



## The risks of autonomous weapons

A look from the south

# The evolution of disruptive technologies and lethal autonomous weapons systems: considerations from the military field.



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“It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things.”

NICOLAS MAQUIAVELO

# Outline of the present work

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## Abstract

The exponential evolution of disruptive technologies in the future will mark a substantive imbalance in the power differential, and at present it begins to generate debates in relation to the implications for the international agenda and security (arms race and proliferation) and the consequent ethical demands- laws on the development of Artificial Intelligence (AI) in the military field, Lethal Autonomous Weapons Systems (SAALs).

In this sense, this document addresses the issues of international politics and the different positions and strategies of the main international actors regarding the evolution of SAALs, as well as the implications in the defense and security scenario and the strategic military dimensions.

From the pragmatism of the logic of the Strategic Security of the State, the development of this technology is a process without a solution of continuity, so it is imperative to anticipate politically and strategically to establish the conditions of the process and the rules of use of themselves. Work should be done to give it the framework of humanism and control to clearly establish traceability, responsibility, and regulation in lethal action.

This document proposes preliminary initiatives and strategies from the perspective of the Defense dimension (political decision-makers-military strategists) in relation to the use of SAALs that contribute to the institutionalization of political, normative, ethical, and operational measures associated with their development, transfer, employment, verification, control, and accountability.

## Initial considerations

The complexity and significance of the subject leads to a preliminary approach -from the perspective of Political Science- associated with the logic in the construction of power of the State - Nation to appreciate the true margin of action and scope of initiatives of regulation or prohibition of lethal autonomous weapons systems; as well as identify those strategies and appropriate actions in relation to their development and employment from the military perspective.

The growing impacts of these autonomous systems on life, well-being and / or the environment, pose the degree of human control (dimension of humanity) that they should have according to the expected result and / or standard of said systems. In this sense, war - the pursuit of politics by other means, as well as the violent conflict that derives from it - should ensure and preserve - at all its levels and manifestations - the trait of humanity in its development as a central requirement of action. politics. Said humanity, understood as responsible subjectivity, reaches among other aspects: beliefs, values, interests, perceptions, aversion to risk, messages, among others.

The subjective dimension makes it possible to overcome contingencies based on preparatory actions and movements in the framework of a crisis-conflict maneuver, helping to avoid or regulate the appropriate use of physical force in its different manifestations and intensities, along with the objective dimension in regarding the legal-political framework to which this subject, represented respectively by International Humanitarian Law (IHL) and Rules of Engagement (Roes). Both dimensions entail the need for control and conditions of use of the material base of power, among which is physical force and, fundamentally, the object of this article: Lethal Autonomous Weapons Systems (SAALs).

According to the definition of Andreas Westhues “A lethal autonomous weapon system is a rational agent, endowed with artificial intelligence that gives it the ability to adapt to changing contexts, to learn during the cycle of its existence and to perform tasks with different degrees of autonomy <sup>1</sup>”.

These autonomous systems should allow the permanent control of the human, actor in the conception, design and administered application - under subjective and objective criteria - of the material base of power.

Therefore, without ignoring the possible military advantages that the use of these technological devices implies for certain scenarios, any progressive loss of responsible and traceable humanity in the strategic-operational-tactical process of the war will transform the human -actor of the process- into a mere spectator immersed in a vicious circle - a strategic trap by conception and design - in which he runs the risk of progressively losing control of his own creation. It is imperative to avoid semantic traps, as war represents the worst

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1. Andreas Westhues “Autonomous lethal weapons systems, autonomous or automated? Year 2020. page 23

aspects of human nature; These disruptive technologies could further dehumanize warfare<sup>2</sup>.

The impact of these disruptive technologies in the military field requires us to investigate, based on their inherent risks<sup>3</sup>, a political-strategic anticipation maneuver which generates reinsurance at the different decision levels and processes involved to safeguard the human dimension in the art of war, as a manifestation of political action.

## Logic in power construction

Throughout history, man has sought to possess and/or develop those factors of material strength that allow him to exercise power, leadership, and the establishment of the rules of the game of the system. In contemporary history, different capacities, strategies, and military devices have allowed the exercise of this leadership and the consolidation of its power base.

The development of national competitive advantages, as well as the implementation of entry barriers to the access of military technologies to other actors (political, military, economic, technological, among others) have been the logic of concentration and development of power. This is clear in the maintenance of the status quo and concentration of power held by the five permanent members of the United Nations Security Council and some middle powers, and the Non-proliferation Treaty System for weapons or sensitive technologies.

At the time it was the capacity for nuclear weapons and / or weapons of mass destruction; Currently, the development and military use of genetics, cyberspace, nanotechnology, robotics, artificial intelligence, among others, will mark an insurmountable gap for middle powers and / or peripheral countries in the future.

Within the framework of the logic of war under the principle and expectation of victory, these technologies will consolidate a differential of power and dissuasive military capacity by having weapons capable of enabling participation in international warfare with guarantees of success.

Therefore, would the hypothesis that with the introduction of SAALs the decision to go to war be easier? Considering that in the international system, Nation States act as rational actors that pursue their own interests with the primary objective of maintaining their security and sovereignty, the answer to the question

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2. For more information on the issues of fully autonomous weapons, see Human Rights Watch and the Harvard Law School International Human Rights Clinic, *Making the Case: The Dangers of Killer Robots and the Need for a Preemptive Ban* <https://www.hrw.org/report/2016/12/09/making-case/dangers-killer-robots-and-need-preemptive-ban>

3. Some problems analyzed for this work that may be disadvantages for use in military settings: 1) Design, programming, and production problems. 2) They could contain biases in the algorithms that are loaded due to human subjectivities on non-objective personal / cultural / ethical appreciations. 3) Inconsistencies or hidden defects 4) Incomplete, ambiguous, contradictory, irrelevant information and / or excess information. 5) possibility of being hacked as they work in nodal or network systems 6) deception or interference to sensors and / or sources 7) Problems to identify traceability in action to grant responsibilities, 8) Operating standards and targeting not framed within IHL, among others.

posed would be that, among those actors that have this type of military capabilities, it will depend on the power differential of the actors in conflict, and the deterrent military capacity of the dominant actor, to the extent that the action is not associated with the use of weapons of mass destruction (WMD).

In the case of state actors without the availability of said sugar mills, within the framework of what is possible and the principle of victory, operational art <sup>4</sup> will not be able to resolve the window of opportunity that allows establishing the necessary strategy or possible resistance, increasing the threshold and aversion to going to war / conflict <sup>5</sup>.

