily comprehensible for skilled operators to use the weapon with knowledge and discretion.

In May 2013, the US highlighted at the Human Rights Council that autonomous weapons systems pose significant ethical, legal, and policy issues. It suggested further debate of these problems in a global human rights law forum. The US issued a warning in August 2019 against stigmatizing deadly autonomous weapons systems, citing their potential military and humanitarian uses. The US contends that the current IHL is sufficient and views plans to establish a new international convention on these weapons systems as premature.⁴⁴

The U.S. government has addressed ethical issues about the systems in a white paper published in March 2018 titled Humanitarian Benefits of Emerging Technologies in the Area of Lethal Autonomous Weapons, although it does not yet advocate a ban on the weapons. The article highlights how automated target engagement, tracking, identification, and selection features may improve the accuracy with which weapons hit military targets while lowering the possibility of collateral harm or civilian fatalities.

⁴² CONVENTION ON CERTAIN CONVENTIONAL WEAPONS. *Meeting of the high contracting parties to the convention on prohibitions or restrictions on the use of certain Conventional Weapons which may be deemed to be excessively injurious or to have indiscriminate effects*. Geneva, 15-17 Nov. 2023. Available at: [https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-Meeting_of_High_Contracting_Parties_\(2023\)/CCW_MSP_2023_7_Advance_version.pdf](https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-Meeting_of_High_Contracting_Parties_(2023)/CCW_MSP_2023_7_Advance_version.pdf). Access on: 15 Mar. 2024.

⁴³ CONGRESSIONAL RESEARCH SERVICE. *Defense primer: U.S. policy on lethal autonomous weapon systems*. 2023. Available at: <https://sgp.fas.org/crs/natsec/IF11150.pdf>. Access on: 15 Mar. 2024.

⁴⁴ STOPPING killer robots country positions on banning fully autonomous weapons and retaining human control. New York: Human Rights Watch, 2020. Available at: https://www.hrw.org/sites/default/files/media_2021/04/arms0820_web_1.pdf. Access on: 15 Mar. 2024.

5.2 Russia

Russia's president, Vladimir Putin, asserted in 2017 that the country that leads AI development will be the world's leader. He emphasized the necessity of AI, hypersonic weapons, and other advanced technologies for Russia's future.⁴⁵ Russia claims that current international law, including IHL, has significant constraints on high-autonomous weapons systems, leading to its rejection of proposals for legally binding instruments. Russia disputes the GGE's assertion that deadly autonomous weapons will materialize anytime soon. Russia said in November 2019 that the ideas of human engagement and control are meaningless and based on subjective judgments.

Whatever Russia's efforts inside the GGE, its actions outside of it also spoke volumes. In 2019, Russia pushed to construct unmanned aerial vehicles (UAVs) for use in the Arctic and to deploy autonomous ice-breakers, both of which may be operational for up to 60 hours and four days, respectively.⁴⁶ Furthermore, according to TASS,⁴⁷ the Russian government had also started using an AI system on Mi-28N attack helicopters that could destroy targets chosen by pilots without their involvement. This indicated Russia's ambitions to introduce AI into the air. However, Russia's extremely limited financial resources ultimately severely limit its programmes that push for intense AI development. Russia's military spends an estimated \$12.5 million annually on AI, or just 0.01 percent of the US military's unclassified AI budget.⁴⁸ This issue is made worse by the fact that, according to a 2018 poll, there are just 17

AI companies in Russia overall, compared to over 100 in Israel and over 2000 in the US⁴⁹. Considering these aspects, Russia's position seems to be driven mostly by the desire for global domination, in contrast to South Korea or Israel, which maintain ongoing relations with their local neighbours.

5.3 China

China's People's Liberation Army aims to advance AI and other cutting-edge technology in future military conflicts with the US, fearing a generational divide between its capabilities and those of the US military. China supported the Human Rights Council's commencement of international discussions on complex autonomous weapons systems in May 2013. China has drawn attention to how completely autonomous weapons may disturb the global strategic balance and have an impact on arms control. China said in December 2016 that it would want to take preventative steps and that such weapons provide substantial challenges for adhering to IHL, citing the precedent set by the prohibition on blinding lasers. China demanded an embargo on fully autonomous arms in April 2018, although it subsequently made it clear that the country was only calling for their use, not their research and manufacture. China has not specifically reiterated its demand for a fresh international convention banning fully autonomous weapons since then.

