

**Letter of 17 June 2022 to the House of Representatives from the Minister of Foreign Affairs, Wopke Hoekstra, and the Minister of Defence, Kajsa Ollongren, presenting the government's response to AIV advisory report no. 119, CAVV Advisory Report 38, 'Autonomous Weapon Systems: The Importance of Regulation and Investment'**

On behalf of the government, the Minister of Foreign Affairs and the Minister of Defence would like to thank the joint committee of the Advisory Council on International Affairs (AIV) and the Advisory Committee on Issues of Public International Law (CAVV) for their advisory report '*Autonomous Weapon Systems: The Importance of Regulation and Investment*',<sup>1</sup> which updates their 2015 advisory report '*Autonomous Weapons Systems: The Need for Meaningful Human Control*'.

In their new advisory report, the AIV and the CAVV examine technological developments in the fields of artificial intelligence, robotics and quantum technology as they relate to the development and deployment of autonomous weapon systems in the geopolitical context. Several major powers are investing heavily in the development of new technologies and autonomous weapon systems. The AIV and the CAVV recognise that, for reasons of security and in order to ensure that the armed forces are adequately equipped, the Netherlands must have partially autonomous weapon systems at its disposal. Such weapon systems offer relevant military benefits: they are generally more precise, faster and safer than weapon systems without autonomous features. An example of a situation in which autonomous weapon systems offer advantages is the threat of hypersonic missiles, because human reaction speed is too low to respond to them in time. Besides the benefits, the AIV and the CAVV also emphasize the risks associated with autonomous weapon systems, including the potential for abuse by certain states and non-state actors and the expectation that the use of autonomous weapon systems could lower the threshold for the use of force. In addition, the AIV and the CAVV point to the increasing pace of technological innovation and the leading role played by industry in this regard. The AIV and the CAVV therefore believe that further regulation is necessary and present various options for achieving this. They also consider the political and social debate and the legal and ethical aspects of the issue, taking the

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<sup>1</sup> AIV advisory report no. 97 / CAVV advisory report no. 26: '*Autonomous Weapons Systems: The Need for Meaningful Human Control*', October 2015

advantages and disadvantages of the use of autonomous weapon systems into account. In their report, the AIV and the CAVV emphasize the importance of both regulation and investment and present the government with ten recommendations. In the present response, the government will evaluate the recommendations one by one and explain its recalibrated national position on this issue.

### **International context: the GGE LAWS and the CCW**

Before discussing the ten recommendations, the government will first assess the discussions and conclusions of the Group of Governmental Experts on Lethal Autonomous Weapon Systems (GGE LAWS) and the Convention on Certain Conventional Weapons (CCW). The GGE LAWS, which meets under the mandate of the high contracting parties to the CCW, is the forum for international consultations and negotiations on autonomous weapon systems. These meetings take place under the auspices of the CCW (since 2014) and in the GGE LAWS (since 2017). The GGE meets several times a year.

Roughly speaking, the countries that participate in the international debate on autonomous weapon systems can be divided into four groups:

1. Countries that believe that existing international law is adequate and do not favour further measures.
2. Countries that argue that the existing international legal framework needs to be clarified and are not (yet) willing to embrace a potential ban or any positive obligations or to speak out on such matters. For a long time, the Netherlands belonged to this group.
3. Countries that advocate introducing negative obligations, for example in the form of a ban on fully autonomous weapon systems, and positive obligations for autonomous weapon systems that are permissible.
4. Countries that are in favour of a new international ban on a large number of autonomous weapon systems and far-reaching obligations with regard to autonomous weapon systems that are permissible.

At present, there is no international consensus on the international definition of an 'autonomous weapon system' or the distinction between full and partial autonomy.<sup>2</sup> There is also no consensus on the use and meaning of the term 'meaningful human

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<sup>2</sup> Contrary to what the AIV and CAVV state in their advisory report, the term 'lethal autonomous weapon system' does not necessarily refer to a lethal and fully autonomous weapon system in the international discourse on this issue.

control', which is a core concept in the advisory report. Other terms that have been used in this context include sufficient human control, appropriate human control, human judgment and responsible governance. Furthermore, there is no consensus on the need for a ban on (fully) autonomous weapon systems. The idea of drafting a political declaration or a code of conduct instead of adding a new protocol to the CCW has been suggested on several occasions. At the moment, it is not yet clear which direction the process will take.