In this sense, from the perspective of the operation of the international system and using a vision from the key to realism, it would be foreseeable that the increase in the power differential through the introduction of the SAALs would lead to a world with a more stable appearance in the world. which states that hold said technology will try to maintain said power differential and status quo; although the existence of an arms race of a military-scientific-technological nature would be inevitable.

As Stop Killer Robot puts it in its international campaign *“The US, China, Israel, South Korea, Russia and the UK are developing weapons systems with significant autonomy in critical functions to select and strike targets. If nothing is done about it, the world could enter a destabilizing robotic weapons race”* <sup>6</sup>.

In this sense, it is essential to emphasize the recent documents issued by high national authorities of central countries in relation to said arms race already in force:

On the part of the United States of America, on March 1, 2021, the National IA Commission (NSCAI) made its Final Report and Recommendations <sup>7</sup> public to the President of Congress, expressing among other things that Autonomous weapons systems are unavoidable, and their development is a strategic interest of the United States, which is why the incorporation of AI in military systems will be promoted. In its English text, it states:

the introduction  
of the SAALs  
would lead to a  
world with a more  
stable appearance  
in the world

*“Part I, Defending America in the AI Era (...) Prepare for future war-*

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4. *The operational art understood as a cognitive and creative ability to conceive effects / capabilities and conduct the maneuver (medium, space and time), and the deployment to leave the forces in the best conditions for their tactical engagement (battle)*

5. *Likewise, the International Stop Killer Robots Campaign expresses a concern regarding the need to protect civilians. “Replacing troops with machines would make the decision to go to war easier and would shift the burden of the conflict further onto civilians. Fully autonomous weapons would make tragic mistakes with never-before-seen consequences that could fuel tensions.” taken from* <https://www.stopkillerrobots.org/learn/?lang=es>.

*Likewise, Human Right Watch warns that “they threaten to infringe the rights to life and to reparation for the victims, and to undermine the principle of human dignity.” Del Valle, María J., “Autonomous lethal weapons systems ...”, Lessons and Essays, No. 97, 2016*

6. <https://www.stopkillerrobots.org/learn/?lang=es>

7. *Original document at: <https://www.nsc.gov/2021-final-report/>*

*fare. Our armed forces' competitive military-technical advantage could be lost within the next decade if they do not accelerate the adoption of AI across their missions. (...) The Department of Defense (DoD) should first establish the foundations for widespread integration of AI by 2025. This includes building a common digital infrastructure, developing a digitally literate workforce, and instituting more agile acquisition, budget, and oversight processes. It also requires strategically divesting from military systems that are ill-equipped for AI-enabled warfare and instead investing in next-generation capabilities.; Second, achieve a state of military AI readiness by 2025. Pentagon leadership must act now to drive organizational reforms, design innovative warfighting concepts, establish AI and digital readiness performance goals, and define a joint warfighting network (...) The Intelligence Community (IC) should adopt and integrate AI-enabled capabilities across all aspects of its work”<sup>8</sup>.*

Likewise, in part II of the Document it clearly establishes the arms race / competition with CHINA expressing in your text in English:

*“Part II: Winning the Technology Competition. The race to research, develop, and deploy AI and associated technologies is intensifying the technology competition that underpins a wider strategic competition. China is organized, resourced, and determined to win this contest. The US retains advantages in critical areas, (...) the United States must do what it takes to retain its innovation leadership and position in the world. The U.S. government must embrace the AI competition and organize to win it by orchestrating and aligning U.S. strengths. The White House should establish a new Technology Competitiveness Council led by the Vice President to integrate security, economic, and scientific considerations; develop a comprehensive technology strategy; and oversee its implementation to win the global talent competition. (...) the must Build a favorable international technology order”<sup>9</sup>*

It also states that *“the Commission argues that it would not be in the US interest to support a global prohibition on lethal autonomous weapon systems.”<sup>10</sup>* On this point, the International Stop Killer Robot Campaign in a document entitled “Six Unexamined Premises Regarding Artificial Intelligence and National Security” responded the following:

*“The conclusions of the NSCAI inquiry, in sum, are foregone: the self-reinforcing dynamic of an escalating arms race justifies massive investment of public funds into research and development in ‘AI’. There is no space devoted to considering alternatives to the expansion of a national security strategy based on US military and technological dominance - for example, through greater investment in humanitarian aid and international diplomacy. Given the unexamined premises of the report, it is imperative that Congress and the President’s Office of Science and Technology Policy appraise the Commission’s recommendations critically and subject them to debate, in a forum that opens the discussion to a broader range of expertise and visions for greater security. “*

On the other hand, on March 16, 2021, President Boris Johnson publicly presented to the Parliament of the United Kingdom a defense plan entitled **“Global Britain in a competitive age The Integrated**

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8. Extracted from the original document in English: <https://www.nscai.gov/2021-final-report/> page 11

9. Extracted from the original document in English: <https://www.nscai.gov/2021-final-report/> page 13

10. Full session of the Commission available at [https://www.youtube.com/watch?V=gov6\\_qWxWsQ](https://www.youtube.com/watch?V=gov6_qWxWsQ)

**Review of Security, Defense, Development and Foreign Policy”**<sup>11</sup> that It includes among several aspects the expansion of its arsenal of nuclear weapons for the first time since the fall of the Soviet Union in 1991, the identification of Russia and China as the main threats to security and the ratification of maintaining a permanent military presence in the Falkland Islands, a sensitive issue for the nationals of Argentina and in clear breach of the Resolutions issued by the UN in this regard.

In express relation to the arms race, one of the salient points of its plan is the increase to 260 of the maximum number of warheads that the country is authorized to store, information that alerted various organizations, NGOs and international campaigns: *“The news of an increase in the nuclear arsenal outraged the ICAN (International Campaign for the Abolition of Nuclear Weapons), for whom it “violates the commitments that (London) adopted in the framework of the nuclear non-proliferation treaty.” “The decision of the United Kingdom to increase its reserves of weapons of mass destruction in the midst of the pandemic is irresponsible, dangerous and violates international law,” denounced Beatrice Fihn, director of that NGO. In turn, the secretary general of the Campaign for Nuclear Disarmament (CND), Kate Hudson, said that “this is not the time to start a new nuclear arms race, while the world struggles with the pandemic and climate chaos.”*<sup>12</sup>

In other respects, the Prime Minister in his plan emphasized new capabilities for the Counter-Terrorism Operations Center and the National Cyber Force. Likewise, the document states that the United Kingdom is a superpower in the development of Science and technology, 2nd worldwide with 99 Nobel Awards, 3rd world power in cyber power, 4th place in the “Global Innovation Index”. In relation to this express question in English:

*“UK is the 3rd most powerful cyber nation in the world, ranking top in defense, intelligence, norms and offensive capabilities.” “Keeping the UK’s place at the leading edge of science and technology will be essential to our prosperity and competitiveness in the digital age. Our aim is to have secured our status as a Science and Tech Superpower by 2030, by redoubling our commitment to research and development, bolstering our global network of innovation partnerships, and improving our national skills - (...) digital and data hub by drawing on our nation’s great strengths in digital technologies”*<sup>13</sup>.

