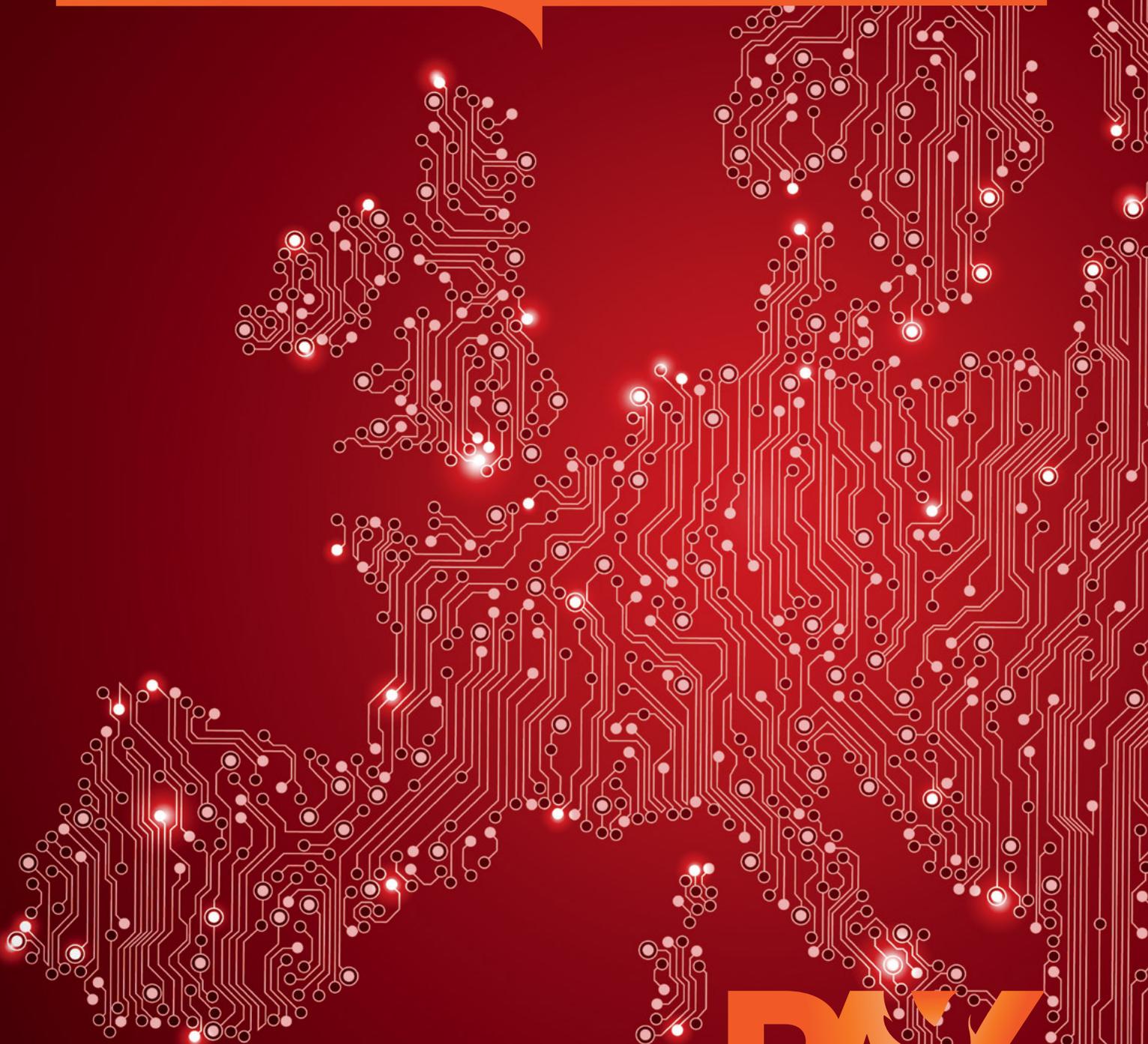


Convergence?

European positions on lethal autonomous weapon systems
Update 2019



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About PAX

PAX works with committed citizens and partners to protect civilians against acts of war, to end armed violence and to build peace. PAX operates independently of political interests.

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1. Introduction

European states are active contributors to the discussions on Lethal Autonomous Weapons Systems (LAWS) at the United Nations Convention on Certain Conventional Weapons (CCW) meetings. In the past years we have seen some convergence in their views. All European states agree there is a 'red line' beyond which increasing autonomy in weapons systems is no longer acceptable. There seems to be agreement that human control is the central element in the debate, and that there is a need to make explicit the necessary level and form of human control for LAWS to comply with legal and ethical norms. The majority of European states agrees there is an urgent need to work towards concrete policy outcomes to address the issue of LAWS.

THE DEBATE AT THE CCW

LAWS have now been on the agenda of the United Nations CCW for six years.¹ In November 2013 the Meeting of High Contracting Parties to the CCW decided to convene the first informal meeting of experts in 2014. There have been meetings at the CCW on the issue each year since. At the sixth Review Conference of the CCW in December 2016 states decided to formalize the discussions by establishing an "open-ended Group of Governmental Experts (GGE)". The goal of the GGE is to "explore and agree on possible recommendations on options related to emerging technologies in the area of LAWS".² The outcome report of the 2018 GGE meetings included 10 Possible Guiding Principles.³ These notably affirmed that IHL "continues to apply fully to all weapons systems, including the potential development and use of lethal autonomous weapons systems";⁴ and that human responsibility "must be retained since accountability cannot be transferred to machines".⁵ In 2019 there were two GGE meetings, a five day meeting in March, and another two day meeting in August.

The 2019 March GGE meeting was built around the following agenda item 5, similar to the 2018 meetings:

- a) An exploration of the potential challenges posed by emerging technologies in the area of Lethal Autonomous Weapons Systems to International Humanitarian Law;
- b) Characterization of the systems under consideration in order to promote a common understanding on concepts and characteristics relevant to the objectives and purposes of the Convention;
- c) Further consideration of the human element in the use of lethal force; aspects of human-machine interaction in the development, deployment and use of emerging technologies in the area of lethal autonomous weapons systems;
- d) Review of potential military applications of related technologies in the context of the Group's work;
- e) Possible options for addressing the humanitarian and international security challenges posed by emerging technologies in the area of lethal autonomous weapons systems in the context of the objectives and purposes of the Convention without prejudging policy outcomes and taking into account past, present and future proposals.⁶

The two-day meeting in August constituted mainly of an exchange on the 'Draft Report of the 2019 session of the Group of Governmental Experts'.⁷ This draft report will be discussed and a final version adopted at the November 2019 CCW meeting of the High Contracting Parties.

The draft report goes into the issues that were raised by states and areas of divergence and convergence. The draft report recommends that the GGE meets in 2020 and 2021. The number of days for these meetings still needs to be agreed upon. This will be either 20, 25, or 30 days over the 2 year period. The report states that the GGE should consider:

- “(i) the guiding principles, which it may further develop and elaborate
- (ii) the work on the legal, technological and military aspects
- (iii) the conclusions of the Group, as reflected in its reports of 2017, 2018 and 2019”⁸

Regarding the Guiding Principles an extra element was added this year, namely 'aspects of human-machine interaction in the development, deployment and use of emerging technologies in the area of lethal autonomous weapons systems' under agenda item 5(c).