5.4 Israel

The latest operation Guardian of the Walls was executed by the Israel Defence Forces (IDF), which said that it made extensive use of machine learning and data collection. At least 100 of Hamas's senior operatives were killed by the IDF's targeted airstrikes on the rival group during the two-week conflict between the two organizations. Israeli aeroplanes demolished the infrastructure that Hamas and Islamic Jihad had created in the Gaza Strip.⁵⁰ 20 Palestinian health authorities alleged

⁴⁵ LAIRD, Burgess. The risks of autonomous weapons systems for crisis stability and conflict escalation in future U.S.-Russia confrontations. *Rand*, 3 June 2020. Available at: <https://www.rand.org/pubs/commentary/2020/06/the-risks-of-autonomous-weapons-systems-for-crisis.html>. Access on: 15 Mar. 2024.

⁴⁶ UPPAL, Rajesh. As melting ice bringing Arctic into geostrategic prominence, Russia quickly establishes its military dominance over it. *International Defense, Security & Technology Inc*, 25 June 2021. Available at: <https://idstch.com/geopolitics/darpa-implementing-us-arctic-strategy-to-counter-russian-dominance-in-arctic/>. Access on: 15 Mar. 2024.

⁴⁷ NEW onboard system with AI on Mi-28N helicopters capable of destroying targets selected by pilots. *Russian Aviation*, 21 Feb. 2019. Available at: <https://www.ruaviation.com/news/2019/2/21/12985/?h>. Access on: 15 Mar. 2024.

⁴⁸ HANER, Justin; GARCIA, Denise. The artificial intelligence arms race: trends and world leaders in autonomous weapons development. *Global Policy*, v. 10, n. 3, p. 331-337, Sept. 2019. Available at: <https://doi.org/10.1111/1758-5899.12713>. Access on: 15 Mar. 2024.

⁴⁹ CHINA INSTITUTE FOR SCIENCE AND TECHNOLOGY POLICY. *China AI development report 2018*. Beijing: CISTP, 2018. Available at: https://indianstrategicknowledgeonline.com/web/China_AI_development_report_2018.pdf. Access on: 15 Mar. 2024.

⁵⁰ ISRAEL claims to have fought the world's first 'AI' war. *INDIA-Aai*, 1 June 2021. Available at: <https://indiaai.gov.in/news/israel-claims-to-have-fought-the-world-s-first-ai-war>. Access on: 15 Mar. 2024.

that Israeli bombardment on Gaza killed people, including children, and this accusation drew criticism from human rights organizations and most Arab nations.⁵¹

Israel said in November 2013 that there are presently no deadly autonomous weapons systems in existence. It concludes that future autonomous weapons systems may enhance adherence to armed conflict rules, while Israel rejects calls for a new international convention to limit or prohibit fully autonomous weapons. It is creating, testing, manufacturing, and deploying military systems with independent operations.

5.5 India

The topic of autonomous weaponry is hotly debated worldwide. This debate stems from the moral, ethical, and legal conundrum raised by the issue of whether computers should be able to choose who to murder and carry out killings without any tangible human oversight. Experts and states disagree vehemently about whether or not to prohibit AWS beforehand. Human Rights Watch (HRW), several non-governmental organizations, and the majority of the⁵² governments that are parties to the CCW are all firmly in favor of outlawing AWS. As discussed in the previous section, their main claim is that these weapons are forbidden under IHL because they cannot adhere to their fundamentals. Global powers like the US and the UK, on the other hand, as well as certain academics like Prof. Michael Schmitt,⁵³ of the US Naval War College, believe that the prohibition would be premature and counterproductive to scientific growth.⁵⁴

It is interesting to note that India, as revealed while on the 2016 UN Conference on Disarmament (CD), has adopted a wait-and-watch strategy on AWS. India did not take a hard stance on LAWS, saying that it was too early to make a final decision, even though it maintained that LAWS should adhere to IHL. Subsequently, similar positions were adopted on both local and international forums. India's March 2019 statement to the Convention on Conventional Weapons Group of Governmental Experts emphasized that, while the state should be responsible for developing, manufacturing, and using LAWS, the risks of proliferation must be addressed through international regulations.

As India must maintain its offensive and defensive capabilities on par with its neighbours, given that it is a net importer of weapons. India needs to deal with non-state forces within its borders in addition to governmental authorities. This calls for the deployment of artificial intelligence-driven solutions to guarantee operational readiness and reduce the casualty rate among military personnel stationed in severely hostile environments. India's posture is anticipated to follow the evolution of asymmetric warfare worldwide and the actions taken by nations possessing AWS technology, given the current state of technical breakthroughs.

