

Military Aerospace Expertise and Exports from Israel

Eugene Kogan

Local domestic military aerospace expertise has been honed over a period of almost 60 years. Israel's procurement of US-built fighter aircraft and Israeli technicians and aeronautical engineers developing subsystems and avionics for the jets has enhanced their skills and expertise.

Rafael Advanced Defence Systems' cooperation with Raytheon has taken military aerospace expertise to the next level. The triple combination of buying from the United States, developing subsystems locally, and teaming up with the US has contributed to successful arms exports from Israel. The Ministry of Defence International Defence Cooperation Authority (known as SIBAT) realised in November 2019 that the international arms market was undergoing serious changes and certain adjustments would be needed in order to remain competitive and increase the market share of Israeli defence companies.

Strategy

In the late 1950s-mid 1960s, the Israeli Government realised that it needed to build its own domestic aerospace industry, have the necessary pool of technicians and aeronautical engineers and also to invest in R&D. The decision made by the Israeli Government in the late 1960s and the mid-1970s to acquire US-built fighter aircraft with extensive Israeli modifications has further enhanced the country's military aerospace expertise. At the same time, Israel Aerospace Industries (IAI) was spearheading a campaign in manufacturing UAVs for both domestic and foreign markets. Elbit and Rafael joined IAI several years later and have achieved major success both with Israel and abroad since then.

It should be stressed, however, that the Israeli procurement of the US-built fighter aircraft has become a mainstay of the Israeli aerospace industry and has turned



The IAF F-35I ADIR on its first flight with the Israeli Air Force on 13 December 2016

Israel into a major US ally in the Middle East and a test site for American fighter aircraft under combat conditions. The Israeli aerospace industry's modifications of the F-16I STORM and F-15I THUNDER have led to further modifications of the F-35 LIGHTNING II Joint Strike Fighter (JSF) and the F-15E STRIKE EAGLE known as the F-35I and F-15I, respectively. Although the F-35 LIGHTNING II JSF programme is owned by Lockheed Martin and physical or data system modifications to the aircraft are not allowed, Israel, as the only F-35 JSF partner country secured a number of contractual rights from Lockheed Martin that make their F-35I variant optimised for conflicts in the Middle East. In addition, Israel is the only F-35 partner country with a domestically operated maintenance regime since the volatile political situation in the Middle East requires a rapid domestic-repair capability. As a result, Israel may need rapid

onsite repairs to keep their F-35I fleet in the air. That is exactly where properly trained Israeli personnel and their skills come into the picture.

Another example is how IAI, together with the F-15I manufacturer Boeing, has improved avionics and aircraft weapon systems. The aircraft has a number of indigenous features such as a central computer, a GPS/inertial guidance system, and an Elbit Systems display and sight helmet (DASH). The aircraft initially carried the AIM-9L SIDEWINDER and PYTHON infrared-guided short-range missiles but it currently carries the single PYTHON. In 2016, Israel announced the start of an upgrade programme meant to keep the F-15I relevant for the coming years. The upgrade includes a new active electronically-scanned array radar and updated avionics.

Finally, in August 2011, Raytheon and Rafael teamed up to market the IRON

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Photo: Oren Rosen / Wiki CC



An IRON DOME launcher at the Israeli Air Force exhibition at Ramat David AFB on Israel's 69th Independence Day

IRON DOME air-defence system in the United States. Mike Booen, Vice- President of Raytheon Missile Systems' Advanced Security and Directed Energy Systems product line, said that "IRON DOME complements other Raytheon weapons that provide intercept capabilities to the US Army's Counter Rocket, Artillery, and Mortar initiative at forward operating bases. IRON DOME can be seamlessly integrated with Raytheon's C-RAM systems to complete the layered defence." Raytheon and Rafael are also teaming up on the DAVID SLING air-defence system, which is a mobile, land-based missile defence programme.

As a result, the triple policy of procuring platforms from the United States, developing components, support systems and avionics for the US-built fighter aircraft and, finally, teaming up with Raytheon, has proven to be successful in the long run. Long-term cooperation with the United States, together with successfully developing its own weapons systems, has opened global markets to Israeli defence products. Figures for the last four years show considerable success for Israeli arms exports.

Arms Exports 2016-2020

Figures published in March 2017 by the Ministry of Defence International Defence Cooperation Authority showed that exports of weapons systems and technologies totalled US\$6.5Bn. The MoD figures indicated that 20 per cent of arms exports in 2016 came from companies upgrading aircraft and avionics systems, the leading sub-sector, followed by observation

and electro-optic systems (18 per cent), missiles and air-defence systems (15 per cent), land systems and weapon stations (13 per cent), radars and electronic warfare (12 per cent), intelligence and cyber technologies (8 per cent), and UAVs (7 per cent).

A country breakdown of arms exports in 2016 clearly shows that the Asia-Pacific region was the main export target for Israeli companies. Exports also increased to the European market, as well as the markets in North America, Latin America, African countries and India, in particular. In a landmark decision, Eli Cohen, Minister of Economy and Industry, signed a range of new regulations in June 2017 making it easier for Israeli defence companies to work together rather than com-

pete on the world markets. At the same time, they were able to compete successfully on the domestic market.