The Chair's draft report states that work by the GGE should form the basis for the “clarification, consideration [and development] of aspects of the normative and operational framework”. The word 'development' is in brackets, which means it still needs to be agreed upon. The GGE's recommendations will be “reported, as appropriate, for consideration at the 2020 Meeting of High Contracting Parties and 2021 Sixth Review Conference”⁹

CURRENT REPORT

In 2017, PAX released its first report 'Keeping Control' summarising European state positions at the CCW meetings.¹⁰ The updated version for 2018, 'Crunch Time' was published in November 2018. The current report is an update of the two previous ones for 2019. However, it will mainly focus on two agenda items: 5(c) on the human element and 5(e) on possible options. The present report has been compiled by analysing the statements made at the 2019 March GGE meeting,¹¹ as the August meeting did not have specific statements, but interventions and remarks on the draft report. The statements used for this report were either available online or were provided to PAX directly by delegations.

This report aims to inform delegations and others interested of the various wordings regarding the human element in the use of lethal force as states have put forth a variety of information related to this concept, with more convergence than what might have been previously thought. This report also focuses on agenda item 5(e) in order to look ahead on possible concrete outcomes on the issue of LAWS. PAX's broader aim with this report is to inform delegations and others interested on the developments in the debate and areas of convergence and divergence.

2. European State positions

As explained in the introduction, the present report will focus almost exclusively on two agenda items. Firstly, on agenda item 5(c) on the human element, where at least 14 states took the floor at the 2019 March meeting.¹² In total twenty European States made statements at the March meeting. Secondly, the report will also focus on agenda item 5(e) on “possible options for addressing [...] the challenges posed by emerging technologies in the area of lethal autonomous weapons systems”, where 17 addressed this item. The current chapter reflects these states positions.

AUSTRIA

On the human element in the use of lethal force, Austria stated that “the human element is critical to IL and IHL compliance” and that “the key question is to determine the type and degree of human control necessary to ensure compliance with IL, IHL, the core principles of IHL and customary IL such as the dictates of public conscious”. It stated that “legal obligations, responsibility and accountability can by definition not be outsourced to machines”. Austria added that “the assessment of compliance with the existing standards and rules under IHL has to be taken in a contextual manner in the light of concrete circumstances”, as the “circumstances in the battlefield are shifting and human control of a weapon and human judgement are a necessary prerequisite”.

Austria underlined that there are two dimensions to IL and IHL: “first, the legality of the weapon per se and second, the question of lawful use of a certain weapon”. On the first point, Austria stated that “if a weapon is by its mere design not compatible with IL it must not be developed”. In Austria’s view “weapons with autonomy in critical functions are a case in point”. On the second point, it put forward that “the question of possible lawful use of a certain weapon system deserves particular attention”, stating that “IHL compliance is highly context-dependent, which is particularly sensitive when it comes to emerging technologies with autonomy in critical functions”.

In its statement, Austria provided an overview of the three fundamental principles of IHL. “Proportionality requires a distinctively human judgement”, adding that “a correct evaluation under the proportionality principle can be a particularly challenging or impossible task for example in populated areas where the situation changes rapidly”. On distinction, Austria said that “while it is difficult to assess future technological progress in this regard, my delegation has substantial concerns on data accuracy, bias and availability of data in conflict situations”, further reiterating that “from a legal and ethical

perspective it is more than problematic to leave the selection of targets and decision to attack to a machine and we cannot envisage how such a system would be compatible with IL". On precaution, it put forward that "there needs to be a possibility for humans override of the system". The delegation further added that "ensuring meaningful human control requires a multidimensional approach which also relates to the level of predictability and reliability required to ensure human control and the necessary required human legal and situational judgement", adding that "we agree with the ICRC's view that 'setting boundaries – or operational constraints [...] can contribute to increasing predictability'".¹⁴

On the possible options for addressing the humanitarian and international security challenges, Austria stressed that "the rapid progress in technology [...] will impact armed conflict and might even change the future of warfare", highlighting that "urgent action is needed". It also put forth that "Human responsibility and accountability for the use of force must be safeguarded". To address this gravity of the potential impacts of LAWS "binding limitations are indispensable to safeguard compliance with IL, and IHL in particular". It further stated that "Austria is ready to start negotiations", adding "only in negotiations we will be able to clarify the open points". Austria believes that "the CCW should live up to its task of a norm-setting forum – now the clock is ticking". "We cannot stop technological progress nor do we want to do so, but it is incumbent on us to act to ensure that the clear legal framework prevents developments, that we believe none of us would like to see".

Austria welcomed all efforts to "strengthen article 36", stating that there is a "lack of legal clarity, common criteria and transparency with regard to article 36".¹⁵ On this, Austria stated that "it does not give a clear legal standard, it merely assesses if – from a national perspective – a certain weapon development would be permitted under international law". "If there is no explicit international special norm, States would most likely differentiate in their assessment". Austria concluded its statement by saying that "in the context of LAWS, there is an imminent need to international clarify the minimum human control acceptable in an autonomous weapon system. A specific international legal norm is thus needed".¹⁶

BELGIUM

On the human element in the use of lethal force, Belgium "is of the view that the concept of meaningful human control is an essential and central element of our discussions on LAWS. Such human control should encompass control by design which is related to the conception of weapons systems and control in use which refers to the effective use in operations, in particular in target selection and engagement". It referred to its food-for-thought paper, jointly submitted with Ireland and Luxembourg which stressed a "number of specific characteristics of LAWS which relate to the lack of meaningful human control would, in our view, pose serious concerns from a legal, humanitarian and ethical point of view". These characteristics are addressed in the report further below.

Belgium believes that "the IHL principles of distinction, proportionality and precaution require the ability for the human agent to retain control over the critical functions of a weapons system. It also requires that human judgement and evaluation of the operating environment be retained". It also stated that

“we are of the opinion that the commander always remains responsible for the consequences of the use of a weapons system, either individually or according to command responsibility. Consequently, there should never be an accountability gap”. On reliability, Belgium believes “that the level of reliability required for autonomous weapons systems would be the same as for other weapon systems. It should not be the purpose to use non-reliable weapon systems”. On predictability, “the decisional authority should always be fully aware of the potential effects of a weapons system”. It believes that “longer operations timeframe and increased scope of movement over an area are major factors that would create uncertainty between the point of activation of an autonomous weapons system and the eventual attack that would result. An autonomous weapons system – since it could select and engage targets independently – would create varying degrees of uncertainty as to exactly when, where and why the resulting attack would take place. Such weapons systems would therefore be undesirable”.¹⁷

On the possible options for addressing the humanitarian and international security challenges, Belgium stated that it “shares the sense of urgency expressed by other delegations” and “It is important that our discussions lead to tangible results”. “For Belgium the purpose of our endeavour should be to ensure the prohibition of the introduction of weapons systems which we deem incompatible with legal, humanitarian and/or ethical standards. In our joint paper with Luxembourg and Ireland, we have stated the specific characteristics that we would consider problematic. For Belgium, it is hence important to make further progress on the issue of characterisation”.

On Article 36 reviews, Belgium stated that “this remains a useful and important avenue to ensure that any weapons system is developed in compliance with international law, and in particular with IHL”, stating that “it is also a safety net that would ensure that certain weapon systems, not be captured in definition, but not compliant with IHL, would also be covered”. It argued that the “universalization of the legal review of new weapons would be an important step forward in coping with the challenge posed by LAWS. However, as already stated, this is insufficient for Belgium to tackle the challenges related to LAWS”. Belgium put forward that “additional policy measures should be considered, within the framework of the CCW”, favouring “the adoption of a strong political declaration, and/or a dedicated legal instrument in order to ensure that autonomous weapons systems which we deem incompatible with legal, humanitarian and/or ethical standards are not introduced”.¹⁸

Food For thought Paper – Belgium, Ireland and Luxembourg.¹⁹

Belgium, Ireland and Luxembourg put forward a food for thought paper in March 2019. The paper references the guiding principles, pointing at a number of these being of “prime importance to frame the discussion”, including principle a) on the applicability of IHL, b) on the need to retain human responsibility, e) on states’ obligations to undertake weapon reviews, h) on upholding compliance of emerging technologies with international law, and j) that peaceful uses should not be hampered.