In October 2013, India supported a proposal to initiate multilateral negotiations on deadly AWS at the UN General Assembly. India has often maintained that disagreements over weapons of mass destruction must be settled in a way that prevents nations from becoming more technologically advanced than they already are or from being more likely to resort to using military force to resolve international conflicts. India has voiced concerns that it may be possible to legitimize such weapons systems by using the idea of meaningful human control. India stated in March 2019 that the responsible state should oversee the development, manufacturing, and use of deadly autonomous weaponry. However, the country also stated that the state should bear dual responsibility for mitigating the risks of such systems' proliferation, including to non-state actors, and that international regulations should be strengthened. India is making investments in the creation of different autonomous weaponry. However, according to reports from September 2019, Defence Minister Rajnath Singh said that military personnel should decide on the ultimate course of action before AI does. India chaired

⁵¹ KUMON, Takeshi. The first AI conflict? Israel's Gaza operation gives glimpse of future. *Nikkei Asia*, 28 June 2021. Available at: <https://asia.nikkei.com/Politics/International-relations/The-first-AI-conflict-Israel-s-Gaza-operation-gives-glimpse-of-future>. Access on: 15 Mar. 2024.

⁵² CAMPAIGN to Stop Killer Robots: Country Views on Killer Robots. 7 July 2020. Available at: https://www.stopkillerrobots.org/wp-content/uploads/2020/05/KRC_CountryViews_7July2020.pdf. Access on: 15 Mar. 2024.

⁵³ CROOTOF, Rebecca. The killer robots are here: legal and policy implication. *Cardozo Law Review*, v. 36, p. 1837-1915, 2015. Available at: <https://scholarship.richmond.edu/cgi/viewcontent.cgi?article=2605&context=law-faculty-publications>. Access on: 15 Mar. 2024.

⁵⁴ VINER, Katharine. UK, US and Russia among those opposing killer robot ban. *The Guardian*, 26 Mar. 2019. Available at: <https://www.theguardian.com/science/2019/mar/29/uk-us-russia-opposing-killer-robot-ban-un-ai>. Access on: 15 Mar. 2024.

the CCW meetings in 2017–2018 and took part in each CCW meeting on killer robots from 2014–2019.

Considering India's national security, it is crucial to be pragmatic while creating LAWS and adhering to IHL norms. Although it is acknowledged that control and regulation of the AI interface in warfare are necessary, the urgent requirement is to have a clear strategy on LAWS for India to be at the forefront of the game. India's attitude and perspective about these weapon systems have also been influenced by the introduction of the new drone regulations in 2021.

In 2021, the Indian government revised the civilian drone framework and issued the Drone Rules, marking a significant regulatory milestone. The much-maligned and unduly restricted Unmanned Aircraft System Rules, 2021 (previously Rules), which were released in March 2021, have been replaced by the New Rules. The government has now significantly liberalized the drone legislation, eliminating certain restrictions on Indian businesses that are owned and managed by foreign entities and expediting the drone certification and registration procedure under the New Rules, among other things.⁵⁵ In summary, the New Rules have the potential to drastically change India's drone market in the years to come.

6 International Humanitarian Action (IHL) to AWS and LAWS: gaps and critical analysis on the applicability of the law

International Humanitarian Law (IHL) and its application to AWS/LAWS is a potentially contentious area of law. Although IHL defines basic principles such as distinction, proportionality and military necessity, the independence of AWS and LAWS in combat creates difficulties regarding such concepts. Accountability for its use is one of the biggest gaps in IHL relating to AWS and LAWS. States, military commanders, and operators are responsible for violations of IHL under existing legal regimes. But with fully automated weapons, accountability is difficult to attribute because there is

no one directly choosing targets and engaging. The absence of human oversight will complicate accountability in cases of unlawful attacks or illegitimate levels of civilian harm.

A serious gap that the IHL has is its heavy reliance on combatants and potential combatants to make ethical and moral choices during the heat of battle. Military PRINCIPLES of distinction and proportionality. AI-driven AWS and LAWS may not interpret complex battlefield circumstances requiring nuances like understanding human emotions, surrendering troops, or discretionary decision-making. Current AI systems are not able to engage in moral reasoning, thus the lawfulness of AWS and LAWS with respect to these basic tenets of IHL cannot be determined. The principle of meaningful human control is still a disputed domain in the legal discourse. Customary international law, embodied in the Martens Clause, states that in the absence of specific treaties, military technologies should be regulated by the laws of humanity and the dictates of the public conscience. Nonetheless, these systems prevail over this clause since their autonomy creates a separation between intent and action. Unstoppable human oversight in weapon systems poses a risk of indiscriminate attacks that may contravene not only the letter, but also the essence of IHL, which in fact requires a human judgment.