The MoD SIBAT figures show that arms exports increased to US\$9.2Bn in 2017. The figures indicate that the bulk of arms exports; namely, 31 per cent, consisted of missiles and air-defence systems, followed by deals involving exports of radar and electronic warfare systems (17 per cent), upgrading of weapons platform and avionics (14 per cent), dry ammunition (9 per cent), communication systems (9 per cent), and observation and electro-optics (8 per cent), etc. The geographical distribution of Israeli exports remains unchanged since 2016.

The MoD SIBAT figures also show that arms exports decreased to US\$7.5Bn in 2018, of which offensive missile and missile defence systems accounted for 24 per cent of arms exports, UAVs for 15 per cent, radar and electronic warfare systems for 14 per cent, upgrades and avionics for 14 per cent, and weapon stations for 12 per cent.

The SIBAT figures indicate that arms exports decreased to US\$7.2Bn in 2019. For instance, ten years ago Israel was a world leader in UAV sales whereas today's major markets for Israel are in radar and electronic warfare systems. Israel has also successfully entered the missile market in India where the two countries have established several joint ventures.

SIBAT reports that radar and electronic warfare systems comprised 17 per cent of the sales in 2019; missiles, rockets and air-defence systems comprised 15 per cent, manned aircraft and avionics amounted to 13 per cent, observation and electro-optics were at 12 per cent, weapon sta-

Photo: Raytheon



The DAVID'S SLING system forms a crucial element of Israel's multi-tier layered missile defence architecture to provide mid-tier regional missile defence. DAVID'S SLING offers terminal-phase, hit-to-kill defence against tactical ballistic missiles, medium- to long-range rockets, enemy planes, drones and cruise missiles, including SCUD missiles.

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Image: IAI

A variant of the STUNNER hit-to-kill missile; the highly advanced SkyCeptor interceptor is developed to defeat short- to medium-range ballistic and cruise missiles and other advanced air defence threats.

tions and launchers comprised 10 per cent and UAVs amounted to 8 per cent. The geographical distribution of Israeli arms exports has not changed since 2016. Nonetheless, Israeli arms exports have increased to India. After Russia, Israel is the second exporter of arms globally. Although SIBAT has not yet released figures for arms exports in 2020, it is known that sales for Elbit Systems were US\$4.6Bn. IAI sales were about US\$4.2Bn while Rafael Advanced Defence Systems recorded sales of US\$2.7Bn. This has all taken place despite the COVID-19 pandemic. As a result, arms exports in 2020 are likely to be at a similar level to that of 2019 and may even surpass them. The lack of new market inroads for Israeli arms exports has led to a reassessment of the Israeli arms export policy. In order to increase the country's global arms exports, certain adjustments were made and they are presented below.

The Crucial Blueprint

According to Brigadier General (Res.) Yair Kulas, SIBAT Director, a number of new emphases were introduced to the agency plan that was revealed in November 2019. Kulas added that "As part of the efforts to expand the deals between countries, the share of the SME defence enterprises

will be ensured; namely, if major contractors such as IAI, Elbit Systems or Rafael Advanced Defence Systems get an order from a foreign country as a part of a deal mediated by the Government, the large company is obligated to transfer 20 per cent of the contract to subcontracting by an SME company. It is important for us that the SME defence enterprises situated in the country's periphery will be involved in the production and not left out." Furthermore, Kulas said that "We have learned that there are countries with whom, if the Ministry does not take an active role, there will be no deals with Israeli companies. We are aiming at these countries, among others. The new focus includes Asian countries, in particular, though ties with Israel have had a low media profile thus far. The Ministry is considering appointing a military attaché in one of these countries to expedite processes leading to defence deals between Israel and other countries. The Ministry will pay the most attention to this in the coming years; however, at least with respect to defence exports, to countries in Europe [and NATO members]. An up-to-date mapping conducted by the Ministry in late 2019 cited 41 countries around the world [are] considered important targets for Israeli defence companies. Half of the target countries are in Europe."

The demand for missile defence systems and border-patrolling UAVs in Europe, together with other conventional threats coming from Russia, are driving defence investments and this opens up these markets to Israeli defence companies. Another interesting geographical area that until now was closed to Israel, but has recently opened up following the signature of the Abraham Accords, includes Bahrain and the United Arab Emirates. Both are likely to become very important targets for Israeli defence industries with the potential export of the IRON DOME and DAVID SLING air-defence systems. In conclusion, the recent adjustments made to the Israeli arms export system are likely to bear fruit in the coming years. Military aerospace expertise acquired under combat conditions and tested on the battlefield provide an extra edge to Israeli defence systems. The US angle means that the two countries' aerospace cooperation continues and benefits their technicians and aerospace engineers. The SIBAT emphasis on exporting arms to the EU and NATO member states, in particular, has set the tone for the coming years. It does not mean, however, that other markets will be ignored, but SIBAT has established clear priorities and plans to follow them in the coming years. ■