

KEY POINTS

- Drones and autonomous weapons systems (AWS) are fundamentally changing the battlefield environment, creating a revolution in military affairs. They do so by enabling greater territorial extension of power with reduced personnel battlefield presence and overall mission cost.
- Existing weapons technology already has, or has the potential to have, the ability to autonomously engage human targets with lethal force independent of direct human control.
- Developers of AWS are not conducting adequate legal review in the development process, as is required by International Humanitarian Law (IHL). Their use and development may be in breach of international law and pose great risks to peace and security.
- It is recommended that an international convention be created within the United Nations (UN) for the control and selective prohibition of certain drone and AWS technology development and use.
- This international convention should provide a forum for communication and knowledge sharing between stakeholders, the scientific community and legal experts.

REGULATING ROBOCOP: THE NEED FOR INTERNATIONAL GOVERNANCE INNOVATION IN DRONE AND AWS DEVELOPMENT AND USE

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INTRODUCTION

Drones and AWS are more than simply new technology; they are a new method of combat engagement, representing a revolution in military affairs (Arkin 2013, 1). The current deployment of certain forms of robotic weapons technology, and the direction of their continuing development and use, are inadequately influenced by international law. While this technology offers strategic advantages and may reduce the need to put military personnel in harm's way, it also creates enormous risks to the erosion or abuse of human rights, peace, national security, ethical conduct in war and international law.

This technology has recently received heightened attention from legal experts and human rights advocates in the international community. The UN Special Rapporteur on extrajudicial, summary or arbitrary executions has made recommendations to guide the use of drones and attested the applicability of existing international law (Heyns 2013, 22–24). In November 2013, the annual meeting of the UN Convention on Certain Conventional Weapons (CCW) heard from advocates of a ban on fully autonomous weapons: the Campaign to Stop the Killer Robots, a 53-non-governmental-organization strong coalition which includes Human Rights Watch, Amnesty International and the International

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Committee for Robot Arms Control (Parnell 2013; Campaign to Stop the Killer Robots 2014). In May 2014, the CCW held informal discussions with state parties and experts on AWS, with formal meetings planned for November 2014 (United Nations Office at Geneva 2014).

This policy brief suggests that the inherent risks associated with drone and AWS technology, as well as their diversity and complex nature, necessitate the creation of a new international convention to govern their development and use. This option is given precedent by the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (1998), overseen by the Organization for the Prohibition of Chemical Weapons. This convention has been successful in achieving near universal ratification, and continues to serve as a forum for international knowledge sharing among experts via its scientific advisory board. Only a convention of such specific attention to drones and AWS can meet the governance needs of these revolutionary technologies.

DRONE AND AWS TECHNOLOGY BACKGROUND

Advocates for a pre-emptive ban say that dealing with the legal concerns around drones and AWS — or “killer robots” — in a common framework is neither appropriate nor feasible. However, there is a convergence and increasingly blurred line between these technologies that necessitates a universal approach to drone and AWS regulation.

There is no technology gap between a drone that can autonomously target and a drone that can autonomously kill. A simple line of code instructing a drone to follow autonomous target selection with the launch of a missile

or firing of a machine gun is the only thing that separates drones from AWS.

There are new developments in drones and AWS that have created potentially revolutionary weapons, such as the Super aEgis II sentry gun¹ and Avenger drone.² It is difficult for researchers to determine the extent of autonomy these machines have been given. However, looking at the current weapons technology, it is clear that AWS are able to be, or already are, in development and use.

There is a clear need to improve the transparency of drone and AWS development and usage in order to monitor their compliance with international law. Considering the ease with which drones could potentially be converted into AWS, a universal framework that governs both technologies — such as an international convention — is the most appropriate approach.

LEGAL CHALLENGES FACING DRONES AND AWS

International law remains the most universally accepted mechanism for mitigating and addressing human rights violations during war. It also confines the activities of states to actions that place civilians at reduced risk in war and allows for the achievement of lasting peace to remain feasible in the time following armed conflict.

1 There are mixed reports about South Korean DoDAMM Systems Ltd.'s Super aEgis II's abilities and deployment status. However, technology commentators who spoke with company representatives at a 2010 South Korean robotics industry expo allege being informed that it is capable of operating in "manual mode" with supervision of a human operator, or in "fully autonomous mode," permitting autonomous use of lethal force. The company has also allegedly exported units to foreign countries such as the United Arab Emirates (Blain 2010).

