

Mr Chairman, Ladies and Gentlemen

Most of the States represented in this room are party to the First Additional Protocol to the Geneva Conventions. This means that they are legally required to comply with the requirements of article 36 to that Protocol, the text of which you can see on the screen (slide 2). You will notice that the obligation relates to weapons and the methods of using them. The legal duty is to check that the planned use of the weapon or method will comply with all of the international law rules binding on that State. The duty to consider these legal matters starts with the study of the weaponisation of a technology and continues through development to when the completed weapon is acquired. States that are not party to Additional Protocol I are required, as a matter of customary law, to conduct these weapon reviews in relation to all new weapons they acquire. But this customary rule does not extend to new methods of warfare.

These reviews must determine whether the new weapon complies with the existing rules of weapons law. So it is existing law that determines the acceptability of new technology. The fact that the technology is new does not somehow mean that existing law can be circumvented. So it is important to determine what exactly the existing rules consist of. In very brief terms (slide 3), those conducting weapons reviews must assess the new weapon by reference to a number of criteria. The criteria are:

First, is the weapon or method of a nature to inflict additional injury or suffering for which there is no corresponding military purpose; this of necessity requires a weapon reviewer to consider how the military purpose is currently achieved and to decide whether the new weapon or method will involve greater injury or suffering for enemy personnel;

Second, is the weapon or method by nature indiscriminate; in other words, is the weapon or method capable of being directed at a military objective, is it capable of reasonably limiting its effects to the military objective and is its nature to strike lawful and unlawful targets without distinction;

Third, does the weapon or method breach environmental protection rules the detail of which will depend on whether the particular state is or is not a party to Additional Protocol I;

And, if the State is party to the 1976 UN Environmental Modification Convention, does the weapon use elements of the environment as a weapon in a way prohibited by the treaty; and then, finally

Does the weapon, either as such or in the way it is intended to use it, breach any of a complex and lengthy set of rules that relate to specific weapons technologies. Some technologies are prohibited. Others are the subject of restrictions on use. Some of the rules apply to all states and some only apply to states that are party to relevant treaties. I will not detail these rules now – time does not permit. So a weapon reviewer must consider whether there is a specific rule dealing with the

particular weapon. There are no specific rules relating to autonomy or indeed automation technologies as such.

These, then, in very brief summary form, are the criteria that must be applied by all States to determine whether any weapon is legally acceptable. One is judging the weapon in its normal intended circumstances of use and it is the generic characteristics of the weapon that will be relevant when conducting such a weapon review. The weapon reviewer is not normally being asked to consider the lawfulness of a particular attack – that is usually a matter for the operational commander to assess by applying targeting law with the assistance of his/her deployed legal adviser.

(Slide 4) With autonomous attack technologies, however, some additional factors must be considered when a legal review is undertaken. The weapon reviewer of an autonomous system must still focus on the generic characteristics of the weapon system, but taking human beings out of the decision to attack raises an important additional issue, namely can the system comply with targeting law. In other words, if you take the human being out of attack decision-making, you need to be sure that the targeting law rules that the human would normally apply can be applied by the machine. Targeting law requires a number of complex assessments in relation to attacks and some of these are listed on the slide. We should focus on precautions that attackers are required to take. So as a weapon reviewer of an autonomous weapon system, you ask yourself whether the autonomous technology is capable of undertaking evaluative decision-making. Let me explain what I mean by referring to some of the precautions in attack that existing targeting law requires :

Can the system assess the anticipated military advantage of the attack?

Can the system assess expected collateral damage?

Can the system determine whether expected collateral damage is excessive?

Can the system choose a weapon/method/target to minimise collateral dangers to civilians or civilian objects?

In anti-personnel roles:

Can the system distinguish able-bodied combatants whom it is lawful to attack from those hors de combat who must be respected and protected?

Can the autonomous weapon system distinguish combatants from peaceful civilians?

Can the autonomous weapon system decide whether a warning is required? Warnings are required by targeting law in certain circumstances. Can the autonomous system decide whether those circumstances exist?

(Slide 5) While currently available autonomous weapon technology may be able to identify certain military objects such as tanks, artillery etc, it cannot, so far as I am aware, comply with the evaluative targeting law requirements listed here. So this will limit the circumstances in which autonomous technologies can lawfully be employed.

It may sometimes be possible at the mission planning stage for a human being to determine that in all foreseeable circumstances programmed attacks will always comply with these evaluative rules. This may involve limiting the area to be searched for targets and limiting the time during which the search will happen, so targeting law may in this way be complied with by the human being who is planning or preparing the mission. So it may be possible to use such technologies lawfully in certain rather exceptional circumstances, for example, in some remote areas of desert or some remote, little-used areas of ocean.

I would also distinguish between essentially defensive systems that are designed to protect a location e.g. by engaging inbound rocket, torpedo or similar systems, as opposed to weapon systems that seek out their own targets for offensive attack. The objects the defensive system I have mentioned is designed to neutralise are by definition military objectives, rockets, torpedoes etc, and again the proportionality and other evaluative rules can often be considered at the time when the defensive weapon system is being deployed.

The important point, in my view, is that what I have described as offensive autonomous weapon systems that go out and choose their own targets are, judged by reference to currently available technology, generally going to fail a weapon review. The circumstances in which they could lawfully be used, discussed earlier, are very limited, e.g. some areas of remote desert and ocean. Much work is being done however to address these technological shortcomings. We do not know whether future technology may produce weapon systems that can out-perform humans in protecting civilians and civilian objects. It would in my view be a mistake to try to ban a technology on the basis of its current shortcomings, when in future it may actually enable the law to be complied with more reliably than now. Rather than pursue what I see as ill-advised bans, the proper answer has to be ensuring that states properly review weapons and you will find leaflets at the back of the room describing a modestly-priced course on weapons law available to you and to your colleagues in capitals undertaking weapons law-related work.

(Slide 6) Permit me to add one brief thought. I hear numerous references to 'meaningful human control'. Of course, an autonomous system over which there is meaningful human control is not an autonomous system. That may seem obvious but it is, I think, worth saying. Meaningful human control can, I think, be a useful policy approach for the time being to address the shortcomings in currently available technology that we have discussed. Meaningful human control should not, however, in my view be elevated into some sort of legal criterion that determines the acceptability of a weapon system. The applicable criteria are the ones I have mentioned earlier, superfluous injury/unnecessary suffering, indiscriminate weapons, the environment rules and prohibitions and

restrictions of particular technologies. Implementation in good faith by States of their weapon review duties, and proper adherence by them to the vitally important targeting law rules that seek to protect civilians and civilian objects are, I think, the answer here. Introducing 'meaningful human control' as a legal criterion as to the acceptability of some weapons risks weakening the focus on existing weapons law and targeting law standards by introducing this less clear, even ambiguous, notion. In addition, a legal requirement for 'meaningful human control' might cause some to call into question weapons in widespread use on which States currently lawfully rely for their security.

W H Boothby