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Beyond the Kill Zone: Why Fighter Jets Still Matter for India

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Introduction

The Indian Armed Forces are undergoing one of the most significant reforms in their history – theatreisation,[1] wherein the resources of the three forces will be consolidated under three unified commands. This has sparked debates over resource allocations among the three services – army, navy, and air force, particularly regarding the role of crewed fighter jets in the Indian Air Force (IAF).

The recent wars, including the Ukraine-Russia War and the US-Israel-Iran conflagration, have seen the efficacy of low-cost, high-impact technologies like the drone and long-range missiles. During Operation *Sindoor,* one of the most successful platforms has been the Russian-origin S-400 Surface-to-Air Missiles (SAMs) and drones.[2] Against this backdrop, many Indian Army veterans argue that long-range vectors can achieve similar results without risking pilots.

This argument comes at a critical juncture, as the IAF, at a historic low in its fighter jet strength, is undertaking a massive modernisation drive with the purchase of 114 multi-role French Rafale fighter jets. This much-overdue modernisation will require a major cash infusion, which raises the question of whether the IAF would be better off investing in more long-range missiles, as one of the Generals argued, “Why risk aircraft when missiles can do the same job?” He added that BrahMos, whether ground-launched or aircraft-launched, has the same effect.[3]

Against this backdrop, this article seeks to weigh whether crewed fighter jets will remain central to the IAF’s future warfare strategy or whether advancements in missile and drone technology will render them obsolete.

Evolution of Air Power in the Indian Sub-continent

The IAF is the youngest of the three Indian Armed Forces and has been deployed in all the wars that India fought against Pakistan after independence. In 1947-48, 1965, 1971, and 1999, air force assets were deployed to varying degrees. In the 1962 war against China, air power was not utilised in an offensive role; it was one of the wars in which India had to bear the ignominy of defeat.[4]

The last time India deployed its fighters offensively in enemy territory was in the 1971 war against Pakistan, where it “drove home the fury of war to the people of Pakistan,” and derailed Pakistan’s military strategy in East Pakistan.[5]

For a long time, the Indian strategic experts held the view that the utilisation of the IAF assets could lead to escalation and hence refrained from deploying them in limited conflicts. All that changed in 2019, when *Jaish-e-Mohammad’s* (JeM) terror attack targeted a convoy of the Central

Reserve Police Force (CRPF) in Jammu and Kashmir, killing 40 security personnel. The IAF's Mirage-2000s carried out the punitive strikes against terrorist training camps in Balakot, Pakistan.[6] It was the first time since 1971 that Indian fighter jets breached Pakistan's airspace to conduct strike missions and return to their bases.

Balakot strikes created a strategic shift as India demonstrated that air power could be used to carry out limited, conventional warfare between two nuclear powers. Air power, in fact, was considered to be a preferred tool for swift, precise, and deep strikes, replacing ground operations that can be riskier.

How Operation *Sindoor* Unfolded

On April 22, 2025, terrorists armed with guns killed 26 people in Pahalgam, Jammu and Kashmir. After taking a slew of diplomatic measures, India launched air strikes against nine terror sites on the intervening night of May 6-7. Nine terror sites–Bahawalpur, Muridke, Gulpur, Bhimber, Chak Amru, Bagh, Kotli, Sialkot, and Muzaffarabad–were struck. [7]

Out of these two, *Lashkar-e-Taiba's* (LeT) Markaz Taiba in Muridke and JeM's Jamia Masjid Subhan Allah in Bahawalpur were taken out by the IAF, and the remaining seven targets were hit by the Indian Army's artillery. The IAF's fighters did not cross the Line of Control (LoC), but took out the two targets with precision weapons with no visible collateral damage, as shown in the satellite images. The strikes were carried out at 1:05 am on May 7.[8]

Within minutes of the strikes, at least 125 fighter jets from both sides were airborne at standoff ranges. The battlespace was constantly monitored by the IAF's Integrated Air Command and Control System (IACCS) nodes.[9] The nodes continuously received inputs from multiple radars, civil aviation sensors, observation posts, and its Airborne Early Warning & Control (AEW&C) aircraft. After processing the multiple inputs, it communicated a common picture of the battle space to the fighter jets, surface-to-air missile units, and counter-drone systems. [10]

The Pakistan Air Force (PAF) had fielded a mix of Chinese fighter jets -J-10 CE and Joint Fighter JF-17s. The PAF fired several PL-15, the new-generation Chinese Beyond Visual Range (BVR) air-to-air missiles with a range of around 200 kilometres. The long-range missile is said to have damaged IAF fighter jets, a fact accepted by the IAF without going into specifics.[11]

Following this, the IAF's fighter jets moved away from the "kill zone" of the Pakistani missiles and multi-layered air defence system comprising of Russian-built S-400, Israeli-designed Medium-Range Surface-to-Air Missile (MRSAM), made-in-India Akash, Israeli Spyder, Russian Pechora and L-70 guns; were deployed to neutralise aerial threats emanating from Pakistan. It was on the night

of May 7 that the IAF fired its first S-400 missile, forcing the PAF fighter jets to fly low and remain outside the S-400's kill envelope.