The paper states “A number of specific characteristics would, in our view, pose serious concerns from a legal, humanitarian and/or ethical point of view when introduced into lethal weapons systems. Each of the following characteristics on its own would be problematic: (a) The ability to run through a targeting cycle, with the final intention to apply lethal force, without any human intervention; (b) The ability to switch to lethal mode without any human intervention; (c) The impossibility to interrupt or deactivate the autonomous mode; (d) The ability to redefine its mission or objective without any human intervention.”

The paper puts forward the question “How can we prohibit the introduction of the weapons systems, which we deem incompatible with legal, humanitarian and/or ethical standards?”, while adding “The universalization of the legal review of new weapons would thus be an important step forward in coping with the challenge posed by LAWS. However, additional policy options should also be considered, within the framework of the CCW. These can take the form of a strong political declaration and/or a dedicated international legal instrument”.

The paper ends with “Once the hurdle of the characterization is taken, a broad international consensus should be sought on the most effective way to reach our common objective, which is the prohibition of weapons systems that contravene the above-mentioned legal, humanitarian and/or ethical standards”.

BULGARIA

On the human element in the use of lethal force, Bulgaria stated that “human-machine interaction is of prime importance at the various phases of research and development, validation, deployment and use of autonomous weapons systems, especially in the targeting cycle”. It further believes that “human control must be exerted over the whole life cycle of an autonomous system and primarily over the use of force in order to guarantee that utilization of such weapons fully complies with the international humanitarian law and its cardinal principles of distinction, proportionality and precaution”.

Bulgaria shares the view along with other delegations that “human control is context-dependent. The extent and type of human control to be exercised over an autonomous system to ensure compliance with IHL depends on the context of the operational environment, the nature of the system and its intended use”. It also stated that “subordination of a machine to a higher military authority in the chain of human command must be assured” and “human interference in the decision-making process on application of lethal force is a must”.²⁰

On the possible options for addressing the humanitarian and international security challenges, Bulgaria believes that the 2018 Possible Guiding Principles “create foundations for State Parties to achieve further advancement and strengthen their understandings of [...] autonomous weapons systems with respect to the international humanitarian law and international human rights law”.

Bulgaria put forward that the CCW is “the proper forum for deliberations, exchange of views and expertise [...] on issues and concepts related to the emerging technologies in the area of LAWS”.

Bulgaria considers the political declaration “as an appropriate approach to ensure IHL compliance and responsibility for the application of force”, stating that due to its “balanced and pragmatic nature, a political declaration could serve as a display of the State Parties’ determination to move towards more tangible results”. It believes that the Possible Guiding Principles “could be operationalised and integrated in a political declaration”.

Bulgaria believes that Article 36 reviews play “an important role in ensuring that development and use of autonomous systems duly complies with IHL norms and principles”, stating that “these reviews examine weapons systems against biases, as comprehensive testing goes into assuring a system works as intended”. As weapons reviews are national internal procedures, Bulgaria sees merit in “practical measures, such as information exchange, sharing best practices and lessons learned and public access to Article 36 procedures and results to enhance transparency and confidence building”.²¹

To our knowledge, Croatia, Cyprus, Czechia and Denmark did not make a statement at the March 2019 GGE meeting.

ESTONIA

On the human element in the use of lethal force, Estonia shares the view that “humans must retain ultimate control and responsibility in relation to the use of force in armed conflict”. For Estonia, “the need to exercise human control over the use of force does not arise from any discrete rule of international law. Rather, human control constitutes a practical means for ensuring that the use of force complies with international law”. Estonia stated that “humans must exercise such control over a weapon system as may be necessary to ensure that the weapon system operates consistently with international law”, adding that “the precise nature of control to be exercised will necessarily depend on the characteristics of the weapon system, and the operational environment”.

Estonia put forward that “weapon systems themselves have no obligation to comply with the law. [...] Thus, to our mind, the critical question is whether a weapon system is capable of being used by an operator consistently with international humanitarian law”. In addition, it argued that commanders and operators “can rely on a weapon system with autonomous functions only if they are confident that the system, given its fixed and programmable features, and the operational situation prevailing at the time, would not lead to breaches of the law or other unintended consequences”. Estonia believes that “it is the combination of human interventions undertaken in such a system, rather than any of them considered in isolation, that must amount to human control necessary for ensuring compliance with the law”.²²

On the possible options for addressing the humanitarian and international security challenges, Estonia stated that it is “not convinced of the need for a new legally binding instrument on weapon systems with autonomous functions”. On IHL, it stated that it “remains a robust and dynamic regulatory regime”, that “can deal with a range of emerging technologies, including weapons systems with autonomous functionality”. It does acknowledge “that such weapon systems can create uncertainties when it comes to interpretation and application of the law” stating that “such matters merit further discussion”.²³

Estonia is “supportive of an outcome document containing the relevant principles, potentially along the lines of a political declaration”. It believes that consensus could be reached on at least three points: “that international law, in particular international humanitarian law, is fully applicable to all weapon systems [...]; Second, that states ought to put in place practical measures to verify that the weapons they develop and acquire [...] are capable of being used in accordance with their obligations under international law; Third, that states must implement mechanisms of command and control, and individual accountability, to ensure that all weapon systems [...] are use consistently with the law”.

Estonia stated that as “the appropriate human interaction with a weapon system depends significantly on the nature of the system and its intended operating environment” the principle in a “political declaration or similar document would likely be of a fairly abstract character”. How to operationalise those principles “could be the subject of a more detailed compilation of best practices or guidelines”. Estonia also noted “with interest the proposal made by Portugal to consider the Montreux Document as a template for an outcome”. Estonia “is convinced that the CCW is the more appropriate forum for discussing issues related to weapon systems with autonomous functions”.²⁴

FINLAND

On the human element in the use of lethal force, Finland believes that “compliance with international humanitarian law and human rights law is a key component”, also stating that “from an ethical perspective, human control would be required to a level that preserves human agency and upholds moral responsibility in decisions to use force”. It put forward that “human control over weapons requires that the operator has sufficient information on and understanding of the weapon system and operating environment, and the interaction between them”. Finland also stated that “human control is context-specific; it varies throughout the weapons’ operating cycle [...]. The kind and degree of human control that must be exercised at various points leading up to and including the use of a weapon depend heavily on the nature of the weapon and circumstances of its use”. It is “unconvinced that increasing autonomy in weapons systems would categorically lead to humans being distanced further from the decision to use force”.²⁵

On the possible options for addressing the humanitarian and international security challenges, Finland stated that although “the pace of work in the GGE may not be as swift as some would hope, [...] we must not forget that the notion of autonomy in weapon systems is an exceptionally complex and multifaceted topic and cannot directly be compared with other arms control processes of recent years”.

Finland “continues to view the CCW as the relevant forum for discussions on weapons systems with autonomous functions”. Finland feels that “the Possible Guiding Principles from last August are a good platform through which States could begin building a practical framework agreement, common standards or a declaration and a possible Code of Conduct”, stating that “Such agreement would allow States to reaffirm their commitment to existing legal obligations, commit to information sharing and perhaps establish new, concrete standing expert mechanisms under the CCW”.²⁶ In their informal points, Finland raised that it is keen to begin a negotiating process within the GGE towards a political document: the GGE is an expert body and must always have a clear political aim.

