



CCW REPORT

Civil society perspectives on the CCW Group of Governmental
Experts on lethal autonomous weapon systems
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The views expressed in this publication are not necessarily those of WILPF or the Campaign.

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IT'S TIME TO EXERCISE HUMAN CONTROL OVER THE CCW

Ray Acheson | *Reaching Critical Will, Women's International League for Peace and Freedom*

During the first two days of this current round of UN talks on fully autonomous weapon systems, or killer robots, governments discussed potential military applications of autonomous technologies; characterisations of autonomous weapon systems; potential challenges of these systems for international law; and the "human element" in the use of force. It may sound like a lot for twelve hours of discussion, but as this is the sixth year that diplomats, experts, activists, and academics have engaged in these conversations, it is clear that we know the ground upon which we stand. While a few states continue to insist that, as a group, we still have no idea what we are talking about and need to perhaps spend a few more years agreeing to precise definitions of every possible concept related to autonomous weapon technology, the majority of participants in this process agrees that the lack of consensus definitions does not need to—and indeed, must not—prevent progress in negotiating new law or other mechanisms to prohibit, limit, or regulate autonomous weapons.

Discussions on the ways ahead will be held on Wednesday, but we already know the main tracts for moving forward. The majority of states support the development of new international law that contains prohibitions and regulations of autonomous weapon systems. Of these, 28 governments support a complete ban on the development, possession, and use of these weapons. Some others seek a legal agreement that ensures meaningful human control over critical functions in such systems. A few others, mostly European states, expressed their interest in other mechanisms, such as a political declaration proposed by France and Germany. They envision a declaration to be a good vehicle to outline principles for the development and use of autonomous weapon systems, such as the necessity of human control in the use of force and the importance of human accountability. Some countries have

also suggested the development of a code of conduct on the development and use of autonomous weapon systems and/or creating a compendium of "good practices".

Deflection and denial

So far, only Australia, Israel, Republic of Korea, Russian Federation, and United States have objected to all of these initiatives. In previous sessions of this group of governmental experts (GGE), they have argued that negotiations of a treaty or a political declaration or other mechanisms are "premature". During the first two days of the current round of discussions, some have tried to distract, obscure, or simply stall discussions. On the opening morning, Russia prevented the beginning of discussions for 45 minutes, demanding that too much time in the programme of work was allotted to the concept of human control over weapons. After several other delegations intervened to support the programme, on which the Chair had held consultations in advance of the meeting, the Chair finally agreed to cut some of the time for the human element to assuage Russia's repeated insistence. The whole performance showcased the potential for filibustering and stalling that is becoming unfortunately common in "consensus-based forums" like the Convention on Certain Conventional Weapons (CCW). The lesson from twenty years of stalemate in the Conference on Disarmament is, if you don't want something to happen, just block the adoption of programme of work for as long as possible.

Another common tactic is to try to take discussions in an unproductive direction. Russia and Republic of Korea, for example, suggested that the GGE should spend time discussing the distinction between lethal and non-lethal autonomous weapon systems, or anti-personnel and anti-materiel weapons. That is, between weapons meant to kill people and those meant to destroy inanimate objects like tanks or buildings.

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The inclusion of the word “lethal” in the title of this group of government experts was not based on any particular discussion or consideration. It was chosen years ago before these talks even began. Thus it should not be used as an excuse to try to limit discussions to weapon systems designed or intended to kill people. Instead, as many other delegations—including Austria, Bulgaria, Estonia, Ireland, Mexico, Peru, Switzerland, and even the United States—argued, the lethality of a system is not based on the technology or intention but the impacts it has on human beings, civilian infrastructure and objects, and the environment. Whether you are killed by a machine designed to kill you or designed to destroy an object, you are still being killed, and you are still being treated as an object. And, if the machine destroys hospitals, schools, markets, homes, water supplies, sanitation facilities, or releases toxic chemicals or harmful substances into the air, water, or land, it can still have lethal effects. In short, trying to distinguish between a lethal and non-lethal weapon is nothing more than a distraction.

During discussions across the range of topics these past two days, a number of delegations also strayed off into the weeds when considering specific characteristics of autonomous technologies that may or may not be able to comply with international law or that maybe should or should not be allowed. Some debated the levels of acceptable autonomy in a weapon system, throwing around terms such as “highly automated functions,” “autonomous combat functionalities,” or “weapon systems using autonomous functions or features,” for example. But, as the International Committee of the Red Cross (ICRC) noted, “automated and autonomous weapon systems are not easily distinguishable from a technical perspective—nor from a humanitarian, legal, or ethical one. The fundamental question is not about the technology itself but about the human control over it.

The element of human control

Once discussions got under way, it became clear that the majority of governments still agree human control is necessary over critical functions of weapon systems, such as those related to selecting and “engaging”—firing upon—targets. Some also think human control is necessary over other parts of a weapon’s “life cycle,” such as design and development. Some delegations are more specific than others about the characteristics they think makes a weapon system under sufficient or meaningful human control at various stages of operation. But the bottom line is that other than Australia and Russia, it seems that most countries agree, as Japan’s working paper notes, that “there is an effective consensus that meaningful human control is essential.”

Australia appears to have a different and broader view of control, and thus has dismissed the usefulness of the term “human control” for the GGE. Its working paper seems to suggest that if the weapon is designed, developed, trained, tested, certified, assessed, and deployed by humans, and if the weapon will operate within specific rules of engagement and targeting directives, then these “controls” are sufficient. Russia’s rejection of the term as a principle for action in the CCW seems based on its belief that “specific forms and methods of human control should remain at the discretion of States.” Israel also articulated this position during Tuesday afternoon’s discussion.

It is likely that the distancing from the concept or term of human control is part of these governments’ wider rejection of engaging in any kind of process to regulate or prohibit autonomous weapon systems. The delegations that have so far successfully prevented concrete progress through the CCW have repeatedly suggested that weapons operating without human control are not necessarily a bad thing. The United States, for example, said on Tuesday that it does not believe that autonomous functions in weapon systems inherently pose problems. It argued that some functions are better performed by machines and that in some cases, less human involvement at the moment when force is deployed would be more effective. The United Kingdom argued that autonomous weapon systems are more likely to make more accurate decisions than humans, have better situational awareness, use a lower yield of force, and offer higher precision in urban environments. Similarly, Russia argued that autonomous weapons could facilitate compliance with international humanitarian law and “minimise the consequences of human failings”.