Due to the complexity of the consensus-based decision-making process within the CCW, a number of states and civil society organisations are increasingly advocating a shift to a different forum, as happened in the case of the regulation of anti-personnel mines and cluster munitions. Given the strategic importance of autonomous weapon systems, many CCW member states, including major military powers, currently have little interest to initiate such a process. Without these countries, it is highly doubtful that a new protocol or treaty on autonomous weapon systems could be effective.

The government remains committed to making progress within the CCW framework because all relevant actors in the field of autonomous weapon systems are represented there and because recent years have shown that progress is possible despite the complicated dynamics within the GGE. The most tangible results of the GGE LAWS are the 11 Guiding Principles endorsed by the high contracting parties to the CCW in 2019.<sup>3</sup> On the basis of these principles, further work has been done in subsequent years to clarify the existing operational and normative frameworks for the use and development of autonomous weapon systems. Agreement has also been reached on the specific need to preserve human judgment in the deployment of autonomous weapon systems, and progress has been made on how this can be operationalised.

At the Sixth CCW Review Conference in December 2021, the high contracting parties to the CCW decided to continue meeting in the framework of the GGE in 2022. In this context, the government will use the new AIV/CAVV advisory report and its response to the report as a starting point for the further development of Dutch policy on autonomous weapon systems.

***Recommendation 1: 'Pay more attention to developments in autonomous weapon systems.'***

The government is devoting attention to new technologies and their relationship to national and international security policy. In order to maintain and strengthen the

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<sup>3</sup> UN Doc. CCW/MSP/2019/9, Annex III.

knowledge base in this area, the Defence organisation, along with its security partners, is investing in long-running research programmes and experiments to test the functioning of autonomous weapon systems within legal and ethical frameworks. Among various other initiatives, the Defence organisation also funds research facilities operated by strategic partners and actively focuses on international cooperation (see also the responses to recommendations 6 and 9). In the interests of national security, it is imperative to continue monitoring all developments in the field of autonomous weapon systems at both civil and military level, to experiment with new military means and methods in a timely manner, and to remain involved in international discussions.

The government adopts recommendation 1 and will continue to pay close and continuous attention to political, diplomatic, technical and financial developments in the field of autonomous weapon systems and, where possible and appropriate, advocate for further regulation. The government's specific efforts will be discussed in greater detail in its responses to the other recommendations.

***Recommendation 2: 'Actively pursue a ban on fully autonomous weapon systems.'***

In their advisory report, the AIV and the CAVV make a distinction between fully autonomous weapon systems, which they believe should be explicitly banned, and partially autonomous weapon systems, which are permissible provided they are under meaningful human control. According to the AIV and the CAVV, there are various options for achieving further regulation for both fully autonomous and partially autonomous weapon systems, such as a new protocol to the CCW. This is not so much about developing new legal rules, but primarily about further specifying existing legal rules.

The government adopts recommendation 2 in full and will contribute to international efforts in support of a ban on fully autonomous weapon systems and the further specification of the rules that apply to the deployment of autonomous weapon systems, for example in a protocol to the CCW. In this context, it is important to take the complexities of international relations and diplomacy into account. The definition and delineation of such a ban require a very precise formulation. For the government, the main objective of the ban is to preserve human judgment in the deployment of autonomous weapon systems. It is therefore important to draw a general distinction between autonomous weapon systems that can be developed and deployed in accordance with existing international law and those that cannot. An overly broad definition must be avoided, to ensure that existing systems that are vital to our national security, such as the Goalkeeper and the Patriot, are not included in the ban. At the

same time, an excessively narrow definition could result in a ban without any practical effect. In terms of the feasibility and effectiveness of the ban, moreover, it is important to ensure that all states that are actively involved in the development of autonomous weapon systems join such a ban. In addition, together with allies, the Defence organisation must be able to conduct research into fully autonomous weapon systems that could be – or may already have been – deployed by potential adversaries. This is because the Defence organisation must be familiar with the weapon systems of potential adversaries, even if these are fully autonomous weapon systems that are incompatible with international law.

