PROLIFERATED DRONES

A Perspective on Israel

By Uri Sadot

Introduction

Israel's stock of operational unmanned aerial vehicles (UAVs), as outlined in The Military Balance 2015, is composed of three intelligence, surveillance, and reconnaissance squadrons: Hermes 450, Searcher Mk II, and Heron.[1] Additional UAVs are operated by the army and navy in distinct units or through integration into regular units. Nearly in its entirety, Israel's UAV fleet is indigenously manufactured. Research, development, and production of innovative drone technology remains a high priority in Israel – both for domestic use and for export purposes – and indeed, Israel continues to be one of the world's leading developers and vendors of UAV technology.

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UAVs have played a significant role in Israel's military planning since the early 1970s, and their use as decoys in the Beka'a Valley operation at the onset of the 1982 Lebanon War was heralded by many as unprecedented. UAVs have continued to be an integral part of Israel Defense Forces' (IDF) operations for ISR missions, for targeted strike capacity, and for strategic contingency planning.

Other than budgetary constraints and issues of scale, there are few noteworthy limitations expected of Israel's continued development, acquisition, and use of drone technology in the coming years. The use of UAVs has become integral to IDF peacetime operations and is broadly considered by military planners to be highly effective. Drone operation practices have also been vetted by Israel's supreme court and its broader legal system and are widely accepted by the Israeli public, which prefers the use of unmanned technologies and pinpoint strikes that reduce collateral damage over the deployment of Israel's conscript military.

Technology

Most of Israel's UAV technology comes from local military industries, with limited imports of UAV parts from industries in allied countries in Europe and the United States. Israel's internal suppliers market is largely composed of state-owned or partially state-owned companies. Some of Israel's leading manufacturers are Israel Aerospace Industries (IAI), Elbit Systems, Rafael Advanced Defense Systems, and Aeronautics Defense Systems. Israel's various companies operate in a competitive environment for both domestic and global contracts. In recent years, Israel has topped global export charts, selling UAV technology to a broad array of countries.[2]

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According to a 2013 Frost & Sullivan report, Israel exports roughly $500 million worth of UAV-related products per year, with an expected annual increase of 5 percent to 10 percent over the next five years.[3] Some of this growth, the report cites, will occur due to regulatory constraints that American competitors are subject to, which create a vacuum that Israeli firms are well-positioned to fill. At present, UAV sales compose some 10 percent of Israel's defense exports, with Israel's primary export destinations being Europe (50.2 percent), the Asia-Pacific (33.3 percent), and South America (11.2 percent). North America ranks fourth with 3.9 percent of Israel's overall sales.

While Israeli companies often compete among themselves over tenders, the relatively small size of Israel's defense community allows for occasional cooperative endeavors, especially when facing strong international competition.[4] According to Elad Aharonson, director of Elbit's UAV division, Israel's drone industry is mindful to international competition, but not particularly troubled by top-end developments made in the United States. Classified technologies such as Northrop Grumman's X-47B are not intended for export, and therefore not expected to disturb markets. In addition, he notes that Israel's industries are focused on niche products, rather than large-scale platforms, as those would require massive industrial capacity and investment.[5]

Strategic Implications

In the foreseeable future, Israel will continue to use drone technology for a wide range of operational applications. As a result of constant development, drones are getting cheaper, more versatile – varying in size according to mission needs – and more capable of operating at longer ranges. The high costs involved with manned platforms and the low tolerance for casualties in Israeli society are driving drone development toward substitution for manned aerial operations, wherever those can be replaced. The relative dispensability of drones creates new tactical possibilities for the IDF, such as real-time

collection of visual intelligence by ground units, rapid and targeted strike capabilities, and low-signature border-crossing intelligence collection.

Drone technology may also create new possibilities for Israel on the political front. For example, one significant hurdle in Israeli-Palestinian negotiations is the security arrangements that would result from any future agreement. A central item in any future security regime would be control of the Jordan Valley, which Israel sees as vital to its long-term security and in which Palestinians refuse to relinquish territorial sovereignty. With the advent of drone technology in recent years, policymakers have suggested that new solutions to this problem may be at hand that would allow Israel continued (unmanned) aerial presence over the Jordan Valley while allowing Palestinians sovereignty over the territory itself. Such ideas still face significant impediments to implementation (such as the inability of drones to overcome severe weather conditions, subterranean dimensions, etc.), but they still provide interesting conceptual directions for the future.

