

Human-machine interaction:

- Different concepts have been put forth on the type and quality of interaction between operator and machine to ensure such systems comply with relevant international norms, notably International Humanitarian Law.

- The proposal that humans retain "meaningful control" over LAWS seems to us the most promising avenue to explore. This should be the basis for any criteria to establish that the development and use of such systems occur within the boundaries of international law, the dictates of public conscience and the principle of humanity. However, in order for this concept to be useful, its characterization needs to be further refined.

- There is agreement, it seems, that the "human-out-of-the-loop", whereby there is no human interaction of any kind with the machine, is unacceptable. This realization, however, does not seem to be particularly useful, because it is doubtful that such a system is possible or even desirable from a military point of view.

- Rather, the challenges posed by LAWS are much more nuanced insofar as loose or precarious control or supervision seem to be the most likely scenarios whereby a machine, or system, once deployed, could take upon itself to engage with lethal force.

- Broad formulations as "human-in-the-loop", "in-the-wider-loop", or "on-the-loop" are clearly insufficient because they would not by themselves establish the meaningfulness of the human interaction with the machine that would guarantee compliance with IHL and the International Law of Human Rights. These formulations lack a qualitative dimension or descriptor.

- It is my country's view that meaningful human control can only be achieved if the role of the human, taking into consideration the technical aspects of each system, is such as to ensure not merely generic command or oversight, but also proper authorization to engage and the capacity to intervene and override machine functions when operationally possible.

- This must also not be a theoretical capability, but a practical one, in which the reaction time of the human "in control" would imply built-in limitations to the speed of the machine to act, notably with regard to engagement.

- Another important issue to be further discussed is the possibility of a machine influencing human decision-making in a way that distorts the perception of the operator or supervisor. As has been extensively discussed, algorithms are not necessarily neutral, they may reflect a bias implicit in the data that feeds them, including sensitive, discriminating, subjective or poorly defined aspects regarding ethnicity, the distinction between civilian and military targets, geographical locations and many others. Even where there is an operator apparently making decisions, for instance, if the machine identifies persons beforehand as "enemies", how much is there left for the human to decide?