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समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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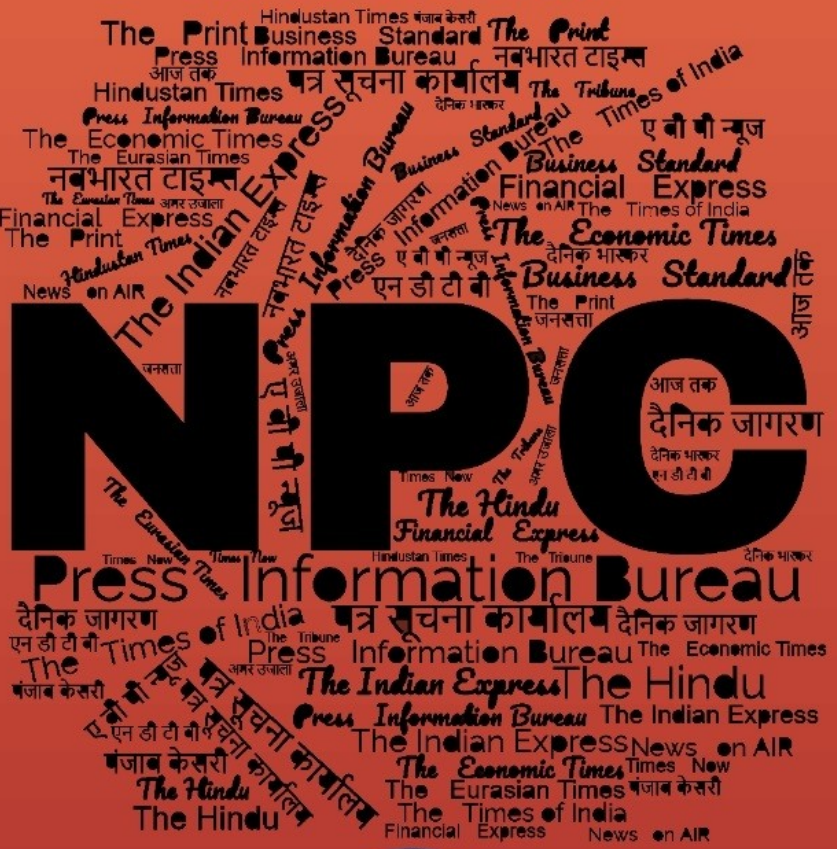

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DRDO News

क्या है भारत का कावेरी प्रोजेक्ट, जिससे उड़ेगी चीन और पाकिस्तान की नींद; क्यों नहीं दुश्मनों की खैर?

Source: NDTV, Dt. 28 May 2025,
URL: https://ndtv.in/india/kaveri-engine-project-know-all-about-drdo-project-and-india-indigenous-5th-gen-fighter-jet-8526454

ऑपरेशन सिंदूर में मौजूदा दौर की सबसे घातक हवाई लड़ाई हुई, जिसकी पूरी दुनिया में चर्चा है. एक तरफ भारतीय एयरफोर्स के राफेल, सुखोई फाइटर जेट्स थे तो दूसरी तरफ पड़ोसी मुल्क पाकिस्तान के एफ–16 और जे–17. मौजूदा दौर की सबसे भयंकर इस लड़ाई में ताकत, फायर पावर का प्रदर्शन करने वाले मॉर्डन जेट्स का सबसे अहम हिस्सा होते हैं इनके इंजन. जो कि बेहद शक्तिशाली होते हैं. ये दमदार इंजन ही फाइटर जेट्स को इतना शक्तिशाली बनाते हैं कि वो पल झपकते ही आसमान में तारा बन जाते हैं. भारत भी लंबे समय से मेड इन इंडिया जेट्स के लिए खुद का इंजन बनाने की मशक्कत में लगा है और इसी प्रोजेक्ट का नाम है कावेरी. कावेरी प्रोजेक्ट के सफल होते ही पाकिस्तान तो छोड़िए यहां तक कि चीन की भी नींद उड़ जाएगी.