AWS and LAWS currently operate under an incoherent and inadequate regulatory framework. Although some legal instruments, most notably the Geneva Conventions and Additional Protocols, outline general rules on how to behave in wartime, they do not address the autonomy of weapon systems. The United Nations and multiple international organizations have called to ban or heavily regulate fully autonomous weapons, but no treaty that binds nations governs their use even as rules of war evolve. This gap in regulation can result in varying national policies and allows for the development and deployment of AWS and LAWS with some states even running such equipment with little prospective intervention by law. But some of these shortcomings also call for new legal frameworks that clarify the importance of human oversight and accountability structures, and adherence to IHL. Such a binding treaty would detail ethical conduct of AWS and LAWS, build mechanisms of right oversight, and define actual legal accountability in violation cases. Inadequate consideration of both the accelerating autonomy of military

⁵⁵ RAJAGOPALAN, R.; KRISHNA, R. India's drone policy: domestic and global imperatives. *ICAO Scientific Review: Analytics and Management Research*, v. 1, p. 53-68, 2019. Available at: <https://www.informingscience.org/Articles/v1p053-068Rajagopalan5144.pdf>. Access on: 15 Mar. 2024.

technologies and their intrinsic risk to creating humanitarian protections that have been built into IHL could have grave consequences on the future of global security and human rights.

7 Conclusion

Regarding how AWS and LAWS are treated internationally, there are two main schools of thought: some from certain nations want an outright ban on all AWS & LAWS, whereas those from other countries are against it and in favour of rules and openness. Approximately 30 nations and 165 non-governmental organisations have pushed for a preventative prohibition on LAWS, citing moral objections.⁵⁶ They believe that there are sufficient safety dangers associated with the use of LAWS, in addition to additional worries over adherence to the rules of IHL on difference and proportionality, to justify a total pre-emptive ban on the use of LAWS altogether.

Experts in the fields of artificial intelligence and robotics, as well as members of the general public, share similar opinions. The idea of losing human authority over the use of force has incited moral outcry from the Holy See, religious authorities, and Nobel Peace Prize winners. The International Committee of the Red Cross and civil society have underlined that human control over a weapon's vital functions is necessary for law and ethics. The main justification for opposing LAWS is the absence of human oversight in the utilisation of force. The other reasons center on the safety issues associated with operational usage, such as malfunctions, failures, and hacking, which would worsen if there is no human involvement in the kill chain. In this context, references have also been made to the Martens Clause and international humanitarian law.

Nonetheless, some nations disagree with these preventative prohibitions on LAWS. Most of them are industrialised nations, and they justify their continued research into the topic by pointing to the civilian applications of LAWS. They also discuss the usefulness of

these weapons in hostile and hostile environments and enumerate their advantages in terms of fewer human losses. Moreover, they claim that since LAWS are more accurate than humans and may lessen collateral damage during combat, they offer humanitarian advantages.

Since 2013, the United Nations Convention on Certain Conventional Weapons in Geneva has been the primary venue for debates on LAWS, with the Group of Governmental Experts on Emerging Technologies approving eleven non-binding LAWS Guiding Principles. These Principles stated that the Group's ongoing work will be guided by pertinent ethical viewpoints and international law, namely the United Nations Charter and IHL.

Using these guiding principles, the CCW aimed to develop an operational and normative framework in 2021, perhaps resulting in a lawfully or politically binding agreement. The positive duty of human oversight over anti-personnel weapons would be covered, and weapons that cannot fulfill the control requirement would be prohibited. While this is a positive beginning, the ultimate objective should still be to draft legislation or a convention that would require all States Parties to uphold IHL in all their endeavours. It should be taken into consideration that some countries, such as China, Russia, and the USA, may object to this.

An alternative to a complete prohibition has also been put out, according to which the international community should concentrate on increasing openness in the creation of weapons and exchanging best practices for the procedures involved in reviewing weapons. Consequently, there would be less disparity in weapon depots, and there would be far less chance of a worldwide arms race for LAWS. France and Germany have proposed a non-binding political declaration affirming that International Human Rights Law governs LAWS and that States Parties maintain human control over lethal weapon systems. This may help allay concerns over potential breaches of IHL, but the declaration's non-legal status does not give people much reason for optimism.

7.1 Suggestions

The usage of autonomous weapons systems is growing, and it's time for nations to work together to find a solution. The following are some actions that the world community may do in this regard: negotia-

⁵⁶ STOPPING killer robots country positions on banning fully autonomous weapons and retaining human control. New York: Human Rights Watch, 2020. Available at: https://www.hrw.org/sites/default/files/media_2021/04/arms0820_web_1.pdf. Access on: 15 Mar. 2024.

ting a new convention that forbids deadly autonomous weapons systems or completely autonomous weaponry, putting out distinct national stances and achieving consensus on the need to enact a negotiating mandate, including national bans as essential components of a global prohibition, reflecting and putting into practice the moral and legal justifications provided by Marten's Clause to strengthen the current public consciousness, opposing the use of force and the elimination of real human control from weaponry systems, establishing declarations of principles, codes of behaviour, and other regulations to make sure the private sector does not forward the creation, manufacturing, or unfettered use of entirely autonomous weapons.

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