***Recommendation 3: 'Take a more active role in the development of international regulation for the development, procurement and deployment of partially autonomous weapon systems.'***

For the evaluation of this recommendation, the government refers to its response to recommendation 5. The two recommendations are closely related, since recommendation 5 identifies the concept of meaningful human control as the starting point for the further regulation advocated for in recommendation 3.

***Recommendation 4: 'Call on states to implement or include in their national legislation the obligation to conduct weapon reviews arising from article 36 of Additional Protocol I to the Geneva Conventions.'***

The AIV and the CAVV conclude that states are under the obligation to determine whether a weapon system can be deployed in accordance with international law. They advise the government to encourage states to adopt national legislation for this purpose and to push for the mandatory disclosure of the results of such weapon reviews. The government partially adopts this recommendation.

As the government has previously noted,<sup>4</sup> the Netherlands already calls on states to introduce procedures for the purpose of implementing article 36 of Additional Protocol I to the Geneva Conventions (API), similar to the Netherlands' Advisory Committee on International Law and the Use of Conventional Weapons (AIRCW). The Netherlands has shared its knowledge in this area within the EU and the UN, and will continue to do so. It calls on countries to establish and implement their weapon review processes in a transparent manner and share the results of their reviews internationally where possible. For reasons of state security and commercial confidentiality, the government believes

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<sup>4</sup> Government response of July 2021 to a private member's policy proposal submitted by MP Salima Belhaj, see Parliamentary Paper 35 848, no. 3.

that mandatory full disclosure is not advisable. Furthermore, in order to avoid creating other unnecessary obstacles for countries setting up article 36 procedures, the government believes that states should be allowed to determine for themselves whether they wish to comply with the obligation arising from article 36 of the Additional Protocol by incorporating it into national legislation or by other means.

In the Netherlands, the AIRCW examines new means and methods of warfare for compatibility with international law. Based on its advice, the Minister of Defence decides whether or not to approve the use of a particular means or method by the armed forces. The AIRCW publishes its advisory reports online, subject to commercial confidentiality and operational considerations. The government will explore the possibility of providing a legal basis for the AIRCW in a newly adopted law. In the government's view, the call of the AIV and the CAVV to strengthen the AIRCW's role by making it responsible for coordinating consultations between the government, businesses and knowledge institutions would obscure its true task. The AIRCW is primarily charged with conducting legal reviews, while the coordination of consultations with stakeholders is more of a policy task.

***Recommendation 5: 'Continue to advocate for the concept of meaningful human control (MHC) as a basis for the regulation of partially autonomous weapon systems.'***

In recommendation 3, the AIV and the CAVV advise the government to take a more active role in the development of international regulation for the development, procurement and deployment of partially autonomous weapon systems.

Recommendation 5 adds to this that the concept of meaningful human control should be the starting point for the regulation of such systems.

The AIV and the CAVV present various proposals on how meaningful human control can be assigned and defined. The government agrees with the AIV and the CAVV that, in practice, meaningful human control relates to 'the role of human judgment in the deployment of weapon systems'. Human judgment is particularly important because international humanitarian law attributes the obligations with regard to distinction, precautions and proportionality to the individual planning, authorising or executing an attack. The government believes that human control is needed to retain human judgment in the use of weapon systems with autonomous features with a view to ensuring that such systems can be used in accordance with international law, for example by determining whether a person or object is entitled to special protection under international humanitarian law.

The government regards the criteria drawn up by the AIV and the CAVV for exercising human control, such as the nature of the intended target, the duration of the use of the autonomous weapon, the geographical scope of the operation, the circumstances and the requirements for effective human-machine interaction, as a good basis for regulation. The required degree of human control and the criteria that should be applied depend primarily on the operational context.<sup>5</sup> For example, a defensive situation involving an incoming missile on the open sea requires different restrictions and a different degree of human control than a chaotic combat situation in a densely populated area. The required degree of human control will therefore differ from situation to situation. At the present time, the government accordingly does not endorse a specific definition of meaningful human control, as this would fail to do justice to the complexity of the debate for the same reasons as mentioned under recommendation 2.