क्या है इंडिया का कावेरी प्रोजेक्ट

कावेरी इंजन भारत का एक स्वदेशी टर्बोफैन जेट इंजन है, जिसे गैस टर्बाइन रिसर्च इस्टैब्लिशमेंट (GTRE) द्वारा डीआरडीओ (DRDO) के तहत विकसित किया जा रहा है. इसकी शुरुआत 1980 के दशक के अंत में हुई थी, और इसका मुख्य उद्देश्य स्वदेशी लाइट कॉम्बैट एयरक्राफ्ट (LCA) तेजस को शक्ति देना था. भारत का ये महत्वकांक्षी प्रोजेक्ट देश के डिफेंस सेक्टर में आत्मनिर्भरता की दिशा में एक महत्वपूर्ण कदम है, लेकिन यह तकनीकी और राजनैतिक चुनौतियों के कारण चर्चा में बनी हुई है. अब बड़े लंबे बाद इससे जुड़ी एक अच्छी खबर आ रही है.

DRDO के अनुसार, यह एक लो–बाईपास ट्विन–स्पूल टर्बोफैन इंजन है, जिसे लगभग 80 kN का थ्रस्ट हासिल करने के लिए डिजाइन किया गया है, जिसका मकसद शुरू में लाइट कॉम्बैट एयरक्राफ्ट (LCA) तेजस को शक्ति प्रदान करना था. कावेरी इंजन में हाई टेंपरेचर और हाई स्पीड की स्थितियों में थ्रस्ट लॉस को कम करने के लिए एक फ्लैट–रेटेड डिजाइन किया गया है. इसकी ट्विन–लेन फुल अथॉरिटी डिजिटल इंजन कंट्रोल (FADEC) प्रणाली अतिरिक्त विश्वसनीयता के लिए मैन्युअल बैकअप के साथ सटीक कंट्रोल सुनिश्चित करती है. यह डिजाइन इंजन को कई परिचालन स्थितियों में बेहतर प्रदर्शन करने के सक्षम बनाती है.

फंड कावेरी इंजन ट्रेंड का क्या मकसद?

1980 के दशक में शुरू की गई इस परियोजना का उद्देश्य अपने लड़ाकू विमानों के लिए विदेशी इंजनों पर भारत की निर्भरता को कम करना था, लेकिन भारत के 1998 के परमाणु परीक्षणों के बाद प्रतिबंधों के कारण थ्रस्ट की कमी, वजन संबंधी मुद्दों और देरी जैसी चुनौतियों का सामना करना पड़ा. 2008 में तेजस कार्यक्रम से इसे अलग कर दिया गया था, लेकिन अब घातक स्टेल्थ यूसीएवी जैसे मानव रहित हवाई वाहनों (यूएवी) के लिए इसे विकसित किया जा रहा है, जिसमें उड़ान के दौरान परीक्षण में हाल ही में प्रगति हुई है.

रूस में हो रही कावेरी इंजन की टेस्टिंग

डीआरडीओ रूस में स्वदेशी रूप से विकसित कावेरी जेट इंजन का परीक्षण कर रही है और इसका उपयोग भारत में निर्मित लंबी दूरी के मानवरहित लड़ाकू विमान को शक्ति प्रदान करने के लिए करने की योजना बना रही है. फिलहाल कावेरी का रूस में परीक्षण चल रहा है और वहां इस पर लगभग 25 घंटे का परीक्षण किया जाना बाकी है. रक्षा अधिकारियों ने एएनआई को बताया कि स्लॉट वहां के अधिकारियों द्वारा दिए जाने हैं. उन्होंने कहा कि इंजन का उपयोग स्वदेशी यूसीएवी परियोजना को शक्ति प्रदान करने के लिए करने की योजना है.

