

Security Council – Research Report I

Regulating Autonomous and AI-Driven Weapons in Modern Warfare

Introduction to the Topic:

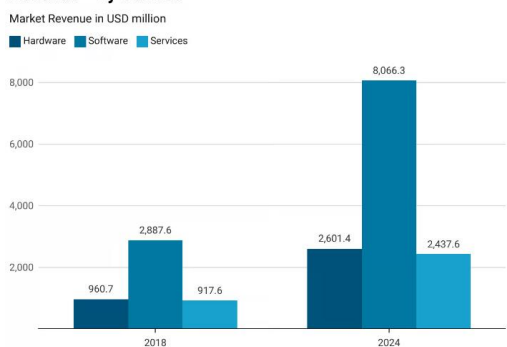
Autonomous and AI-Driven weapons systems are capable of spotting, selecting and engaging targets without much human intervention. These technologies, which can range from drones to tanks and even just cyber tools, rely on Artificial Intelligence to make decisions, as opposed to relying on humans. The main issue is that these weapons are on track to operating without any human oversight at all in the very near future, raising multiple ethical, legal and security concerns. As a result, there is ongoing debate on what measures will be taken to regulate their development and use in combat scenarios.

In recent times, **autonomous and AI-driven weapons** are in various stages of development and use throughout the world. Major powers like the U.S., Russia, and China are investing large sums on the development of these **autonomous military systems**. The biggest problem that arises is that there is no internationally agreed-upon regulation or control of their use, meaning that, currently, countries are free to do what they want regarding the development and use of these weapons.

This results in concerns about the escalation in their use, the increase in fatality it will bring and the lack of accountability succeeding these attacks as they are autonomous. This means that countries can commit brutal attacks and may plead that they should not be held accountable for said attacks as their soldiers did not directly conduct them.

Figure 1.1 - Market Growth of Artificial Intelligence and Cybernetics (Automatic systems) for military use from 2018 to 2024 divided by Software Revenue, Hardware Revenue and Services Revenue (Retrieved from Market.US)

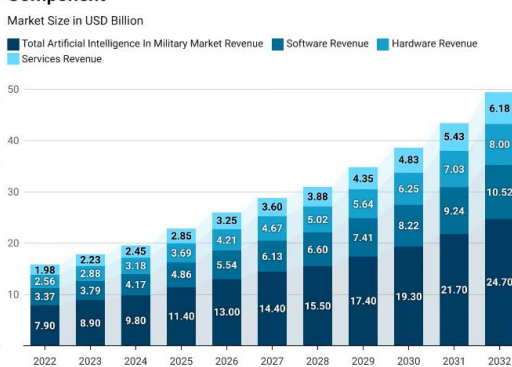
Military Artificial Intelligence (AI) and Cybernetics Market Revenue - By Service



(Market Revenue in USD million)
Source: Market.us Scoop

Figure 1.2 - Expected Market Growth of Artificial Intelligence for military use from 2022 to 2032 divided by Software Revenue, Hardware Revenue and Services Revenue (Retrieved from Market.US)

