



The Twilight of Armored Vehicles: Cheap Drones Break the Invulnerability of Tanks

Published on 18/09/2025

For over a century, the tank has embodied the image of military power. From the Western Front of World War II to the Iraqi desert, it was the machine that decided battles and wars: a steel colossus capable of breaking through lines, protecting infantry, and withstanding enemy fire. Today, however, the myth of armored invulnerability is in crisis. The Ukrainian front, with the massive arrival of cheap, maneuverable, and precise drones, has shown that steel alone is no longer enough.

FPV drones ([First Person View](#)), guided like in a video game, have become the new lethal threat: tiny, fast, difficult to detect, capable of slipping into the weak points of armored vehicles, hitting hatches, turrets, and tracks. In this scenario, the tank can no longer operate in isolation. It survives only within an ecosystem that integrates aerial reconnaissance, electronic warfare, artillery, and short-range anti-air defenses. It is a transformation that has rendered traditional

doctrines obsolete and forced the armed forces to improvise makeshift solutions.

The Race for Countermeasures

Images from the front show armored silhouettes covered with metal cages, nets stretched like pergolas, dangling chains, and rubber panels fixed to the sides. Often rudimentary measures, but vital to make drones explode before they reach the armor. Even the sophisticated American Abrams, which arrived in Ukraine in the fall of 2023, have been outfitted with improvised protections: without them, they would have become easy targets.

It is not a new phenomenon. Already in 2022, Russian tanks were being hit by Western anti-tank missiles, prompting the first defenses with cages welded above the turrets. But the real turning point came with the wave of FPV drones in 2023. Every offensive innovation has generated a defensive response, in a continuous cycle of adaptation that puts the quality of the single vehicle in the background in favor of the speed with which one reacts.

Industry and Doctrines in Evolution

The high losses have pushed the military industry to react. In Europe, France and Germany have relaunched the MGCS project, which envisions the tank of the future as part of a “system of systems,” with manned and unmanned vehicles connected by sensors and digital architectures. Poland, more pragmatic, has preferred to purchase hundreds of South Korean K2 tanks, ensuring immediate availability. Russia, on the other hand, has chosen the path of quantity: modernizing old T-72 and T-90 tanks with armor, nets, and anti-drone shielding, accepting high losses to maintain numerical superiority.

This race reflects a fundamental fact: the tank is no longer the absolute protagonist of the battlefield, but a piece within a complex mosaic. Drones do not replace artillery and aviation, but they accompany them by wearing down the enemy, forcing them to consume resources and expose themselves. Effectiveness arises from the combination of different tools, not from the supremacy of just one.

Three Lines of Development

From the Ukrainian battles, three fundamental directions emerge:

- **Weapons:** increase in medium-caliber automatic systems to counter drones and infantry, integrated anti-tank missile launchers, and remote fire capability guided by drones and advanced observers.
- **Protection:** 360-degree distributed defenses, separate compartments for ammunition, active systems capable of intercepting airborne threats, multi-spectrum smoke grenades.
- **Energy:** tanks equipped with hybrid transmissions, capable of powering sensors, radars, jammers, and other energy-intensive electronic technologies, while offering silence and tactical autonomy.

Conclusion

The tank is not dead, but it has lost its aura of invincibility. It survives only if accompanied by an integrated support network and if constantly updated with defenses against ever-new threats. The war in Ukraine has made it clear that asymmetry, embodied by low-cost drones, can challenge even armored giants. In this unstable balance between innovation and improvisation, the future of military doctrines is at stake: no longer relying on a single dominant machine, but building resilient, flexible, and adaptable systems.

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