In the introduction to this letter, the government already noted that autonomous weapon systems are necessary for ensuring that the armed forces are adequately equipped. In order to engage with these systems in a responsible manner, the relevant political, operational, legal and moral issues need to be considered in advance. This applies not only to such matters as the development, procurement and testing of autonomous weapon systems but also to the education and training of personnel.

Human control can thus be incorporated into various stages of a weapon's life cycle. This may also involve various actors, such as businesses and knowledge institutions during the development stage. The Ministry of Foreign Affairs and the Ministry of Defence regularly consult with civil society organisations and research institutes to discuss their views on the question of meaningful human control, and take their advice into account in decision-making where possible. The government has also funded several studies on autonomous weapon systems and meaningful human control.<sup>6</sup>

The government adopts recommendations 3 and 5 and will contribute to discussions at the international level to further develop and secure the preservation of human judgment in the deployment of autonomous weapon systems.

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<sup>5</sup> 'ICRC Position on Autonomous Weapon Systems', ICRC, 12 May 2021; 'Limits on Autonomy in Weapon Systems', ICRC/SIPRI, 2020.

<sup>6</sup> Ibid. 'Autonomous Weapon Systems and International Humanitarian Law: Identifying Limits and the Required Type and Degree of Human-Machine Interaction', SIPRI, June 2021; M. Ekelhof, 'The Distributed Conduct of War: Reframing Debates on Autonomous Weapons, Human Control and Legal Compliance in Targeting', PhD Dissertation, Vrije Universiteit Amsterdam, 2019; various UNIDIR studies, see: <https://www.unidir.org/projects/artificial-intelligence-and-weaponization-increasingly-autonomous-technologies>.

### *Human rights*

The advisory report also examines the use of partially autonomous weapon systems in peacetime and the human rights provisions that apply in this context. The government agrees with the analysis of the AIV and the CAVV that the legal regime of human rights applies to the use of deadly force outside situations of armed conflict. During the the GGE LAWS, the Netherlands highlighted the importance of human rights as a relevant legal regime for the potential deployment of weapon systems with autonomous features. The government agrees that the legal regime of human rights imposes stricter requirements on the use of deadly force for law enforcement purposes than the legal regime of international humanitarian law does for combat operations.

As regards the right to privacy, the AIV and the CAVV highlight the importance of proper data governance when using big data in systems that operate on the basis of artificial intelligence. The AIV and the CAVV advise the government to improve the supervision on data and invest more – both financially and in terms of capacity – in the development of artificial intelligence, robotics, quantum computing and responsible data use. The government recognises the importance of good data governance, including within the armed forces. The Defence organisation sees data as a strategic asset. A coherent data governance policy and clear frameworks and guidelines for data management are therefore crucial.

### *Responsibility and accountability*

Along with the AIV and the CAVV, the government underlines the importance of allocating responsibility in a clear manner when it comes to the development and deployment of autonomous weapon systems. In the context of state responsibility, states can be held responsible on the basis of international law for the unlawful actions of weapon systems with autonomous features that they use. Given the relatively risky nature of the use of such weapon systems in conflict situations, the AIV and the CAVV advise the government to consider the introduction of a form of strict state responsibility. The government acknowledges that this strict responsibility is currently not part of existing international law on state responsibility in this context. The Stockholm International Peace Research Institute (SIPRI) is currently conducting a study on the subject of responsibility and accountability, which is being co-financed by the Netherlands. The government will further explore the options relating to state responsibility and include them in the Dutch contribution to the debate on this issue.

Further to the advisory report's observations concerning individual accountability, the government notes that the responsibility for prosecuting international crimes falls



primarily to the national legal system, with prosecution by the International Criminal Court acting as a backstop. Where appropriate, individuals or legal entities that have played a role in the life cycle of an autonomous weapon system may be subject to civil liability in accordance with national law or criminal prosecution.