Global Artificial Intelligence in Military Market Size – By Component



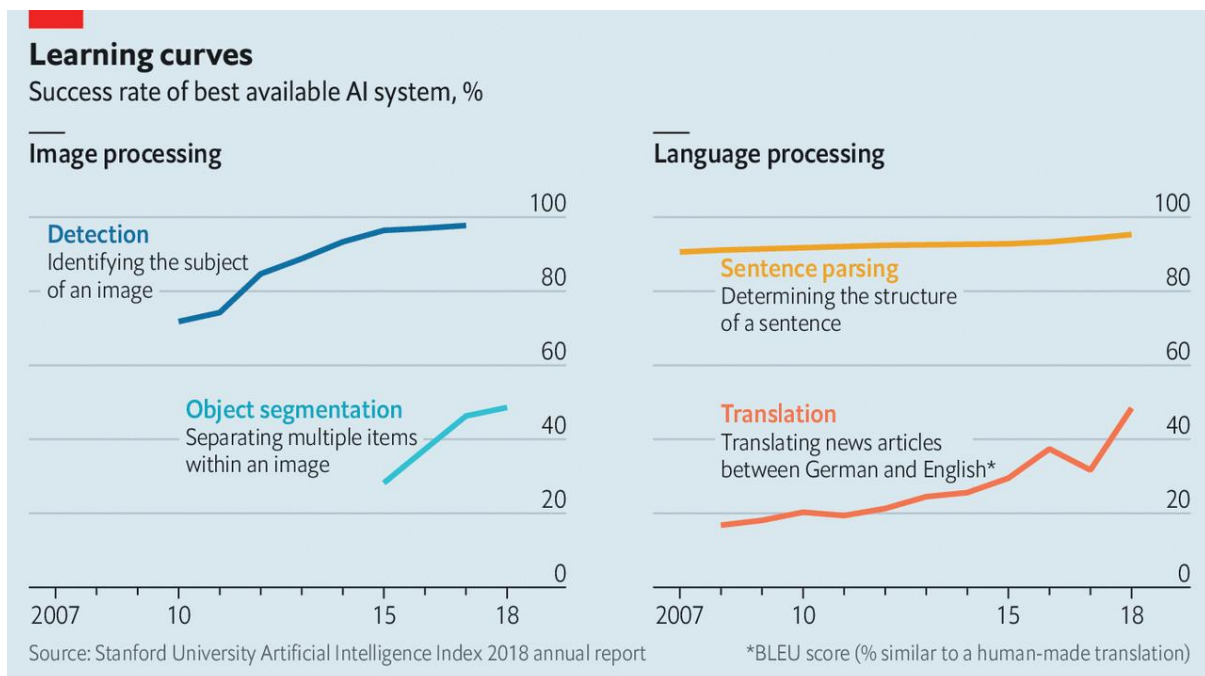
(Market Size in USD Billion)
Source: Market.us Scoop

The previous sources further solidify this as we can see that the market for military **autonomous weapons** has been increasing at an alarming rate and is statistically set to keep

growing exponentially. This makes the potential for violations of **international humanitarian law** very high which keeps many organizations apprehensive and alarmed about their use. The significance of this issue is becoming both very high and very global, as these weapons could redefine warfare as the world knows it and heavily destabilize international security.

The US, EU, China, and Russia, are all actively developing **autonomous military technologies**. The Middle East and North Africa (MENA) regions also have a strategic interest in AI-driven weapons, and Israel and South Korea have also made substantial progress in this field. With several countries using drones in current-day conflict zones, the increase in popularity of these weapons is a concern in many regions, as their use could lower the severity we perceive for armed conflict and result in devastating, unintended consequences.

Growing Capabilities with Growing Concerns:



The Economist

Figure 2.1 – How well (%) AI systems have been able to identify multiple subjects and separating them in images and how well they’re able to understand and translate sentences. (as per The Economist)

The primary cause of this issue as a whole is the recent and rapid developments of AI technologies. These have clearly exceeded the speed at which corresponding regulations are being created. Additionally, militaries around the world are eager to exploit these technologies as nations around the world are currently in conflicts with high demand from their military and weapons. These countries believe that these weapons would allow them to gain tactical advantages, such as by being able to plan stealthier attacks, increasing precision and, most importantly, reducing human casualties. Furthermore, the increase in complexity of modern warfare and the desperate need of efficient weapons at a more affordable cost, have contributed to the paced development and deployment of **autonomous weapons**.

We can see from the source above, that in recent years, Artificial Intelligence systems have been increasing highly in processes like detection and segmentation (separation) of objects. This is the most important aspect required by military weapons as with a strong detection and segmentation of objects, armies could do autonomous bombings, flights, and even replace some humans who may be at some risk.



Figure 2.2 – Division per category of all Artificial-Intelligence contracts awarded to the military in the USA and China Revenue (Retrieved from The Economist)

We can see in Figure 2.2 that, in 2020, 5 years ago already, most Artificial-Intelligence contracts awarded to the militaries of China and the USA were already shifting drastically towards intelligence and autonomous vehicles, rather than training and Information Technologies.

Nations are making use of this increase of rapid development of AI to strengthen their arsenals and, as a result, concerns for international safety are emphasized, together with the lack of regulations.

