



ISSUE DESCRIPTION

COMMITTEE Disarmament and International Security Committee
ISSUE Regulating the Military Use of Artificial Intelligence
SUBMITTED BY Róbert Dévényi, Deputy Chair of the Disarmament and International Security Committee
APPROVED BY Virág Nyisztor, President of the General Assembly

Introduction

Few developments in science and technology hold as much promise for the future of humanity as the suite of computer science-enabled capabilities that falls under the umbrella of artificial intelligence (AI). AI has the potential to contribute to the health and well-being of individuals, communities, and states, as well as to aid fulfilment of the United Nations' 2030 agenda for Sustainable Development Goals. As with past revolutionary technologies, however, AI applications could affect international peace and security, especially through their integration into the tools and systems of national militaries. In recognition of this, UN Secretary-General António Guterres, in his agenda for disarmament, *Securing Our Common Future*, stresses the need for UN member states to better understand the nature and implications of new and emerging technologies with potential military applications and the need to maintain human control over weapons systems. He emphasizes that dialogue among governments, civil society, and the private sector is an increasingly necessary complement to existing intergovernmental processes. Such an approach is particularly relevant for AI, which, as an enabling technology, is likely to be integrated into a broad array of military applications but is largely being developed by private sector entities or academic institutions for different, mostly civilian, purposes.

Due to the versatile utilization of AI, it has been very difficult so far for international bodies and lawmakers to regulate its usage. Member states are pouring a vast amount of money and resources into AI research and it is very likely that newly discovered technologies will be incorporated into the military, and it is no question that AI is already implemented for some military use cases. In case of autonomous machines, the decision is absolutely independent of any human assistance. This can have unforeseen consequences in the close future which will impact the lives of societies all around the world at the most profound level.

Definition of Key Terms

Artificial Intelligence: the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

Lethal Autonomous Weapons: Lethal autonomous weapons (LAWs) are a type of autonomous military system that can independently search for and engage targets based on programmed constraints and descriptions. LAWs are also known as lethal autonomous weapon systems (LAWS), autonomous weapon systems (AWS), robotic weapons, killer robots or slaughterbots. LAWs may operate in the air, on land, on water, under water, or in space.

Arms race: An arms race occurs when two or more countries increase the size and quality of military resources to gain military and political superiority over one another.

Unmanned aerial vehicle (UAV): An unmanned aerial vehicle (UAV), commonly known as a drone, is an aircraft without any human pilot, crew, or passengers on board.

Combat philosophy/philosophy of war: The philosophy of war is the area of philosophy devoted to examining issues such as the causes of war, the relationship between war and human nature, and the ethics of war. Certain aspects of the philosophy of war overlap with the philosophy.

Cyberspace: The interdependent network of information technology infrastructures, which includes the Internet, telecommunications networks and computer systems.

General Overview

The implications for international peace and security of AI's integration into national militaries remains to a large extent unclear. Consequently, uncertainty about the domains in which and the purposes for which AI will be used by national militaries poses practical challenges to the design of governance mechanisms. This uncertainty generates fear and heightens perceptions of risk. These dynamics reflect the early stage of discourse on military applications of AI and reinforce the need for active and consistent engagement. UN member states identified three topical areas in need of ongoing learning and dialogue among member states and other stakeholders.

