

Iran–Israel Twelve-Day War

From Missile Precision to Defence Saturation

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On 13 June 2025, Israel launched Operation Rising Lion, a military campaign targeting key Iranian military sites, nuclear facilities, command-and-control centres, nuclear scientists and senior Iranian military commanders. During this attack, Israel employed both SEAD (Suppression of Enemy Air Defences) and DEAD (Destruction of Enemy Air Defences) operations. In swift retaliation, Iran launched Operation True Promise, unleashing a coordinated missile and drone offensive that overwhelmed Israel's multilayered air defence system. These operations were a litmus test for Israel and Iran's missile and defence capabilities because Israel's advanced air defence system was pitted against Iran's sophisticated missiles.

The commentary examines the performance of missile and air defence systems employed by both Iran and Israel during the 12-Day War (13–24 June 2025), analysing the technologies, strategic outcomes and operational effectiveness.

ISRAEL'S ATTACK ON IRAN

According to the claims by the Israel Defense Forces (IDF), more than 4,300 munitions were used across approximately 900 targets, including 1,500 in-

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dividual system components. Fighter jets conducted 370 airstrikes, while drones carried out the remainder, demonstrating the high degree of operational automation and precision.

Initially, the aim of the operation was securing aerial superiority over western Iran and Tehran by degrading Iran's Integrated Air Defense Systems (IADS). To facilitate deep strikes, Israeli forces created a 'SAM corridor', an airspace gap by targeting surface-to-air missile (SAM) systems along the Iran–Iraq border.¹ Israel attacked Iran from the north, going through Syria and then Iraq. The operation was supported by extensive pre-strike covert operations. The Operation "Am Kalavi" was the result of years of planning. Mossad agents had smuggled drone components, explosives and Spike Non-Line-Of-Sight (NLOS) missiles into Iranian territory.² The operation was launched on three tactical pillars: Mossad-planted guided missile systems in central Iran; concealed vehicles modified for precision strikes on air defences; and a secret drone base in Shahr-e Rey near Tehran, launching kamikaze drones to destroy ballistic missile launch sites.³⁴ These capabilities enabled Israel to launch the first wave of attacks using small drones and Spike missiles, from within Iran.

Mossad targeted transporter-erector-launchers (TELs) and radar installations, with focus on Iranian air defence systems such as the Bavar-373, S-300 and Khordad-3.⁵ This was followed by air strikes that targeted the Islamic Revolutionary Guard Corps (IRGC) missile bases in Tabriz, Kermanshah, Qasr-e Shirin, Khorramabad (home to the Imam Ali Missile Base), Bidkaneh (IRGC Missile R&D Centre), and the headquarters in Chitgar, Tehran.⁶⁷ These initial strikes disabled Iranian air defence radars and missile batteries, creating a tactical vacuum for follow-on by over 200 Israeli fighter aircraft, including advanced variants like the F-35I "Adir", F-15I "Ra'am" and F-16I "Sufa", to carry out the attack.⁸ These aircraft deployed high-precision munitions, such as Rampage missiles, Delilah cruise missiles, Joint Direct Attack Munitions (JDAMs), GBU-39, GBU-28, GBU-31 and the BLU-109 penetrator, against fortified underground targets.⁹

Israeli Air Force strikes destroyed 80 Iranian surface-to-air missile systems, some fighter jets and drones, 200 of Iran's estimated 400 ballistic missile launchers, 15 Iranian aircraft, 70 radars, six airports and air bases, over 35 missile and air defence production facilities and dozens of command centres.¹⁰ Significantly, the strikes were not limited to hardware. Israel claimed to have eliminated approximately 30 senior Iranian military commanders and 11 nuclear scientists allegedly involved in Iran's weapons programme.¹¹

Israel attacked not just with traditional kinetic strikes but by integrating cyber, electromagnetic and unmanned aerial system (UAS) tactics in a synchronised, multi-domain operation. For the first time, Israel deployed the Barak air defence systems, including the Barak Magen, which was used to intercept multiple UAVs launched from Iran on 15 June.¹² It neutralises cruise missiles, UAVs and high-trajectory threats. A second Barak family system, Barak MX, was used on 20 June.¹³ This upgraded platform integrates the AESA (Active Electronically Scanned Array) radar and multi-mission interceptors, enabling it to effectively track and neutralise low-signature UAVs in cluttered and contested airspace.¹⁴ On 23 June, the IDF disclosed that the 5114th Spectrum Warfare Battalion played an important role in neutralising UAVs. It is a part of the IDF's Computer Service Directorate, specialising in electronic warfare, detecting and disrupting enemy signals.¹⁵ During the operation, this battalion used advanced technology to jam and neutralise dozens of Iranian drones in real time, protecting Israeli airspace. These layered and adaptive defences not only illustrate the growing complexity of modern aerial conflict, but also underscore the centrality of integrated, multi-domain responses in securing strategic superiority.