Issues with Regulations:

This issue has many drastic impacts that are still not fully considered in regulations. First and foremost, **autonomous weapons** raise serious ethical questions about delegating life-or-death decisions to machines, especially in less concrete situations where human judgment might be necessary. This will very likely lead to killings that could have been avoided or not even necessary at all, if a human had simply overseen or controlled the autonomous system, which emphasizes these concerns.

Risk of misuse is also a very prominent concern as there is the danger that these weapons could be hacked and misused by rogue organizations without any control, which would be a threat to

international security. These could lead to previously unnecessary escalations of conflicts which would all-in-all bring a much higher death-toll, and all the other problems originating from war, diplomatically, economically and security-wise.

Additionally, an issue of accountability would also be observed. Due to the lack in regulations, countries could proceed with devastating attacks and still emerge unaccountable as they could do it without breaking any laws, at least as of present day. If not properly regulated, these weapons could conduct high-scale attacks and inadvertently target civilians worsening already prominent humanitarian crises.

This last issue also sparks concerns for the value of human life and the disregard of it. As armies delegate life-threatening tasks to robots, currently, they would not have to feel very accountable for the killings of others or could feel desensitized, which would, in other words, put less emphasis on the previously mentioned human crises. This would make it so important aspects such as collateral damage of both civilians and infrastructure, would not be considered as much before green-lighting these attacks which would bring much more destruction.

The use of these weapons could also lead to quick escalation in conflicts, where human decision-making might be bypassed, making it harder to diplomatically de-escalate situations

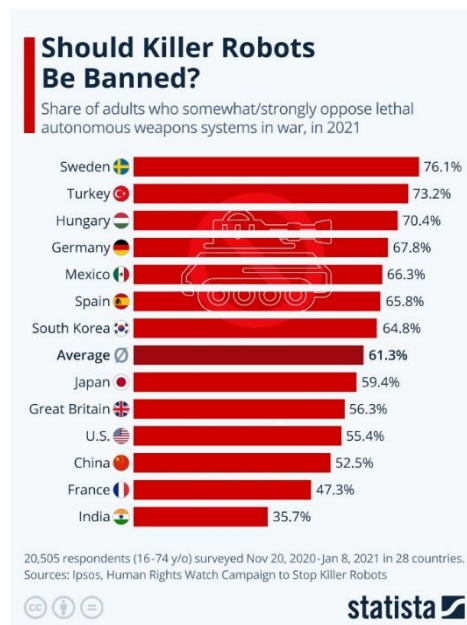


Figure 3.1 – Public adult opinion in favour of banning these **Autonomous weapons** (retrieved from Statista)

One other aspect worth considering is public opinion. The danger of these weapons is also very feared upon by the general public. In both countries in favour and against using **Lethal Autonomous Weapons**, the general opinion seems to be against this, further emphasizing just how dangerous these weapons seem to be.

Past UN Actions:

- The United Nations has been discussing the regulation of **autonomous weapons** through initiatives like the Convention on Certain Conventional Weapons (CCW). However, progress on reaching concrete international agreements has been slow.
- UN Secretary-General António Guterres has publicly called for a global ban on fully **autonomous weapons**, referring to them as "morally repugnant and politically unacceptable." He has emphasized the urgency of regulating these technologies to prevent escalation and abuse, which may lead to this being discussed further and resolved sooner.
- UN entities like the **Office for Disarmament Affairs (UNODA)** and the **UN Institute for Disarmament Research (UNIDIR)** have conducted research and published studies on the implications of AI-driven weapons acknowledging technical, legal, and strategic risks of these weapons

Focus of the Debate:

Debate should focus on the effective establishment of guidelines that regulate the development and deployment of **autonomous and AI-driven weapons**, ensuring compliance with **international humanitarian law** while addressing all ethical concerns. Delegates should aim to propose measures that prevent misuse, promote transparency and accountability, and maintain meaningful human control over critical decisions. The final resolution should seek to balance innovation in military technology with global security and stability as guidance. It must also address the concerns of significant parties, including technologically advanced nations, smaller states vulnerable to misuse, and civil society organizations advocating for ethical AI and arms control.