2 In what appears to be a leaked product video from a staff member of the prolific weapons manufacturer, General Atomics Aeronautical Systems, the company boasts the autonomous targeting abilities of the prototype Predator C Avenger drone (General Atomics Aeronautical 2012). Please note that this is an unconfirmed source.

Human rights advocates and topic experts have found drones and/or AWS poorly compatible with, or innately incapable of adhering to, the following international law principles:

- **Distinction (Rule 1, Customary IHL):** Parties to the conflict must at all times distinguish between civilians and combatants. Attacks may only be directed against combatants. Attacks must not be directed against civilians (International Committee of the Red Cross [ICRC] 2014a; Grut 2013, 12).
- **Proportionality (Rule 14, Customary IHL):** Launching an attack, which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, is prohibited (ICRC 2014b; Grut 2013, 10).
- **Human right to life (Article 3, Universal Declaration of Human Rights):** Every person has the inherent right to life, protected by law, and no one shall be arbitrarily deprived of life (UN 1948, 72; Heller 2013, 91).
- **Military necessity (Law of Armed Combat):** Only the use of what "reasonable force is necessary, is lawful and can be operationally justified in combat to make your opponent submit" is permitted (Arkin 2013, 6; ICRC 2002).
- **Accountability (founded in just war theory):** Individual accountability for war crimes deters future harm to civilians and provides victims a sense of retribution (Human Rights Watch 2012, 42).

ON THE HORIZON: EXPANDED USE AND VARIETY OF DRONE AND AWS TECHNOLOGY

Despite these legal challenges, drones are still expanding their share of usage in military activities and AWS have remained in development (Anderson and Waxman 2013, 35). Ongoing innovation is resulting in an increasingly diverse drone arsenal in lead countries like the United Kingdom and the United States.³

Drone use and development is on the rise internationally, with the United States holding the largest arsenal (approximately 1,000 lethal drones). This is expected to increase 35 percent by 2021, the US drone industry is projected to be worth US\$18.7 billion by 2018, and global research and procurement spending on drones over the next decade is expected to total more than US\$94 billion (Lindeman and Webster 2011; defenseconferences.com 2010; Market Research Media 2012). At least 75 militaries around the world have used drones and more than two dozen possess versions that can be lethally armed (Ratnesar 2013). The economic advantage of these types of weapons will drive their increasing utilization as some popular lethal drones cost from nearly three to five times less than traditional aerial assets of similar function.⁴

In the United States, the drone industry lobby has paid hundreds of thousands of dollars to members of congress for legislative influence. Meanwhile, individual manufacturers have paid millions of dollars to the

³ The UK-developed Taranis and US-developed X-47B Unmanned Combat Air Vehicles are two of the first unmanned aerial vehicles with air-to-air and traditional air-to-land offensive capabilities. They may also be the first aerial drones that could be qualified as AWS (Naval Air Systems Command 2013; Johnson 2013).

⁴ The popular MQ-1 Predator drone, which typically carries hellfire missiles, costs US\$4 million per unit, versus US\$10.7 million for hellfire missile carrying AH-1W SeaCobra, or US\$20 million for AH-64 Apache attack helicopters (Air Force Financial Management and Comptroller 2010, 92; Assistant Secretary of the US Navy 1997; US Congressional Budget Office 2007, 5).

Congressional Unmanned Systems Caucus and made payments of over US\$100,000 to individual members of Congress. All with the aim of influencing legislation and securing government procurement contracts that grow the US drone fleet (Tahir 2014; Stone 2012).

RISKS OF DELAYED REGULATORY INTERVENTION

MORAL DESKILLING OF THE MILITARY

Drones and AWS threaten to deskill the military of their highly important moral skills (Vallor 2013, 2, 7). These technologies reduce soldier-operators' context and time for decision making and delegate more lethal decision making to automated machine processes.

This risks "destabilizing traditional norms of military virtues and their power to motivate ethical restraint in the conduct of war" (ibid., 1). Without a cultivated sense of morality and adequate field training in ethical lethal decision making, soldiers (especially those operating drones) may become more prone to atrocities that are committed as a result of a soldier's post-traumatic stress disorder (PTSD), emotional instability, disconnection from reality, lack of concern for applicable laws, sense of immunity from legal reprisal or a desire for revenge, such as was the case in the Haditha and My Lai massacres.⁵ Such events injure the prospects of a diplomatic end to a conflict and are followed by a shallow, tenuous peace at best (Vallor 2013, 5).