सोशल मीडिया पर कावेरी की क्यों इतनी चर्चा

सोशल मीडिया पर भी #फंडकावेरी इंजन ट्रेंड चल रहा है. कावेरी इंजन को स्वदेशी लाइट कॉम्बैट एयरक्राफ्ट के लिए डीआरडीओ द्वारा विकसित करने की योजना थी, लेकिन कार्यक्रम में देरी के कारण, लड़ाकू विमान को अमेरिकी जीई–404 इंजन द्वारा संचालित किया जाना था. जीई–404 का इस्तेमाल 32 एलसीए मार्क 1 और ट्विन सीटर ट्रेनर वर्जन को पावर देने के लिए किया गया है. 83 एलसीए मार्क 1ए को भी जीई–404 से पावर दिया जाना है, लेकिन अमेरिकी फर्म द्वारा सप्लाई दिक्कतों के चलते योजना में देरी हुई है. यह पूछे जाने पर कि क्या कावेरी इंजन का इस्तेमाल अभी भी एलसीए को पावर देने के लिए किया जा सकता है.

इस पर अधिकारियों ने कहा कि कावेरी को एलसीए विमानों में से एक पर लगाने और इसकी क्षमताओं का प्रदर्शन करने की योजना है. डीआरडीओ पांचवीं पीढ़ी के एडवांस्ड मीडियम कॉम्बैट एयरक्राफ्ट के मार्क 2 वर्जन सहित भविष्य के विमानों के लिए अधिक शक्तिशाली इंजन के विकास के लिए एक विदेशी फर्म के साथ काम करने की दिशा में भी काम कर रहा है. भारत फ्रांस, ब्रिटेन और अमेरिका की फर्मों सहित कई फर्मों के साथ बातचीत कर रहा है. इस संबंध में फैसला भविष्य में लिए जाने की उम्मीद है. लड़ाकू विमानों के लिए भारतीय स्वदेशी कार्यक्रमों की योजना आयात में कटौती करने और भारतीय वायु सेना के लिए स्वदेशी प्लेटफॉर्म उपलब्ध कराने के लिए बनाई गई है. स्वदेशी लड़ाकू जेट कार्यक्रमों में एलसीए मार्क 1ए, एलसीए मार्क 2 और एएमसीए शामिल हैं.

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Defence News

Defence Strategic: National/International

Govt notifies Rules under Inter-Services Organisations (Command, Control & Discipline) Act 2023 enabling greater jointness and Command efficiency in Armed Forces

Source: Press Information Bureau, Dt. 28 May 2025,
URL: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2131856

The Rules formulated under the Inter-Services Organisations (Command, Control and Discipline) Act 2023 have been notified through a Gazette Notification and will come into effect from May 27, 2025. This significant step aims to bolster effective command, control, and efficient functioning of Inter-Services Organisations (ISOs), thereby strengthening jointness among the Armed Forces.

The Bill was passed by both Houses of Parliament during the Monsoon Session of 2023. It received the assent of the President on August 15, 2023, and the Act came into force with effect from May 10, 2024, as per the Gazette Notification dated May 08, 2024. Subsequently, the ISOs were notified through Gazette Notification No SRO 72 dated December 27, 2024.

The Act empowers the Commanders-in-Chief and Officers-in-Command of the ISOs to exercise command and control over the service personnel serving under them, ensuring effective maintenance of discipline and administration within the organisations. This is achieved without altering the unique service conditions applicable to each branch of the Armed Forces.

The newly notified subordinate Rules, framed under Section 11 of the Act, are intended to facilitate the effective implementation of the provisions laid down in the legislation. These Rules are a critical enabler for the functioning of the ISOs and establish a comprehensive framework for discipline, administrative control, and operational synergy. With the notification of these Rules, the Act is now fully operational. This will empower the heads of the ISOs, enable the expeditious disposal of disciplinary cases, and help avoid the duplication of proceedings.

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Launching Of Sixth 25t Bollard Pull Tug Sabal (YARD 340)

Source: Press Information Bureau, Dt. 28 May 2025,
URL: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2131982

Launching of sixth 25T Bollard Pull (BP) Tug Sabal was held on 27 May 25 at M/s TRSL, Kolkata in presence of Cmde S Sreekumar, WPS, Kolkata as the Chief Guest.

