: Global Governance Spotlight
4 | 2014

sef:

Autonomous Weapons Systems. Humanising or Dehumanising Warfare?

Frank Sauer

At present, the public debate about military technology is dominated by the issue of drones. But in some quarters, thoughts are turning to the future. Autonomous weapons systems – which their opponents have dubbed "killer robots" – are regarded as the representatives of an impending paradigm shift in warfare. These weapons systems would be able to make decisions on the use of (lethal) armed force without any human intervention. These systems do not yet exist, other than in the form of precursors.

From 13 to 16 May 2014, an informal "Meeting of Experts" was held at the United Nations in Geneva within the framework of the Convention on Certain Conventional Weapons (CCW). At this first multilateral meeting ever held on autonomous weapons systems, representatives of governments, NGOs and the academic community convened to discuss the military, legal and ethical implications of these systems.

It was striking that no country vigorously defended or argued for the offensive use of autonomous weapons systems. Civil society – represented by the Campaign to Stop Killer Robots – and a small group of countries spoke out in favour of a preemptive ban.

Background: drones – the gateway to automated warfare?

The military already deploys systems which run "on their own", but these are currently confined to stationary defence functions such as the interception of rockets, artillery fire and mortars. Germany's Federal Armed Forces (Bundeswehr), for example, deploys the MANTIS and PATRIOT systems, which are designed for use against inanimate targets, if necessary, without human intervention (the rationale being that there may not be enough time for human intervention). However, these defensive systems operate *automatically* rather than *autonomously*, simply performing repeated pre-programmed actions.

To distinguish them from these precursors, weapons systems are described as autonomous if they operate without human control or supervision, perhaps over a longer period of time, in dynamic, unstructured, open environments. In other words, these are mobile (assault) weapons platforms which are equipped with on-board sensors and decision-making algorithms, enabling them to guide themselves. As they could potentially have the autonomous capability to identify, track and attack humans or living targets, they are known as "lethal autonomous robots" or, to use CCW's current terminology, "lethal autonomous weapons systems" (LAWS).

It is mainly for applications underwater or in the air – in other words, in less complex but more inaccessible environments – that the drive towards more autonomy is most apparent. Transferring all the decision-making to the weapons system offers various benefits from a military perspective. Firstly, there is no longer any need for a control and communication link, which is vulnerable to disruption or capture and may well reveal the system's location, and in which there is invariably some delay between the issuing of the command by the responsible person and the execution of the command. The time benefits already

afforded by defence systems are also valuable from a tactical perspective during military assaults. In the drone sector, a number of research and technology demonstrator programmes have therefore been launched to develop (more) autonomous systems; examples are the X-47B in the US, Taranis in the UK, and the French nEUROn project. Secondly, as autonomous systems are immune to fear, stress and overreactions, some observers believe that they offer the prospect of more humane warfare. They argue that not only are machines devoid of negative human emotions; they also lack a self-preservation instinct, so could well delay returning fire in extreme cases. This, it is argued, could prevent some of the atrocities of war. And thirdly, some observers draw attention to the superior efficiency of LAWS and their cost-cutting potential, especially due to the reduced need for personnel.

The journey towards inclusion on the CCW agenda

In light of these arguments and developments in the field of military technology, in November 2013, the CCW adopted a decision to convene an informal "Meeting of Experts" to discuss autonomous weapons systems. A total of 87 countries participated in the Meeting on LAWS, which took place from 13-16 May 2014 and brought together diplomats, NGO representatives and academics.

The purpose of the CCW, to which 117 states are currently party, is to prohibit or restrict the use of certain conventional weapons which are considered excessively injurious or whose effects are indiscriminate. The CCW operates through a set of protocols that regulate specific types of weapons. Five of these protocols are currently in force; an example is Protocol III on incendiary weapons.

The CCW is notoriously slow and only partially successful. Protocol II on land mines, for example, did not include a prohibition of anti-personnel mines, which is why non-governmental organisations (NGOs) worked for a ban outside the CCW framework, culminating in the adoption of the Ottawa Treaty in 1997. The CCW's negotiations on a Protocol VI on cluster munitions also failed to produce an outcome.

With LAWS, the CCW has now identified a new topic, which – according to seasoned CCW participants – has been placed on the agenda with unprecedented speed and is attracting lively interest from the international community. Exactly what is behind this is unclear. On the one hand, it seems plausible that countries have discovered their genuine interest in a development which is deemed to require regulation, and, after the failure of Protocol VI, are keen to demonstrate the CCW's capacity to act. However, the CCW has a fearsome reputation as a place where good ideas go to die a slow and silent death. So it is also possible that some countries which might have an interest in developing and deploying LAWS (from a military technology perspective, this applies primarily to the US, Israel, China, Russia and the United Kingdom) will use the CCW process to stall for time and smother the anti-LAWS campaign over the coming years.

