



Expert Explains: Why induction of 26 new Rafale M aircraft matters for the Indian Navy

Why is the induction of the Rafale M important in the context of the Indian Navy? Why does India need aircraft carriers, and advanced fighter jets for these great battleships?

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New Delhi | Updated: April 30, 2025 07:08 IST



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India and France on Monday signed a \$7.4 billion (approximately Rs 63,000 crore) **government-to-government contract** for 26 Rafale Marine (Rafale M) fighter aircraft for the Indian Navy. Thirty-six Rafale aircraft were earlier inducted into the Indian Air Force from 2021 onward.

Why is the induction of the Rafale M important in the context of the Indian Navy?

First, what is meant by naval aviation?

Naval aviation is the use of military air power by navies, involving aircraft that operate from warships — such as aircraft carriers and other aircraft — or helicopter-carrying surface combatants, or land bases to support naval operations.

It includes specialised naval aircraft designed to meet the unique demands of carrier operations and small decks, such as short takeoffs and arrested landings, and roles such as air-to-air combat, surface and submarine attack, maritime reconnaissance, search and rescue, and logistical support.

The key roles of naval aviation include:

FLEET AIR DEFENCE: providing air cover for naval forces beyond the reach of land-based aircraft;

STRATEGIC POWER PROJECTION: allowing deployment of air power without needing land bases;

ANTI-SURFACE WARFARE: attacking enemy ships with air-launched missiles;

SUPPORTING AMPHIBIOUS WARFARE: aiding marine landings and operations inland; and

MINE COUNTERMEASURES: using aircraft to detect and clear enemy mines.

Versatile, omnirole fighting machines

Rafale-Marine (Rafale-M), designed and produced by Dassault Aviation, is a French fighter aircraft modified to operate out of an aircraft carrier. Rafale-M entered service with the French Navy in 2004.

OMNIROLE CAPABILITIES: The Rafale can carry out a gamut of combat aviation missions — air superiority and air defence, close air support, in-depth strikes, reconnaissance, anti-ship

strikes and nuclear deterrence — in a single sortie if required.

REINFORCED UNDERCARRIAGE: All Rafale variants share a common airframe and a common mission system, with the differences between naval and land versions limited mainly to the undercarriage and the arresting hook. This high degree of commonality allows for interoperability with Rafales already

in service with the Indian Air Force.

MULTI-SENSOR DATA FUSION: Rafales have the unique capability to fuse and process data provided by all onboard and offboard sensors. At the centre of these enhanced capabilities lies a new Modular Data Processing Unit (MDPU). The system's modularity also makes Rafales upgradeable over their service life, to meet evolving tactics and improvements in computer technology.

Source: Dassault Aviation

Naval aviation is crucial for maintaining control of the seas, supporting naval and ground forces, and projecting military power along distant shores. It includes fixed-wing carrier borne squadrons, land-based Maritime Patrol Aircraft, Helicopters and Remotely Piloted Aircraft operated from warships and ashore.

And what exactly is an aircraft carrier?

An aircraft carrier is a warship that serves as a seagoing airbase, equipped with a full-length flight deck and hangar facilities for supporting, arming, deploying, and recovering shipborne aircraft.

It allows a naval force to project seaborne air power far from its homeland without having to rely on airfields ashore. Aircraft carriers as part of the Carrier Battle Groups are often the centerpiece of modern naval warfare, with significant strategic and diplomatic influence in deterrence, command of the sea, and air supremacy.

Aircraft carriers are also adaptable and survivable airfields that are ready to control the seas, conduct strikes, and manoeuvre across the electromagnetic spectrum and cyberspace.

About 50 carriers, operated by the navies of several countries, are currently active around the world. The United States Navy leads with 11 large nuclear powered carriers followed by Brazil, China, France, India, Italy, Russia, Spain, Thailand and the United Kingdom.

What is the history of carrier aviation in India?

While Indian naval aviation will celebrate its 72nd anniversary on May 11, 2025, India's carrier aviation began with the commissioning of the [INS Vikrant](#) in 1961.

Since the 1960s, India has operated four carriers — the INS Vikrant (1961-1997), INS Viraat (1987-2017), INS Vikramaditya (since 2013), and the indigenously built INS Vikrant, which was commissioned in 2022.

Through this unbroken period of 64 years, India has operated all major types of aircraft launch and recovery systems and continues to expand its carrier fleet, with future plans for additional indigenous construction.

But why does India need aircraft carriers?

India requires aircraft carriers for several strategic, military, and geopolitical reasons.

STRATEGIC DETERRENCE AND POWER PROJECTION: Aircraft carriers enable India to assert influence and maintain favourable balance of power in the Indian Ocean, a region critical for trade, energy flow and security for India and the world.

PROTECTION OF MARITIME INTERESTS: More than 90% of India's trade by volume moves by sea. Carriers help secure Sea Lines of Communication (SLOCs), protect island territories, and deter potential threats.

BLUE WATER NAVY CAPABILITY: Carriers allow the Indian Navy to operate far from home shores, reinforcing its status as a blue water force capable of extended operations and rapid responses to crises.

CONTINUOUS OPERATIONAL READINESS: Having multiple carriers ensures that at least one is always operational on each coast, even as others are in maintenance or refit.

NON-MILITARY ROLES: Carriers also play a vital role in Humanitarian & Disaster Relief (HADR) operations that project India's soft power and the ability to respond to regional emergencies and calamities, which are not uncommon in the Indian Ocean Region.

How will the Rafale Ms help the Navy?

Over the years, India has operated a wide variety of carrier-based fighters — from Sea Hawks, Alizes, Sea Harriers and, at present, the very capable fourth generation MiG29Ks.

The country is now developing the fifth generation Twin Engine Deck Based Fighter (TEDBF), that is likely to be operationalised in the middle of the next decade.

The 26 Rafale M jets, a four-and-a-half-generation battle-proven combat aircraft, will augment the existing MiG29K fleet.

A great advantage that accrues with the induction of the 26 Rafale Ms for the Indian Navy is the commonality with the IAF Rafales. This provides the desirable scope for interoperability and joint training, as well as for maintenance and safe practices of these assets and their aircrew between the two services.

The induction of this very capable aircraft in the coming years is a shot in the arm for the Indian armed forces, and shall ensure continued and enhanced combat capabilities across the full spectrum of India's military might.

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This article went live on April thirtieth, twenty twenty-five, at forty minutes past six in the morning.