These are common arguments in favour of autonomous weapon systems, but they are not compelling ones. They are based in a faith in technology to “solve” social, human problems of violence and war. In reality, the emergence and reliance on machines to fight battles or police populations will be much more likely to lead to more violence, more suffering, and more conflict. These weapons will not make “war safer for humans”. They will likely exacerbate existing problems with weapons and with the use of force. For example, a few governments celebrate the speed with which autonomous weapon systems would likely be able to make decisions on the battlefield, arguing that this will result in better precision and accuracy. On the contrary, as tech worker Liz O’Sullivan explained during Tuesday’s side event hosted by the Campaign to Stop Killer Robots, the speed of autonomous decision making means it will be impossible for humans to predict or respond

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to these decisions in real time. Similarly, when it comes to “improved situational awareness,” we have already seen the failures of remote weapons technology, such as armed drones, to deliver accurate information to operators, misinterpretation of data, or bias in targeting procedures that lead to the execution of civilians and the destruction of civilian infrastructure on the basis of the so-called target’s sex, age, location, clothing, or perceived activities. With autonomous weapon systems, this type of bias could be programmed right into killing machines, resulting in the death of human beings on the basis also of the colour of their skin, their sexual or gender identity, their disabilities, or other physical features included in data sets for targeting algorithms. Meanwhile, the gathering of this “situational awareness” or “signature strike” data through surveillance results in violations of the human rights to privacy and dignity.

A few countries, including Austria, Canada, and Ireland, have raised concerns about this type of bias in autonomous weapon systems; it is a central concern of the Women’s International League for Peace and Freedom (WILPF) and some other members of the Campaign to Stop Killer Robots. WILPF is also concerned with some of the other destabilising effects that autonomous weapons would be likely to have on gender equality and gender-based violence, racial justice, and human rights more broadly. This is also why we believe diversity in these discussions is vital to preventing autonomous weapons, and we welcome the European Union’s call for gender

diversity in CCW discussions. Broader participation of countries from the global south is also imperative, as WILPF Cameroon member Guy Blaise Feugap explains later in this edition of the *CCW Report*, as is the participation of those likely to experience repression and violence from the use of these weapons, such as people of colour, First Nations, human rights defenders, and environmental activists.

The importance of human control over the use of force, in a world that already sees so much violence, war, oppression, and inequality, cannot be overstated. As the UN Secretary-General reiterated on Monday, “machines with the power and discretion to take lives without human involvement are politically unacceptable, morally repugnant and should be prohibited by international law.” If we fail to take this opportunity to prohibit these weapons now, the human community will embark on a dark path towards automated violence. Diplomatic proceedings have not yet fallen irrevocably behind the development of these weapons. But that moment will come, soon. Thus states must, during the rest of this week, firmly propose that we now turn to negotiations of a treaty banning autonomous weapons and ensuring meaningful human control over the use of force. Delegations should use exercise some human control over the CCW and use the remaining time of this GGE to table concrete proposals for work on new international law. As Brazil said on Tuesday, “We need to move toward structured negotiations, lest we lose the work accomplished so far.” •

**“I CALL ON STATES
TO BAN THESE
WEAPONS THAT
ARE POLITICALLY
UNACCEPTABLE
AND MORALLY
REVOLTING.”**

UN Secretary General on Killer Robots, 11 Nov 2018



Photo: MSC / Kuhlmann

AFRICAN VOICES ARE MISSING AT THIS GGE*Guy Blaise Feugap | WILPF Cameroon*

The first 2019 Group of Governmental Experts (GGE) on autonomous weapon systems at the Convention on Conventional Weapons opened on 25 March and will be held until 29 March 2019. Over 80 states are participating in this meeting. On this first day, they began reviewing the potential military applications of related technologies in the context of the Group's work and considering how to characterize the systems under consideration in order to promote a common understanding on concepts and characteristics relevant to the objectives and purposes of the Convention. Twenty-five states and the European Union spoke in the morning; the same number and the International Committee of the Red Cross (ICRC) spoke in the afternoon. We missed African voices at the meeting, as only one African state spoke in the morning, which is Egypt.

Since the beginning of discussions on autonomous weapons, a total of 90 out of 125 High Contracting Parties to the CCW have publicly elaborated their views in a multilateral forum. From 2013, 15 African countries out of the 25 who are High Contracting Parties to the CCW have taken the floor: Algeria, Botswana, Burkina Faso, Cameroon, Djibouti, Egypt, Ghana, Madagascar, Mali, Morocco, Sierra Leone, South Africa, Tunisia, Zambia, and Zimbabwe. Among the 28 states that have expressed their desire to move to negotiate new international law to prohibit fully autonomous weapons, there are 7 African countries: Algeria, Djibouti, Egypt, Ghana, Morocco, Uganda, and Zimbabwe. Among the dozen states that have indicated they do not support negotiating new international law on fully autonomous weapons, none are from Africa.

On 9 April 2018, the African Group at the UN in Geneva recommended concluding a legally binding instrument "at the earliest" and found that "fully autonomous weapons systems or LAWS [lethal autonomous weapon systems] that are not under human control should be banned." In the continent, individual views are divergent, as many people believe that autonomous weapons are not such an urgent issue.

The Women's International League for Peace and Freedom (WILPF) is campaigning in Africa through Sections and Groups from Cameroon, Burkina Faso, Burundi, Côte d'Ivoire, DR Congo, Ghana, Sierra Leone, Uganda, and Zimbabwe. They are raising awareness on political and moral implications of autonomous weapon systems and calling on their governments to join the list of countries seeking to ban fully autonomous weapons and adopt national policy and legislation and promote other normative developments to prevent the development of these weapons.