A number of organisations which have been in existence for several years are critically monitoring developments in the field of military robotics; one example is the International Committee for Robot Arms Control (ICRAC), a loose network of academics (including the author). However, it was primarily the Campaign to Stop Killer Robots, launched in April 2013, which brought the issue of LAWS to the CCW's attention. The Campaign – a coalition of 51 NGOs from 24 countries – provides a platform for coordinated academic and civil society activities, and aims to achieve a protocol banning LAWS as swiftly as possible. This should be a preemptive ban which would come into effect before countries and the arms industry invest so much in LAWS that the window of opportunity for a preemptive solution closes. The ban is to be modelled on Protocol IV on blinding laser weapons.

The military relevance of LAWS is, however, very much greater than that of blinding lasers, and the dual use issue is also more pressing. Research on autonomous robots is already under way in countless university laboratories and companies, and there is massive commercial interest in robotics. What's more, the integration of commercial off-the-shelf-technology has long been a driver of developments in the field of military technology. Can a preemptive ban of lethal robots at this early stage in the CCW process possibly be successful? That is a completely open question.

The most contentious issues

At the Meeting in Geneva, a panel of experts (all of them men) gave presentations on the military, legal and ethical dimensions of LAWS. Feedback was then provided by the plenary – in other words, by government representatives, NGOs and academics – unleashing a sometimes heated debate.

The military experts underlined the role of LAWS as game changers in the future waging of war, emphasising their potential in force protection and as force multipliers. But there is also a certain amount of tension between autonomous systems and military leadership structures, so support from the military in Geneva was somewhat muted. Rather, for these experts, it was about playing with ideas and looking at ways of deploying these systems in strictly controlled scenarios – for example as anti-materiel weapons, i.e. only against other military hardware. Civil society

representatives warned, in this context, about the risks of proliferation and the lowering of the threshold to the use of military force.

The most detailed – and also the most contentious – insights into LAWS were provided from an international law perspective. There was a broad consensus among the experts invited by CCW that the international law of war does not necessarily pose an obstacle in this context. The panellists therefore did not dispute, in principle, that LAWS could potentially not only be capable of distinguishing between civilians and combatants but could also ensure that the military use of force is proportionate. However, this provoked vehement reactions from other experts and campaigners alike in the plenary sessions and at side-events during the lunch breaks. Numerous international law and robotics experts doubted that it would be possible, in the foreseeable future, to pre-programme machines to abide by international law in the notoriously grey area of decision-making in times of war. A further objection was that the body of international law is based on the premise of *human* agency; it is therefore unclear who would be legally responsible and accountable if people – particularly civilians – were unlawfully injured or killed by LAWS.

The relevance of the Martens Clause, frequently mentioned at the Meeting, also proved to be a contentious issue. This forms part of customary international law and holds that in cases not (yet) covered in the regulations adopted in international law, the principles of the laws of humanity and the dictates of the public conscience apply. In fact, the general public has serious concerns about LAWS. The findings of a representative survey, unfortunately available only for the US at the moment, were presented in Geneva and showed that a majority (55%) of Americans are opposed to autonomous weapons on humanitarian grounds, with 40% "strongly opposed".

There was a general consensus that it is thus the ethical dimension which may well pose the greatest problem for LAWS. Accordingly, the Campaign argued that giving machines the power to decide on the use of force against people violates basic principles of humanity and is, *per se*, unacceptable.

"Meaningful human control"

In all, 30 countries presented statements at the opening of the CCW Meeting of Experts. The International Committee of the Red Cross and NGOs including Human Rights Watch, Amnesty International and ICRAC also stated their views. It was noticeable that alongside Campaign representatives, five CCW parties (Cuba, Ecuador, Egypt, Pakistan and the Holy See) are already calling for a ban on LAWS. No country vigorously defended or argued for the development and deployment of LAWS, although the Czech Republic and Israel underlined, in their statements, that autonomous weapons systems may offer certain benefits. The US pursued a similar line of argument. Many countries (including Germany, Austria, France, Norway, Netherlands, Switzerland and the United Kingdom), however, made one thing very clear: they want to see guarantees of "meaningful human control" over the use of armed force.

This concept, which was introduced into the debate by NGOs and has now been taken up by governments, is the counter-concept to "appropriate human involvement" in the operation of (semi-)autonomous weapons systems, as specified by the US in its Directive on Autonomy in Weapon Systems, issued in November 2012. The NGOs argue that "appropriate human involvement" does not go far enough – for there may be certain circumstances in which *no* human involvement may be deemed "appropriate".

