

Statement of the UN Institute for Disarmament Research on Lethal Autonomous Weapon Systems

2018 Group of Governmental Experts on LAWS, 9 April 2018

Mr. Chairman, distinguished colleagues,

Thank you for giving me the floor. Last year, in support of the GGE's discussion, UNIDIR produced a primer on concerns, characteristics and definitional approaches in the weaponization of increasingly autonomous technologies. In it, we identified several characteristics or variables that seem to influence assessments of autonomy. The primer built upon an initial list of variables identified in our very first Observation Report of 2014. These variables included goal-satisfying actions, predictability, bounds on location or operating environment, communication, depth of reasoning, precision of sensors, and functions.

Today I'd like to share some further, brief observations. They support the claim that the acceptability and legality of any future system will likely be informed by consideration of the interactions of the variables I've just mentioned, and perhaps others.

Last year, with support from the German Federal Foreign Office, UNIDIR held a day long "technology game" exercise examining different forms and uses of autonomy in weapons. Participants from governments explored different *specific* potential future scenarios regarding the development of LAWS. One objective of the exercise was to gather insights about what kinds of variables matter when considering lethal autonomous weapons (for example, type of target, environment for use, complexity of the system, time operating autonomously, etc.). The technology exercise was not intended to reach consensus on what to do about autonomous weapons or to persuade participants to adopt any particular policy position.

Working in small groups, participants considered scenarios in which the technology evolved from present-day, to five and then fifteen years from now. As the technology evolved, more uses of autonomy were possible. Participants had to evaluate how these expanded uses of autonomy affected various legal, moral, ethical, strategic, competitive, and other concerns. Examples of discussion questions included "to what extent are you concerned, if at all, about...:

- this weapon being used in ways that violate IHL?
- about the moral or ethical implications of this weapon and proposed use?
- accidents or losing control of this weapon? Would this weapon likely lead to more accidents, less accidents, or no change?
- How, if at all, does this weapon change the role of the human in the use of force? Is this a significant change or a minor change?"

In total, the 15 scenarios explored a variety of plausible future uses of autonomy in weapons in a variety of contexts.

A number of interesting insights were gained:

- **Participants found that distinctions such as “automated” vs. “autonomous” were not very useful in evaluating the legal, moral, or strategic implications of use.** Similarly, many participants expressed that terms such as “semi-autonomous” versus “fully autonomous” created confusion, rather than added clarity. **Participants found that once they stopped focusing on the semantics of the terminology and instead discussed the actual intended use of the weapon, they felt they had better conversations about the legal, moral, ethical, and other issues at hand.**
- Participants **found a number of variables to be important** when it came to evaluating the implications of a weapon, including its range, endurance, mobility, type of target, and robustness of communication links back to a human controller.
- A particularly important variable seems to be **the time that a weapon operates independently of human control.** As the time increased, a number of participants became increasingly uneasy with the consequences of the weapon operating independently because of uncertainty about how the environment had evolved since the human decision to launch the weapon.
- Participants also observed that there were some advances in non-militarized applications, such as battery life, new composite materials, etc. that could advance the technology in unexpected ways. **Autonomy, they observed, is not just about the “intelligence” of the weapon but also its latitude in time and space.** Some significant uses of autonomy could come about from combining technologies and innovations in ways that, individually, might not immediately seem significant. A concern was also expressed about incremental advancements in autonomy that might lead to autonomous weapons without ever crossing a clear, bright line.

In sum, the method of examining plausible future scenarios with specific applications of autonomy proved to be valuable. It got participants to move beyond broad terms such as “automated” or “fully autonomous” and begin to grapple with the specific issues raised by various applications of autonomy in weapons. UNIDIR intends to convene further table top scenario exercises this year. If your delegation is interested in participating, please let us know.

Lastly, I’d like to bring to your attention UNIDIR’s latest paper: a primer on Artificial Intelligence. And, of course, UNIDIR’s eight observation reports on the weaponization of increasingly autonomous technologies—on framing discussions on AWS, meaningful human control, ethical issues, maritime autonomy, and unintentional risk and safety issues, cyber vulnerabilities, and definitions—are available on our website.

UNIDIR looks forward to continuing to support you in your work. We wish you a productive week of discussions.

Thank you Mr. Chairman.