

Life and Death in the Hands of the Drone: The Small, Cheap Devices Early in the Swords of Iron War

Liran Antebi and Matan Yanko-Avikasis | No. 1772 | October 26, 2023

The use of drones by Hamas at the outset of its terror attack in the western Negev, which developed into the Swords of Iron war, illustrated the enormous danger posed by these devices, although they are based on simple, cheap off-the-shelf technologies. It is imperative to examine ways of dealing with this threat and other readily available technologies that could also pose strategic threats, for example, AI (artificial intelligence) applications.

The Drones Used by Hamas: The Attack “Vanguard”

Drones are small rotary aerial tools that are easy to operate. Some can be bought cheaply, and others are improvised. This field [has been covered](#) for over a decade in numerous academic publications and policy documents, and in at least [two reports](#) by Israel's State Comptroller, which argued that Israel is not sufficiently prepared to deal with this threat. The military use of drones has become widespread, both by terror organizations and by various armies over the last decade, and it is clear that Hamas borrowed drone tactics from the war in Ukraine and made use of them before thousands of the organization's terrorists invaded Israeli territory. Indeed, monitoring other battlefields throughout the world should have set off warning bells and led to better preparations than were demonstrated at the start of Israel's current war.

As the drone threat began to be understood by countries, as well as technology companies and security industries, an entire industry of counter-products appeared, from improvised devices, through specific defenses such as “rifles” with the ability to neutralize them (mostly based on electronic warfare), various systems to facilitate tracking and firing bullets in the direction of the drones, such as the product by the Israeli company Smart-Shooter.

[Pictures](#) published on the internet on October 7, 2023 by the al-Kassem Brigades, the military wing of Hamas, showed small drones equipped with improvised explosive devices (IED) that landed on generators at the base of communications towers close to the Gaza border and on IDF observation posts. Accordingly, Hamas managed to damage advanced systems that cost hundreds of thousands to millions of dollars, and paralyze the entire communications infrastructure. The effect was dramatic: disruption of the communications infrastructure created critical blind spots for the troops and prevented communication between the various units to coordinate fighting and search and rescue missions.

[Other videos](#) showed a quadcopter DJI drone, converted for weapons transport, hitting an IDF Mark 4 Merkava tank. [According to Janes](#), Israel's WindBreaker active defense system mounted on tanks of this kind is not designed to shoot down missiles arriving directly in [vertical fashion](#). Moreover, a question arises about whether the [Eclipse system](#) that was demonstrated in 2020 by the Israeli company NSO deployed in the field? According to the company, the system can protect an area as large as a stadium by taking control of the drone's frequency and bringing it down without harming people in the vicinity, and it has been sold to several countries. If Israel had this system, why did it not provide protection against the drones? The element of surprise was particularly significant since their light weight, low flight path and low speed, plus their relative silence and minimum heat emissions, enable them to evade identification by most existing radar systems, whose various sensors have difficulty identifying them or do not provide sufficient warning. DJI, for example, at the request of various governments, has defined no-fly zones, such as in the vicinity of airports, where the drone software is stalled, although there are ways of breaching these definitions.

However, these are pinpoint solutions. At the same time, larger systems have also appeared, many of which were developed by Israeli security industries, including IAI's Drone Guard, ReDrone from Elbit Systems, Drone Dome from Rafael, and the Regulus Cyber Ring system. Some of these have even been tested successfully in scenarios involving numerous simultaneous drone attacks. It is not known if they have been purchased by the IDF as part of the multi-layered air defense strategy pursued by the IDF. In any case, the IDF was found on the day of the attack with defense systems against drones – which do not ensure hermetic protection – that were not sufficiently deployed.