Drone technology also enables Israel to implement higher-risk aerial missions than it would have with human-inhabited aircraft. This is due to Israel's very low tolerance for military casualties, the elimination of the risk of losing soldiers captured during peacetime operations, and the generally more lax response to drone penetration of enemy airspace compared with human-inhabited platforms. Sending a drone to perform a sortie over Bashar al-Assad's palace in Damascus, for example, would create a very different psychological impact than an F-16 flown by an Israeli pilot. Likewise, the financial cost of losing a drone in a risky mission would be far less than that of losing an F-16 or a helicopter.

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While Israel enjoyed complete aerial superiority in the field of drone warfare in recent decades, its lead is being increasingly challenged. Iran, Israel's chief adversary, has been

diligently developing drone technology in recent years and even captured an advanced American stealth UAV in 2011.[6] In 2012 Israel shot down an unidentified drone that penetrated its airspace from the sea, traveling some 35 miles across the Negev desert before being shot down near Hebron.[7] Iran has also been supplying Hezbollah and Hamas with drone technology, which both organizations have been using with increasing frequency to penetrate, test, and provoke Israel.

While Israel holds a robust array of aerial defenses and aerial interceptor batteries capable of stopping drones as well as various rocket barrages, enemy drones create new types of challenges that threaten Israel and will require its military to continuously adapt in the years to come. For example, in 2013 the Palestinian Authority Security Forces caught a Hamas cell that planned to send a UAV packed with explosives into Israel.[8] The following year, Israel shot down a Hamas drone flying toward the southern city of Ashdod in the midst of Operation Protective Edge.[9] Further, in 2015 Hezbollah claimed responsibility for sending a drone that penetrated Israel's northern airspace.[10] Such peacetime provocations are likely to continue, with the intention of both performing actual ISR and strike operations and harming Israelis' sense of security. In turn, this will lead Israel to push forward development of its detection and interception capabilities to thwart such attempts. In the event of a larger-scale clash with Hezbollah, Hamas, or Iran, drone attacks against Israel are to be expected, but as large volleys of rockets and missiles would already be expected in such a scenario, the addition of drone strike attempts would not significantly alter Israel's preparations for a wider conflict.

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Drone uses against Israel in recent years have elicited less aggressive responses than human-inhabited vessels. In 2014 a Syrian manned Sukhoi-24 penetrated into Israeli airspace and quickly began turning around, before being shot down by an Israeli surface-

to-air missile.[11] The incident received wide media exposure and was followed by attempts to de-escalate and reduce tensions. In contrast, drone penetrations into Israel received less media attention and less-aggressive responses. This stems both from the psychological and legal distinction of having an enemy combatant within Israeli territory and from differences in kinetic threat potential between full-sized jets and smaller, slower enemy drones. As drone technology advances and norms develop regarding tolerance for cross-border drone penetration, the expected responses by Israel and its adversaries to border crossing operations will most likely continue to change and be shaped by future actions.

Norms regarding the downing of drones have not been completely set and are subject to context, change, and influence. Israel is not likely to react dramatically if one of its drones is downed over enemy territory, regardless of its mission or the equipment it is carrying. If a border-patrolling drone were shot down over Israeli territory, that might elicit a more aggressive response, such as the targeting of the source of fire or facilities of the entity responsible for the action. However, it is hard to fully predict such future scenarios, as they will depend highly on contextual circumstances.

Constraints

While being a global leader in UAV technology, Israel's military industries focus on small- and mid-scale drones and lack the budgetary ability or industrial capacity to take on the development of heavy aerial platforms or stealth combat platforms. For that reason, many Israeli air professionals believe that human-inhabited platforms will remain indispensable in the foreseeable future, as long-range, heavy-payload missions, or missions that require great accuracy, will continue to rely on the professionalism of highly trained pilots. Another challenge to Israel's drone development is survivability issues, as the countermeasures used by Israel's adversaries continue to progress.

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Regardless of such challenges, however, Israel is very well-positioned for the continued development of drone technology. Its decades-long experience with drone usage has developed alongside a solid legal framework; advanced, combat-tested military doctrine; and wide support from a public that trusts its military establishment and appreciates the advantages of UAV technology in modern warfare. While there are tensions between the army and the air force regarding the future role of UAVs and rivalries between the manned-aerial array and the emerging UAV array, the bureaucratic structures that administer drone development in Israel are stable, well-coordinated, and subject to continuous reform. The regional arms race and imperative of maintaining Israel's qualitative military advantage in the region also make research and development in aerial warfare a top priority for Israel, a trend unlikely to change in the years to come.

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One additional factor that poses constraints on Israel's future drone development is the country's defense budget, which is subject to cuts and political controversy within Israel. These obstacles result in IDF force planners investing less in force structure than what it would be otherwise possible to extract from Israel's military industries. A mitigating

trend to that, however, is the drop in recent years in the manufacturing costs of drone parts and drone development, which is offsetting some of these budgetary constraints.