**Recommendation 6: 'Work with EU partners, the United States, the United Kingdom and other NATO allies to achieve joint development and production of partially autonomous weapon systems (in which meaningful human control is assigned appropriately), export control and investment screening for dual-use technologies.'**

#### *Joint development and innovation*

NATO is committed to maintaining the Alliance's technological edge. In the interests of (national) security, the Netherlands endorses this commitment, which is widely shared within the Alliance and is linked to a high level of ambition. Within NATO, the Netherlands intends to actively support the implementation of the organisation's Emerging and Disruptive Technologies (EDT) Roadmap, which was approved in 2019. This roadmap encourages NATO countries to place a stronger emphasis on the research and development of emerging and disruptive technologies in their joint and national research programmes. Among other measures, the Netherlands will start contributing in a targeted manner to the joint work programme of the NATO Science and Technology Organization (STO), for example in the fields of artificial intelligence and autonomous weapon systems.

Within the EU, the European Defence Fund (EDF) is an increasingly important instrument for joint defence research and capability development for member states. The Netherlands is therefore committed to further developing the EDF and using it for the benefit of the Defence organisation, knowledge institutions and defence companies. The Netherlands believes it can contribute to the development of autonomous systems and reiterates the importance of meaningful human control in the decision-making process. The European Commission oversees the ethical evaluation of the project proposals. The EDF does not provide financial support to projects involving products or technologies whose use, development or production is prohibited under international law. Projects focusing on the development of lethal autonomous weapons that do not provide scope for meaningful human control over decisions relating to their selection and deployment in attacks targeting humans are likewise not eligible for support from the Fund. Generally speaking, in addition to the EDF, the Netherlands is involved in bilateral

innovation and development partnerships with several countries, including Canada, France, Germany, Norway, Sweden, the United Kingdom and the United States.

Although it attaches great importance to cooperation with allies, the government notes that it is undesirable to be completely dependent on another power for certain technologies and systems, in terms of both knowledge and industrial and operational capabilities, even if the power in question is an ally.<sup>7</sup> In the interests of protecting the Netherlands' sovereignty and national security, the government may accordingly prioritise other considerations.

#### *Export control and investment screening*

Close cooperation with EU member states in the areas of preparation, implementation and execution lies at the heart of Dutch export control policy. Like other military goods, weapon systems with autonomous features are subject to rigorous scrutiny against the eight criteria of the EU's Common Position on arms exports.<sup>8</sup> The export of dual-use technology and goods is governed by the EU's Dual-Use Regulation.<sup>9</sup> The list of dual-use items that appears in the annex to this regulation is compiled on the basis of consensus decisions in the four export control regimes. In the field of autonomous weapon systems, the designated regimes are the Wassenaar Arrangement and the Missile Technology Control Regime (MTCR). Based on the control lists compiled by these regimes, technology and software relating to potential delivery systems for weapons of mass destruction and/or conventional weapon systems are already subject to a licensing requirement and are thus governed by the Dual-Use Regulation regardless of the level of autonomy involved.

There are also various initiatives aimed at containing threats to national security arising from investments. Work is currently under way on a sector-specific screening mechanism for investments in the defence industry.<sup>10</sup> In the summer of 2021, the Investments, Mergers and Acquisitions (Security Screening Mechanism) Bill (VIFO) was presented to the House of Representatives. The aim of this bill is to contain the threats to national security arising from investments, mergers and acquisitions involving critical providers and companies that operate in the area of sensitive technology. In this

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<sup>7</sup> Ministry of Defence, *Strategic Knowledge and Innovation Agenda 2021-2025*, December 2020 (in Dutch).

<sup>8</sup> Council Common Position 2008/944/CFSP of 8 December 2008 defining common rules governing control of exports of military technology and equipment, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:02008E0944-20190917&from=EN>.

<sup>9</sup> Regulation (EU) 2021/821 of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02021R0821-20220107>.