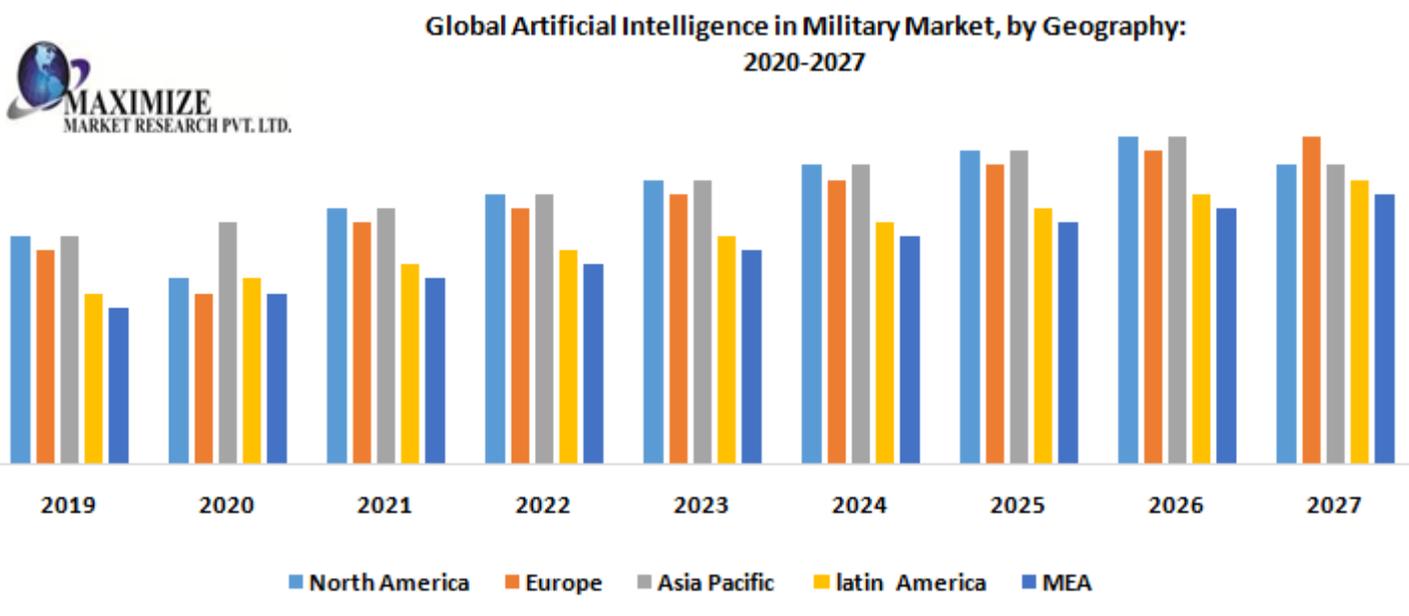
Potential risks of Military Applications of Artificial intelligence

The risks of introducing artificial intelligence into national militaries are not small. Lethal autonomous weapon systems (LAWS) receive popular attention because such systems are easily imagined and raise important security, legal, philosophical, and ethical questions. Other risks from military applications of AI have been identified that pose challenges to international peace and security. Militaries are likely to use AI to assist with decision making. This may be through providing information to humans as they make decisions, or even by taking over the entire execution of decision-making processes. This may happen, for example, in communications-denied environments or in environments such as cyberspace, in which action happens at speeds beyond human cognition. While this may improve a human operator's or commander's ability to exercise direct command and control over military systems, it could also have the opposite effect. AI affords the construction of complex systems that can be difficult to understand, creating problems of transparency and of knowing whether the system is performing as expected or intended. Where transparency is sufficiently prioritized in AI design, this concern can be reduced. Where it is not, it becomes possible that errors in AI systems will go unseen—whether such errors are accidental or caused deliberately by outside parties using techniques like hacking or data poisoning. Increasing complexity could make AI systems harder to understand and, therefore, encourage the use of trust rather than transparency. Increased trust means that errors and failures are even less likely to be detected. The concern was also expressed that the desire for—or

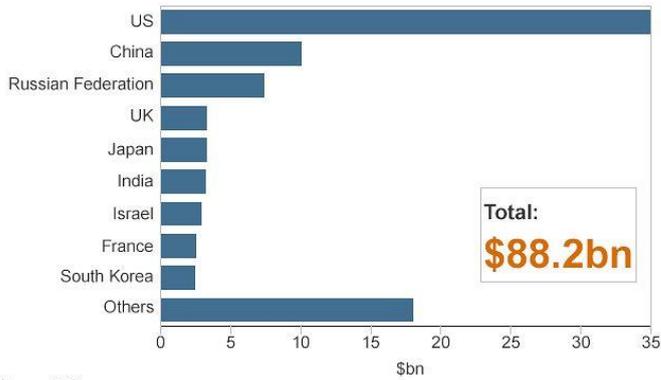
fear of another’s—decision-making speed may contribute to acting quickly on information aggregated and presented by AI. This mismatch between AI speed and human cognition could degrade human control over events and increase the destructiveness of violent conflict. Although participants worry about the potential for lone actors to use AI-enabled tools, these concerns are moderated by their inability to apply them at large scale. More problematic to participants is the potential for national-level arms racing. The potential ill effects of AI arms racing are threefold.