Conclusion

Since Israel's early years, its leaders have recognized the need for the country to maintain aerial superiority in the region to ensure an overwhelming qualitative military edge over its adversaries. This imperative translated into heavy investments in Israel's air force, leading to the stunning military successes of 1967 and 1982. In recent decades, the same strategic effort has been diverted to the development of UAVs, which Israeli planners recognized fairly early were the new frontier of aerial warfare. These circumstances, alongside Israel's advanced high-tech industrial capacity, have positioned the country among the world's leading producers of drone technology, as well as an unmatched modern aerial power in its extended region. This status is likely to continue as domestic factors have created amenable conditions for Israel's industry to advance with minimal constraints, positioning it well for the 21st century.

While developments in drone technology continuously change the battlefield, there is no sense in Israel of an imminent revolution that is about to sweep the region or the world aerial warfare. While the discourse in parts of Washington and in European capitals is fairly apprehensive about a near turning point to a disorderly world of ubiquitous drone technology, in Israel there is a prevailing sense of a continued, gradual arms race in which Israel and the West hold the upper hand and continued efforts are necessary to maintain it.

Response: Germany Perspective

by Ulrike Esther Franke

Israel is one of the most important players in the UAV world. It was Israel's successful use of drones in the 1982 Lebanon War that inspired the United States to take the prospect of military drones more seriously. Today, Israel, together with the United States, is leading in drone development and use.

Uri Sadot's brief rightly emphasizes Israel's role as UAV exporter. Military exports are a central element of the Israeli economy, and UAV exports are a growth market. However, with more countries joining the drone manufacturer club, Israel needs to actively ensure that it will not be eclipsed by rising drone nations such as China, which can sell to countries whose markets are closed to Israeli exports for political reasons.

The brief could have stressed more that Israel has been an innovative user of drones, developing new UAV tactics and strategies such as using UAVs as decoys to identify anti-aircraft guns. During the 2008-2009 Gaza War, Israel also established a tactic known as "knock on the roof," which uses blind ammunition to warn the inhabitants of an area before striking with missiles.

As the brief notes, Europe is the primary export destination for Israeli drones. Germany has bought its only MALE system from Israel, and its operators are trained there. Germany is also contemplating the procurement of an armed system, which may well be Israeli-built.

Germany and Israel approach the issue of drone use very differently, a result of their divergent views of military power in general and of almost opposed geopolitical

situations. While Germany has been "surrounded by friends" for decades and has a society that is very critical of military force, Israel is an active military power with a largely military-friendly society that lives in a hostile environment and suffers regular enemy incursion. Thus, a German officer noted, whereas Israelis are likely to see drones as ensuring their security, for the German public, drones have a negative connotation.

Germany does not support targeted killings with drones; however, it is unlikely to speak out forcefully against it, as both Israel and the United States, the main perpetrators of this tactic, are two of its closest international partners.

Israel's drone experiences are of particular interest to Germany with regard to fighting drone incursions, something the German Ministry of Defense identified as important in a 2011 doctrinal document. While Germany has so far had no experiences with enemy drone incursions into its territory, Israel experienced the first Hezbollah drone incursion into its airspace in the early 2000s. These drones have so far been comparatively low-tech and did not constitute a real threat. But, to shoot down a drone that cost less than a few thousand dollars, Israel closed its airspace, deployed F-16 fighter jets, and used guided missiles, likely incurring costs of several hundred thousand dollars.

The German-Israeli relationship is complex, which is likely to influence Germany's assessment of Israeli drone use. While Germany does not support Israeli use of armed drones, it is unlikely to speak out against it, and in any event, the focus regarding this matter is directed more toward U.S. drone use. Both the public perception of drones and the assessment of the dangers and opportunities created by drone technology are very different in Germany and Israel.

About the Authors

Uri Sadot is a research fellow and special assistant to the director at the Institute for National Security Studies, Tel Aviv.

Ulrike Esther Franke is a doctoral candidate in international relations at the University of Oxford. She was part of the research team of Ben Emmerson, U.N. special rapporteur on human rights and counterterrorism, working on drone use in

counterterrorism contexts.

Endnotes

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Image Credits

Elbit System Hermes 450 on display at Farnborough Air Show England in July 2006: via commons.wikimedia.org

Soldiers of the Skylark I-LE unit spent a week in the Negev Desert learning how to operate the Skylark drone: Photo by Cpl. Zev Marmorstein, IDF Spokesperson’s Unit via commons.wikimedia.org

IAI Heron 1 UAV in flight: Photo by SSGT Reynaldo Ramon, USAF