

NEWSLETTER # 16 – NOVEMBER 2023 – SOLDIER OF THE FUTURE –

In the **19th century**, battlefields were located in open fields hidden from public scrutiny. In the **20th century**, and especially in the 1930s, the battlefield moved into cities, where victory or defeat was shaped by urban buildings and architecture. In the **21st century**, the battlefield has moved on to cyberspace where it is no longer constrained by physical realities. Aggressor and defender are no longer engaged face to face, but on screens thousands of miles apart.

Augmented soldier, whether wearing exoskeletons or an AR helmets, can gather and transmit real-time information, helping them to better identify their targets.



The Russian-Ukrainian conflict has shown that the art of warfare is undergoing yet another technological evolution. We are certainly not in the massive use of autonomous military robots like the Terminator, but in a theater of operations using semi-autonomous drones that can accurately destroy their targets. Certain drones are also capable of launching surprise attacks on targets without the targets hearing them or being able to defend themselves.

When Artificial Intelligence (AI) is used in conjunction with semi-autonomous lethal weapons or drones, it is used offensively. AI is also deployed defensively, as only an AI can stop an AI, or in well-defined cases to improve defensive capabilities and protect soldiers.

Not often mentioned but equally important, is the principle of responsibility in the use of autonomous lethal weapons. By **responsibility**, we mean who, between the AI and the soldier (regardless of rank), is responsible for taking a human life.

To what **point** (the point of no return for humanity) are armies willing to use autonomous lethal weapons without them turning against their creators?

As discussed in this [podcast](#), some Western armies are incorporating science fiction authors into their military programs to anticipate this point of no return.

As I was writing this, I was reminded of Robert A. Heinlein's book [Starship Troopers](#), in which soldiers are equipped with an exoskeleton to multiply their strength on the battlefield. The book was published in... 1959.

The intelligent autonomous weapons once seen in movies, science fiction stories and even video games (Battlefield or Call of Duty) are no longer imaginary weapons. Even if, for the moment, their size is insignificant compared to their fictional counterparts. The development of weapons is well underway.

Don't hesitate to leave us a comment, to share our newsletter. Enjoy reading!

- **The UN wants to regulate military artificial intelligence but comes up against the principle of competitive reality - Revue Conflits**

On July 18, 2023, the UN Security Council held its first meeting dedicated to AI. In contrast to the use of AI in the civilian domain, UN Secretary-General Antonio Guterres expressed the desire to ban and regulate the use of AI in the military, with the creation of a specific council to regulate AI in the military domain.

However, this announcement did not please the leading military powers (USA, China and Russia). Each military state reserves the right to develop its own programs, as long as they include a safety system that allows a human being to interact with the weapon or decision-making tool.

The author of the article published in Revue Conflits explains his point of view on the use of AI on the battlefield in **3 points**.

1. The four principles of the systemic reality of AI
2. Artificial intelligence as an engine for high-intensity combat (intelligence, logistics, training, operations management, armed robotic systems, cyberdefense and psyops).
3. The major challenges of military AI (AI command & control and embedded AI in squadrons and air-land robots).

<https://www.revueconflits.com/lonu-veut-reguler-lintelligence-artificielle-militaire-mais-se-heurte-au-principe-de-realite-concurrentielle/>

- **Inside the messy ethics of making war with machines - MIT Technology Review**

In this article published by [Arthur Holland Michel](#) in the **MIT Technology Review**, the use of **intelligent autonomous weapons** (weapons capable of identifying and destroying targets without human intervention) during conflict is explored through anticipatory stories set in a city transformed into a battlefield or in a command center.

In the **first story**, soldiers are helped to move from building to building by a technological device: a targeting system integrated into their helmets.

In the **second story**, a commander receives an alert from a conversational agent (such as Cortana, the AI in Halo). The **conversational agent** relays information gathered from satellites, such as abnormal movements of missile launchers in the field. Upstream, the conversational agent has already ordered the artillery to target the potential vehicles because the bot has statically concluded that this movement of vehicles is a threat. Etc.

But the temporality of its anticipatory narratives is not so far away. It's closer than we think. In May 2023, the **UNODA Convention on Certain Conventional Weapons (CCW)** took place. This UN convention demonstrates that the way war is waged has changed, far beyond the use of remotely piloted weapons. This profound change lies in the fact that, from now on, humans will no longer be the only ones making decisions on the battlefield, as they begin to be replaced by AI. This technological evolution in the art of warfare leads us to rethink the concept of responsibility.

<https://www.technologyreview.com/2023/08/16/1077386/war-machines>

- [Asymmetric warfare: how to respond to hybrid threats](#) - Polytechnique Insights

The 21st century will be known as the century of changing battlefields. **Hybrid warfare** (propaganda, disinformation, etc.) and **asymmetric warfare** (simply put, warfare between states and non-governmental organizations) emerged in the last century, so there's nothing new here.

However, the evolution of **technology** (development and miniaturization of components, lower manufacturing costs) and **information technology** (Internet, smart phones, etc.), as well as the proliferation of media (social networks, "news" channels, etc.) have provided belligerents with new "tools" and new arenas in which to fight. This new **theater of operations** takes place in **cyberspace** (**cyberwarfare**).

In this article, written by [Jérôme Clech](#), the author explains this new theater of operations that our planet is experiencing. The author also provides a concise but detailed explanation of the countermeasures taken by governments.

<https://www.polytechnique-insights.com/dossiers/geopolitique/les-nouvelles-strategies-de-la-guerre-asymetrique/querre-asymetrique-comment-repondre-aux-menaces-hybrides/>

- [Is the future of the soldier that of the augmented man?](#) - Revue Défense Nationale

This is the second part of an article published in the [Revue Defense Nationale](#). The first article can be found [here](#). It will not be reproduced because it deals with the genetic modification of super soldiers.