FRANCE

On the human element in the use of lethal force, France stated that it is “necessary to deepen our discussions on human-machine interaction in order to understand its ins and outs, to ensure respect for IHL and all relevant principles relevant to the framework of developing autonomy in weapons systems”.²⁷

On the possible options for addressing the humanitarian and international security challenges, France reiterated that the CCW is the relevant framework by “bringing together the legal, technical and diplomatic expertise needed to address the topic of LAWS”, stating that the CCW “ensures a balanced approach between defence needs and humanitarian concerns”.

France put forward that the positions of the different delegations “remain strongly divergent and some are not yet ready to formulate national positions on these systems”, though France argues that these differences “do not constitute an obstacle to the identification of relevant principles that should guide us in the light of emerging technologies related to LAWS”.

It stated that “the negotiation of a legally binding instrument or a preventive prohibition would be premature and counterproductive. In this respect, in line with the work of the 2018 GGE and the adoption of the 10 “guiding principles”, we are convinced that the adoption of political commitments would be, at this stage, the most appropriate option to bring consensus together”, further saying that “these commitments would allow to further operationalise these key principles”.²⁸

GERMANY

On the human element in the use of lethal force, Germany stated that it sees “the definition of the human role as the single most relevant deliverable of this group and a central element of any outcome document”, stating that “any CCW-outcome document building on these guiding principles should contain a clear affirmation of human control over all future lethal weapons systems” where “CCW High Contracting Parties would need to define the quality of human control as part of such a document”. In its view, “the quality of human control is defined by the fact that humans must remain accountable for weapons systems they use, as already stated in the “Possible Guiding Principles”. Accountability can only be assured as long as humans retain sufficient control over the critical functions of the weapons

they operate". Further, "humans also have to maintain the ultimate decision in matters of life and death". Germany stated that "the unique qualities of human judgement can't be totally replaced by the capacities of machines, which have a high capacity for analysing large sets of mathematical data but which can't be trusted to take the kind of value based decisions which military practitioners are required to take under international law". In their view, "this makes it necessary to ensure the human-machine interaction in future weapons systems is designed in such a way that the machine is subordinate to the human operating it", where the "human has to remain the essential element in this interaction bearing the overall responsibility".

It argued that "all this can already be ensured by the appropriate design of future weapons systems". Further "once a weapons system is in operation human control can only be assured as long as the respective accountable human has sufficient knowledge of the machine, of the operating environment and of the likely interaction between the two. Human control over the critical functions of weapons systems requires control over the entire life-cycle of weapons-systems".²⁹

On the possible options for addressing the humanitarian and international security challenges, Germany stated that given "the rapid pace of technological advances [...] Germany suggests we now focus the work of this group on developing concrete options for addressing the humanitarian and international security challenges posed" by LAWS. It recalled that "France and Germany have recommended this group should work out the elements of a Political commitment, to take the form of a Declaration, middle ground so to speak". Germany stated that the political declaration "should take the set of "Possible Guiding Principles" agreed on in the Final Report of the 2018 GGE as a basis", stating that they "contain all of the central issues". Germany are in favour of this approach as it would allow "to agree on overarching principles to guide technological developments" as well as "set clear red lines with regard to the development autonomous functions [...] operating outside sufficient human control".

Germany is also of the view that "effective arms control [...] needs to take a networked approach" that involves "research and science, industry, national legislation as well as multilateral agreements". Germany further stated that a "Code of Conduct or a Compendium of Military Best Practices could be developed" on the basis of the political declaration.³⁰

To our knowledge Greece, the Holy see, Hungary and Iceland did not make any statements at the 2019 GGE meetings.

IRELAND

On the human element in the use of lethal force, Ireland argued that it has "retained a consistent position [...] on the need to ensure a human element in the use of force expressed in a variety of ways including meaningful human control or effective human control", stating that it is "only by retaining human agency in the decision to use force that we can ensure full compliance with International Humanitarian Law (IHL)". On autonomy, Ireland has always considered it "as it relates to the extent to which humans are involved in the execution of the tasks carried out by the machine, including the programming of such tasks". It stated that "aside from fully autonomous weapon systems, the degree of autonomy assigned to a weapon system may be shaped by a number of factors including the type of information programmed into the machine. Autonomous capabilities are generally achieved through

means of algorithm based software programming”, where “we should be mindful that social biases have a potential impact on emerging technologies including in the possible development autonomous weapons systems”. In Ireland’s view, “the concept of human control should mean that a human being should be the sole decision maker in the targeting process and a human being should remain the ultimate authority when deciding to execute an attack”.³¹ Referencing the food for thought paper with Belgium and Luxemburg, Ireland highlighted that the common thread “is the absence of human intervention or human control”.

On the possible options for addressing the humanitarian and international security challenges, Ireland believes that “identifying and reaching a common understanding on the concepts and characteristics relevant to LAWS can aid in our consideration of the most suitable response for addressing the humanitarian and international security challenges posed by LAWS”. Ireland put forward that it “has retained a consistent position [...] on the need to ensure human control in the use of force”, stating that it is the only way to ensure compliance with IHL, still recognising that “control exercised by humans can take various forms and degrees at different stages of development, deployment, activation and use”. Ireland stressed that “there is an urgent need for tangible policy responses”, putting forward that “in the short term, we see merit in a political declaration” but it also sees merit “in developing a legal instrument designed to ensure human control over decisions on the use of force by means of autonomous weapons”.³²

To our knowledge Italy, Latvia, Liechtenstein, and Lithuania did not make a statement at the 2019 GGE meetings.

LUXEMBOURG

On the human element in the use of lethal force, Luxembourg stated that “fundamental principles of IHL [...] can indeed only be guaranteed if there is meaningful human control at all touch points in the human-machine interface, as illustrated by the sunrise slide of previous Chair Ambassador Gill, and especially at the stages of target selection and the application of lethal force”. It considers this “a prerequisite for the compliance of autonomous weapons systems with IHL”, adding “it is only through meaningful human control that human responsibility and accountability for the use of lethal force can be guaranteed”. Luxembourg refers to its food-for-thought paper, submitted along with Belgium and Ireland (see above). It further stated that an autonomous weapons system, which would not be bound by limits on tasks, targets, environment and timeframe, “would be able to redefine its mission or objective without any human intervention, and could therefore arrive at conclusions that are impossible for humans to foresee or even to comprehend”, stating that this potential lack of human control “would therefore make any such system [...] incompatible with international humanitarian law”.³³

On the possible options for addressing the humanitarian and international security challenges, Luxembourg emphasised that “the urgency for the international community to take action on lethal autonomous weapons” has “only increased since last year”. It put forward that the group has made “significant progress towards common understanding in many areas” and that while some differences remain, Luxembourg believes that “these are not impossible obstacles to overcome”. Luxembourg mentioned the universalisation and sharing of best practices regarding national Article 36 reviews as a good example.

Luxembourg put forward that “existing international legal norms should be strengthened by a complementary, non-legally binding political declaration” that it sees as a “first step towards the development of a possible code of conduct”. It also said that, in view of the ten guiding principles adopted last year, “it seems that part of the work has already been done in this regard”. Luxembourg added that a political declaration “would send a strong signal and would constitute a solid foundation for this GGE to explore more concrete policy outcomes”, citing “a dedicated international legal instrument, possibly containing a positive obligation” as one of the options for a concrete policy outcome. Finally, Luxembourg stated that “we must now take our discussion forward [...] in order to achieve concrete results”.³⁴

To our knowledge Malta did not make a statement at the 2019 GGE meetings.

NETHERLANDS

On the human element in the use of lethal force, the Netherlands stated that it is “of the view that autonomous weapon systems should remain under meaningful human control to ensure their compliance with international law. [...] only humans can be held accountable, and therefore should have meaningful control over decisions on the use of force”.