The initial reactions from the International Stop Killer Robot Campaign regarding these points can be analyzed on different social networks, especially from the UK SKR campaign<sup>14</sup>.

In relation to Israel and its technological development capacity for the military use of AI in SAALs we can cite Article published on February 26, 2021 **“Israel’s autonomous ‘robo-snipers’ and suicide drones raise ethical dilemma”**<sup>15</sup> where it is stated that:

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11. Full English text in file: [///C:/Users/administrator/Downloads/The\\_Integrated\\_Review\\_of\\_Security\\_\\_Defence\\_\\_Development\\_and\\_Foreign\\_Policy% 20 \(1\) .pdf](file:///C:/Users/administrator/Downloads/The_Integrated_Review_of_Security__Defence__Development_and_Foreign_Policy%20(1).pdf)

12. Extracted from Telam: <https://www.telam.com.ar/notas/202103/547613-Reino-Unido-Malvinas-Arsenal-nuclear.html>

13. Extracted from Original document page 6 in file: [///C:/Users/administrator/Downloads/The\\_Integrated\\_Review\\_of\\_Security\\_\\_Defence\\_\\_Development\\_and\\_Foreign\\_Policy% 20 \(1\) .pdf](file:///C:/Users/administrator/Downloads/The_Integrated_Review_of_Security__Defence__Development_and_Foreign_Policy%20(1).pdf)

14. SEE: SKR UK at [https://twitter.com/uk\\_robots/status/1371827009555431428](https://twitter.com/uk_robots/status/1371827009555431428)

15. Article taken from <https://www.trtworld.com/magazine/israel-s-autonomous-robo-snipers-and-suicide-drones-raise-ethical-dilemma-44557>

*“With its considerable line-up of ‘robo-snipers’, ‘suicide drones’ and ‘robattle’ battlefield robots, Israel’s defense industry is pushing the envelop of autonomous machines with only token human involvement. Israel has established itself as a pioneer of autonomous weapons, specifically with the Harop ‘Suicide Drone’, Robattle wheeled battlefield robot, and Sentry-Tech automated border control machine gun. The increasing demand for automated weapons comes amid a global revolution in military affairs (RMA), as nations seek to exploit the advantages of offensive firepower manned by tireless machines without the loss of human life.”<sup>16</sup>*

Thus, the examples can continue, showing that the situation of “pseudo stability combined with an arms competition” would work with degrees of uncertainty and tension between central powers, which would remain until a reconfiguration of the base of the power differential, or the development of new ones. forms of power, means, methods or forms of combat.

In this sense, and as the logic of the cold war will show, the central actors of the international system would not confront each other directly, but through proxy wars, or indirect scenarios to resolve their strategic interests, so it would be expected that these theaters of operations become fields of experimentation and use of this type of ingenuity in the tactical field.

Likewise, *“as in the times of the Cold War, political decision-makers find themselves in a new scenario of uncertainty about the intentions of other countries. This problem, known as the security dilemma, confronts governments with the need to properly evaluate the evolution in the development and acquisition of the weapons of the opposing countries, without knowing exactly the true intentions of their decision-makers.”<sup>17</sup>*

On the other hand, the proliferation of this type of technology and its effectiveness by non-state actors would configure a more unstable and anarchic world in the periphery, an increase in the privatization of security and the development of transnational dynamics - from the periphery to the center - that they could affect the stability of the international system.

For all that has been said and from a realistic point of view, there would not be a significant change in the international system; It would even be expected to deepen the instruments and mechanisms of regulation and non-proliferation that already exist to maintain the status quo and avoid possible “security dilemmas” among the central actors of the international system.

Therefore, the challenge lies in investigating possible approaches from other theoretical approaches to International Relations: on the one hand the liberal and on the other constructivist, where the focus would be placed not only on material factors, such as military and economic resources, that influence the decision-making of the States and the relations between the actors of the international system, but rather the cooperation and institutionalization of agreements on the liberal side and on the identity and interests and motivations of the actors, from the constructivist side. From the constructivist approach, “international relations are a social reality, composed of social facts that depend on a social agreement and that, therefore, are taken for granted; consequently, international relations will exist to the extent that the agreement

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16. *ob cit 15*

17. *Ob.cit Andreas Westhues page 38.*



exists”.<sup>18</sup> In this sense, an adequate balance of a constructivist approach would be required in the development of instances that ensure agreements and controls.

From a liberal approach, international cooperation would come hand in hand with the presence of International Organizations, Treaties, and regulations of a regional<sup>19</sup> or international nature that establish and institutionalize reinsurance in relation to the application of this power and / or the adverse effects that its development could engender.

From a broad analysis of Power Relations at the International level, questions are raised that will remain open to the game and the art of politics, such as:

- At a strategic level, will a new order or balance of power be configured between the possessing and non-possessing powers of SAALs?
- Could the development / possession of SAALs allow the incorporation of other international state actors such as Germany, Japan, Israel, India to the logic of the UN Security Council?
- Will the strategic evolution of SAALs allow us to get out of the logic of TACTICAL NUCLEAR WEAPONS?
- Which countries with aspirations to be seated in the global decision-making process would or would not be motivated to sign a treaty banning SAALs?
- What will be the motivations and interests of the States to sign prohibition or non-proliferation treaties and how will the central powers of the international system act according to their capabilities and willingness to use SAALs in military operations?

## Disruptive technological devices for military application

The world is experiencing the prelude to the robotics revolution of direct impact on dual-use technological devices (civil and military) under a transformational dynamic and without a solution of continuity (without pause), of comparable importance, in the construction of power in what at the time was in the military field the introduction of gunpowder, air power, access to space and nuclear bombs. Technological advances in AI, biotechnology, nanotechnology, robotics, and neuroscience, among others, have left policymakers and military strategy makers, in the position of investigating and elucidating all the social, legal, military,

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18. Wendt, Alexander. *Social Theory of International Relations*. Cambridge: Cambridge University Press, (1999)

19. As provided in Resolution 473 of the Commission on Human and People's Rights of the African Union- of February 25, 2021, on AI, robotics, and other emerging technologies in Africa. Resolution 473 on AI technologies: <https://www.achpr.org/sessions/resolutions?id=504>.