Table I Weapons Used by Israel to Target Iranian Sites

S.No.	Weapon	Type	Description & Usage
1.	Harop	Suicide Drone	Remains airborne for extended time; crashes into radar/air defence targets to blind Iranian systems
2.	Harpy	Anti-Radar Drone	Older anti-radiation drone; autonomously targets and destroys enemy radar
3.	F-35I Adir	Stealth Multirole Fighter	Customised U.S. F-35; led initial strikes on command centres, air defences, nuclear sites
4.	F-15I Ra'am	Long-Range Strike Fighter	Twin-engine aircraft, delivered GBU-28 bunker busters on underground targets like Natanz
5.	F-16I Sufa	Multirole Fighter	Targeted military bases, missile platforms using SPICE and JDAM bombs
6.	Delilah	Air-Launched Cruise Missile	Loiters near target; hits mobile or concealed systems like radars and command vehicles

7.	Rampage	Supersonic Air-to-Surface Missile	Precision missile for shelters, missile factories, munitions depots; difficult to intercept
8.	Blue Sparrow	Air-Launched Ballistic Missile	Initially a test missile; possibly used operationally against strategic infrastructure
9.	LORA	Short-Range Ballistic Missile	400 km range; highly accurate (<10 m); used to destroy infrastructure in western Iran
10.	SPICE-1000/2000	Glide-Guided Bombs	Image-based smart kits for unguided bombs; used on sensitive Iranian facilities
11.	JDAM	GPS-Guided Bombs	Converts regular bombs into GPS-guided munitions; used for precision strikes
12.	GBU-39 SDB	Small Diameter Bomb	Lightweight precision bombs; used for minimising collateral damage in urban areas
13.	GBU-28	Bunker Buster Bomb	5,000-pound bomb used for penetrating reinforced underground facilities like Natanz
14.	Spike ATGM	Guided Anti-Tank Missile	Fire-and-forget system with thermal/visual targeting; used against vehicles and fortifications

Source: Prepared by the author from media reports.

IRAN'S RETALIATORY ATTACK

In response to Israel's strikes on its nuclear and military infrastructure, Iran launched a sophisticated and overwhelming retaliatory campaign. Iran reportedly launched over 550 ballistic missiles and more than 1,000 UAVs as a retaliatory measure.¹⁶ The attacks primarily concentrated on Tel Aviv and the surrounding urban and critical infrastructure zones. At least 31 to 36 confirmed ballistic impacts on populated or strategic locations.¹⁷

Iran employed weapons capable of evading interception by altering their flight paths mid-course.¹⁸ Missiles such as Kheibar Shekan and Fattah-1

were equipped with manoeuvrable re-entry vehicles (MaRVs), while the Khorramshahr-4 featured multiple warhead capabilities.¹⁹ These systems were specifically designed to confuse missile defences. The traditional ballistic missiles following high-velocity re-entry trajectories such as Ghadr, Sejil and Qiam-1, were also used during the operation. Iranian missiles presented Israel with the dual challenge of speed and unpredictability. The Islamic Revolutionary Guard Corps Aerospace Force (IRGCASF) had launched at least 100 Shahed-136 attack UAVs. Israel claimed to have intercepted all UAVs in the initial wave.²⁰

Significantly, the IRGC overwhelmed Israeli defences by launching mixed salvos of different missile types programmed to create internal conflict within Israeli defence systems, leading to mis-identification and mis-aligned interception priorities.²¹ Some missiles acted as decoys, triggering false radar signatures, further complicating the defensive response. This technique, coupled with the short flight time of just 12 minutes from Iranian launch sites to Israeli targets (due to the approximately 1,300–1,500 km distance and Mach 5 speed), and sending missiles in large numbers, meant Israeli systems had minimal time to react.²² Not only this, most of the Iranian missiles are highly accurate, with a Circular Error Probable (CEP) of less than 100 metres.²³ CEP refers to the radius of a circle in which 50 per cent of the warheads strike accurately.