It argues that “meaningful human control should be understood within the context of design, development and operational use of autonomous weapons. The targeting cycle allows for human control in relation to a wide variety of tasks, such as the determination of end-states and objectives, target development, weapon selection, assessment of potential collateral damage, determination of the weapon’s operational boundaries in time and space, and the assessment of the effectiveness and lawfulness of the engagement after deployment”. The Netherlands stated that in practice, i.e. in current military targeting practices, “it is usually not one single operator who is in control of the complete targeting cycle. The control is, in other words, distributed. The introduction of a weapon with autonomous functions therefore does not negate the human element throughout the targeting cycle. Rather it modifies the way in which humans, occupying different roles, together exercise sufficient levels of human control”. It also put forward that “it is important to consider the possible benefits of human-machine collaboration. Effective human-machine teaming may allow for the optimal utilization of technological benefits, such as precision, speed and reliability without sacrificing the robustness and flexibility of human intelligence”.

The Netherlands considers the use of “fully autonomous weapons systems, which can change their goal-function independently or alter pre-programmed conditions and parameters” as “already prohibited under existing international law”. The Netherlands put forward the following elements that meaningful human control should consider: “(1) ‘responsible innovation’ during the design phase – that includes questions related to a system’s predictability, explainability and transparency”; “(2) Realistic and rigorous testing during the design and development phases”; “(3) The execution of legal weapon reviews that pay sufficient attention to the level of autonomy of the weapon system and (4) Extensive training of military personnel (including operators, commanders, legal officers) on the use of autonomous weapon system”.³⁵

On the possible options for addressing the humanitarian and international security challenges, the Netherlands recalled that it considers “fully autonomous weapons systems that operate beyond meaningful human control to be already prohibited under existing international law”, emphasising that “the current legal framework is adequate” and that “an additional legally binding instrument is not necessary”. On top of that, the Netherlands also does not “believe that suggestions regarding an additional positive legally-binding obligation, regarding the concept of meaningful human control, is feasible, as long as there no consensus on the concept”.

The Netherlands does acknowledge that “in light of technological developments further clarification of existing rules may be necessary” and “welcomes the 10 guiding principles that we agreed upon last year”. It believes that “a further operationalization of these principles can be a useful exercise in light of reaching common understanding of how they should be implemented in an operational context”. The Netherlands is of the view that it would be “especially beneficial to further study and discuss the concept of meaningful human control” that could lead to the “formulation of an interpretive guide or codes of conduct, clarifying the current legal landscape”. It stated that “such a document should focus [...] on meaningful human control in relation to the deployment of autonomous weapons, as well as on how to properly consider meaningful human control in the Article 36 Review Procedure”.³⁶

To our knowledge Norway did not make a statement at the 2019 GGE meetings.

POLAND

On the human element in the use of lethal force, Poland stated that “we still need to clarify the distinction between the notion of automation and autonomy”. Therefore, “we believe that there’s a need to refine our understanding of assigned levels of human control to use of LAWS. We should agree on critical levels of functions which should never be transferred beyond human control”. It also argued that predictability “could be ensured by establishing human parenting to supervise and control the learning process with code of conduct deriving from IHL, in which case the predictability might be bigger than in humans”.³⁷

On the possible options for addressing the humanitarian and international security challenges, Poland sees the merit in having an instrument “that would encourage State Parties to further regulate development, testing and use of LAWS” but does not “see the need to work on the new legal framework regarding LAWS”, stating that “We already have a legally binding instrument which is IHL”. Poland is of the view that the “only viable option” is to agree on an outcome document which “gives guidelines and regulates the development and use of this kind of weapons and explores level of autonomy in relation to levels of human control”, instead of “form of human control”.

Poland proposes that their assumption of always keeping “humans accountable for the use of the systems equipped with AI, no matter its degree of autonomy” be the core element of any outcome document. Poland stated that such an outcome document “should serve as an instrument that reflects a common understanding that has been reached so far” in the group, stating that it could help us “set the parameters with regard to design, development, learning phase and use of LAWS”.³⁸

To our knowledge Portugal and Romania did not make statements at the 2019 GGE meetings.

SPAIN

Spain aligns itself with the statements made by the European Union.³⁹

SWEDEN

Sweden's statements were unfortunately unavailable.

SWITZERLAND

On the human element in the use of lethal force, Switzerland stated that “irrespective of the selected policy option for further work [...], we believe that the human element should play a central role. It will be important in particular to further refine our understanding of how, and in which part of the life cycle of autonomous weapons, human involvement is necessary”. Switzerland argues that “human control therefore primarily serves to ensure compliance with IHL”. It noted that “a certain quality and level of human control thus seems required, notably in the targeting cycle and is a pertinent factor in view of legal, ethical and military considerations and must be considered in the development and potential employment of autonomous weapon systems”.

Switzerland further argues that “increasing autonomy could support or even replace humans in the execution of certain tasks, but human involvement will still be necessary, notably for qualitative and contextual judgements given the human being’s cognitive capabilities – something machines are currently not capable of”. It stated that human control can be exercised in various ways, “either independently or in combination, throughout different phases of the life-cycle of a weapon system, particularly, but not only in the targeting cycle”, explaining that “a significant level of control is already embedded in the research, development and programming phases. The predictability and reliability of autonomous weapon systems can be increased through testing and evaluating such systems and by restricting the parameters of engagement in line with the system’s capabilities with a view to ensure compliance with IHL. Depending on operational requirements and system capabilities, further control can be exercised through real-time supervision, or through an autonomous or human operated override mechanism”. Also “additionally, guidelines and training of relevant persons in armed forces are of great importance”. Switzerland stated that the important question remaining is what level of human control is always required in the operational use of weapons, irrespective of the control already embedded in the design, development and testing phases. “This is because complying with the principles of distinction, proportionality and precaution seems to require the presence of independent value judgements and evaluative decisions. At least for the moment [...] such judgements and decisions cannot be taken over by machines”.⁴⁰

On the possible options for addressing the humanitarian and international security challenges, Switzerland is of the view that a good starting point for better understanding and appropriately addressing weapons systems with increasing autonomy is through “an approach seeking to secure and facilitate compliance with existing international law (particularly IHL)”. Given the current state of artificial intelligence and robotics, Switzerland stated that there is no question on “whether states have a duty to control or supervise the development and/or employment of autonomous weapon systems. Rather the question is how that control or supervision ought to be defined and exerted to comply with IHL and international law”. It is confident that the IHL framework “if carefully and strictly implemented, provides us with the necessary guidance to ensure that we are not going to see weapons systems, which detect, select and engage targets without appropriate or necessary human control”, however putting forward that “compliance with IHL may require specific implementation measures to translate IHL into practice”.

With regard to possible options, Switzerland continues “to see a variety of possible avenues”, and that the three main avenue options in the 2018 GGE report “to a certain extent, contain elements that are not mutually exclusive”. It sees value in “avenues that provide sufficient flexibility”, given the divergence among Parties on the appropriate approach. Switzerland remains convinced “that a political declaration represents the most promising way forward”. In their view, it could “enshrine common principles regarding the development and use of autonomous weapon systems”.