It is imperative to the maintenance of moral skills in the military profession that: drone operators have strong battlefield-contextual information and more than just a

⁵ A 2013 study found that drone pilots suffer PTSD and other mental health problems at the same rate as pilots of manned aircraft in Iraq and Afghanistan (Dao 2013).

fraction of a second to make decisions of military necessity, distinction, acceptable civilian deaths, and compassion — on the battlefield. This becomes increasingly difficult if individual operators control multiple lethal drones, if the speed of drone manoeuvres outpaces wireless data signal or human response times and if drones are increasingly autonomous.

REDUCTION OF BARRIERS TO WAR AND INCENTIVES FOR PEACE

According to the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, the availability of drones and autonomous weapons systems is resulting in more “low-intensity but drawn-out applications of force that know few geographical or temporal boundaries” (Heyns 2013, 5). Sentry, potentially autonomous, weapons, like the Super aEgis II, can completely replace soldiers and was produced for the Korean War — a conflict with no end in sight. In a way, these weapons become a self-fulfilling means of warfare. By sheer economic advantage, they allow for war to continue indefinitely. Therefore, if use of this technology increases, the usual incentives for peace — created by the economic and human costs of ongoing war — will become smaller and smaller.

PROLIFERATION

Parties buying military technology from Israeli, US and South Korean manufacturers already have access to some of the most cutting-edge military robotics available. With this technology, regional powers such as China,⁶ India and Russia will gain more readily extended territorial control and advantages in prolonged conflicts in such contested territories as various East China Sea islands, Kashmir or

⁶ China is already in the process of developing a functional drone fleet (McDonald 2012).

Ukraine. This poses a threat to weak states and, for better or worse, enhances the power of regional hegemony.

The potential for non-state actors to eventually gain access to drone and AWS technology in its current, or a future form, must inform policy intervention. The advantages of these technologies to insurgent non-state groups in asymmetrical warfare are the same as the advantages to states.⁷

As with armaments and landmines, drones and AWS may come to be abandoned during a retreat or unintentionally transferred to third parties. Countries such as Cambodia are plagued by millions of anti-personnel landmines and unexploded ordnance, which continue to kill and maim civilians decades after the war (Cambodian Mine Action Centre 2009, 6). These same risks of transfer and recovery can exist for drones and AWS.

CIVILIAN KILLINGS AND BLOWBACK

Payload carrying drones are alleged to have precision targeting and delivery, but how their targets are selected is a critical problem (Hudson, Owens and Flannes 2011). “Signature strikes” are lethal drone strikes on human targets, discovered and selected through drone surveillance, whose identities are not known (Heller 2013, 1). There is a risk of direct attacks on civilians with this uniquely weak discrimination in target selection and engagement with drone technology.

From 2002–2014, US drone strikes in Yemen, Pakistan and Somalia may have killed as many as 4,736 human targets, with potentially as many as 1,090 later discovered to be innocent civilians (The Bureau of Investigative Journalism 2013). According to Amnesty International and Human Rights Watch, several of these civilian killings were done

⁷ Allegedly, Hezbollah in Lebanon already has access to small lethal drones of Iranian origin (Shane 2011).

at random and without discrimination, and therefore constitute war crimes (BBC News 2013).

An inadequate response to this poor precedent for acceptable drone usage risks normalizing a disregard for civilian lives or seeing it exaggerated when other parties are behind the trigger. It also puts drone-user states at risk of “blowback,” increased hostility from the civilian population and increased insurgent recruitment (Hudson, Owens and Flannes 2011, 1).

EXISTING POLICY FRAMEWORKS AND PROPOSALS

ENCOURAGE STATES TO MORE RIGOROUSLY APPLY THE “NEW WEAPONS LEGAL REVIEW PROCESS”

Article 36 of the 1949 Geneva Convention Additional Protocol 1 states that, “In the study, development, acquisition or adoption of a new weapon, means or method of warfare” the state must, “determine whether [a weapon’s] employment would, in some or all circumstances, be prohibited by international law” (Lawland 2006, 10). Article 82 complements Article 36 by requiring that “legal advisors are always available to advise military commanders on International Humanitarian Law and on the appropriate instruction to be given to the armed forces on this subject” (ibid., 5).

Among the more than two dozen countries that possess lethal drones, only six have been confirmed to have a new weapon legal review process in place, with even fewer making the documents outlining the review protocol public. Among those countries is the United States, who has been accused of violating the IHL principle of distinction and the right to life, based on their targeting method in drone strikes (ICRC 2006, 5-6; Heller 2013, 89, 113).

The present and future ability of drones and AWS to be consistent with existing international law is questionable. If the use of this review process is rigorous and is proliferated among drone-user states, we may see some, but not all, of the previously listed risks mitigated.