As well as the motion issued by the Austrian Parliament in February 2021 where it states (English translation) “advocate within the framework of the United Nations, in particular the First Committee of the UN General Assembly and the Convention on Certain Conventional Weapons (CCW) , for a ban under international law of autonomous weapon systems without comprehensive human control and to consistently drive forward an international process, with the comprehensive inclusion of all relevant actors ”in 531 der Beilagen zu den Stenographischen Protokollen des Nationalrates XXVII.

economic implications, moral and ethical.

The States belonging to the United Nations Security Council are developing, in accordance with the evolution of security and defense scenarios, hypersonic weapons with greater range, more autonomous, with greater maneuverability, with the aim of launching them out of the reach of the enemy's weapons and trying to achieve as much surprise as possible.<sup>20</sup>

These weapons can be launched from different types of platforms (land and manned / unmanned air) and will be used for both land targets as well as for all types of air or space mobiles.

These new hypersonic weapons can fly at more than Mach 5, that is, five times the speed of sound, with some mobiles reaching over Mach 20. This gives those who master this technology the ability to reach almost any part of the globe with little time to notice.

One of the most radical technological races that the most advanced countries are going to fight -for the short and medium term- will be due to the leadership of artificial intelligence (AI); In this sense, the President of Russia, Vladimir Putin, expresses - in relation to this phenomenon that will modify our lives - that whoever leads artificial intelligence "will dominate the rules of the world."

In the case of China, it already has a national strategy since July 2018 with the publication of the "New Generation Artificial Intelligence Development Plan"<sup>21</sup>, as an aspiration to position itself as the "main AI innovation center" in 2030, with an industry capable of generating \$ 22 billion in 2020, \$ 60 billion in 2025 and \$ 148 billion in 2030.<sup>22</sup>

For the short term, China has already managed to capture 60% of global investment in AI in 2018, encompassing venture capital, private equity, and technology titans, which could add between 0.8 and 1.4 percentage points to the annual growth of the China's GDP, according to McKinsey.<sup>23</sup>

The United States remains ahead of China in this field, accounting for 33% of total AI capabilities, compared to 17% for China; Washington has outlined its own national strategy, dubbed the "American AI Initiative," two years after China did; turning technological development on the battlefield into rivalry between the two countries.<sup>24</sup>

The power of the sensors, the capacity and speed of processing and precision of Autonomous Weapons

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20. "The US, China, Israel, South Korea, Russia and the UK are developing weapons systems with significant autonomy in critical functions to select and strike targets." Extracted from <https://www.stopkillerrobots.org/learn/?lang=es>

21. <https://www.24pm.com/ia-par-secteur/international/chine/585-plan-de-desarrollo-de-inteligencia-artificial-de-nueva-generacion>

22. China's 'New Generation Artificial Intelligence Development Plan,' *New America* (Aug. 1, 2017), <https://www.newamerica.org/cybersecurity-initiative/digichina/blog/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/>

23. <https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/China/Artificial%20intelligence%20Implications%20for%20China/MGI-Artificial-intelligence-implications-for-China.ashx>

24. reference:

Systems provide great strategic and tactical advantages on the battlefield<sup>25</sup>, dispelling the “fog of war” by avoiding the conditions that often they induce both the decision-maker and the combatant to commit errors of an objective and subjective nature<sup>26</sup> during armed conflicts.

Although this allows to minimize the adverse effects of the war<sup>27</sup>; Legal, moral, and technical arguments persist -because they are elements in development whose final design conditions and limitations are unknown- that proclaim that these weapons should be limited and even completely prohibited, clearly presenting the challenges that these mills must face. overcome - in its development and use - to comply with IHL (applicable in situations of armed conflict) and IHLR (applicable to the regulation of the use of force in situations other than military operations or combat)<sup>28</sup>.

## Inherent risks vs. residual risks

*“Employment entails a series of advantages for which political decision-makers promote its development, but also some disadvantages, mainly related to the legal vacuum within which these systems would operate in full autonomy mode”<sup>29</sup>. Increased capabilities, especially in self-learning, reveal a worrying scenario for the future.*

The key question is whether the risks inherent in applying disruptive technology to military devices would potentially be more dangerous than nuclear weapons. That is why efforts are required to ensure that AI continues to be a complement to human actions and will and includes significant human control within the framework of the risks involved in its use.

*“States, as well as international and non-governmental organizations, have expressed broad agreement on the need for some form of human control over the use of force. Their choice of terminology and their specific views on the role of the human being may differ, but they have identified many of the same factors in three components of the meaningful human control concept: decision-making components, tech-*

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25. Force multiplier, rhythm, speed, precision, logistical efforts, minimization of casualties, managed use of force, among others.

26. Avoid distortions due to fatigue, tiredness, combat stress, survival instinct, psychological problems, regret, doubts, fear, prejudices, among others.

27. Report of the Special Rapporteur on extrajudicial, summary, or arbitrary executions, Christof Heyns, p. fifteen.

28. Lessons and Essays, No. 97, 2016 Del Valle, María J., “Autonomous lethal weapons systems ...”, pp. 225-247  
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29. Ob cit Andrea ... page 76

*nological components, and operational components”<sup>30</sup>*

However, the development of greater autonomy as a product due to the advances in artificial intelligence, implies that they are progressively acquiring the conditions for full autonomy in the operational scenarios that arise in the future.

Reality shows that, despite the associated risks, its development will increase due to its dual characteristics and will include, among others, Deep Learning and Machine Learning<sup>31</sup>. These last two generate great uncertainty in terms of self-learning and self-regulation processes.

The inherent risk would be associated with fully autonomous weapons presenting or modifying their actions to the different design and behavior / performance conditions for which they were conceived, along with the impossibility of solving complex situations that require adequate situational awareness.

For Robert Sparrow, *“The possibility that an autonomous system can choose options other than those foreseen and stimulated by its programmers, is inherent in its quality of autonomous”*.<sup>32</sup>

The critical situation would arise in which the human cannot assume a significant control that allows reverting said situation to return to the initial conditions. Control must exist both for inconsistencies or design flaws and for those derived from self-learning and self-regulation processes.

The challenge is to identify throughout the process, from decision and execution levels, an adequate balance between limitation, risk, and acceptability and how to transform this inherent risk (uncertainty) into a residual risk scenario that makes policy and its use within the scope of application of the principles of International Humanitarian Law is militarily acceptable.