<sup>10</sup> The Netherlands currently has three sector-specific investment screening mechanisms for the telecommunications, gas and electricity sectors.

context, reference is made to various instruments, including the applicable European export control frameworks for military and dual-use goods. On the basis of the EU's Foreign Direct Investment (FDI) Regulation, member states exchange information about foreign direct investments that have a bearing on national security or public order.<sup>11</sup> When it comes to investment screening, the EU also cooperates with the US in the framework of the EU-US Trade and Technology Council.

*Extensive consultations between government, businesses and knowledge institutions*

The AIV and the CAVV also advise the government to push for regular consultations with knowledge institutions and businesses to jointly address the industrial, legal and ethical aspects of autonomous weapon systems. The government is already driving various initiatives in this area within the EU and NATO and is also taking its own initiatives.

The Netherlands actively participates in the implementation of the EU's strategic process on the responsible use of artificial intelligence (AI) in a military context and will, where possible, continue to explore the legal and ethical aspects of autonomous weapon systems and put them on the agenda. In addition, the Netherlands believes that the military use of AI should occupy a higher place on the global agenda and is seizing the initiative in this regard by organising an international conference. Although the planned initiative will encompass issues beyond autonomous weapon systems, the Netherlands will include the AIV/CAVV advisory report and the rise of autonomous weapon systems where possible. The government will inform the House of Representatives separately about the conference and the formulation of a political agenda.

As indicated above, the government largely accepts recommendation 6, and certain aspects of it are already part of existing policy. The Netherlands is actively exploiting opportunities to cooperate with allies, businesses and other partners in the development and production of autonomous systems (in which meaningful human control is effectively assigned), export control and investment screening for dual-use technologies.

***Recommendation 7: 'Encourage NATO allies to jointly play a key role in pursuing interoperability and standardisation in the field of disruptive technology and partially autonomous weapon systems.'***

As NATO itself emphasises, interoperability and standardisation are preconditions for effective military action. The Netherlands will advocate even more strongly for

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<sup>11</sup> Regulation (EU) 2019/452 of 19 March 2019 establishing a framework for the screening of foreign direct investments into the Union, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0452&qid=1656663903857>.

interoperability and standardisation so that we and our partners can work together as effectively as possible. Within NATO and the EU, processes should be coordinated to ensure that capability development and investments yield maximum returns. The Netherlands therefore welcomes the proposal of NATO Secretary-General Jens Stoltenberg for a Defence Innovation Initiative to promote interoperability and act as a catalyst for transatlantic cooperation on defence innovation, specifically in the field of disruptive technologies. NATO's Science and Technology Organization (STO) also plays a key role in this regard. Within the STO, about 5,000 scientists work on joint research programmes in the field of disruptive technologies. The government emphasises that the application of disruptive technologies requires sustained effort, both in terms of technology development and in terms of ensuring interoperability and pursuing standardisation.

NATO also makes an important contribution to the debate on new technologies, promoting a coherent approach between allies. As with the establishment of the EDTR, the Netherlands will continue to call attention to the arms control aspects of new technologies within NATO. This does not change the fact that, in line with NATO policy, the Netherlands regards the application of new technologies in the military domain as essential for maintaining a technological edge. In this context, preserving meaningful human control over autonomous weapon systems obviously remains the basic premise.

***Recommendation 8: 'Make the concept of explainable artificial intelligence the basis for Dutch policy when it comes to the development, procurement and use of partially autonomous weapon systems.'***

According to the Scientific Council for Government Policy (WRR), artificial intelligence (AI) is a system technology that will fundamentally change our lives.<sup>12</sup> The government ought to establish frameworks within which AI can develop in a positive direction. The call from the AIV and CAVV to the effect that the AI underlying partially autonomous weapon systems must be explainable is therefore consistent with the government-wide task in this area. In practical terms, this means that the underlying mathematical models – and the data underlying those models – must be traceable and explainable at all times. In addition, it must be clear throughout the decision-making process where and how meaningful human control is assigned and who is responsible for what. The AIV and the CAVV recommend that the armed forces be trained in this.