Even though no new foreign systems were reportedly added during this period, the growing sophistication of Iran's missile and its strategic use, was revealed. The attack revealed vulnerabilities in defending against simultaneous threats across multiple domains, stressing Israel's multi-layered defences.²⁴

Iran's ability to penetrate Israeli air defences during the 12-day war marked a significant evolution in its missile warfare strategy. Iran refined its tactics through a process of 'trial and error', gradually increasing the effectiveness of its strikes over the course of the conflict. Initially, in the first six days, only 8 per cent of Iranian missiles managed to bypass Israel's defences.²⁵ However, by the latter half of the war, this figure had doubled to 16 per cent, reflecting tactical adjustments in missile types, launch timing and trajectory coordination.²⁶

Experts argue that Iran's success was not due to any single breakthrough, but the sheer scale and intensity of its barrage. The strategy relied on overwhelming Israel's multi-tiered onion missile defence architecture, which, despite its high success rate, is vulnerable.

Table 2 Weapons Used by Iran to Target Israeli Sites

S. No.	Weapon	Type	Description & Usage
1.	Kheibar Shekan	Medium Range Ballistic Missile	Mach 9; advanced precision; modern MRBM, maneuverable reentry vehicles (MaRVs)
2.	Ghadr	Medium Range Ballistic Missile	Long-range MRBM; upgrade of Shahab-3
3.	Emad	Medium Range Ballistic Missile	Precision-guided variant; medium-range
4.	Khorramshahr-4	Medium Range Ballistic Missile	Heavy payload; improved guidance
5.	Sejjil	Medium Range Ballistic Missile	Fast-launch; indigenous Iranian design
6.	Fattah-1	Medium Range Hypersonic Missile	Terminal-phase manoeuvring; possible glide vehicle features
7.	Fateh-110	Small Range Ballistic Missile	Short-range systems used in large salvoes
8.	Qiam-1	Small Range Ballistic Missile	Used in large salvoes
9.	Shahed-136	Loitering Drone	Kamikaze drone; mass-deployed in swarms

Source: Prepared by the author from media reports.

EFFECTIVENESS OF ISRAEL'S AIR DEFENCE SYSTEM

Israel's multi-layered air defence system comprises the Iron Dome and Iron Beam system for short-range surface-to-surface rockets, the David's Sling and Barak system at the short-to-medium and medium-to-long-range missiles, Arrow-2 (medium-to-long-range ballistic missiles) and Arrow-3 at long-range ballistic missiles. It was also supplemented by US Patriot and THAAD batteries, which proved to be effective during the 12-Day War, though they could be penetrated. Overall, the system achieved an interception rate of approximately 80 to 90 per cent against Iranian ballistic missiles²⁷ and over 99 per cent against UAVs.²⁸ While the Iron Dome alone intercepted 65 per cent of Iranian missiles over a 24-hour peak period,²⁹ upgraded Arrow systems, US-supplied THAAD and SM-3 missiles were also used against medium-range ballistic missiles (MRBMs).

This shows that during a robust missile attack, the 'onion-layered' defence approach³⁰ is not invulnerable. The performance underscores the growing challenge posed by Iran's increasingly sophisticated missiles, which are designed specifically to exploit and overwhelm even the most advanced multi-tiered defence systems. Iran's saturation tactics, employing simultaneous barrages of missiles and drones, exploited the quantitative limits of Israel's systems. During peak salvos, particularly on 22 June, 10 out of 27 Iranian missiles hit their targets, marking Iran's most successful strike day.³¹

During the 12-day campaign, an estimated 34 Arrow-3, 9 Arrow-2 and 39 THAAD interceptors were reportedly employed. Each THAAD interceptor costs approximately US\$ 12.7 million, placing the expenditure for the 39 fired interceptors at over US\$ 495 million; coupled with the use of 34 Arrow-3s (estimated at over US\$ 100 million) and 9 Arrow-2s, the total cost of interceptors used during the 12-day conflict likely exceeded US\$ 1 billion.³² In just 12 days, more THAAD interceptors were used than the entire annual production of 12 in 2025 and the planned 32 for 2026.³³ This also raised concerns of a war of attrition, where prolonged attacks could deplete Israel's defensive inventory faster than it could be replenished.

While Israel's air defence network largely held firm under unprecedented pressure, the war underscored the system's cost-intensive nature and its vulnerability to sustained, high-volume attacks.