Switzerland stated that a “key element that a declaration should cover is the applicability and the centrality of ensuring respect for IHL in all circumstances”. A declaration “should highlight that High Contracting Parties remain responsible for wrongful acts and that individual responsibility should be guaranteed”. Switzerland added that “a declaration should also capture that it is in nobody’s interests to deploy weapons that are unpredictable and no weapon should be used without appropriate human control”. It stated that “a declaration would require substantive work”. On a legally binding instrument, in principle, Switzerland is “flexible to consider such responses as may be deemed required” but asks a number of questions that “need to be clarified”. These include if it is possible at this stage to “draw the line between acceptable or unacceptable weapons, or technologies?”; “would a legally binding document state prohibitions, or provide positive obligations?”; “would we not risk prohibiting a very narrowly defined “tip of the iceberg” and risk legitimising systems that might still raise concerns with regard to IHL compliance?”; “how could a positive legal norm on meaningful human control be operationalised, given the different conceptual understandings and different contexts?” Switzerland believes that “such questions would need to be looked at in detail before coming to the conclusion a legally binding instrument focussing solely on meaningful human control in critical functions of AWS may be the answer to the challenges we face”.⁴¹

UNITED KINGDOM

On the human element in the use of lethal force, the United Kingdom stated that “direct human involvement in every detailed action of a system or platform may not be practical or desirable under all circumstances. Instead a human-centred approach to autonomous technologies must take into account the operational context as well as the capabilities and limitations of the personnel deploying the weapon system”. It argued that “focusing solely on specific – or ‘critical’ – functions or activity in the lifecycle of a weapon is unlikely to be sufficient to ensure there is human control”. [...] “Rather, it is the cumulative effect of multiple safeguards across the development and operational lifecycle that establish human control of weapon systems. Therefore, human control should be considered and exercised throughout this lifecycle and in a way that is appropriate to the operational context”. The United Kingdom explained that “specific constraints or parameters that might be placed on a machine’s freedom of action might include limiting the target sets or profiles [...] which a machine can prosecute without additional human input; or limiting the range and task duration within which the system may be allowed to operate away from direct human involvement. Similarly, the number of engagements that could be carried out by a machine before further human input could also be limited to a single target or related target array. These pre-set conditions would need to be regularly reviewed and updated in response to any changes in the operational context”.

In addition, “two important factors are the type of feedback available to the user before, during and after use, and the familiarity of the operators with the system – particularly regarding its capabilities and limitations. Specifically, a weapon or weapon system should not be able to have a lethal effect which cannot subsequently be explained by an appropriate human authority such as system operator or commander. This feedback and familiarity are achieved through human-centred design practices and appropriate training, among other things”. The United Kingdom concluded that “to achieve human control of a weapon system a flexible through-life approach must be applied. [...] In summary, instead of relying on an operator-in-the-loop as the sole guarantee of human control, it must instead be considered throughout the weapon lifecycle, from multiple-perspectives, and taking into account the operational context”. “Ultimately, it remains the UK’s contention that the degree of scrutiny that responsible states and militaries should apply to the design, delivery, operation, regulation and disposal of weapons systems is sufficient to regulate the development of all such systems, including those with autonomous functions – however autonomy is defined”.⁴²

On the possible options for addressing the humanitarian and international security challenges, the United Kingdom highlights the “continued lack of consensus in many key areas”, stating that “the continued divergence of views after several years of discussions makes the formulation of a mutually acceptable, practical and enforceable legal instrument unlikely in the near future – in the CCW or any other forum”. It adds that “such an instrument would undoubtedly fail to secure the support of states that have the financial, technological and military capability to make greatest use of developments in emerging technology”. The United Kingdom further stated that a legal instrument would “fulfil the presentational requirement [...] but would have no practical effect”. It believes that the CCW is “the appropriate forum for our discussions”. The United Kingdom further contends the assertion that IHL is insufficient: stating “we are yet to be presented with any empirical evidence as to what these shortcomings might be and how they might be overcome”.

On possible options forward, the United Kingdom stated that “we recognise the possible merits of some [...] such as the Franco-German work or a code of conduct [...]. Similarly, we would likely endorse and support the convening of a regular group of experts under the auspices of the CCW which could monitor and report on rapidly changing technological considerations in the field”. It still emphasised that it does “not agree that such a group of experts should be given a negotiating mandate on a legally binding instrument”. The United Kingdom recognises “the value of Possible Guiding Principles [...], not least because they capture the issues on which common agreement has been found”. On Article 36 reviews, the “UK is keen to continue to share elements of national best practice and has already set out its approach to Article 36 reviews to show how this can and should work”.⁴³

EUROPEAN UNION

On the human element in the use of lethal force, the European Union stated that “human control over lethal autonomous weapons systems is essential to ensure their compliance with international law, including IHL and its key principles, such as distinction, proportionality and precautions in attack in order to protect the civilian population to the furthest extent possible, as well as the obligation to protect the wounded, sick, prisoners of war and any person who is considered hors de combat”. The EU stated that “human control has to be built into the entire life cycle of the weapons systems, including phases of research, definition of military requirements, design, development, programming, deployment, use or transfer”. It further stated that “human-machine interaction must be designed and programmed in a way that ensures effective compliance with the Laws of Armed Conflict”, and that “it is important to take into account gender perspectives when discussing the issue of LAWS”. The EU argues that “discussions on human oversight [...] or control should be further substantiated”. The EU believes that “discussions in the GGE should now focus on the necessary extent and type of human control that is required to ensure compliance with IHL, International Human Rights Law, and other relevant provisions of international law”. It put forward key elements of human-machine interaction:

“Commanders and operators should be able to understand how a system works and be aware of its likely interaction with and potential effects on its operating environment”; “Commanders should at least retain ultimate command and responsibility for the decision to deploy the system, approving the rules of use and engagement, and validating the mission objectives”; “Humans must make the decisions with regard to the use of lethal force, exert control of lethal weapons systems they use and remain accountable for decisions over life and death”.⁴⁴

On the possible options for addressing the humanitarian and international security challenges, the European Union believes that the “ten Guiding Principles provide a sound and consensual basis to advance our work towards substantive recommendations” “in particular to set out the necessary key elements of human control needed to ensure compliance with international Law”. On this the EU welcomes “the clear commitment by all High Contracting Parties to the Guiding Principles”.

The EU stated that it sees the CCW as the relevant international forum. It recalled that the GGE has been mandated to explore and agree on possible recommendations on options that might include “possible regulatory options to ensure compliance with International Law”.⁴⁵

3. Summary and Conclusion

Summary

This report mainly focuses on two agenda items: namely 5(c) on the human element and 5(e) on possible options. Regarding item 5(c), the report shows there is clear agreement on the need for human control over the use of force. In fact, statements in the section on the human element in the use of lethal force demonstrate that there is perhaps more convergence than thought.

On the human element, European states agree that human control is a requirement to ensure compliance with IHL and that humans must remain accountable and responsible over the use of force. The EU joint statement also shows points of convergence among EU member states regarding human control, namely that the user should “understand how a system works” and its “interaction with and potential effects on its operating environment”; that commanders should remain responsible “for the decision to deploy the system”, the “rules of use and engagement”, and “validating the mission objectives”; “Humans must make the decisions with regard to the use of lethal force, exert control of lethal weapons systems they use and remain accountable for decisions over life and death”.⁴⁶

This is also reflected in individual statements by European states. Several European states refer to human control as being context-dependent. Indeed a number of states said it would depend on the operational environment and nature of the weapon system. Germany, like many other states, stated that human control can only be assured with sufficient knowledge of the machine, its operating environment and the likely interaction between the two. Other states, such as Luxembourg, put forward that there must be human control over all touch points of the human-machine-interaction in order to ensure compliance with IHL. In addition, Austria and Ireland warned of biases that may be inherent to systems with increasing autonomy. In sum, there is clear agreement among European states that compliance with IHL requires human judgement and control.