Significant Parties:

United States: The U.S. is a leader in developing **autonomous weapons** and AI-driven military technologies. It advocates for limited regulation to maintain its strategic advantage while simultaneously complying with **international humanitarian law**.

China: China is rapidly advancing its AI and **autonomous weapon** capabilities just like in most other industrial sectors. It is also a key player in the global **arms race**. Supports some regulation but prioritizes maintaining its technological and military superiority and competitiveness.

Russia: Russia has been investing much more into **autonomous military systems** and tends to oppose strict international regulations, raising national security concerns.

European Union: The EU and its member-states advocate for stronger regulation, emphasizing ethical considerations and meaningful human control over **autonomous systems**. Germany and France are particularly vocal in this regard.

Israel: Israel has significant experience with **autonomous weapon systems**, particularly drones, and plays a major role in shaping debates on their operational use. With its current conflict, development is constant and thus, they represent a spectrum of perspectives, from promoting innovation and national security to prioritizing ethical and humanitarian concerns.

South Korea: South Korea has made significant advancements in developing these weapons including advanced drone systems. It is cautious and abiding of regulations due to regional

security concerns, more specifically regarding North Korea and their extensive arsenal. They frequently engage in international discussions on the ethical use of AI in warfare.

India: India is developing **autonomous military technologies** but is concerned about their implications, particularly in the context of regional tensions.

Developing Nations: Countries from the Global South (e.g., African and Latin American states) often advocate for strict regulations or bans, fearing destabilization and unequal power.

Glossary and Key Terms:

Artificial Intelligence (AI): The simulation of human intelligence in machines programmed to think, learn, and make decisions independently.

Autonomous Weapons: Weapons systems that can select and engage targets without direct human intervention.

Lethal Autonomous Weapon Systems (LAWS): A subset of autonomous weapons designed to use force, potentially with lethal outcomes, without requiring human oversight.

International Humanitarian Law (IHL): A set of rules that aim to limit the effects of armed conflict, protecting those not participating in hostilities and restricting the means and methods of warfare.

Dual-Use Technology: Technologies developed for civilian purposes that can also be repurposed for military applications, including AI and robotics.

Proportionality Principle: An IHL principle requiring that the harm caused by a military action must not exceed the military advantage gained.

Arms Race: A competition between nations to develop and stockpile increasingly advanced and powerful weapons, often leading to escalated tensions.

Collateral Damage: Unintentional harm or damage caused to civilians or civilian infrastructure during military operations.

Bibliography and Useful Links:

Autonomous Weapons. (n.d.). The Risks of Autonomous Weapons. Retrieved from: <https://autonomousweapons.org/the-risks/>

European Parliament. (2019). Regulating Lethal Autonomous Weapon Systems. Retrieved from: https://www.europarl.europa.eu/cmsdata/194143/SEDE_presentation_Verbruggen_3December2019-original.pdf

Harvard Medical School. (2024, August 7th). The Risks of Artificial Intelligence in Weapons Design. Retrieved from: <https://hms.harvard.edu/news/risks-artificial-intelligence-weapons-design>

Human Rights Watch. (2020, August 10th). Stopping Killer Robots. Retrieved from: <https://www.hrw.org/report/2020/08/10/stopping-killer-robots/country-positions-banning-fully-autonomous-weapons-and>

The Economist. (2019 September 7th). Artificial intelligence is changing every aspect of war. Retrieved from: <https://economist.com/science-and-technology/2019/09/07/artificial-intelligence-is-changing-every-aspect-of-war>

The Regulatory Review. (2024, April 25th). Retrieved from: <https://www.theregreview.org/2024/04/25/hill-regulating-wartime-artificial-intelligence/>

United Nations. (2023). Retrieved from: <https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/>

United Nations. (2023, November 1st). First Committee Approves New Resolution on Lethal Autonomous Weapons, as Speaker Warns ‘An Algorithm Must Not Be in Full Control of Decisions Involving Killing’. Retrieved from: <https://press.un.org/en/2023/gadis3731.doc.htm>

United Nations. (2024, May 17th). Unregulated Autonomous Weapons Systems pose risk to Africa. Retrieved from: <https://www.un.org/africarenewal/magazine/may-2024/unregulated-autonomous-weapons-systems-pose-risk-africa>