The 21st century will see changes in the theater of operations with the **deployment** and **use** of **cybercombatants**, the rise of **asymmetric warfare** and the advent of the use of technology. However, even if the soldier uses new tools (autonomous weapons or drones), the soldier himself is still made of flesh and bone.

In this article by [Éric Pourcel](#), the author explains the various technologies available to **physically enhance** the soldier of the future.

This begins with the use of an exoskeleton to increase the soldier's strength and endurance on the battlefield. For a smoother transition, the author details the possibility of implementing reversible prostheses.

The author concludes with the implementation of more invasive prostheses, such as neural sensors that act as an interface, allowing the soldier to connect "live" with an appropriate interface to sources of communication or information. Or even artificial limbs.

All of these modifications, with the exception of the exoskeleton, raise the question:

- What will become of the modified soldier in peacetime?
- Which of these soldiers will be willing to undergo permanent, intrusive modifications to their personal lives?

Finally, movie fans will remember **Major Steve Austin** ([The Six Million Dollar Man](#), 1973), **Alex Murphy / Robocop** ([Robocop](#), 1987) and **Luc Deveraux / GR44** ([Universal Soldier](#), 1992) for their cybernetic and bionic sides.

<https://www.cairn.info/revue-defense-nationale-2018-6-page-129.htm>

- [German military's metaverse promises virtual foes with an AI punch](#) - **Defense News**

In this lighter article, we dive into the metaverse. The article comes from [Defense News](#) magazine, which tells the story of how the German Army (Bundeswehr) funded a military training program in the metaverse. The program's code name is **GhostPlay**.

According to its developers, the **GhostPlay** program makes it possible to recreate battlefields in the metaverse. **GhostPlay** makes this possible thanks to more powerful algorithms that can "think" like humans. And with open source weapons data dating back to the Soviet era. This has made it possible to **recreate the identical performance** of Eastern Bloc weapons and equipment. Add to this the ability to **recreate** urban, suburban, peri-urban and rural environments for **enhanced immersion**.

GhostPlay would have made it possible to implement the strategies and tactics learned in the metaverse in the real world.

<https://www.defensenews.com/global/europe/2023/09/08/german-militarys-metaverse-promises-virtual-foes-with-an-ai-punch/>

- [The use of artificial intelligence in a military context: development of the attitudes toward AI in defense \(AAID\) scale](#) - **Frontiers**

The study is led by researchers [Lee Hadlington](#), [Jens Binder](#), [Sarah Gardner](#), [Maria Karanika-Murray](#) and Sarah Knight. The aim of this research is to evaluate artificial intelligence (AI) in military defence (AAID).

After analyzing the literature on the subject, the researchers conducted a quantitative study. To do this, the researchers used the following methodology:

« A total of **1,590 participants** (aged 19-75, M = 45.7, SD = 16.1) completed a self-report questionnaire which included an initial item pool of **29 attitudinal statements** related to the use of AI in defense. An additional general attitude towards AI scale was also included to assess the concurrently validity of the AAID scale. The AAID underwent initial statistical validation via exploratory factor analysis and confirmatory factor analysis to test the underlying structure of the newly developed scale.»

The results of the research show that the use of AI in the defense sector offers many opportunities. But it also brings new challenges in other areas, such as ethics and morality, as well as risks to its application.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2023.1164810/full>
<https://doi.org/10.3389/fpsyg.2023.1164810>

- [Will robots wage war for us?](#) - **Philosophie Magazine**

In September 2023, U.S. Secretary of Defense Kathleen Hicks announced plans to deploy an army of [several thousand robotic units](#) (program name: **Replicator**). These future robotic units will cover a wide area: air, sea, and land. The purpose of these units will be to take the place of humans in hostile and dangerous missions. The cost of the Replicator program is expected to be low, allowing for the "sacrifice" of machines.

"The robots will be able to carry out complex military missions on land, in the air and at sea without human intervention. Their production costs will be low enough to deploy them in high-risk areas and sacrifice them like kamikazes on priority missions..." ([Le Big Data](#), September 4, 2023)

In this article in the [Philosophie magazine](#), the author [Octave Larmagnac-Matheron](#) refers to the essay by the philosopher **Grégoire Chamayou** ([Théorie du drone](#), 2013). This article takes a more philosophical but interesting approach to the use of robots within the army corps.

From this essay, the author of the article focuses on **4 points**.

The **first point**, detailed in 3 factors, concerns the reason for wanting to have a robotic brigade or regiment.

Second, and just as interesting, the author raises the question of possible mutiny within a robot brigade or regiment. With firepower superior to that of traditional weapons, the mutiny would quickly turn in favor of the robots.

Third, the author highlights the fact that a soldier in the field develops a kind of critical awareness by being directly in the field. However, as the pilots of the Raptor drones have demonstrated, dehumanization ([The Dehumanisation of Drone Warfare: Scrutinising the Legal Response to the Proliferation of UAVs in Contemporary Armed Conflict](#), Dr [Salah Sharief](#), 2020) sets in when the soldier is no longer in direct contact with the reality of war.

The **fourth** and **final point** concerns the preservation of the soldier's life. According to the tradition of warrior virtues and heroism, the soldier is destined to die on the field of honor. But Chamayou sees the use of robots to save soldiers' lives as a radical change in the way states think about the future of their soldiers.

<https://www.philomag.com/articles/les-robots-vont-ils-faire-la-guerre-notre-place>

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