The vast majority of European states agree there is an urgent need for concrete policy outcomes to address the issue of lethal autonomous weapon systems. For example, Belgium said: “It is important that our discussions lead to tangible results” and Finland stated “the GGE is an expert body and must always have a clear political aim.” There is a divergence of views regarding what form this should take. A small number of states argue that IHL is sufficient, such as the Netherlands, the United Kingdom and Poland, and that in any case a legally binding treaty is not the optimal outcome. In fact, Poland argued that “We already have a legally binding instrument which is IHL”.

On the other hand, progressively more states are raising a legally binding treaty as a possible option. Austria has championed this since last year, emphasising that legal clarity can only be provided by a legal instrument. In addition, states such as Belgium, Ireland, Luxembourg and Switzerland have acknowledged this could be a possible option. For Belgium “the purpose of our endeavour should be to ensure the prohibition of the introduction of weapons systems which we deem incompatible with legal, humanitarian and/or ethical standards”.⁴⁷

The third avenue for addressing the challenges posed by LAWS is the idea of a political declaration, originally put forth by France and Germany. The idea of a political declaration is supported by many European states, including Bulgaria, Finland, Ireland, Luxembourg, Germany, and Switzerland. States such as the United Kingdom and the Netherlands also see merit in such an option. Germany has said that the political declaration “should take the set of “Possible Guiding Principles” [...] as a basis” as they “contain all of the central issues”. It would also allow “to agree on overarching principles to guide technological developments”, as well as to “set clear red lines with regard to the development autonomous functions [...] operating outside sufficient human control”. There is disagreement whether a political declaration would be an end point or a stepping stone. For example Luxembourg stated that a political declaration would constitute a solid foundation for the GGE to “explore more concrete policy outcomes”, one of these options being an international legal instrument.

Other measures or steps have also been suggested. Portugal for instance suggested the idea of a Montreux document, that looks at how IHL would apply to lethal autonomous weapons. This idea was supported by the Netherlands and Estonia. Article 36 reviews remain a somewhat divergent topic of discussion. A number of states see these reviews as an important instrument to assess the legality of lethal autonomous systems. These states call for the universalization of these reviews and the sharing of best practices. Belgium said “universalization of the legal review of new weapons would be an important step forward in coping with the challenge posed by LAWS. However, as already stated, this is insufficient for Belgium to tackle the challenges related to LAWS”.⁴⁸

Conclusion

MEANINGFUL PROGRESS?

Discussions have been taking place since 2014 at the CCW. In these six years it has become clear that the majority of states want to ensure human control over the use of force and want to work towards concrete policy outcomes to ensure this. At the same time this broad consensus has not been translated into concrete action and has for a large part not been reflected in the Chair’s reports. The consensus based decision making at the CCW enables a small number of states to water down texts and slow progress. It means that decisions at the CCW do not always reflect the thinking and desired outcomes of the majority. Therefore the consensus based decision making at the CCW appears to be an obstacle for meaningful progress.

In 2018 the 'Guiding Principles' were adopted. They are often presented as progress achieved within the CCW. While PAX commends the CCW for coming to agreement on basic elements, it is at the same time a worrying result after six years of discussions. These principles are not much more than a reaffirmation of the applicability of existing law and do not address the fundamental issues. The addition of the 11th element regarding 'human-machine interaction' can be seen as a positive development, as most states agree that the role of the human is the central element in the debate. However the consensus-based decision making means that the phrasing is relatively vague and the term 'human control', which most states support, is not mentioned.

The recommendations in the Chair's draft report state "clarification, consideration [and development] of aspects of the normative and operational framework". The word 'development' is in brackets, which means it still needs to be agreed upon. This is hugely concerning as without the word 'development' it could mean the GGE will only continue to talk about the issue, without working towards concrete policy outcomes. After six years of discussions it is time for the GGE to work towards concrete measures.

During the 2019 GGE meetings we have heard certain states question whether autonomy can be seen as a key characteristic of autonomous weapons, or block the use of the most widely accepted term 'human control' in the Chair's report. These interventions do not seem to demonstrate the will by these states to come to a meaningful outcome. The CCW is often mentioned as the appropriate forum, as all the main players are at the table here. While it is understandable and desirable to have as many states as possible working to address the issue, the question arises if this remains valid if it means there will be no concrete outcome or one that creates a low meaningless standard. In the past it has become clear that a number of the so called 'big players' do not join international weapons treaties, however at the same time these treaties do create a new international norm which also influences these states' behaviour. Therefore the question arises whether it would not be more productive for those states that do want to work towards a meaningful outcome work together to achieve this goal?

TIME FOR ACTION

The call for the urgent need to address the issue through a new legal instrument comes from a wide-variety of actors. These include the UN Secretary General, the European parliament, the German Federation for Industry and a large number of tech experts.⁴⁹ This last group is especially relevant as these are the people that build and understand the technology, and know what the possibilities, limitations and possible dangers are. Also an IPSOS poll in 26 countries shows 61% of respondents oppose lethal autonomous weapon systems.⁵⁰ Legal, ethical and security concerns are raised in relation to these weapons. Legal concerns are whether the use of these weapons would be able to comply with IHL and who would be responsible for any violation of the law. Also the question is raised whether delegating life and death decisions to lethal autonomous weapon systems is ethically acceptable.

Besides the legal and ethical reasons, preventing the development of lethal autonomous weapons is also desirable from a national security perspective. These weapons will lower the threshold of going to war, risking a preference for military rather than political solutions. Also there is a clear danger of a military AI arms race which would be detrimental for international peace and security. The fact that autonomous weapon technologies, once developed, will likely proliferate widely and be available to a wide variety of actors, means that the military advantage of these systems will be temporary and limited. Furthermore, an AI arms race would be destabilising and increase the chances of conflict. An AI arms race would also push states to develop autonomous systems as rapidly as possible to keep ahead of adversaries, with little time for appropriate reflection on the long-term effects of the introduction of such new technologies.

Therefore preventing the development of lethal autonomous weapons would be the only right thing to do, for those states that appreciate a norms based world order that protects fundamental legal and ethical principles, and at the same time are committed to ensuring international peace and security.

EUROPE AS LEADER?

Most European states consider themselves supporters of multilateralism and a norms based world order. Both of these have come under pressure in recent years. Therefore it is crucial that European states continue to defend these principles. In order to adequately address the issue there is a need to further develop the concept of human control, as well as seek an appropriate policy outcome.

As the current report shows, there is clear agreement on the need for human control over the use of force. In fact, discussions on the human element in the use of lethal force demonstrate that there is perhaps more convergence than that anticipated. An important next step is for states to further discuss and operationalise the concept of meaningful human control to concrete rules and measures. States must clarify what levels and forms of human control are necessary to ensure compliance with legal and ethical norms. This could then form the basis for a legally binding instrument, delineating the necessary human control to ensure compliance with legal and ethical standards. For now, numerous important elements have been put forward, but it is crucial for delegations to now discuss these elements in even deeper detail in order to push the discussions forward in a meaningful way. Basic principles as laid out by the ICRC can form a sound basis for this. For example the obligation for combatants to make “context specific judgements to comply with IHL”, as well as the need for “human agency in decisions to use force” that is “necessary in order to uphold moral responsibility and human dignity”.⁵¹

European states possess technologically advanced militaries and are thus wary of limiting their options to further develop their military capabilities. At the same time they have a tradition of fostering existing legal and ethical norms and do acknowledge compliance concerns relating to LAWS. As mentioned above it is not only these fundamental legal and ethical principles that Europe should be defending, preventing the development of lethal autonomous weapons also makes sense from a national security perspective.