The subject of killer robots at the African level may to some seem farfetched and insignificant. For instance, when meetings were organized in Libreville and Addis Ababa as part of the regional campaign, we heard from some participants that the prevention of all kinds of violence is a great concern, but issue of fully autonomous weapons does not fit specifically into working agendas in the same way as small arms and light weapons does, for example. One participant confessed from a personal point of view doubts that such a destructive technology could be used, as the operating mode of the killer robots as described seems unrealistic. For him, it would therefore be important to make more efforts on more urgent issues (implementation of UN Security Council Resolution 1325 and the Sustainable Development Goals, and improvement of human rights, etc.).

Despite the discordant perspectives, it remains clear that killer robots are already a reality and pose a serious threat to human rights, hence the need to take urgent preventive action. Prevention is the focus of WILPF's message in its campaign to stop killer robots in Africa, as no state is developing them but they are exposed to face bigger consequences if they are tested and used.

From discussions with the people we are meeting in Africa, it clearly appears that information and awareness raising should increase, that the African Union should develop a position on killer robots, and that states at the CCW should speak and express their concerns with autonomous weapons.

From now to the end of this session of the GGE on 29 March, we encourage African states to speak up, engage substantively, actively support moving to a negotiating mandate, increase the number of states calling for a preemptive ban, and promote the development of a core group of states championing a preemptive ban. As it was said in the message from the UN Secretary-General at the opening of this meeting, "The world is watching, the clock is ticking and others are less sanguine. I hope you prove them wrong." •



BELGIUM: BECOMING A HUMANITARIAN CHAMPION ONCE AGAIN?

Willem Staes | Pax Christie Flanders

On 23 March 2019, Belgian minister of Foreign Affairs and Defence Didier Reynders announced that Belgium will strive towards a prohibition on autonomous weapons that are capable of killing without any human intervention. This is a major breakthrough, but now Belgium has to put words into action.

In a press release published on 23 March, released together with a joint Belgian-Irish-Luxembourgish paper, Reynders stated that Belgium aims to prohibit “autonomous weapons capable of killing without any human intervention”. The press release did not include any reference to the German-French proposal for a political declaration, although the paper did refer to such political declaration.

Domestic pressure

This significant demarche came after domestic pressure on the Belgian government has significantly increased in the past 1.5 years. In July 2018, a parliamentary motion called upon the government to take a leading role in starting international ban negotiations. Previously, in December 2017, 88 top Belgian experts in artificial intelligence and robotics asked the government to work towards an international ban and to adopt national regulation to outlaw killer robots.

Moreover, recent surveys also showed strong Belgian public support for a killer robots ban. Surveys published in January 2017, July 2018, and January 2019 consistently showed that around 63%

of Belgians are strongly in favour of an international prohibition on killer robots.

Put words into action

Belgian diplomats in Geneva and officials within the Defence and Foreign Affairs ministries have worked hard over the past year to heed the call from the Belgian parliament and public opinion. This should be acknowledged and strongly welcomed.

Yet, the devil remains in the details. Now is the time to put words into action. If Belgium is serious about prohibiting killer robots, it has to take the lead in ensuring that a new CCW mandate be agreed, at the annual meeting in November 2019, to launch negotiations on a legally binding instrument to prohibit killer robots.

Humanitarian champion

In the 1990s and 2000s, Belgium was a strong champion in humanitarian disarmament. It played a leading role in negotiating international bans on anti-personnel landmines and cluster munitions.

Now it has the chance the yet again become a humanitarian champion. The clock is ticking. From now on, without further delay, Belgium should take the lead in the creation of a legally binding instrument to prohibit killer robots and to retain meaningful human control over the use of force. If this does not prove possible at the CCW, then Belgium and other champion states should pursue alternative diplomatic pathways to such a treaty. •



Photo by Clare Conboy, Campaign to Stop Killer Robots, August 2018

AUTONOMOUS WEAPONS, ETHICAL AI, AND FEMINIST FOREIGN POLICY*Erin Hunt | Mines Action Canada*

Ethical artificial intelligence (AI) and feminist foreign policies are two hot topics of discussion around the world. The CCW's work on lethal autonomous weapons systems brings these two discussions together in a very concrete way.

Achieving a pre-emptive ban on fully autonomous weapons is a feminist issue. The Centre for Feminist Foreign Policy defines a feminist foreign policy as "a framework which elevates the everyday lived experience of marginalized communities to the forefront and provides a broader and deeper analysis of global issues. It takes a step outside the black box approach of traditional foreign policy thinking and its focus on military force, violence, and domination by offering an alternate and intersectional rethinking of security from the viewpoint of the most marginalised."¹

When we focus on the lived experience of marginalized communities, it becomes very clear that autonomous weapons pose a significant threat to security. Remember, artificial intelligence is not neutral—human biases are baked into algorithms, and the data we use to train a machine learning program often reflects our own patriarchal and racist societies. Experiences of marginalized communities including people of colour and women are often not included in the development of artificial intelligence programs. A recent estimate done by WIRED with Canadian company Element AI found that only 12 percent of leading machine learning researchers were women.² In many cases AI has been found to magnify biases about race and gender.

So what happens when we combine bias in AI with weapons? In short — scary things. Most obviously, when you have biased AI which can't identify people of colour,³ especially dark-skinned women, or misidentifies people of colour⁴ involved in targeting decisions without meaningful human control, we're going to see people who shouldn't be targeted being targeted. Furthermore, we already see examples of men being targeted during armed conflict based on their sex, age, and location,⁵ so it stands to reason those errors will be compounded if human judgment is taken out of the targeting process. States should be taking steps to ensure that no one develops weapons which will magnify the power imbalances and biases that feminist foreign policies are trying to dismantle.

Autonomous weapons are also a concern from the perspective of the ethical use of AI. A number of states are investing heavily in AI research and development to strengthen national economies. The Future of Life Institute notes that Australia, Austria, Canada, China, Denmark, Estonia, Finland, France, Germany, India, Ireland, Italy, Japan, Kenya, Malay-

sia, Mexico, New Zealand, Russia, Singapore, Saudi Arabia, South Korea, Sweden, Tunisia, United Arab Emirates, United States of America, United Kingdom all have or are developing national AI strategies and policies.⁶

Autonomous weapons systems are a major concern for these strategies and policies. Much of the debate around autonomous weapons systems has focused on their ethical and legal implications. A December 2018 Ipsos survey of 26 countries found that 61 percent of respondents said they oppose the use of autonomous weapons systems.⁷ Of the respondents who were opposed to autonomous weapons, 66 percent indicated their opposition was in part because autonomous weapons "cross a moral line because machines should not be allowed to kill."