- a. arms race dynamics have in the past led to high levels of government spending that were poorly prioritized and inefficient.
- b. arms racing can generate an insecurity spiral, with actors perceiving others’ pursuit of new capabilities as threatening.
- c. the development of AI tools for use by national militaries is in a discovery phase, with government and industry alike working to find areas for useful application. Competition at the industry and state levels might, therefore, incentivize fast deployment of new and potentially insufficiently tested capabilities, as well as hiding of national AI priorities and progress.

These characteristics of arms racing—high rates of investment, a lack of transparency, mutual suspicion and fear, and a perceived incentive to deploy first—heighten the risk of avoidable or accidental conflict.



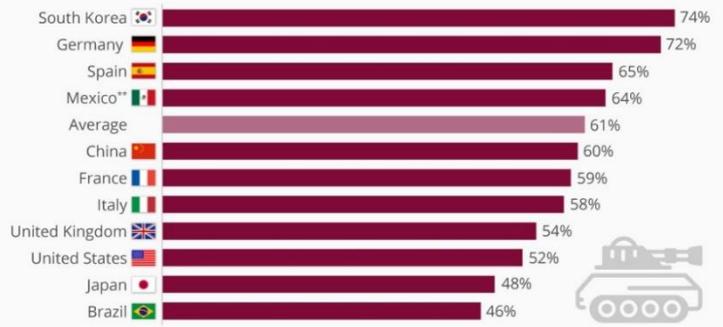
Global Unmanned Air Vehicle (UAV) market, 2014-2023



Source: IHS

Killer War Robots Have Low Support Globally

% that somewhat or strongly oppose lethal autonomous weapons systems in war, by country*



* Survey conducted between November 26 to December 7, 2018, using the IPSOS Online Panel system with 18,795 adults across 26 countries.
 ** The sample size for all countries was about 1,000. For Mexico, the sample size was about 500.



@StatistaCharts Sources: Campaign to Stop Killer Robots, IPSOS MORI



Potential benefits of Military Applications of Artificial intelligence

For national militaries, AI has broad potential beyond weapons systems. Often referred to as a tool for jobs that are “dull, dirty, and dangerous,” AI applications offer a means to avoid putting human lives at risk or assigning humans to tasks that do not require the creativity of the human brain. AI systems also have the potential to reduce costs in logistics and sensing and to enhance communication and transparency in complex systems, if that is prioritized as a design value. In particular, as an information communication technology, AI might benefit the peacekeeping agenda by more effectively communicating the capacities and motivations of military actors. AI-enabled systems and platforms have already made remarkable and important enhancements to national intelligence, surveillance, and reconnaissance capabilities. The ability of AI to support capturing, processing, storing, and analyzing visual and digital data has increased the quantity, quality, and accuracy of information available to decision makers. They can use this information to do everything from optimizing equipment maintenance to minimizing civilian harm. Additionally, these platforms allow for data capture in environments that are inaccessible to humans.

The benefits of military applications of AI will require governments and the private sector to collaborate frequently and in depth. Specifically, for the identification of practices and norms that ensure the safety of innovation in AI, especially in the testing and deployment phases. Examples include industry-level best practices in programming, industry and government use of test protocols, and government transparency and communication about new AI-based military capabilities. There is a

need for better and more comprehensive training among technologists, policymakers, and military personnel. Managing the risks of AI will require technical specialists to have a better understanding of international relations and of the policymaking context. Effective policymaking and responsible use will also require government and military officials to have some knowledge of how AI systems work, their strengths, their possibilities, and their vulnerabilities. Practical recommendations for moving in this direction included the development of common terms for use in industry, government, and multilateral discourse, and including the private sector in weapons-review committees.

Potential Governance of Military Applications of Artificial intelligence

The primary challenge to multilateral governance of military AI is uncertainty—about the ways AI will be applied, about whether current international law adequately captures the problems that use of AI might generate, and about the proper venues through which to advance the development of governance approaches for military applications of AI. These characteristics of military AI are amplified by the technology's rapid rate of change and by the absence of standard and accepted definitions. Even fundamental concepts like autonomy are open to interpretation, making legislation and communication difficult.