The human must assume and maintain control of what has been created, its predictability and its consequences (responsibility), it is that - within the framework of the art of war - it should ensure knowledge of the operational environment and the construction of the necessary associated situational awareness, in order to identify the significant degree of human control for each particular case of employment and, therefore, what would be the requirements in the design of the command and control subsystems, platforms and weapons as an integrated system.

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<sup>30</sup>. The term “significant human control” has many advantages. “Control” is a term widely used in international law. The qualifier “significant” has the function of ensuring that the control is substantial rather than superficial and that it is less context-specific or results-driven than the alternatives such as “appropriate” and “effective”. See: <https://www.stopkillerrobots.org/wp-content/uploads/2020/03/Spanish-Key-Elements-of-a-Treaty-on-Fully-Autonomous-Weapons-1.pdf>

<sup>31</sup>. Machine is learning for situations that has not been programmed

<sup>32</sup>. Sparrow, R., “Killer Robots”, in *Journal of Applied Philosophy*, vol. 24, no. 1, Oxford, Blackwell Publishing, 2007, p. 70.

# Defense and security scenarios

We are facing an era of loss of the centrality of the State in the international arena, which many authors call “digital globalization”. This could be evidenced by the presence of actors not necessarily state that dispute control of the areas of jurisdiction and interest. Likewise, from the monopoly of physical force held by a State, the growing urbanization of the conflict due to the precariousness of large cities, will not allow a clear differentiation of defense and security dynamics, fostering the development of technological devices compatible with operational requirements. In these areas, which would propose their future use not only for interstate but also intra-state dynamics.

Along with the control of strategic spaces (communication routes and natural resources, global common spaces “global commons”<sup>33</sup>, among others), and in the context of the urbanization of the conflict, the configuration of a scenario that will result dominant in the design of capabilities to respond to both security and / or defense needs and the shared aspects that arise between them. The evolution -in the future- of dystopian cities will present the following trends:

- Growing demographics with a highly divided and precarious population. *“By the middle of the century we will reach 10 billion people, approximately 70 percent will live in cities and many of them will be megacities”*<sup>34</sup>.
- Decreasing state power and weakening of governments and institutions.
- Control and police surveillance increasingly intrusive with drones with Artificial Intelligence.
- Surveillance of citizens and companies by personal / cellular digital applications.
- Concentration of wealth and structural inequality. 1% of the world population concentrates 38% of global wealth. By 2050 it would rise to 40%.<sup>35</sup>
- Fragmentation of cities and public spaces for the development of road structures that separate cities.
- Social separatism and marginality. The upper classes are increasingly isolated from the rest of the population.

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33. Lieutenant Colonel Alfonso Barea, Spanish Army in Article “Control over the« global commons “in today’s world” states: “The term” global commons “includes all those spaces of free use and access that do not they belong to no State and over which no nation can exercise sovereign rights. They are therefore spaces that can be used freely by any nation, organization, alliance or even by an individual. At present and in a generic way, it is considered that the common spaces or «global commons» are made up of international waters, airspace, outer space and cyberspace” extracted from

<https://www.armyupress.army.mil/Portals/7/military-review/Archives/Spanish/el-control-sobre-los-global-commonsen-el-mundo-actual.pdf>

34. Salvador Medina Ramirez. Extracted from

<https://www.tierraadentro.cultura.gob.mx/las-ciudades-distopicas-del-futuro-seran-ciberpunks/#fn7>

35. World Inequality Lab, World Inequality Report 2018, 2017.

- Criminalization of poverty and use of technologies such as Big data to control it and increase social inequalities<sup>36</sup>
- Growth of robotization and automation of jobs. Poor public services for workers.
- Erosion of democracy and emergence of authoritarian states.
- Deterioration of the environment, pervasive pollution, and massive environmental crises.
- Genetic manipulation and cybernetic implants, the path of post-humanity with the presence of robots, cyborgs, among others.<sup>37</sup>
- Shortage of food and medical supplies, outbreaks of new viruses and mutations.

In the framework of the above, and from an approach of the logic of the Nation State, the aforementioned phenomena, threats, risks and/or challenges will determine the type of state response, both political, social, health, military and security, evidencing an increasingly broad, diffuse and complex overlap of interaction between the areas corresponding to the Strategic Security of the State (Internal Security, National Defense and Governance).

In scenarios of conflict or intra-state violence, situations could arise in which the classical capacities of the physical force of the State will not provide an adequate response to the challenges presented by “dystopian” urban scenarios characterized by dehumanization and generalized violence.

These scenarios would constitute windows of opportunity for the use of autonomous weapons systems in tasks of restoring control of said spaces in accordance with the capabilities and advantages of this type of technological ingenuity. Therefore, in the future its use could be considered within the framework of the Strategic Security of the State (Intra-state Security), according to the legal framework of human rights applicable to its employment.

Even, according to the expressions of the International Stop Killer Robot Campaign, they warn that, “*Fully autonomous weapons could be used in circumstances outside the armed conflict, such as border controls and surveillance. They could be used to break up protests and support regimes. The force that is supposed to be non-lethal could also cause many deaths.*”<sup>38</sup>

On the other hand, there is an increase in the privatization of the use of violence or the outsourcing by the States of the contracting of private companies in order not to compromise national capacities and limit the possible negative political, institutional and strategic impact that their employment and consequences could lead to (dynamics of proliferation of sensitive technologies) Some examples that we could cite are the cases of Afghanistan, Iraq with the contracting of companies such as Blackwater<sup>39</sup>, and the contracting of

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36. Cathy O’Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, Crown, New York, 2016.

37. *Ob cit* Salvador Medina Ramirez

38. Extracted from <https://www.stopkillerrobots.org/learn/?lang=es> dated March 12, 2021

39. SCAHILL, Jeremy “BLACKWATER. The rise of the world’s most powerful mercenary army” Nations Book Philadelphia 2007

the company FRONTEX<sup>40</sup> by the European Union to migration-border policies.

*“Other non-state actors interested in acquiring autonomous weapons systems could be security companies, such as the Russian group Wagner, or the Academi company, successor to the former Blackwater. As in the case of militias, these actors often operate outside of international law. (Likewise) The asymmetric nature of many current conflicts means that many actors involved are non-state such as the Islamic State, Boko Haram or the militias grouped around the Libyan National Army (ENL onwards) that compensate for their lack of heavy weapons with tactics of guerrillas in which drones play an increasingly important role”.*<sup>41</sup>

For all the above, one of the partial conclusions that is presented is that it could be possible but NOT probable that the tactical use (objectives limited in time and space) of SAALs are used among state actors that present scenarios of technological operational balances. Among those actors who are in the same segment of power differential, it would be a zero-sum game or simple war / technological games of very high cost and loss of technological surprise.