Additionally, autonomous weapons pose a serious risk to the public's trust in AI more broadly. For example, a 2017 Canadian trust survey by Proof found that only 39 percent of Canadians trust that artificial intelligence will contribute positively to the Canadian economy, and even fewer women believe this to be true (36 percent). Only 25 percent of those surveyed by Proof trusted AI companies to do what is right for Canada, Canadians and our society.⁸ These levels of public trust will present a problem for the commercial success of AI in the future, even without images on the news of AI powered autonomous weapons in use. Public trust in the technology is absolutely crucial to the transition from "cool techy thing" to an integral part of our lives. If the technology is weaponized, that transition will be so much harder. When governments and businesses have made huge investments in AI — we cannot afford to damage people's trust in the technology.

A new legally binding instrument on the use and production of autonomous weapons system is in line with both a feminist foreign policy and the emphasis that governments have put on AI as a future driver of economic development. As the technology is rapidly evolving, it's time for states to get serious about banning autonomous weapons systems. We cannot afford to waste time. •

Notes

1. <https://centreforfeministforeignpolicy.org/feminist-foreign-policy>
2. <https://www.wired.com/story/artificial-intelligence-researchers-gender-imbalance/>
3. <https://www.nytimes.com/2018/02/09/technology/facial-recognition-race-artificial-intelligence.html>
4. <https://www.ajlunited.org/>
5. <http://www.reachingcriticalwill.org/images/documents/Publications/sex-and-drone-strikes.pdf>
6. <https://futureoflife.org/national-international-ai-strategies/>
7. <https://www.stopkillerrobots.org/2019/01/global-poll-61-oppose-killer-robots/>
8. <https://www.getproof.com/thinking/the-proof-cantrust-index/>



COULD KILLER ROBOTS BE ETHICAL?

Amanda Sharkey | *International Committee for Robot Arms Control*

The Australian Defence Force has recently invested more than \$5 million in a project to find out what people consider to be ethical, and then to build those ethics into autonomous weapons systems so that they follow the laws of armed conflict. I will argue here that this is a misguided investment because machines are not, and are unlikely to become, moral agents.

Killer robots cannot be moral agents because they depend on human intervention for their development. They have no self-determination and no meaningful intentions. As machines, they can do only what they have been programmed or trained to do. They could only refuse to do something if they had been programmed to do so. They cannot reflect on their decisions and the implications of their decisions and try to become more moral. They cannot be held to be accountable for their actions.

A project to create ethical killer robots has to be based on the assumption that they could be programmed or trained to follow or implement ethical rules. There are good reasons to believe this is not feasible. Machines cannot be effectively programmed to follow ethical rules, because moral rules require interpretation and understanding, and because there is disagreement about which moral rules should be used. Ethical decisions are required

in situations in which there is ambiguity about what the right decision is. It is also not possible to program an appropriate response for all eventualities, because the world is full of unanticipated situations. Similarly, there is little reason to suppose that machines could develop morality by being trained on large sets of examples of human moral decisions. There are no compelling examples of successful training or programming of robots to make moral decisions, except in very limited circumstances (e.g. deciding whether to remind someone to take their medicine). There are no convincing examples of robots being able reverse engineer moral principles on the basis of examples of human decisions.

The fundamental reasons to believe that it will not be possible to develop ethical robots stem from their machine nature. Humans, and other mammals, feel pain, and have compassion and concern for their fellow beings. These abilities are the basis for the development of a sense of morality. Living creatures, from dogs to elephants, have been shown to have an awareness of fairness and justice. Robots on the other hand have no real emotions. They do not care about themselves, or about humans, and they are not concerned about whether or not their decisions are right. •

NEWS IN "BRIEF"

Allison Pytlak and Katrin Geyer | *Reaching Critical Will, Women's International League for Peace and Freedom*

The following is intended to provide a snapshot of discussions across the first two days of discussions at this GGE. It does not capture all positions or views. Special thanks to Matthew Griechen and Daniel Mou-bayed of the International Human Rights Clinic at Harvard Law School for assistance with notetaking.

Accountability

- The UN Secretary-General (UNSG) stressed that accountability cannot be transferred to machines.
- Italy stated that decisions on lethal force must remain in the hands of humans to guarantee accountability.
- Belgium reinforced that there must be no accountability gaps. Commanders at any level who decide to use a weapon system always remain responsible, and ought to be aware of the potential effects of its use. If it is not certain, then the weapon should not be used.
- Portugal urged the safeguarding of "inherently human characteristics" and human intervention as key to accountability.
- The United Kingdom (UK) stated that no matter what methods are taken to acquire, fix and engage a target, they are accountable to a chain of command.
- The United States (US) and Sweden argued that autonomous functions don't pose challenges to maintenance of combatant and commander responsibility as such responsibility exists even when using AWS.
- The UK observed that soldiers are accountable for their actions; that commanders have additional accountability; and that accountability can never be delegated to a machine or system.
- Chile and Pakistan expressed concern at the complexity of AWS technology and potential gaps in responsibility and accountability. Chile observed that if the use of AWS makes it impossible to determine accountability, it should be considered abhorrent and illegal.
- Chile and Spain stressed that it is important to establish whether the commander can be ex-

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pected to understand the complex programming of an AWS and if he or she can be held criminally responsible.

- The Netherlands asserted that accountability for the use of AWS remains with the commander.
- Brazil cautioned that the operator of an AWS could become a mere “legal scapegoat”.
- India observed that autonomy in critical functions challenges the commander’s and operator’s responsibility.
- Greece said it is important to ensure that commanders and operators will remain in the loop of the decision-making process to apply appropriate human judgment to the use of force to ensure accountability and human dignity.
- Spain noted that there is no change in the responsibility for individuals in the chain of command when it comes to the use of AWS.
- Holy See stressed that there is a lack of clarity of attribution of responsibility as AWS do not possess intention but implement and elaborate algorithms. China also noted that it is difficult to hold a computer accountable for violations of law.
- Mexico and Belgium asserted that legal responsibility can only be attributed to human beings.
- India stressed that the responsibility for the development, production and deployment of AWS should rest with the concerned state.
- Spain argued that many people are involved in the production of an AWS, and that no single individual may understand complex interaction in the production of an AWS, and concluded that responsibility of deployment thus falls on the shoulders of states.
- Austria argued that accountability and decisions to use force cannot be outsourced to machines, human judgement is always necessary as circumstances on the battlefield are constantly shifting.