On the intervening night of May 8-9, the PAF tried to saturate the Indian air defence by attacking air bases along the Line of Control (LoC). The attacks were not about deep penetration but about probing Indian air defence positions and gaps. India responded by taking out PAF's radar and surface-to-air missile sites and creating blind spots, which could later be exploited by Indian fighter jets. [12]

On the night of May 9, the PAF threw everything it had to target the Adampur airbase, the home of S-400 missiles. From drones to CM-400 missiles launched by PAF's fighters were pointed at the frontline air bases. The S-400 took out many of the high-speed vectors, including the land attack missile CM-400.[13]

IAF Chief Air Chief Marshal AP Singh later asserted that the S-400 system was responsible for downing 4-5 aerial platforms of the PAF, including a SAAB Erieye 2000 and JF-17.[14]

After its air defence systems did the ground work, between 2:00 and 5:00 am on 10 May, IAF strike packages comprising Rafales and Sukhoi-30MKIs turned the firepower against Pakistan's key military installations, including Nur Khan airbase in Chaklala, Rahawali, Rafiqui, Rahim Yar Khan air base, Sukkur, Murid, and Naya Chor. The Sukhois were armed with air-launched BrahMos supersonic cruise missiles, proving that the indigenous integration had come of age.[15]

Five hours later, the IAF's long-range standoff weapon supersonic cruise missile BrahMos was used to hit Sargodha, Bholari, and Jacobabad.

Reductionism has been used to treat developments during Operation *Sindoor* as proof that fighter jets are no longer relevant on the battlefield and that the same effect can be achieved with missiles.

Why India Needs Its Fighter Jet Fleet

Missiles infrastructure

Before seeking to emulate Iran's formidable response to the United States (US), one should keep in mind that a country of the size of India would require at least 400 to 500 hardened missile launch bases. At present, the total number of air bases is around 40 to 50. The sheer infrastructure required to rely completely on missiles would punch a big hole in the IAF's capital budget.

A study[16] by the *RAND* think tank compared the cost of penetrating bombers and expendable missiles over 30 years. The study indicated that if a country fights a war in which cruise missiles require no more ISR support than bombers for 20 days or more over the next 30 years, penetrating stealth bombers would cost less than expendable missiles for similar missions.

The study, conducted for the US Air Force, also pointed out that relying on one-time use missiles could have its own risks. According to Project Air Force's findings, if the US has a limited stockpile of missiles, it would not be able to continue the conflict once those stocks are depleted. And it would just encourage the adversary to ride out the American attacks.[17]

Air Launched Missiles

A ground-launched missile utilises a heavy booster to accelerate to supersonic speed, and during the coast phase, the propellant carries it to the target. The same missile can be launched from a fighter jet without this booster. The fighter jet can accelerate to supersonic speeds using kerosene-fed multi-use engines and then launch this missile.

For short- to medium-range missiles, this lack of a booster or lesser propellant can offer a higher warhead weight, up to the fighter-carriage limit, obviously. Air-launched missiles, therefore, can be smaller, lighter, deadlier, cheaper, and easier to manufacture. This entails a higher production rate for the same cost, a game-changing factor in protracted wars.

A fighter jet can do a Lo-Lo-Lo profile, evading an adversary's radars and then launch a low-flying cruise missile. With the initial speed push given by the fighter jet, the air-launched missile can have the same range as a ground-launched ballistic missile. A ground-launched missile, however, has to go up in the atmosphere to achieve the same range and will be picked up by the enemy's radar when it goes ballistic.

Air-launched missiles are smaller in size, and their movements on the ground are relatively easy to conceal compared to large ground-launched variants. A missile can be road- or rail-mobile, but the movement of large trucks entering and leaving a missile base can be tracked through human intelligence (HUMINT) or electronic intelligence (ELINT). The Fighter Jets can take off from a base deep in the country, fly a totally random pattern below enemy radars and can attack from multiple angles. It is difficult for the adversary to track all the fighter jets in our territory.

The pilot can carry out strikes deep in the enemy territory without entering the enemy's air defence range. The same missiles can be used to hit maritime targets or ground targets.

The case in point is the supersonic BrahMos. Its integration with a long-range fighter jet has expanded its “engagement zone.” The air-launched BrahMos has a range of 290 to 450 kilometres, and when launched from the Su-30MKI, it extends the aircraft's operational radius to about 3,000 km.

Multi-Role Fighters

A multi-role fighter aircraft can do both air defence and strike missions by just changing its weapon package. Missiles are designed for a particular role and cannot do multi-role. A surface-to-air missile cannot conduct a ground attack, and vice versa.

The Missiles can perform only one role–strike. But besides strike missions, the fighter jets ensure air superiority; perform close air support (CAS) roles; carry out Suppression of Enemy Air Defences (SEAD); conduct Intelligence, Surveillance and Reconnaissance (ISR); and can take part in Electronic Warfare (EW).

If the cost-benefit analysis is taken care of, the most compelling argument in favour of a fighter jet is its dynamic decision capability. A missile once fired cannot be diverted to another target or recalled. A fighter jet has the advantage of changing the target midway, if so required. It keeps a man in the kill chain loop.