Current international law is insufficient to govern every possible aspect of the military applications of AI. UN members concerned about the extent to which today's governance mechanisms are sufficient noted that there are specific characteristics of military applications of AI that may fit poorly into standing regimes—for example, international humanitarian law—or for which applying standing regimes may produce unintended consequences. Many governance approaches—including self-regulation, transparency and confidence-building measures, and intergovernmental approaches—ultimately are required to mitigate the risks of military applications of AI.

The UN system offers useful platforms within which to promote productive dialogue and through which to encourage the development of possible governance approaches between disparate stakeholders. Beyond discussions on LAWS, broad understanding of and discourse about potential military applications of AI—its benefits, risks, and

governance challenges—is nascent and, indeed, underdeveloped. Stakeholders are encouraged to educate each other, to communicate, and to work through the problems posed by military applications of AI.

Major parties involved

United States of America

The USA is one of the leading superpowers, with the largest military budget at the most advanced AI capabilities. The incorporation of AI methodologies into the military has been going on in the country since the late 20th century. In co-operation with excellent institutions in academia, the U.S. government is on the cutting edge of AI technology. One of the most powerful tools frequently used by the U.S. military are UAVs on the battlefield.

China

As the Chinese People’s Liberation Army (PLA) seeks to become a “world-class military,” its progress in advanced weapons systems continues to provoke intense concern from its neighbors and competitors. The Chinese military and China’s defense industry have been pursuing significant investments in robotics, swarming, and other applications of artificial intelligence (AI) and machine learning (ML). Thus far, advances in weapons systems described or advertised as “autonomous” or “intelligentised” have built upon existing strengths in the research and development of unmanned systems and missile technology. The top Chinese universities are the main paper publishers on AI research.

Russia

The term “artificial intelligence” manifested itself loudly at the state level in Russia in 2017. “Artificial intelligence is not only the future of Russia, it is the future of all mankind. There are enormous opportunities and threats that are difficult to predict today. The one who becomes a leader in this sphere will be the ruler of the world,” President Vladimir Putin said on September 1, 2017. In December 2016, the Russian government adopted the Strategy of Scientific and Technological Development of the

Russian Federation, which named as priorities “the transition to advanced digital, intelligent manufacturing technologies, robotic systems, new materials and methods of construction, development of systems for big data processing, machine learning and artificial intelligence.”

United

Kingdom

Announced by the Prime Minister last November, Defense has received an increase in funding of over £24 billion across the next four years, focusing on the ability to adapt to meet future threats. Further outlined in the Defense Command Paper, the MOD intends to invest £6.6 billion over the next four years in defense research and development, focusing on emerging technologies in artificial intelligence, AI-enabled autonomous systems, cyber, space and directed energy systems.

Israel

Having relied heavily on machine learning, the Israeli military is calling Operation Guardian of the Walls the first artificial-intelligence war.

“For the first time, artificial intelligence was a key component and power multiplier in fighting the enemy,” an IDF Intelligence Corps senior officer said. “This is a first-of-its-kind campaign for the IDF. We implemented new methods of operation and used technological developments that were a force multiplier for the entire IDF.”

South

Korea

In February, South Korea opened a centre at its premier research facility, the Korea Advanced Institute of Science and Technology (KAIST) in Daejeon, in collaboration with the country’s leading arms manufacturer, Hanwha Systems. Media reports said that the centre, known as the Research Centre for the Convergence of National Defense and Artificial Intelligence, would develop technologies that could be useful for more-advanced weapons, such as missiles that use artificial intelligence (AI) to control their speed and altitude and detect enemy radar in real time.

European Union

In June 2020, the European Commission approved the first 16 projects involving new military technology such as drone swarms, unmanned ground vehicles, and the reinforcement of cybersecurity.

Concerns about these technological developments revolve around how it changes the way countries operate in war. Driven by artificial intelligence (AI) and digitalization, the ongoing armament of the European Union “poses a threat to the populations of Europe,” according to a recent report commissioned by The Left in the European Parliament.