A PRE-EMPTIVE BAN ON AUTONOMOUS WEAPONS TECHNOLOGY AND THE AUTOMATION OF LETHAL DECISION MAKING

The proponents of this option assert that existing international humanitarian law and human rights require human judgment in lethal decision making. Although lethal drones presently in deployment are not yet themselves AWS, it is expected that AWS and AWS enhanced drones will find their way into military arsenals in the near future.

The further development of robotic weapons and AWS may pose grave threats to the basic human rights of civilians in conflict zones. Justification for action is thus grounded in a moral and legal duty to prevent lethal authority being given to unsupervised non-human systems (Asaro 2012, 687–90).

Such a ban could potentially be implemented in the form of an annexed protocol under the CCW, as was done with blinding laser weapons. Alternatively, a ban could be implemented as an independent treaty, similar to the Ottawa treaty banning anti-personnel landmines, created after the CCW failed to produce such a ban.⁸ However, considering the industry and strategic value of the technology, as well as the lobbying power in the United States, a ban faces considerable political resistance. Furthermore, while this technology carries with it serious risks to humanity, some have argued that the potential

⁸ Interview with Paul Heinbecker, CIGI distinguished fellow, September 5, 2014.

humanitarian benefits be given due consideration (Anderson and Waxman 2013).

POLICY RECOMMENDATIONS

The United Nations should create an international convention on the control and selective prohibition of certain drone and AWS development and use.

The United Nations Secretary-General should add to the provisional agenda for the next General Assembly meeting a report reflecting the concerns addressed in this brief and a proposal for a General Assembly Resolution to task the First Committee with the creation of a new convention dealing with this issue. A convention would be flexible enough to accommodate the future controlled development of the technology for appropriate and beneficial uses, while enabling restriction of prohibited technology and uses. This would complement existing law, as well as support international communication in better guiding technological development in adherence with common interpretations of applicable laws. The convention could set technological and usage standards and principles, based in international law, that would specifically delineate legal requirements for use and development of drone and AWS technology. This may result in a ban on such uses as the indiscriminant signature strikes and regulation on sufficient human control and judgment in lethal actions taken by AWS.

The international convention should provide a forum for communication between stakeholders, the scientific community and legal experts. This proposed convention must provide a forum for communication between policy makers, international law and military experts, and the scientific community to offer a continually evolving and relevant body of regulations. As with the Chemical Weapons Convention, this can be supported by an overseeing organization and a scientific advisory board

that meet on a regular basis to review new and existing technology. This should result in not only international bans on certain technology uses and types, but also in an improved application of the new weapons legal review process by domestic actors. This approach would simultaneously protect the strategic and industry value of the technology and allow for its guided development in adherence to existing laws. This is important for not only the vested industry and political interests to be reconciled, but also to protect humanitarian interests, as the technology may eventually assist in reducing the risk of war crimes and civilian casualties in conflict. This may occur by AWS someday offering adherence to IHL principles, such as distinction, to a superior degree than humans are capable of (Anderson and Waxman 2013, 49; Arkin 2013, 5).

It should further be considered that the use of drones, and the reduced barrier to war they create, may cause military missions with humanitarian objectives to become more politically acceptable. This is because a humanitarian mission to, for example, protect a civilian population from their genocidal government, may present great risks to an intervening foreign military. Future drone and AWS humanitarian missions may be seen as low political risk, low personnel risk and low asset risk interventions that can be used when sending military personnel is not feasible.

CONCLUSION

The existing governance tools available for evaluating the legality of drone and AWS technology and their use have either failed to gain prominence or have proven ineffective. This has resulted in the continued development and use of drone and AWS technology which may be prohibited under international law. These revolutionary weapons require immediate governance

innovation on account of the serious risks they pose to the protection of human rights, peace and security. To address this gap in governance, the creation of a new convention to monitor, evaluate and regulate drone and AWS technology and their use is recommended. It is only through such a universal forum, with access to up-to-date scientific, ethical and legal assessments, that it can be ensured that these technologies are developed and used in adherence with existing laws and ethical traditions. At very least, such a universal forum would facilitate the dialogue necessary to establish basic principles for the regulation of these technologies, and determine if existing moral precepts will prevail. Without this, the costs to peace and humanity may be great.

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Le CIGI a été fondé en 2001 par Jim Balsillie, qui était alors co-chef de la direction de Research In Motion (BlackBerry). Il collabore avec de nombreux partenaires stratégiques et exprime sa reconnaissance du soutien reçu de ceux-ci, notamment de l'appui reçu du gouvernement du Canada et de celui du gouvernement de l'Ontario.

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