Flexibility of Fighter Jets

Ground-launched cruise and ballistic missiles are best suited to take out stationary high-value targets like runways, radar sites, fuel depots or command centres. These missiles carry a single warhead (generally 450-500 kg) and have a circular error probability of 10-100 metres.

But to take out moving targets, or time-sensitive targets like terrorist hideouts in urban areas where chances of collateral damage are greater, high-precision air-launched munitions with a CEP of less than 5 metres are better suited. The Su-30MKIs are equipped with SPICE 2000/1000 bombs that are smart and precise. They achieve a CEP of less than 3 metres.

The Rafales are equipped with French-made SCALP (Storm Shadow) missiles with a range of approximately 560 km and a 450 kg bunker-penetrating warhead. As the Indian government is showing more resolve to not let any terror attacks go unpunished, the SCALP will wreak havoc against terrorist infrastructures should any such opportunity arise in the future.

Also, a fighter jet can carry multiple such weapons in a single sortie, altering its payloads mid-flight.

Missiles and Fighter Teaming

The other major issue is that it is difficult for a ground-based centre to maintain a data link with a ground-to-ground missile after launching. A fighter aircraft can, however, continue to remain data-linked with a missile even in a GPS-denied environment owing to its altitude. Its data link can be networked with ground-based launchers. High-speed data links can ensure the sharing of targets.

The advent of datalink has also opened up avenues for fighter and Surface-to-Air missiles to engage targets together. For instance, the Russian Air Force has data-linked its Su-35 fighter jets with the S-400 units, which helps the two to share targets. The Su-35s act as airborne sensor nodes and can directly forward targets to the S-400, overcoming the limitations of ground-based radars.[18]

The Man-Unmanned teaming and swarm drones are definitely going to be part of future warfare. Taking out a cheap drone with an expensive missile can be a costly proposition, whereas a fighter jet in the air can ascertain which is the brain in the swarm of drones and can either take it out itself or pass on the target to the SAMs on the ground.

As of now, the missiles cannot talk to the Airborne Warning and Control System (AWACS) or satellites. The fighter jet can be the missing link in the equation and help improve a force's situational awareness.

On the 3rd or 4th day of war, when the IAF has achieved air superiority, a fighter jet can carry out a strike mission deep in the enemy territory and drop a one-ton or two-ton warhead on the target, completely decimating it. Packing this kind of firepower in a missile would make it as heavy as ground-based Agni missiles.

Conclusion

The debate over finding cost-effective weapons is as old as the military itself. While it is imperative that taxpayers' money is spent judiciously, the goal of the armed forces is not creating the most favourable balance sheet, but to create a military that can commiserate with India's national security priorities.

For a country with limited resources, exorbitant costs can be prohibitive. The IAF cannot make a binary choice between the fighter jets and the long-range missiles. It needs to strike a balance between the two options, as offensive air power and air defence will remain important pillars of air power in the future.

Operation *Sindoor* demonstrated how India can use fighter jets, missiles and drones in tandem to achieve national objectives of inflicting cost on the sponsors of terrorists while tightly controlling the escalation.

In terms of absolute cost, expendable missiles might be cheaper than a fighter jet, but they lack flexibility, human-in-the-loop adaptability and the power of political signalling. In network-centric warfare, the fighters can act as airborne sensor nodes, linking the AWACS with SAMs and drones.

Building a missile stockpile capable of sustaining a long-drawn-out, high-intensity war would require years. Even major powers like the US don't have an infinite stockpile. In 2022, the US was producing about 500-600 missiles per year. In a few weeks of high-intensity war, several hundred can be used.

Operation *Sindoor* lasted just 88 hours. However, the picture could have been different had it been carried out for a longer duration. India would have required a potent fighter jet fleet to quarterback a missile stockpile.

The Fighter Aircraft Market, valued at USD 29.11 billion in 2024, is expected to grow 4.1 per cent annually from 2026 to 2033, achieving USD 41.25 billion by 2033. This is despite advances in Unmanned Aerial Vehicles (UAVs). The global trend is that air forces are transitioning to 5th-generation fighter jets, prioritising stealth and multi-role.[19]

Lessons can also be drawn from the major powers–the US is investing billions in 6th-generation fighters while carrying out massive procurement of long-range missiles and drones; Russia has learned to survive in the face of strong air defence by linking its fighter jets with SAMs, and China is mass-producing 5th-generation fighters at a rate that has made countries in the region anxious. The bottom line is that none of the major powers is abandoning fighter jets; these war jets are gearing up into hybrid platforms for future warfare.

India should also resolve its dilemma and move forward with a hybrid doctrine. Missiles and drones will provide cost-effective strike capabilities, but fighter jets will be indispensable for strategic deterrence, escalation control, and, above all, political signaling. Crewed Fighter jets are an important instrument for air control.

There will be a time when the crewed fighter jets will fly into the sunset, but that day is not today. If the IAF has to draw lessons from the major powers, the time calls for a hybrid doctrine rather than missile dominance. Invest in multi-role fighter jets and build a credible rocket force.

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