In the Campaign's view, human control over life and death decisions must always be significant – in other words, it must be considerably more than none at all; putting it bluntly, it must involve more than the mindless pressing of a button in response to machine-processed information. According to current practice, a human operator of weapons must have sufficient information about the target and sufficient control of the weapon, and must be able to assess its effects, in order to be able to make decisions in accordance with international law. But how much human judgement can be transferred into a technical system and exercised by algorithms before human control ceases to be "meaningful" – in other words, before warfare is quite literally "dehumanised"? Some sceptics interject, at this point, that by creating certain types of standoff weapons that have an autonomous targeting capability during the terminal phase of their flight, we have already handed control over to the machines. In other words, the line has already been crossed.

One thing is clear: in future, certain time limits would have to apply if LAWS are not to become a reality across a broad front. The fact is that the human brain needs time for complex evaluation and decision-making processes – time which must not be denied to it in the interaction between human and machine, if the human role is to remain relevant; in other words, if the decision-making process is merely to be supported, not dominated, by the machine.

The concept of "meaningful human control" is, at present, an empty signifier, and in the further course of the CCW process, there will undoubtedly be considerable wrangling over precisely how it should be filled with meaning. Although some countries will undoubtedly prefer to maintain it as a vague concept which allows more scope for manoeuvre, the Campaign is pressing for the greatest possible role for the exercise of human judgement, not only in relation to killing but also in other decisions on the use of violence or non-lethal force.

Conclusions and recommendations

In all, 25 countries and numerous NGOs gave closing statements to the Meeting. It ended with a five-page report summarising the four days of discussions. The report emphasised that from many countries' perspective, LAWS could undermine human dignity, as these systems cannot understand or respect the value of life, yet would have the power to determine when to take it away. The report will be discussed at the next CCW meeting of states parties on 14 November, where the CCW must – on the basis of consensus – adopt a mandate if there is to be a continuation of the process, perhaps in the form of another formal and longer "Meeting of Experts". China and Russia will take a decision in November; India is already advocating for a mandate for 2015. No country opposed the continuation of the CCW process, and 14 out of 25 countries expressed thanks for the pro-active role played by civil society.

At the Geneva meeting, Germany spoke out against LAWS, for the German Government had already announced in its coalition agreement that it would lobby for a ban on autonomous weapons systems. Germany should therefore continue to work resolutely towards that goal. Various specific proposals are already on the table with a view to the further CCW process. For example, some members of ICRAC have already mapped out some ideas on how a ban on autonomous weapons systems could be framed in a treaty and subjected to arms control verification procedures. Often, CCW processes benefit from the commitment of individual countries or groups of countries which play a pioneering role. It would be to Germany's credit, in terms of its international standing, if it were to lobby more pro-actively for a ban on LAWS and thus demonstrate that it is a staunch advocate of unconditional respect for human dignity, also in the context of warfare.

Author

Dr Frank Sauer | is a Research Associate and Lecturer at Bundeswehr University Munich and a member of the International Committee for Robot Arms Control (ICRAC).

The author wishes to thank Dr Jürgen Altmann (TU Dortmund) and Dr Eva Herschinger (UniBW) for their helpful comments.

Further information

Campaign to Stop Killer Robots (**http://www.stopkillerrobots.org**).

Gubrud, Mark: Stopping killer robots, in: Bulletin of the Atomic Scientists 70 (1), 2014, 32-42.

International Committee for Robot Arms Control (**www.icrac.net**).

UN Office Geneva: CCW, Lethal Autonomous Weapons Systems (LAWS) (**http://www.unog.ch/80256EE600585943/(httpPages)/6CE049BE22EC75A2C1257C8D00513E26?OpenDocument**).

U.S. Department of Defense: Directive: Autonomy in Weapon Systems, Washington, D.C., 2012 (**http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf**).

Imprint

The Development and Peace Foundation was founded in 1986 on the initiative of Willy Brandt. As a cross-party and non-profit-making organisation, the SEF provides an international high-level forum for shared thinking on urgent peace and development issues.

Global Governance Spotlight is a policy-oriented series whose purpose is to critique international negotiation processes from a global governance perspective.

Published by
Development and Peace Foundation/ Stiftung Entwicklung und Frieden (SEF)
Dechenstr. 2 : 53115 Bonn : Germany
Phone +49 (0)228 959 25-0 : Fax -99
sef@sef-bonn.org : www.sef-bonn.org

Editor
Dr Michèle Roth

Translation
Hillary Crowe

Design Basic Concept
Pitch Black Graphic Design
Berlin/Rotterdam

Layout
Gerhard Süß-Jung