International law, international humanitarian law (IHL), international human rights law (IHRL)

- The vast majority of delegations reiterated that all weapon systems must comply with IHL.
- Many delegations including Ecuador, Austria, and Chile noted that AWS without meaningful human control over critical functions will lead to compliance issues with IHL and IHRL.
- The EU and Ireland noted that other legal frameworks, such as international criminal law, as well as ethical considerations are relevant to discussions around AWS.

- Australia, the Netherlands, Russia, and the UK argued that current international law is sufficient to address autonomous weapons systems (AWS).
- Belgium reiterated the responsibility of states to conduct a legal review of new weapons in order to assess legality under IHL.
- Portugal urged that discussion must be guided by all international law, including IHRL and criminal law.
- Russia outlined aspects of IL that are applicable to highly automated weapon systems, including compliance with principles of proportionality; the ability for “upper level control” in which the system’s mode could be changed or deactivated; and that humans are involved in planning operations using these weapons, as an important limiting factor.
- The UK encouraged states to articulate their specific concerns about the shortcomings of existing international law, if they have them.
- Argentina and South Africa referenced the importance of being able to explain arbitrary or wrongful decisions after an operation, for reasons of attribution and accountability. Other states, such as Israel, spoke more generally about the importance of legal accountability.
- Costa Rica listed the plethora of legal challenges posed by autonomous weapons and noted that the use of force are subject to the UN Charter, the Martens Clause, human rights, human conscience, accountability, responsibility, ethical considerations, and accountability and can’t be delegated to a machine or an algorithm.
- Russia and the US argued that autonomy can facilitate greater compliance with IHL.
- Austria observed that principles of distinction, precaution, and proportionality are all challenged by the use of AWS. Austria maintained that the principle of proportionality requires distinctly human judgment and that it relies not just on information available at the time of attack but that it must remain valid throughout the weapon’s use. It highlighted that correct evaluation of proportionality can be impossible in populated areas.
- The Holy See asserted that the application of key principles of IHL requires human judgement, and an understanding of the particular context which cannot be limited to a set of pre-established rules and algorithms.
- China noted that autonomous weapons entail a large degree of uncertainty, and therefore is

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News in brief, continued

doubtful whether IHL is sufficient and whether principles of distinction and proportionality can be converted into computer codes.

- Chile argued that algorithms of AWS have serious limitations in applying IHL principles of distinction, proportionality and precaution.
- Pakistan stressed that it didn't believe that AWS can be programmed to fully comply with IHL.
- Russia argued that there is lack of clear proof that the deployment of AWS would violate principles of proportionality, precaution, and distinction.
- Russia also argued that principles of IHL, including the Martens Clause, can exclusively assess human conduct at times of war, including the person programming or employing the weapon, but can't apply to weapons themselves.
- Human Rights Watch asserted that fully autonomous weapon systems would struggle to comply with IHL, including proportionality, and that their use would also lead to gaps in individual criminal responsibility for war crimes, pose serious concerns for the Martens Clause, undermine principle of humanity, and be unable to apply compassion or human judgment to the use of force.
- Brazil suggested that IHL may be further articulated and specified in a legal manner to ensure compliance with law, and that IHL was developed with the assumption that a human is the one applying force. It noted that the application of IHL is context based and predicated on value judgment, and that assessments of proportionality cannot be ascribed to computational calculations. It further stressed that "discriminatory bias is all too real to be discarded or to be considered a minor glitch to be corrected."
- Brazil observed that ethical and moral concerns have been legally incorporated into law through the Martens Clause, making them explicit sources of law which is relevant for autonomous features in weapons.
- Belgium noted that AWS would not be able to adequately distinguish between civilians and militants, especially in urban warfare.
- Sweden stressed that compliance of AWS with IHL depends on the environment, time and space and the degree of autonomy. Depending on the circumstances, the use of weapon systems with autonomous functions will be more or less of a challenge.
- The International Committee of the Red Cross (ICRC) stated that operators must have control

over weapon systems in order to make judgment in specific attacks and that it is the loss of human control that poses a challenge to IHL. IHL rules of proportionality, distinction and precaution, amongst others, must be made by humans.

Characteristics and concepts

- The EU noted that the Possible Guiding Principles agreed on in August 2018 can provide a useful shared reference point for further discussions on characteristics.
- Chile asserted that there is convergence on certain operational elements of AWS.
- Costa Rica and Peru stated that the characteristics of AWS must be holistic and constantly adapted, with appropriate consideration of design, chain of command, application, and use.
- Pakistan noted that the discourse on characterisation should not be an avenue for complicating the debate nor for procrastinating while technologies continue to be weaponised.
- China suggested that AWS need to be based on five key elements: 1. lethality; 2. full autonomy, being free from human intervention throughout the entire mission; 3. impossibility to abort/terminate the system; 4. its indiscriminate nature; 5. its evolutionary nature, meaning that during its intervention in a specific environment it can expand functions and exerts self-learning beyond human prediction.
- The ICRC suggested considering three factors when defining LAWS: 1. human supervision and the ability to deactivate; 2. predictability and reliability; 3. operational constraints.
- Russia suggested defining AWS as "unmanned technical material that is not munitions and that is designed to carry out military and support tasks without any participation of a human operator." It further believed that a definition should not be politicised by introducing terms such as "critically important" or "significant" human control.
- Mexico, the Netherlands, and the US said that taking a technical approach to autonomous weapons makes it difficult to account for future technological developments, and Mexico asserted that the CCW should instead take a preventative and precautionary approach. Ireland, Germany, and Austria confirmed that seeking to reach an agreement on the technical definition of AWS would not be fruitful.
- Belgium highlighted the working paper it submitted together with Ireland and Luxembourg to



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this session to advance discussion on characteristics of AWS incompatible with IHL. It suggested that following characteristics of AWS would pose serious concerns from a legal, humanitarian and ethical perspective: 1. the ability to run through the targeting cycle with lethal force without any human intervention; 2. the ability to switch to lethal mode without human intervention; 3. the ability to redefine the mission or objective without any human intervention; and other factors.