These Tugs are a part of the contract for construction of six 25T BP Tugs concluded with M/s Titagarh Rail Systems Limited (TRSL), Kolkata on 12 Nov 21. The Tugs have been indigenously designed and built in accordance with the relevant Naval Rules and Regulation of Indian Register of Shipping (IRS). The Shipyard had successfully delivered four of these Tugs which are utilised by the Indian Navy to aid Naval ships and submarines during berthing, un-berthing and manoeuvring in confined waters. The Tugs will also provide afloat fire-fighting support to ships alongside or at anchorage and will also have the capability to conduct limited Search and Rescue Operations.

These Tugs are proud flag bearers of Make in India and Aatmanirbhar Bharat initiatives of Government of India.

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HAL AMCA: What is India's fifth-generation fighter jet, and how does it compare with F-35, Su-57, J-20?

Source: The Economic Times, Dt. 28 May 2025,
URL: https://economictimes.indiatimes.com/news/defence/hal-amca-what-is-indias-fifth-generation-fighter-jet-and-how-does-it-compare-with-f-35-su-57-j-20/articleshow/121458748.cms

India has cleared its ambitious Advanced Medium Combat Aircraft (AMCA) programme, a fifth-generation stealth fighter jet project that aims to elevate the Indian Air Force (IAF) into the elite club of next-gen aerial combat nations. The decision was taken by Defence Minister Rajnath Singh on Tuesday, marking a major leap in India's indigenous defence capabilities.

The AMCA project—led by the Aeronautical Development Agency (ADA)—is designed to produce medium-weight, deep-penetration, stealth aircraft that will operate alongside the existing Tejas Light Combat Aircraft. Together, they will form the core of India's aerial strike power in the coming decades.

"In a significant push towards enhancing India's indigenous defence capabilities and fostering a robust domestic aerospace industrial ecosystem, Defence Minister Rajnath Singh has approved the Advanced Medium Combat Aircraft (AMCA) Programme Execution Model," the Ministry of Defence said.

AMCA's capabilities

The AMCA is more than just a jet. It's India's answer to stealth-heavy, fifth-generation warfare. The twin-engine, 25-tonne aircraft will feature cutting-edge stealth, AI-assisted electronic piloting, and internal weapons bays designed for long-range air-to-air missiles and precision-guided bombs.

It also comes with Netcentric Warfare Systems, advanced avionics, and Integrated Vehicle Health Management for predictive maintenance. These features enable seamless coordination with unmanned aerial vehicles (UAVs) in real-time combat scenarios.

An India Today report confirms the aircraft's internal fuel tank will hold up to 6.5 tonnes, giving it extended operational range. The Indian Express reports the internal weapons bay will carry a payload of up to 1,500 kg.

The AMCA's projected cost currently stands at ₹15,000 crore, with full-scale engineering development for five prototypes approved in March 2024.

What Makes AMCA a Fifth-Generation Jet?

The AMCA is a 25-tonne twin-engine stealth multi-role fighter, featuring cutting-edge stealth design, sensor fusion, and advanced avionics. It is engineered for both deep penetration strike missions and air dominance roles.

It includes:

- Stealth Technology: Internal weapons bay and low radar cross-section help reduce detectability.
- AI-Enabled Systems: An Electronic Pilot uses Artificial Intelligence for real-time decision-making support.
- Sensor Fusion: The cockpit integrates inputs from multiple onboard sensors for unified situational awareness.
- Netcentric Warfare: Secure and real-time data links allow the AMCA to operate seamlessly with other manned and unmanned platforms.
- Supercruise Capability: Enables sustained supersonic speeds without afterburners, reducing fuel usage and thermal visibility.
- Integrated Vehicle Health Monitoring (IVHM): Monitors structural and system health to enable predictive maintenance and reduce downtime.

The jet can carry up to four long-range air-to-air missiles and several precision-guided munitions internally, with a total payload of 1,500 kg.

A strategic leap amid regional tensions

The timing of the announcement is no coincidence. It comes as China rapidly advances its military technology and deepens its defence relationship with Pakistan. According to a recent US intelligence report, “Pakistan primarily is a recipient of China’s economic and military largesse, and Pakistani forces conduct multiple combined military exercises every year with China’s PLA, including a new air exercise completed in November 2024.”