Therefore it is in the interest of European states to work towards a legally binding instrument ensuring meaningful human control over the use of force. A new legal instrument is needed to address all the legal, ethical and security concerns raised by lethal autonomous weapon systems. A new treaty could codify the level and form of human control necessary to comply with legal and ethical norms. This is necessary to create an internationally agreed standard that does not leave room for different interpretations. Just as with other weapons, such as with cluster munitions, a treaty can unambiguously address the application of international law to these weapons. It could address other important issues specifically related to LAWS, including the dual-use nature of the technology, the issue of responsibility, confidence building measures, as well as measures for verification and compliance.

Compared to the first overview made by PAX in 2017 there is a clear trend towards more convergence of the views of European states. Therefore there is a clear opportunity for European states to work together to ensure meaningful progress. Recent discussions at the GGE have demonstrated that, although a majority of states want concrete next steps, a small group of states are blocking attempts to move forward. Therefore PAX also calls on European states to work together with like-minded states, to develop a new international legal norm that ensures meaningful human control over the use of force. The time for action is now if the CCW wants to remain the appropriate forum and deal with the issue in a timely manner.

Notes

- 1 There are several terms used to refer to these weapon systems. The CCW coined the term lethal autonomous weapon systems (LAWS). Other terms used are Lethal Autonomous Robots, (fully) autonomous weapons or killer robots. As the main focus of this report are the discussions at the CCW we will use the term lethal autonomous weapon systems here.
- 2 [Recommendations to the 2016 CCW Review Conference](#), submitted by the Chairperson of the Informal Meeting of Experts, 2016. The objective of the CCW is to prohibit or restrict the use of certain conventional weapons which may be deemed to be excessively injurious or to have indiscriminate effects. An example is Protocol IV, which was adopted in 1995, prohibiting the use and transfer of blinding laser weapons.
- 3 GGE, 'Report of the 2018 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', [23 October 2018](#).
- 4 GGE, 'Report of the 2018 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', [23 October 2018](#), III.A.21.(a).
- 5 GGE, 'Report of the 2018 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', [23 October 2018](#), III.A.21.(b).
- 6 UNOG, [Agenda as adopted by the Group of Governmental Experts](#) on 25 March, Geneva, 2019.
- 7 GGE, 'Draft Report of the 2019 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', Geneva, 21 August 2019, [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/5497DF9B01E5D9CFC125845E00308E44/\\$file/CCW_GGE.1_2019_CRP1_Rev2.pdf](https://www.unog.ch/80256EDD006B8954/(httpAssets)/5497DF9B01E5D9CFC125845E00308E44/$file/CCW_GGE.1_2019_CRP1_Rev2.pdf)
- 8 GGE, 'Draft Report of the 2019 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', Geneva, 21 August 2019, [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/5497DF9B01E5D9CFC125845E00308E44/\\$file/CCW_GGE.1_2019_CRP1_Rev2.pdf,para.26](https://www.unog.ch/80256EDD006B8954/(httpAssets)/5497DF9B01E5D9CFC125845E00308E44/$file/CCW_GGE.1_2019_CRP1_Rev2.pdf,para.26).
- 9 GGE, 'Draft Report of the 2019 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems', Geneva, 21 August 2019, [https://www.unog.ch/80256EDD006B8954/\(httpAssets\)/5497DF9B01E5D9CFC125845E00308E44/\\$file/CCW_GGE.1_2019_CRP1_Rev2.pdf,para.26](https://www.unog.ch/80256EDD006B8954/(httpAssets)/5497DF9B01E5D9CFC125845E00308E44/$file/CCW_GGE.1_2019_CRP1_Rev2.pdf,para.26).
- 10 Like the 2017 report, the states included in the current report are European Union (EU) Member States, EFTA States (Iceland, Liechtenstein, Norway and Switzerland) and the Holy See. If the statements are available online a link is included.
- 11 Like the 2018 report, the states included in the current report are European Union (EU) Member States, EFTA States (Iceland, Liechtenstein, Norway and Switzerland) and the Holy See. If the statements are available online a link is included.
- 12 It is possible that these numbers are not entirely accurate due to some confusion over the agenda; not all delegations had labelled their statement on the human element as under 5(c).
- 13 Statement of Austria, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 14 Statement of Austria, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 15 Statement of Austria, GGE, CCW, Geneva, [27 March 2019](#).
- 16 Statement of Austria, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 17 Statement of Belgium, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 18 Statement of Belgium, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 19 Belgium, Ireland, Luxembourg, 'Food for thought paper', Geneva, [25-29 March 2019](#).
- 20 Statement of Bulgaria, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 21 Statement of Bulgaria, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 22 Statement of Estonia, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 23 Statement of Estonia, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 24 Statement of Estonia, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 25 Statement of Finland, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 26 Statement of Finland, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 27 Statement of France, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation and translated by author).
- 28 Statement of France, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation and translated by author).

- 29 Statement of Germany, GGE, CCW, Geneva, [26 March 2019](#).
- 30 Statement of Germany, GGE, CCW, Geneva, [27 March 2019](#).
- 31 Statement of Ireland, GGE, CCW, Geneva, [26 March 2019](#).
- 32 Statement of Ireland, GGE, CCW, Geneva, [27 March 2019](#).
- 33 Statement of Luxembourg, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 34 Statement of Luxembourg, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 35 Statement of the Netherlands, GGE, CCW, Geneva, [26 March 2019](#).
- 36 Statement of the Netherlands, GGE, CCW, Geneva, [27 March 2019](#).
- 37 Statement of Poland, GGE, CCW, Geneva, [26 March 2019](#).
- 38 Statement of Poland, GGE, CCW, Geneva, [27 March 2019](#).
- 39 As per email correspondence with the delegation.
- 40 Statement of Switzerland, GGE, CCW, Geneva, 26 March 2019 (statement provided by delegation).
- 41 Statement of Switzerland, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 42 Statement of the United Kingdom, GGE, CCW, Geneva, [26 March 2019](#).
- 43 Statement of the United Kingdom, GGE, CCW, Geneva, [27 March 2019](#).
- 44 Statement of the European Union, GGE, CCW, Geneva, [26 March 2019](#).
- 45 Statement of the European Union, GGE, CCW, Geneva, [27 March 2019](#).
- 46 Statement of the European Union, GGE, CCW, Geneva, [26 March 2019](#).
- 47 Statement of Belgium, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 48 Statement of Belgium, GGE, CCW, Geneva, 27 March 2019 (statement provided by delegation).
- 49 United Nations Secretary-General, 'Allocution du Secrétaire général au Forum de Paris sur la paix', 11 November 2018, <https://www.un.org/sg/en/content/sg/statement/2018-11-11/allocution-du-secretaire-general-au-forum-de-paris-sur-la-paix>
- EU Parliament, 'European Parliament resolution of 12 September 2018 on autonomous weapon systems', 12 September 2018, http://www.europarl.europa.eu/doceo/document/TA-8-2018-0341_EN.html
- BDI, 'Künstliche Intelligenz in Sicherheit und Verteidigung', 15 January 2019, <https://bdi.eu/publikation/news/kuenstliche-intelligenz-in-sicherheit-und-verteidigung/>
- 50 Ipsos, 'Six in Ten (61%) Respondents Across 26 Countries Oppose the Use of Lethal Autonomous Weapons Systems', 22 January 2019, <https://www.ipsos.com/en-us/news-polls/human-rights-watch-six-in-ten-oppose-autonomous-weapons>.
- 51 'International humanitarian law and the challenges of contemporary armed conflicts', 33rd International Conference of the Red Cross and Red Crescent (9–12 December 2019), https://rcrcconference.org/app/uploads/2019/10/33IC-IHL-Challenges-report_EN.pdf.



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