Timeline of Events

- 1950** – Alan Turing poses the question: “Can Machines Think?” and invents the Turing Test
- 1963** – DARPA funds AI at MIT
- 1986** – Navlab, the first autonomous car developed at Carnegie Mellon
- 1997** – DeepBlue AI program defeats Gary Kasparov in chess/the first speech recognition software is introduced
- 2004** – China National Medium- and Long-Term Plan for the Development of Science of Technology
- 2005** – The appearance of first commercial self-driving car
- 2006** – Europe funding AI research
- 2011** – Apple Siri, Cortana, Google Now
- 2015** – Nations stand up against the use of autonomous weapons
- 2016** – Google DeepMind beats Go champion Lee Sedol/USA devising strategic plan for R&D in AI
- 2020** – A workshop about the militarization of AI takes place conducted by United Nations Office for Disarmament Affairs

Previous Attempts to Solve the Issue

Since the militarization of AI is a brand new, unknown territory for humanity, only few attempts have been made to regulate AI in the field of military. One of the notable workshops, with the participation of all member states, in co-operation with the Stanley Center for Peace and Security and Stimson, took place in 2020. The capabilities, risks, potentials have been discussed, the topic of AI in war has been scrutinized extensively, though this effort laid down some of the basic concepts in the field and no regulations were passed. There is a lot to discuss in this promising, though threatening piece of technology. Member states are encouraged to devise innovative solutions to all the different aspects of the regulations regarding the militarization of AI.

Possible Solutions and Approaches

Artificial intelligence will certainly have a role in future military applications. It has many application areas where it will enhance productivity, reduce user workload, and operate more quickly than humans. Ongoing research will continue to improve its capability and resilience. The military cannot ignore this technology. There will always be certain countries that embrace this technology, which would mean a disadvantage to those that completely reject it. However, we must resist the allure of this resurgent technology. Placing vulnerable AI systems in contested domains and making them responsible for critical decisions opens the opportunity for disastrous results. At this time, humans must remain responsible for key decisions.

Given the high probability that our exposed AI systems will be attacked and the current lack of resilience in AI technology, the best areas to invest in military AI are those that operate in uncontested domains. Artificial-intelligence tools that are closely supervised by human experts or that have secure inputs and outputs can provide value to the military while alleviating concerns about vulnerabilities. Examples of such systems are medical-imaging diagnostic tools, maintenance-failure prediction applications, and fraud-detection programs. All of these can provide value to the military while limiting the risk from adversarial attacks, biased data, context misunderstanding, and more.

Useful Documents/Websites

The AI capabilities of Russia

<https://www.chathamhouse.org/2021/09/advanced-military-technology-russia/06-military-applications-artificial-intelligenceank>

General Analysis of the military use of AI in military

<https://www.aljazeera.com/features/2021/3/28/friend-or-foe-artificial-intelligence-and-the-military>

<https://mwi.usma.edu/artificial-intelligence-future-warfare-just-not-way-think/>

European perspective

<https://finabel.org/artificial-intelligence-in-the-military/>

The ethical side of AI in the military context

https://www.rand.org/pubs/research_reports/RR3139-1.html

A panel discussion with experts at Stanford University

<https://www.youtube.com/watch?v=WfS9PoxJCDA>

Bibliography

[The History of Artificial Intelligence - Science in the News \(harvard.edu\)](#)

[The Role of the United Nations in Addressing Emerging Technologies in the Area of Lethal Autonomous Weapons Systems | United Nations](#)

[A brief historical overview of artificial intelligence research - IOS Press](#)

[AI Technology In Military Will Transform Future Warfare-Manish Kumar Jha , Amit Das - BW Businessworld](#)

[The Militarization of Artificial Intelligence – UNODA](#)

[The Militarization of Artificial Intelligence | Stanley Center for Peace and Security UNSC \(lyonmun.com\)](#)

<https://theconversation.com/un-fails-to-agree-on-killer-robot-ban-as-nations-pour-billions-into-autonomous-weapons-research-173616>

<https://www.airforcemag.com/un-addresses-lethal-autonomous-weapons-aka-killer-robots-amid-calls-for-a-treaty/>

https://www.gov.uk/government/news/artificial-intelligence-used-on-army-operation-for-the-first-time?fbclid=IwAR1Dbfb-9WDKS-65DG_sPq4blnp58X65xzs3ucZReMGIEgEYybkwVJNTcXA

<https://www.defenseone.com/ideas/2019/04/solving-one-hardest-problems-military-ai-trust/155959/>