- Greece believes a combination of functions make up AWS, including that: 1. once AWS are launched or deployed they cannot be terminated by human intervention; 2. the system's capability to detect, select and target without human intervention; and 3. the capacity to learn, amongst others.
- France suggested that AWS have to meet four characteristics: 1. a complete weapon system whose carrier moves freely, targeting and firing without intervention nor approval nor human supervision; 2. has complete autonomy with no supervision after it is activated; 3. capable to define or modify objectives during its mission without human approval; 4. capable of self-learning.
- The Netherlands noted that discussions should focus on how technologies that select and engage targets can remain under sufficient human control, rather than on defining characteristics of AWS. Austria noted that the level of human control is the decisive characteristic of an AWS.
- Iraq hoped for consensus on the concept and definition for AWS to put in place a legal framework to limit and possibly to prevent their use.
- Japan asserted that the operational environment and the context of use of force important when characterising AWS.
- Switzerland said that it is premature to agree on definitions, especially for weapons that may never be developed and suggested to instead focus on functions in the targeting cycle of a weapon system that are most important to the CCW's object and purpose.
- New Zealand suggested that a "technologically agnostic" approach without any definitions would be helpful to advance discussions.

Autonomy

- The ICRC defines autonomy through the critical functions of the ability to select and engage targets, and stressed that the core issue is appropriate meaningful significant human control. Considering autonomy in these functions is central to humanitarian, ethical and legal considerations.

The ICRC observed that the potential humanitarian consequences, legal and ethical concerns introduced by autonomy on critical functions should be considered in defining the characteristics of AWS.

- India observed that the level of autonomy is essential to differentiate AWS from another automated systems in use. It noted that after deployment or launch AWS would use machine learning and adapt in complex environments. AWS would have self-mobility, direction, and determination. They would be self-learning instead of following pre-programmed action.
- Greece noted that the use of algorithms and machine learning causes concern, and that any weapon with a high degree of autonomy must be tested and reviewed to ensure compliance with IHL and dictates of public conscience.
- Estonia noted that autonomy relates to specific functions or tasks of weapon systems; and that it can have different degrees of autonomy in each function.
- The US observed that discussions should focus on what functions autonomy is performing rather than on the autonomy of a weapon system as a whole.
- Bulgaria said that autonomy is a relative concept. Autonomous functions could be applied to navigation or targeting, depending on a given system or target. It understands AWS to operate on their own once activated and discussions should focus on a weapon system's capacity in identifying and intercepting a target without human intervention.
- Finland also said autonomy is relative and that "full autonomy" may also be misnomer. It cannot be a technological reference point of when a machine becomes fully autonomous. It suggested using the term "weapon systems using autonomous functions or features".
- Ireland noted the varying types of autonomy and that within weapon systems it can be exercised in different times, spaces, and functionalities.

Critical functions, human control, decision-making

- Almost all states asserted that human control over AWS is essential.
- Germany observed that autonomy can be characterised as the capacity to perceive, sense, and interpret an environment; to evaluate a situation; to decide on a suitable approach; and to initiate actions. It argued that humans must continue to exert control over critical functions.

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- Portugal said the ability to interrupt an initiated attack must exist.
- Brazil noted that the decisions required in the context of critical functions, understood as the targeting cycle, and future ability of systems and systems of systems are matters that require discretion such as currently attributed to a human commander or operator. It urged a focus in future discussions on the “use phase”.
- Costa Rica noted states agree that human control, supervision, and judgement in the lethal use of force are essential; human decision-making cannot be replaced because it is based on rules, principles, legal, moral, and ethical considerations. It said the final validation of use of force must remain with a human operator, in the context of any military application relating to AWS.
- France said that artificial intelligence (AI) can be used to improve decisions that will remain human decisions, including in a constantly evolving landscape.
- Switzerland noted that in its national practice, human decisions are assisted by sensors and computers but the decision to attack is taken by a human, as are any assessments or investigations following an operation.
- Iraq stated that decisions of life and death, made without human control, go against morality and IHL particularly when discriminating between civilians and military targets.
- Austria spoke of the “black box of AI” in which there is no ability to explain decision-making logic because of non-involvement of humans. It stated that any decisions must be “retraceable and comprehensible” for humans.
- Spain said the degree of control established depends on how AWS are deployed, among other considerations. It is difficult to establish a rule and best done on a case-by-case basis.
- UK said if a decision taken by a machine is not explainable or is outside bounds set by the operator, then it poses a series of ethical, legal, and operational concerns.
- Pakistan said weapon systems that autonomously select and target without the direct involvement or control of human beings are AWS.
- Chile said AWS should never be deployed without human intervention, that human control must be present in any decision to use lethal force in weapon systems, and that significant human control must be present in all weapon systems and the use of force.
- The EU, Luxembourg, Germany, Argentina, New Zealand, Pakistan, India, and Ireland, among others, spoke of the importance of human control existing across the “entire life cycle” of a weapon. Some delegations were more specific to what that life cycle includes—the EU referenced research, design, development, programming, deployment, transfer, and use. The Netherlands spoke of design, development, and use. India spoke of “deployment and activation”. Israel spoke of acquisition, development, and operational phases.
- The UK said it is may not always be practical or desirable to have direct human involvement under all circumstances. It said that a human-centred approach must consider operational context, capability, and the limitations of the personnel deploying autonomous weapons and to not just focus on critical functions. The US stated that some weapon systems are more effective with less human involvement.
- Finland stressed that human control is context specific, depending heavily on the nature of the weapon and its intended use.
- Russia said that notions of meaningful human control” are subjective and can be politicised as well as have a politicizing effect on discussions within the GGE. The US noted this term is subject to divergent interpretations and is further skeptical of defining “human supervision”.
- China said the human element cannot be defined exclusively through ways and processes but in the context of human, machine, and environment.
- The International Committee for Robot Arms Control (ICRAC) set out three principles as a starting point for discussing human control that emphasized the situational awareness of a commander or operator, including for unanticipated situations; active cognitive participation in every attack; and the means to suspend or abort an operation.
- The EU, France, and Belgium, among others, spoke of the importance of human control in validating the mission of an operation or attack; or that an autonomous weapon not be able to modify its mission.
- Costa Rica referenced human control in programming phases as well as in approving use and engagement; engagement was also referenced by France and Spain while some states, including India and South Africa, spoke of “selection”.
- The importance of humans being able to intervene and/or interrupt and/or abort a mission

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or operation was referenced by Luxembourg, Argentina, Ireland, and Belgium, among others.