The government embraces this recommendation and refers in general to its forthcoming response to the WRR's advisory report, which is expected to appear in the autumn and

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<sup>12</sup> Scientific Council for Government Policy, *Opgave AI. De nieuwe systeemtechnologie* [Mission AI: The New System Technology], 2021.

will provide guidance in this area. At the military level, the Defence organisation has identified these topics as an explicit area of focus. Roles, responsibilities and decision making in the field of AI must be better embedded in the organisation. The Defence organisation is already developing normative frameworks and design guidelines to document the operation of algorithms, the choices they make, their validation and their implementation and use. The basic premise is already that algorithms are amenable to testing against standards and verification frameworks by means of audits. Commercially developed applications whose procurement is being considered must comply with the Defence organisation's frameworks and guidelines. In order to develop the necessary knowledge base, the Defence organisation is carrying out research programmes in collaboration with knowledge institutions, for example on man-machine teaming and methods for verifying autonomous systems. In addition, it is collaborating with international knowledge institutions in several NATO STO activities.<sup>13</sup> The Defence organisation will also have to develop and adapt its human resources policy to working with AI. The government recognises the need for education and training at all levels. The Defence organisation is putting this into practice through various initiatives, including a data and cyber masterclass for senior Defence officials and a general data course.

***Recommendation 9: 'Make agreements with businesses and scientific institutions on the development and procurement of partially autonomous weapon systems.'***

The AIV and the CAVV highlight the importance of human-machine interaction in fleshing out the concept of meaningful human control. This involves looking beyond the mere moment of deployment of an autonomous weapon system. The AIV and the CAVV argue that ethical considerations and legal criteria should be articulated in the system's design phase. According to the AIV and the CAVV, agreements should be made with developers and manufacturers concerning the verifiability of crucial criteria. The AIV and the CAVV further advise the government to promote a culture of shared responsibility and also point to the basic principles of corporate responsibility. Finally, they state that the government should develop concrete guidelines, verification tools and certifications. As noted in the response to recommendation 8, the Defence organisation is developing knowledge in this area together with national and international parties. The Netherlands Defence Academy is also working on a system for verification, validation and accreditation. The government endorses recommendation 9 and additionally refers to its response to recommendations 6 and 8.

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<sup>13</sup> Examples include 'Human Systems Integration for Meaningful Human Control over AI-based systems' (HFM-330) and 'Robustness and Accountability in Machine Learning Systems' (IST-169), available at: <https://www.sto.nato.int/Pages/activitieslisting.aspx>.

**Recommendation 10: *'Have this advisory report updated.'***

Lastly, the government accepts recommendation 10 and will request an update of this advisory report at a future milestone.

**Conclusion**

This response constitutes the new basis for the government's policy position on autonomous weapon systems. As explained above, the government endorses the majority of the AIV and CAVV recommendations. It believes that partially autonomous weapon systems are indispensable for a technologically advanced military that is able to defend the Netherlands and NATO territory. The use and proliferation of unmanned and autonomous weapon systems is increasing among allies and opponents alike, as confirmed during recent and current conflicts. The use of these systems is reducing response times and increasing unpredictability when it comes to threats. Defending against these threats requires information-driven operations, advanced automation and interoperability within NATO. In addition, it is becoming increasingly important that military units and critical infrastructures are able to protect themselves against these threats in order to preserve their freedom of action. On the other hand, unmanned and autonomous weapon systems provide armed forces with significant added value in terms of their information position and escalation dominance. Along with the AIV and CAVV, the government also recognises the risks and disadvantages of these systems. In the interests of national and international security, the government will continue to closely monitor the rapid developments in the field of autonomous weapon systems and will continue to promote responsible development and use of autonomous weapon systems at the international level. In order to guarantee this, the government emphasizes the importance of further specifying existing legal rules. The starting point is that autonomous weapons must be used in accordance with international law and that human judgment must be retained in the deployment of autonomous weapon systems. Weapon systems that cannot be used in accordance with international law must be explicitly prohibited, for example by adding a new protocol to the CCW. Finally, the government will continue to conduct a broad and open discussion on autonomous weapon systems with knowledge institutions, civil society, government agencies, parliament and the industry.