On the other hand, **what is plausible is that these systems are likely to be used tactically, experimentally and in trials in peripheral scenarios to the central actors of the system where the use of this power differential is optimized.**

## Military dimension (strategic - operational variable)

The Armed Forces act within the respect, compliance, and application of IHL, especially in the means and methods of war, applied in the planning, training, advising, decision-making and execution processes.

In this sense, the process of consolidation and assignment of material objectives (targeting) is -finally- a process of political decision, a level that evaluates the management of the crisis and the evolution of the conflict and, therefore, the political, strategic, and political impact. operational of the material objectives proposed in the achievement of the objectives pursued.

Different governmental and non-governmental actors show as the center of gravity of the SAAL conceptual-normative debate the human control over the critical functions of the autonomous systems, in relation to the command-and-control process, targeting and use of force (fire control of weapons); For this reason, it is necessary to identify the different levels of the military decision-making process and their functions:

- **Strategic Level:** it conceives, according to the political objectives pursued, a desired final military effect, as well as the conditions for its achievement (ROE) within the framework of the general maneuver of the war.
- **Operational Level:** articulates the strategic level (objective) with the tactical level (execution); con-

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40. RODIER, Claire. *“The business of despair. What does the refugee tragedy hide?” Buenos Aires, intellectual capital 2015*

41. *Ob cit Andreas Westhues p. 41*

ceiving “The Campaign” that contemplates a strategy and preparatory maneuver, operational effects, Centers of Gravity, Objective-targets, capabilities, efforts, deployment that position organizations and elements of the tactical level in the best conditions to execute missions, operations, tasks, actions that were assigned.

- **Tactical Level:** conducts the fogging of the media (battle / combat) from the specific application of its capabilities (application of force), in achieving the effects required by the operational level.

SAALs, according to the strategic political impact of the operation, could be monitored and / or conducted, as appropriate by any of the three levels. Likewise, depending on the specific function of each one of them and, the military staff at a strategic and operational level would make use of the capabilities (AI) to assist the decision-making process and information or data analysis, such as in operations of aerospace defense / cyber defense due to the complex integration of analysis variables and short reaction times.

The embryonic development of these technological devices does not foresee in a medium-term horizon the possibility of autonomous response systems -except for cyber defense operations with real-time responses- that supplant the role of the human in the control of defense systems and / or control of strategic weapons, this situation does not currently arise at the tactical level.

In this sense, it is pertinent to identify the degrees of control that can be exercised over technological devices for military use (according to their operational role and state of the art):

- **Semi-autonomous systems** (“human in the loop”), those that develop the scheduled / ordered task autonomously, but require the intervention of the strategic / tactical (human) command and control system to validate targets and execute actions.
- **Supervised Autonomy Systems** (“human on the loop”), those in which the weapon system develops the scheduled / ordered task under the supervision of elements of the command-and-control system (Human Operators) that have the ability to modify, correct or veto the operation of critical subsystems and / or those required (defensive offensive capabilities subsystem, in particular the lethal weapons module).
- **Total autonomy systems** (“human off the loop”), those in which the weapons system performs a scheduled or ordered task without supervision or intervention by operators of the Command-and-Control System, in accordance with their capabilities and design conditions.
- **The general sequence of the action process stages** (OODA loop)<sup>42</sup>, regardless of the decision / execution level, is usually divided into the following stages according to the development of an operation or task, which are:
  - **Exploration and Recognition:** activity associated with both the intelligence cycle and the development of operations aimed at gathering information related to elements of interest required for the strategic, operational and / or tactical decision process.
  - **Location and identification:** establish and confirm, with the required precision, the location and time window and necessary / available opportunity.

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42. OODA: observation, orientation, decision, action



- **Surveillance and Monitoring:** maintain -in real time- the identification and updating of technical-operational information on the objective / target and the conditions of the operational environment.
- **Risk analysis and evaluation:** assessment and validation before undertaking, to determine the strategic-operational acceptability of the conditions in which the operation will take place and its impact within the framework of the objectives pursued, attrition of the forces themselves, limitations imposed by ROEs and eventual collateral damage (damage to life, protected property and the environment).
- **Engagement of Combat Elements:** application of force (lethal and non-lethal) based on the prohibitive, restrictive and / or permissive conditions established in the ROEs, ensuring clear procedures and command and control capabilities that allow modification and / or cancellation of the actions in development.
- **Effects Assessment Process:** comprehensive evaluation of the result of the operation in relation to the objectives pursued, the effects of the weapons and collateral damage in order to determine a new operation, the selection of weapons and the conditions for their execution.
- **Once the sequence of the operational-tactical decision** process has been determined, the degree of significant human control - and its considerations - applicable to each of them can be defined in accordance with legal, ethical, operational, and technical requirements.

In this sense, it would be convenient to implement control measures, within the framework of ROEs, that contribute to minimizing and mitigating the risks associated with their eventual use (Inherent Risk vs. Residual Risk), control measures-requirements / restrictions / limitations that are would find associated with:

- **Endogenous aspects:** design aspects associated with operational roles, use of force (lethal and non-lethal), valid targets, permitted effects, among others; as well as procedures and modules for self-control and deactivation due to operating inconsistencies and / or operating failures.
- **Exogenous aspects:** articulation of the dynamic conditions of the operational environment and basic design information aimed at regulating - in time and space - their use (presence of non-combatants, protected assets, safe schools, the environment, among others); as well as the adoption of prevention / mitigation measures that are necessary to implement within the framework of each task.
- **Interaction of the C2 system** (human and SAALs): adopting the provisions and capacities that ensure the degrees of control and supervision required over the operation and operation of the SAALs based on the risks identified in the preceding aspects and the evolution of the operation; This requires permanent control of the “lethal function module”, a situation that leads to the design of a new generation of weapons that allow their deactivation once launched.

The SAALs should contemplate -by design- a control and supervision mechanism of the C2 (human) System, independent of the functioning or self-control subsystems of the autonomous system that allows modifying or deactivating the lethal weapon module or intervening in its subsystems when required.

Ultimately, the decision is political and should not raise legal or technical issues that do not address the bottom line.

The political leadership is the one who approves the valid objectives, the Rules of Engagement (ROEs) and

the methods-means to be used based on military needs, the current normative plexus and the variables and conditions specific to that level of leadership.

Within this framework and within a regulatory anticipation strategy for SAALS, the development of a new generation of ROEs applicable in matrix form at all levels of conduction, components and process products should be implemented. They must include political, ethical, military, and scientific-technical aspects, in a prohibitive, restrictive and / or permissive manner, applicable to a wide range of military and non-military application activities, to unambiguously establish the circumstances, responsibilities, conditions, degree or prohibition for the development, transfer and effective use of said weapons in situations of peace, tension, crisis or conflict.