- Predictability in behaviour was stressed as a priority by Luxembourg, India, Spain, New Zealand, Switzerland, and Belgium, who also said that this should be the same as for all other weapons.
- The ICRC stated that “predictability is not technical design” noting that variations in an environment and over time can increase the risk of IHL violations. It wants to hear from states views on what levels of predictability and reliability are required under IHL.
- The US argued that unpredictability is only important in relation to IHL considerations; in reference only to an adversary, it is not problematic.
- The Netherlands, Switzerland, and France further spoke to testing and transparency. The US noted that existing semi-autonomous systems are already subject to rigorous testing while India said that any system needs to be modelled beyond statistical inputs alone. The ICRC noted that not all inputs to an autonomous system can be tested.
- Switzerland emphasised training practices in the context of human control of weapons.
- The UK and US spoke of the importance of a combined approach of multiple methods to safeguard human control. The Netherlands noted that current targeting practices do not involve just a single operator. Estonia appreciated the Australian working paper that outlines its own combined approach to human control.
- Pakistan said that human control must satisfy humanitarian concerns.
- France and the ICRC stressed the necessity of strong communication throughout the chain of command and phases of weapon deployment.
- Canada said its National Defence Policy commits to maintaining appropriate human involvement for capabilities that can exert lethal force.
- India believes that a ‘human in the loop’ situation is ideal but quick reactions necessitates a ‘human on the loop’.

Environment

- Multiple delegations stressed the importance that human control be understood in relation to how an operator or commander would understand how an autonomous weapon, or weapon system, works with respect to its effect on, and interaction with its environment. The complexity of environments was a point stressed by Ire-

land, Finland, the US, Costa Rica, among others. Belgium stated that the scope of movement and operational time frame changes could create uncertainty. The ICRC particularly stressed the importance of situational awareness and adaptability on the part of a human operator, in order to make context-based legal judgements that meet IHL requirements.

- The ICRC stressed the importance of reliability and predictability in assessing weapon systems. It noted that to increase predictability and compliance with IHL, weapon systems are only used for simple tasks, and there are limits on the targets as they are only used against material targets; are used in highly constrained environments, with no risk for civilians; and have limits on the timeframe of the autonomous operation, as they could be switched back to manual operation at any time.
- Estonia argued that that the environment where weapons are deployed should impact how much human control is required and suggested that more control is necessary in urban warfare.
- The US asserted that the specifics of the environment of deployment, and constraints in time can be important from an IHL perspective.
- Austria observed that the decision to deploy a specific system in a specific environment would require the operator to know the characteristics and the environment where a weapon system is deployed. It further noted that the environment of deployment of AWS is important, as armed conflict and IHL compliance is dependent on situational awareness.
- Switzerland did not support the view that only mobile systems would fall within an understanding of AWS because its use of force will still be relevant, regardless of if it moves location.
- Various states, including Mexico, urged recognition of the unpredictability and uncertainty of the use of AWS in complex environments.

Anti-personnel and anti-material weapons

- Russia suggested distinguishing between anti-personnel and anti-materiel weapons.
- Peru argued against the distinction between anti-personnel and anti-material weapons, noting that the effects of any weapon can be lethal.
- Estonia agreed that anti-materiel weapons can cause harm to humans. Therefore, IHL applies to all weapons, irrespective of their intended use.
- The US stressed that the distinction between anti-personnel and anti-material weapon systems is not meaningful from an IHL perspective.

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- Bulgaria observed that autonomous weapons designed to target materiel objects can be used improperly or be used intentionally to kill people.
- Switzerland does not find the distinction useful and supports a working definition that includes physical injury short of death, and destruction of physical objects.
- Japan argued that discussing differences between anti-personnel and anti-material weapons would be a good basis for characterising AWS.
- Ireland observed that the inclusion of lethality is a novel concept and wasn't a prerequisite for banning blinding lasers under the CCW. It urged the GGE to consider whether discussions should include non-lethal weapon systems. Bulgaria also observed that AWS do not have to be intended to kill people to be defined as such. Austria agreed that lethality is not a competent category under IHL to characterise certain types of weapons.

Existing national practice

- Australia described its national control and review systems as "dynamic, distributed, and interactive" in which each weapon and weapon system is considered individually and not through generic restrictions.
- Germany outlined a definition for "automated" and noted that human control is integrated in all such German systems, and that there are multiple levels of decision-making. Responsibility for the use of force is determined by the military hierarchy.
- Sweden presented on its anti-ship missile system and noted that it ensures responsibility in a method similar to Australia, combining Article 36 legal reviews with clear command responsibilities and ensuring compliance with IHL. Sweden noted that many other CCW High Contracting Parties possess the same system and that a handful of others export the technology.
- Italy said that human control is built into its systems through supervision in all phases of the weapons life cycle: human operators are responsible for objectives, targeting, re-targeting, and activating an autonomous mode. It noted the possibility to override always exists, and distinctions between mobile and fixed weapon systems is important.
- Japan stated again that fully autonomous lethal weapon systems do not exist and it has no plans to develop them. "Highly automated" systems have been developed, that ensure "quick, accurate, and effective" responses. Human intervention in their research and development, and operational phases, is included.
- Finland announced that its Defence Command has recently set out its legal assessment process in a new decree. It has complied with the CCW's Additional Protocol that mandates national reviews for decades but wanted to update its processes in light of new technological developments.
- Switzerland shared that humans are engaged in every phase of current and foreseeable weapons development and use. This includes manuals, trainings, rules of engagement, target acquisition, among other activities. Switzerland currently implements human ability to deactivate any system with autonomy but does not necessarily recommend it as international policy.
- The Netherlands shared that its forces use defensive systems that can operate automatically and with some autonomy in which humans can intervene at various stages to ensure IHL compliance.
- The UK spoke of recent experimentation in which systems that were tested overcame environmental difficulties. It stressed that unpredictability is undesirable for all, and that reliability and consistency should be distinguished between.
- The US asserted that while it is not party to Protocol I of the Geneva Conventions, it conducts legal reviews of weapon systems, which requires that all weapon systems are consistent with applicable domestic and international law. This includes considerations whether a weapon is inherently indiscriminate, and whether it is capable under any set of circumstances to be used in accordance with distinction and proportionality.