The Drones also Surprise in Israeli Defense – from the Civilian Side

Although it is known that the IDF has a large number of UAVs and drones and that unmanned aerial vehicles are used by various IDF units, the surprising use of drones at the start of the war actually came from civilians. From time to time the media report stories such as that of Yair Ansbacher (as [broadcast on Kan 11](#), October 14, 2023) who told of his friend Major A., who brought a drone with him and on the way to Nir Yitzhak, they stopped at the Orim facility and made use of the drone to obtain a picture of the enemy forces on the ground and to attack them. Members of the emergency squad in Nir Am launched a drone and with it identified 17 terrorists who wanted to return to the Gaza Strip, directed a Hermes 450 armed UAV (aka ZIK) and attack helicopters, and in fact eliminated those terrorists, thereby denying their return (based on an interview given by a member of the emergency squad to Danny Kushmaro on Channel 12 news, October 12, 2023.) In both cases, the use of drones gave specific intelligence superiority over the enemy and made it possible to direct troops and fire in the right direction to neutralize them on the ground.

During the fighting there were other civilian initiatives seeking to pair civilian drone operators (with or without licenses) with security foundations at various locations in the country, based on an understanding that this combination will help provide a better intelligence picture in real time, guide the forces on the ground and even from the air,

and assist in civilian and security tasks. (There is also the potential for help in other types of disaster, such as earthquakes.)

The “Poor Man’s Air Force” is Still an Aerial Threat

Drones have been called “the poor man’s air force,” since they provide a cheap way of gathering information and attacking from the air with relative precision, a capability that was formerly the preserve of advanced states. Before the appearance of these devices, armies wishing to gather intelligence from the air with unmanned vehicles and use the same devices for air strikes needed access to UAVs such as the American Predator, which costs about \$20 million, while the use of the Chinese DJI carrying explosives costs only a few hundred dollars. In this context, there has been [research](#) into the use of this technology by Hamas, who sometimes preferred not to make use of it, due to Israeli deterrence and in order to maintain its international image as the technologically inferior underdog. At the same time, it was clear that even if these means are inferior, most countries and armies in the world do not have a response to this threat.

Over the years, following the use of drones by ISIS and Hamas, and given their use in the war in Ukraine, the debate on the subject has intensified. Originally, the concept of these devices developed in Western democracies, which have used them in the war against terror since the early 2000s to limit the damage to innocent civilians in various operations by means of focused attacks. Now, however, they are used by nondemocratic countries and terror organizations with the intention of causing destruction to civilian targets, spreading continuous fear among the civilian population, and pursuing military purposes that are often in violation of international law.

Accordingly, there has been a change in the classical concept of the aerial threat. It is claimed that the use by non-Western elements of UAVs (including drones), as an alternative to an air force, as well as the extensive damage and civilian fatalities in Ukraine, teach us a great deal about the new nature of the global aerial threat. Consequently, Israel must also deal with new challenges in the area of discovery, destruction, and protection against these devices, and should [consider these UAVs and drones](#) as “a new layer” and deal with them in and of themselves, and not necessarily in conjunction with other aerial threats such as manned aircraft or missiles and rockets.

Above all, it must be understood that the enormous technological developments of the last two decades have made many advanced technologies cheap, easy to operate, and readily available to non-state entities. The most prominent of these, after drones, is artificial intelligence, and AI applications of various levels are already in the hands of Israel’s enemies and terror organizations. The significance of such dual use technology, which is not the product of security industries, has been widely demonstrated over the past eighteen months in the war in Ukraine. The Israeli security system must address this threat immediately.

Conclusions

The drone threat is here to stay. Dealing with it demands an immediate upgrade in conceptual and technological readiness, and further monitoring of developments in a field that is not resting on its laurels. At the same time, it is possible to derive some value from the uncontrolled spread of these devices, and can translate into suitable support for initiatives that allow civilian drones to be used for security purposes or other positive initiatives.

A major factor that enabled Hamas to execute the surprise strategic operation of October 7 was Israel's decision to treat drones as a less important tactical threat than rockets and suicide drones. Therefore, beyond drawing the requisite conclusions, there must be an immediate examination of other technologies or possible uses of readily available (dual use) technologies that have so far not received proper operational attention and that may become future stumbling blocks.

Editors of the series: Anat Kurtz, Eldad Shavit and Judith Rosen