In this way, it is imperative to guarantee a prescriptive regulatory framework and that human action is ultimately responsible for the consequences of a military operation.

## Command and control system considerations

Military strategist Thomas K. Adams warned that humans would be relegated to only making initial policy decisions about warfare and would only have token authority over automated systems in the future<sup>43</sup>, and with the prelude to the end of the war art.

The appearance of these new weapons will transform the characteristics of conventional warfare, and probably with it the modification of the principles of war as we have known them.

This statement requires the military leader to determine the forecasts and conditions of use of the AI, establishing the degrees of interaction between the Command-and-Control system (human) and the SAALS (AI) at the different decision levels. Assisted military control - according to the complexity of the respective command and control levels - by AI with different degrees of autonomy (as a rational agent), centralized at a strategic level where the human occupies a key position in the OODA cycle, up to the structure of the Tactical behavioral control, where the weapons systems work in a network with full autonomy, in which they perform their functions in an alternative mode of autonomous, supervised autonomy or full autonomy in accordance with military objectives, requirements of the operational environment and IHL / IHL requirements.

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43. "The pros and cons of autonomous weapons systems", Amitai Etzioni. Oren Etzioni, *MILITARY REVIEW* Fourth Quarter 2017, page 61.

# Considerations of probable employment scenarios

From an approximation centered on the space variable, the following operational scenarios for the employment of SAALs are visualized -primarily for the short and medium term-, according to their state of maturity and technological development:

- **Defense Operations** (devices to assist in the decision-making process and arms control / response) against attacks with catastrophic consequences -cyberattacks, hypersonic weapons and weapons of mass destruction- (interstate strategic employment).
- **Control operations of prohibited / restricted / interest spaces** (all-weather H-24 devices -sensors and weapons- in spaces with and without the presence of non-combatants) in defense of high value elements - control of border areas and areas of interest (intra-state tactical employment).
- **Strategic Offensive Operations** - limited in time and space - of combat rescue and / or neutralization of high value objectives (inter / intra-state strategic-tactical employment).
- **Tactical operations in peripheral scenarios:** central actors of the international system seek to maximize the share of power to achieve objectives in tactical scenarios, or in tactical fields of a strategic nature, based on political restrictions and unacceptable costs, such as a high percentage of deaths of own soldiers. Against state or non-state actors.
- **Operations in Urban Scenarios** against dynamics of diverse origin that dispute the control of spaces (Intra-state tactical employment).

In the long term, an emerging scenario could be constituted by the space as the present and projection of humanity. The question to ask in this scenario would be: What should be the Application Law that will guide the development, control, and use of said military devices according to the demands of said operational environment?

# Final thoughts

“He who does not detect evils when they are born,  
he is not truly prudent.”

NICOLÁS MAQUIAVELO

The exponential evolution of disruptive technologies will mark a substantive imbalance in the power differential, and at present it begins to generate debates in relation to the implications for the international agenda and security (arms race and proliferation) and the consequent ethical-legal demands on it. development of AI in the military field, SAALs.

In this sense, the different positions, and strategies of international actors regarding the evolution of SAALs could be divided according to:

- 1) Development capacities (science and technology)
- 2) The motivation for use (military employment)

The combination of these aspects could base their foreign policy decisions / positions regarding the total prohibition, regulation, or full autonomy of SAALs, prevailing regulatory positions based on the dual-use nature of these technological advances (civil-military) and its impact on people’s lives and well-being.

In the following table we can see the combinations of capacities / motivation and the expected positions of the different actors.

<b>Capacities</b>	<p><b>DUAL DEVELOPMENT</b> <b>SELECTIVE PROHIBITION</b> <i>(Regulation)</i></p>	<p><b>INTEGRAL DEVELOPMENT</b> <b>NONPROLIFERATION</b> <i>(Entry barriers - Status Quo)</i></p>
	<p><b>NONDEVELOPMENT</b> <b>PROHIBITION</b> <i>(Regional opposition strategy - Lyder Nation)</i></p>	<p><b>SELECTIVE DEVELOPMENT</b> <b>COOPERATION</b> <i>(Technological transference)</i></p>
<p><b>(+) Military use motivation (-)</b></p>		

At present, in the international field of arms control and regulation, the lack of an agenda in the field of the GGE / CCW, (discrepancies on the autonomy and definition of the SAALs and future limitations) envisages the unlikely existence of an International Scenario of negotiations with the commitment of leading nations (powers and intermediate powers) in normative processes of regulation and eventually prohibition within

the framework of the CCW; Therefore, it is necessary to strengthen the positions, strategies and actions associated with similar processes of the implementation of the Ottawa and Oslo Conventions, carried out through intermediate powers, regional blocks (state and non-state) and civil society organizations.

In this sense, within the framework of the finalization of strategic arms treaties (INF - START III), a window of opportunity could be configured for the incorporation of CHINA, not contemplated in this type of Treaties, as well as the treatment of the advances in artificial intelligence and associated technologies based on the progressive and profound impact on human life and well-being, as well as on the weapons and methods of war, as collaborative disarmament, and control mechanisms.<sup>44</sup>

The IHL establishes the norms and principles that regulate the means and methods of war, prohibiting the use of certain weapons, especially those that do not discriminate between combatants and non-combatants -Principle of distinction-. IHL constitutes the conceptual basis of most international treaties dedicated to the control or prohibition of weapons.

However, from the pragmatism of the logic of the Strategic Security of the State, the development of this technology is a process without a solution of continuity, so it is imperative to anticipate politically and strategically to establish the conditions of the process and the rules of use of these. Work should be done to give it the framework of humanism and control to clearly establish traceability, responsibility, and regulation in lethal action.

This document proposes preliminary initiatives and strategies from the perspective of the Defense dimension (political decision-makers-military strategists) in relation to the use of SAALs that contribute to the institutionalization of political, normative, ethical, and military operational measures associated with their development. transfer, employment, verification, control, and accountability.

Likewise, it proposes institutional instances aimed at identifying application criteria in the development of associated disruptive technologies, presenting substantive questions that give rise to and contribute to the development of the legal-normative-regulatory framework related to prohibitions, restrictions and / or limitations on use. Autonomous Weapons Systems -in general- according to political-strategic criteria that assist the process (loop) strategic decision, operational planning, and tactical execution (use of weapons).