EFFECTIVENESS OF IRAN'S AIR DEFENCE SYSTEM

This conflict revealed critical weaknesses in Iran's air defence architecture. At the heart of Iran's layered defence was the Bavar-373, a domestically developed system often compared to Russia's S-300. Deployed around strategic nuclear sites like Fordow and Natanz, the Bavar-373 intercepted a limited number of drones and cruise missiles.³⁴ However, it failed to cope with Israel's saturation tactics involving swarm drones and precision-guided stand-off munitions like the Rampage and Delilah. Russian-supplied S-300PMU-2s, deployed primarily near Tehran and western Iran, demonstrated better performance, especially against high-altitude UAVs.³⁵ Short and medium-range systems such as the Khordad-3, Sayyad-2 and Tor-M1, positioned around military airports and missile bases, managed to down smaller drones but were ineffective against faster precision weapons targeting command-and-control centres and radar sites.³⁶

The central flaw lay in Iran's lack of an integrated air defence network (IADS), leading to inefficient overlap and poor coordination between systems.

Israeli use of electronic countermeasures (ECM) further degraded Iran's radar systems, many of which were based on Soviet-era technology.³⁷ The Israeli Air Force exploited this with low-altitude penetration flights using terrain masking, radar-absorbent coatings on F-35I 'Adir' stealth fighters, and large-scale electronic warfare operations.³⁸ Israeli cyber units successfully infiltrated and intermittently paralysed Iran's command-and-control systems, leading to delayed responses and compromised threat detection.

Despite claims of successfully intercepting most incoming projectiles by Iranian state media, open-source intelligence and satellite imagery revealed damage, particularly to nuclear and missile infrastructure.³⁹ As of now, Iran has successfully replaced the damaged air defence system and safeguarded its skies.⁴⁰

OUTCOMES AND LESSONS FROM THIS WAR

The conflict exposed both the strengths and limitations of Israeli and American air defence systems. Although systems like the Iron Dome and Arrow-3 intercepted a large number of Iranian projectiles, a considerable number of missiles and drones still penetrated defences and hit Israeli targets. This suggests a saturation point in these layered systems, particularly when overwhelmed by simultaneous threats or decoys.

Second, the cost-benefit analysis favoured Israel, and the US missile defence operations prevented an estimated US\$ 15 billion in property damage while costing only US\$ 1.48–1.58 billion in interceptor munitions. In contrast, Iran's offensive cost it far more in relative economic terms. Iran's missile strikes inflicted damage worth US\$ 1.1–6.6 billion.⁴¹ The war is estimated to have cost Iran up to 93 times more than Israel and 371 times more than the US in relative economic terms. However, Israel did not escape losses entirely; it still had to bear significant economic costs during the conflict.

Third, Israel's military campaign reflected a significant evolution of its strategic doctrine. Moving beyond traditional air superiority tactics, the operation integrated cyber warfare, covert HUMINT operations and long-range precision strikes, using both cutting-edge and legacy weapons. Loitering munitions deployed alongside older systems like the 1980s-era Spike missile, highlighting a hybrid warfare model that values agility and cost-efficiency over brute force.

Fourth, while Iran's missile arsenal suffered substantial losses during the conflict, with over 500 missiles launched and another 1,000 reportedly

destroyed, it would be inaccurate to conclude that its deterrent capacity has been entirely neutralised. Iran began the war with an estimated 2,500 to 3,000 ballistic missiles;⁴² a significant portion of its arsenal remains intact. Moreover, with a production rate of approximately 50 missiles per month,⁴³ Iran can partially replenish its stockpile within months, not just years. This suggests that while its short-term strike capacity may have been reduced, the depletion is temporary and does not eliminate Iran's ability to pose a credible deterrent challenge in the near term.

Fifth, Iran's advanced, high-range missiles, some equipped with Multiple Independently Targetable Re-entry Vehicles (MIRVs), decoys and smaller CEP, can cover all of Israel, enabling more sophisticated and precise strikes. While less advanced missiles were intercepted, doing so consumed costly interceptors, highlighting Iran's growing missile capabilities.

Sixth, this war signalled a shift towards short, high-intensity, technology-driven conflicts using drones, precision missiles and cyber attacks across multiple domains. Using new tactics such as covert operations and large-scale precision strikes, aimed at disrupting enemy capabilities while avoiding large-scale confrontations.

NOTES

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