# Iranian Drones in Ukrainian Skies: Not the Battlefield of the Future that Was Expected

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**The fighting in Ukraine presents an opportunity for many countries, including Israel, to draw military-related lessons. Inter alia, the Russian attack in October 2022 using Iranian-made Shahed-136 drones should be an important lesson for the IDF and decision makers in Israel. Over the past decade, drones, including various kinds of attack drones, have turned from exclusive weapons in the hands of very few countries to widespread weapons that are also in the hands of failed and rogue states and non-state organizations. In view of future threats to Israel, the drone threat demands the reinforcement of home front defense, adequate defensive measures, and the adaptation of doctrines regarding the use of force and defense among IDF forces, as well as preparedness for attacks and recovery of the home front and essential infrastructure.**

The Russian attack carried out in October 2022 on Kyiv using Iranian-made suicide drones, which caused widespread death and destruction, should be reviewed and studied by Israel. It appears, both based on photos of the aircraft in the air and based on remains of the aircraft at the various attack sites, that the drones used were Shahed 136 drones. Although currently this does not present as a weapon with decisive potential, the pictures from Ukraine should worry every citizen and decision maker in Israel concerning the next round of fighting that might involve Israel.

The Shahed-136 are relatively cheap drones (compared to Western drone models that operate in a similar manner) at a price of about $20,000 each. The drones have the ability to carry a warhead estimated at about 40 kg and have a flight range of about 2,500 km, which is relevant to Israel both in a possible conflict on the border and in the case of launches from a

greater distance, for example from deep inside Lebanon or from Iran itself. These aircraft cruise at a relatively low altitude, which usually helps them avoid radar detection (there are also claims that so far have not been fully substantiated regarding certain stealth capabilities of these aircraft) and they belong to the family of loitering munitions. They are also called kamikaze drones, as they explode on their target and in doing so destroy themselves.

Loitering munitions operate independently from launch and can attack targets without manual human guidance, according to parameters determined in advance such as a waypoint or data that can be identified in real time by sensors on the aircraft – radar, heat, or radiation signals. Such aircraft are considered "lethal autonomous weapon systems"(LAWS) or "killer robots" – systems whose use has been debated in the UN since 2013 in an attempt at their restriction. However, UN discussions are one thing and reality is another.

The Iranian drones that caused extensive destruction reached Kyiv accompanied by Iranian experts, members of the Revolutionary Guard (which is defined as a terrorist organization by the United States) to train the Russian forces to operate the drones. This is apparently based on their previous operational experience (which was mentioned in a UN speech in 2021 by then-Prime Minister Naftali Bennett), such as attacks on Saudi Arabia and American targets in Iraq.

**Ukrainian Air Defense**
The Russian attacks are challenging for Ukraine because the American air defense systems in their possession are not suitable for identifying relatively small targets such as Iranian drones, while radar-guided systems that are suitable for identifying and intercepting small aircraft, which the Ukrainians have, only exist in small numbers and do not provide adequate coverage for the defending country.

While media reports state that NATO will soon send hundreds of signal-jammers to try to help Ukraine cope with Russia's Iranian suicide drones, it

is not certain this will help, for two main reasons: the first is that there is a need for a very large number of jammers in order to help Ukraine protect sensitive sites. The second is that usually, while the jammers make it difficult for drones to strike a target precisely, they do not make then unusable. Since it is evident that the Iranian drones in any case are not very accurate, the use of jammers could even cause further damage to civilians. In any case, sometimes there is no need for large-scale strikes by many drones, but rather just a few that succeed in evading the air defense and striking a high-quality target (such as a power plant or military headquarters) to have a desired impact.

**"The First Dogfight' between Drones" and the Battlefield of the Future**
An interesting [report](#) from Ukraine claims that the first aerial battle ("dogfight") in the world between two drones took place there. A video posted on social media shows an incident in which a Chinese-made DJI Mavic quadcopter (a cheap, readily available, off-the-shelf product that is easily operated by anyone) under Ukrainian operation succeeded in downing a Russian quadcopter by hitting one of its blades. The incident is not similar to aerial battles between manned fighter aircraft, but the purpose is identical. Even though this is only a single example, it can indicate the future and remind us of the threat of drones and the implications of off-the-shelf systems on the battlefield.

Observation of the battlefield in Ukraine from a distance suggests that this is a fulfillment of the prediction of "the battlefield of the future" in which there are many unmanned vehicles. However, this is not the "battlefield of the future" that we expected. While many Western countries are investing billions of dollars in developing robotic and autonomous military systems intended for improving the precision of striking targets, in part while reducing the harm to innocent bystanders (alongside reducing the risk to the operating forces), in the case of the Iranian drones on European soil, there has been considerable imprecision alongside destruction and the loss of civilian lives.

**Implications for Israel**

The Israeli security establishment should study the Iranian drones well: although their quality and reliability are not as high as that of Western counterparts, they will likely make their way to the next round of fighting in our region and require a response. In the context of the longer term, it is also essential that the IDF study and prepare to cope with future autonomous threats that are not only aerial, as it appears that this is a central direction of future warfare, whether state or non-state.

The attacks on Kyiv offer lessons about attacks on both military targets and the civilian home front. The change necessary in preparedness includes the need for early identification, which in the case of small aircraft like the Shahed-136 and similar ones, as well as various other drones, is challenging and requires different systems than those that exist in Israel today with a broad deployment.

Preparedness is required not only for defending the home front, but requires that the IDF also deal with all related to defense of the ground forces. The Shahed drones that attack according to a waypoint defined for them in advance do not constitute a significant challenge for maneuvering forces (which are in motion and not at a set waypoint, unlike a command post for example), except for forces in staging areas. However, as a rule, drones including suicide drones, whose operation is guided by a human operator and enable tracking forces in motion, create a challenge that is different in nature than that inherent in defending stationary sites or the home front against aerial attacks. This challenge, incidentally, concerns not only Israel but also NATO and the United States. This multi-layered threat toward ground forces must be addressed on the level of military buildup and requires not only technology but also operational doctrines and suitable training.

In addition, along with reinforcing the interception systems, and in light of the fact that even the best systems do not provide airtight defense, Israel should work on preparedness for essential infrastructure and the home front at large on sustaining hits and recovery. This issue is discussed at

length in a [State Comptroller's report](#) and it is evident that today the gaps are not adequately addressed, perhaps due to the high success rates of Iron Dome interceptions in the rounds of fighting in the south.

These issues must be addressed by the security establishment in the near future, since when Israel will be involved in another round of fighting, including perhaps the "[first northern war](#)," is unknown. Seriously addressing this issue will help reduce the risk that Israeli communities will look like Kyiv of October 2022, after the Iranian drone attack.

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