Risks and dangers

- Chile warned of the potential for a new arms race, by both states and non-state actors, as well as an increase in urban violence. It expressed concern about predictability, non-compliance with IHL, and impact on decision-making protocols due to accelerated decision-making time frames.
- Chile and Austria questioned the possibility of programming a machine without bias, and if not possible, how that will influence targeting cycles and reinforce biased or arbitrary patterns.
- Austria further highlighted the challenges of accurate data collection in conflict situations.
- Pakistan stressed proliferation concerns, including in relation to non-state actors and the developing countries; impact on general and complete disarmament; and a reduced deterrent for war. China echoed these concerns.

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- Portugal described the possible erosion of hierarchy and chains of commands.
- Ireland and Austria highlighted the challenges of biased programming.

Perceived potential benefits

- Australia stated that autonomous technology has distinct benefits for avoiding human casualties.
- Japan noted the reduction of “man power [sic] and saving labour costs” as well as reduction in human error. It said it would continue to develop and operate highly automated systems for these reasons.
- China said that weapon systems using AI are characterised as being “fatigue proof” and suitable for highly dangerous missions.
- The US outlined how it thinks autonomous technology and/or AI can be used to protect civilian populations, such as by enhancing target identification and increasing awareness of civilians on a battlefield, as well as by processing large amounts of data for human analysis. It also argued that autonomous functions could strengthen responsibility for decisions by making the use of force more consistent with the decision-maker’s intent.
- The UK described improved ability to process high levels of data, an improved tempo of operations, and reach into otherwise inaccessible environments as among the benefits of autonomy.
- Russia described efficiency, reduction in error rates, and accuracy.
- Chile refuted the purported benefits that are often cited by militaries, such as reducing human casualties, by stating that technological advances don’t happen in a vacuum, and the ethical and moral responsibility of humans cannot be replaced.
- Spain noted that human decision-making can be slower. The Netherlands cited speed as among the benefits of effective human-machine teaming. The UK warned that speed in an operation could be compromised by safeguards.

General technological research and development

- The EU and France noted the dual-use nature of AI and warned against hampering progress on “legitimate technological development”.
- China said that in its view, AI does not automatically lead to emergence of AWS and the issue should be looked at with impartiality. Science and technology, and social progress, should not be sacrificed.

- The US said discussions should focus on activities that further the Convention rather than stigmatise or ban new technology.

Political processes

- The UNSG noted that there are various possible approaches proposed by states, and that it is up to the international community to deliver.
- Australia urged a focus on how to continue regulating autonomous technologies including through review conference on how Article 36 national review obligations are being applied.
- The EU said that national weapon reviews remain relevant and stressed the need for foresight and building networks with “innovative industry”.
- Several other states referenced the role of national legal weapons reviews, including the UK, Russia, France, and Japan.
- Japan would like to see the report of the GGE recommend a better review of national legal reviews. It proposed to introduce reporting requirements for states on the interpretation and implementation of Article 36 through an annual reporting mechanism.
- Ireland suggested that assessing the lawfulness of AWS under Article 36 reviews will depend on the characteristics of these weapon systems.
- Switzerland stated that the implementation of effective legal weapon review processes would go a long way to ensure AWS would comply with IHL. Reviews however face challenges because algorithms may produce different results in different operational environments. It therefore proposed to develop different protocols for algorithms in weapons. It further observed that the challenge for a legal reviewer is to identify limits in which a system operates predictably and to anticipate environments in which certainty can no longer be guaranteed.
- Austria noted that national legal weapon reviews under Article 36 do not give clear legal standards. It argued that it is not sufficient to just assess from a national perspective if a weapon should be permitted. It concluded that more specific regulations should be adopted.
- Brazil argued that national measures aren’t sufficient and that the best response and optimal result would be the negotiation of an additional protocol on AWS to ensure meaningful human control over all weapon systems.
- Mexico expressed doubts whether national legal reviews of weapons are sufficient for AWS, especially when it comes to machine learning

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programmes which will have unpredictable consequences.

- Belgium also stated that Article 36 reviews are valuable but insufficient to tackle challenges caused by AWS.
- Germany said it is “high time” for the CCW to move ahead and urged focusing discussions on concrete results, such as an outcome document that outlines important principles. Germany supports a political declaration as a “middle ground” solution, such as outlined in its 2017 joint working paper with France.
- Pakistan stressed the urgent need for a legally-binding instrument that includes military dimensions.
- Egypt urged “urgent regulation” of AWS in the CCW by focusing on characteristics and a definition, which would then help states to discuss a legally-binding instrument.
- Poland also urged agreeing a definition or characteristics for any regulation.
- Many delegations, such as Austria, Brazil, Chile, Iraq, India, Peru, and the Netherlands argued

that the current absence of a commonly agreed definition should not be an obstacle to make progress, with some of these saying that should be taken up during negotiations.

- Portugal proposed a technical output or outcome, such as mandating a working document that could compile existing and applicable international law and associated good practices.
- The Netherlands emphasised the importance of national weapons reviews, urging better sharing experience and best practices to improve how they are implemented.
- Russia does not believe that “highly automated weapon systems” should be separated into a category that requires restrictions and bans.
- Canada supports compendium of best practices regarding national weapons reviews, and to participate in an exchange on best practices.
- The EU, Ireland, and Canada urged including gender perspectives within the issue of autonomous weapons; the EU encouraged gender diversity on delegations.