## Action in the political-strategic dimension

Within the framework of the analysis of the military dimension, as part of the process of political action, and the efforts to establish political, ethical, operational, and technical criteria for the use of AI in military planning - decision - command and control systems. Weapons are currently limited, particularly to initial technical-ethical conceptual aspects due to the lack of empirical evidence derived, both from the predict-

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44. *ob cit* Andreas Westhues “AUTONOMOUS LETHAL WEAPONS SYSTEMS AUTONOMOUS OR AUTOMATED? Year 2020

ability of mature operating systems and the experience of their use, which allow the interpretation and parameterization of the design reliability and expected effectiveness as elements of judgment on the risks inherent in their use of warfare.

The challenge facing the international community - in the face of the power-building model - is the implementation of a system of regulation (selective prohibition) versus the one of prohibition (total), which minimizes entry barriers (access to sensitive technology) according to regulation and transfer criteria.

The creation of political bodies at the regional level for debate, regulation, and control will facilitate the development of preliminary normative-procedural frameworks (consensus) that ensure, on the one hand, the scope, content, and responsibility in said processes, -particularly in relation to vices. hidden programming (biases) -; and on the other hand, to promote - based on regional initiatives and consensus - the development of global strategies for the anticipation, prevention, regulation and control of sensitive dual-use technologies and products that will have a disruptive impact on human life and construction. the power differential of the States to achieve their interests, in that sense:

- Promote the creation of a Regional / International Center of Ethical Principles, Policies and Standards applicable to the design, development and use of AI and associated technologies-processes (Regulatory development body and training of political-military leaders and scientific-operational-technical personnel).
- Elaborate, at the national / regional level, prohibitive, restrictive and / or permissive Engagement Rules (ROE) - in accordance with political, strategic, and operational criteria - of integral application to the development (process) and employment (product) of the SAALs that ensure standard, expected result and / or behavior (inherent-residual risks corresponding to this type of media)<sup>45</sup>

In this sense, the creation of technical regional / international bodies in charge of the determination of standards and regulations in the processes of specification, development, experimentation, certification, and approval of disruptive technology (AI) that ensure the expected effects within the parameter's security and reliability requirements, which involve various state and non-state actors, interest groups such as companies, non-governmental organizations, civil society, among others.

The creation, within the framework of the preceding body, of a regional and international inventory of research and development centers, techno-productive infrastructure and researchers who develop sensitive components in the Autonomous Weapons Systems value chain will provide transparency, traceability, cooperation, and non-proliferation in accordance with technology transfer policies.

Finally, depending on the deepening of the space race, it is necessary to address the debate on the policies, restrictions, demands and use of this type of autonomous ingenuity - in accordance with the current limitations of the current legal plexus - in future operations and / or forecasts of employment in the space field, in accordance with the exceptional requirements, development scenario and duration of this type of operations (privatization of space activity).

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45. *NOTE: Those specified above should not be confused with the ROE of a general nature for the management of the stage of Peace, Crisis or Conflict (ROE) of uniform application and mandatory compliance -both for defense operations and eventually security. - in general, independent of the medium used (human and / or technological ingenuity).*

# Actions in the operational-tactical dimension

Regulating the development and use of SAALs will require an intense work of preparation and consensus, a true anticipation strategy that overcomes the effective option of prohibiting them, creating a detailed and profitable legal-regulatory framework along with the progressive development of AI., of disruptive implications in the ethical and operational dimensions of war, being convenient:

- Establish an adequate gradation between control and autonomy according to the certainties of the state of the art (operational roles and degree of associated control-autonomy) and the spirit of IHL norms; In this sense, the lack of certainties (risks-discrepancies-probable or empirical inconsistencies) will require the development of a normative-strategic framework of orientation for political decision-makers and application for military strategists.
- Generate genuine statistics that allow the extraction of comparative empirical data on the effectiveness of conventional elements (man) vs. lethal autonomous systems in relation to positive-negative results ~~in order~~ to objectively validate the convenience of using the best option (cost-benefit) under the concept of calculated risk that produces the minimum impact on the development and outcome of the conflict in relation to protected property and principles enshrined in IHL.
- Evaluate the implementation of prohibited-excluded areas for the development and / or use of autonomous weapons systems, the latter similar to prohibited overflight areas, based on the value of the air-land-maritime space, presence of protected segments ( non-combatants-natural resources-cultural goods, schools, among others), the inherent-residual risks that the operation of this type of technological ingenuity implies, as well as the political positions-strategies declared at the regional-global level. Outer space.
- Implement the safety assessment and advisory function, at the political-strategic and tactical levels, associated with the process of selecting and validating targets (targeting), conception of the operation and determination of eventual containment-mitigation measures; Comprehensive risk analysis aimed at determining the acceptability of the action according to the circumstances of employment, standards and design limitations, reliability of the system, conditions of the operational environment-conflict and requirements for each particular case (ROE).
- Ensure permanent significant human control - in parallel and independent of the lethal modulus of tactical SAALs; establishing an absolute prohibition of the degree of control and / or decision of this type of systems over strategic weapons and / or weapons of mass destruction (which generate irreversible-catastrophic effects in conflict with IHL).
- Implement Learning Centers (technical-operational) at the national and regional levels that contribute to the exchange of operational experiences in the use of this type of technological ingenuity. Even center of thought and reflection
- Implementing capabilities for recording, traceability and analysis of the process and product (similar to the operation of the decision and employment processes of the Aerospace Defense Operations Cen-

ters) allow the evaluation of inconsistencies and / or deviations in real time and re-analysis of operations (both for standard certification and validation activities such as simulation and employment).

The current international environment is characterized by the prevalence of the strategic and geopolitical interests of the States in a decidedly realistic key, an increase in distrust, an increasingly less collaborative foreign policy of the great powers, on a par with countries of a strategic stature. of the smallest, and a growing geopolitical transformation in many areas that involve them and directly affect them in the event of the eventual development and use of these strategic capacities in the face of which there is no strategy or possible resistance, so we can conclude then that the systems of Autonomous weapons require a new specific and urgent regulatory framework within a framework of a global / regional strategy for anticipation and prevention and safeguarding of IHL and Human Rights.



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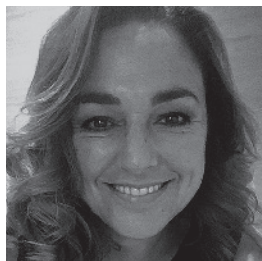
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# APP

Asociación para Políticas Públicas



**CAMPAIGN TO STOP  
KILLER ROBOTS**



**SEHLAC**  
SEGURIDAD HUMANA  
EN LATINOAMÉRICA Y EL CARIBE