The same report noted that over 80% of Pakistan’s arms imports come from China, with “foreign materials and technology supporting Pakistan’s WMD programmes very likely acquired primarily from suppliers in China.” These materials are sometimes transshipped through third countries like Hong Kong and the UAE.

Further compounding the situation are recent terrorist attacks targeting Chinese workers in Pakistan. Seven Chinese nationals were killed in 2024, straining relations between the two countries.

Against this backdrop, India’s push for self-reliance in aerospace and its investment in fifth-generation capabilities mark a decisive response.

How does AMCA compare to F-35, Su-57 and J-20?

India’s AMCA will join an elite list of fifth-generation fighter jets already in operation. These include:

- F-35 Lightning II (USA): Developed by Lockheed Martin, this jet is considered the most widely deployed fifth-gen fighter. It features advanced stealth, an internal fuel capacity of 18,498 pounds, and a payload of 18,000 pounds. It is powered by a 43,000 lb thrust engine and features the Multifunction Advanced Data Link (MADL) for secure battlefield communication.
- Sukhoi Su-57 (Russia): Russia’s stealth jet can reach Mach 1.8 and carry up to 7.4 tonnes of munitions. With a combat range of 1,864 miles and operating altitude of over 54,000 feet, the Su-57 is pitched as a multi-role platform with Russia looking to export it to India and the UAE.
- Chengdu J-20 (China): China's stealth fighter is already in service and is often claimed to rival US platforms. It is equipped with long-range missiles and radar-evading technologies.

Compared to these, AMCA’s design focuses on stealth, AI integration, and seamless UAV coordination. Though India is late to the fifth-generation game, its aircraft is expected to match, if not exceed, certain capabilities of its rivals through indigenous innovation and selective foreign collaboration.

A decade ahead: What's next for AMCA?

The Defence Research and Development Organisation (DRDO) has committed to delivering the first operational AMCA by 2035.

“This journey began only in 2024, when the Cabinet Committee on Security sanctioned the project. It will take ten years, and we have committed to delivering the platform by 2035,” DRDO Chairman Samir V Kamat had said earlier.

To develop the jet’s complex engine, India is expected to partner with a foreign original equipment manufacturer (OEM), ensuring the platform meets both domestic and export potential.

Meanwhile, the IAF is also moving ahead with its Multi-Role Fighter Aircraft (MRFA) procurement programme. A Request for Information (RFI) was issued in April 2019 for 114 fighter aircraft, at an estimated cost of USD 18 billion—making it one of the largest military acquisitions in recent history.

Why AMCA matters for India’s Defence future

For India, the AMCA is not just about matching China or Pakistan. It’s about autonomy.

India’s successful development of the Tejas LCA has already laid the groundwork. Now, with the AMCA, India joins the elite club of nations with fifth-generation fighter capabilities—alongside the US, Russia, and China.

Alongside other indigenous programmes such as VSHORAD, MPATGM and LCA Mk II, the AMCA signals a transformative decade ahead for India's defence industry. With the global strategic landscape rapidly shifting, the ability to control the skies is no longer optional—it’s existential.

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Asia boosts weapons buys, military research as security outlook darkens

Source: The Economic Times, Dt. 28 May 2025,
URL: https://economictimes.indiatimes.com/news/defence/asia-boosts-weapons-buys-military-research-as-security-outlook-darkens/articleshow/121453967.cms

Spending on weapons and research is spiking among some Asian countries as they respond to a darkening security outlook by broadening their outside industrial partnerships while trying to boost their own defence industries, a new study has found.

The annual Asia-Pacific Regional Security Assessment released on Wednesday by the London-based International Institute for Strategic Studies (IISS) said outside industrial help remains vital even as regional nations ultimately aim for self-reliance.

"Recent conflicts in Ukraine and the Middle East, coupled with worsening U.S.-China strategic competition and deterioration of the Asia-Pacific security landscape, may lead to a rising tide of defence-industrial partnerships," it read.

"Competitive security dynamics over simmering flashpoints ... feed into the need to develop military capabilities to address them."

Spending on defence procurement and research and development rose $2.7 billion between 2022 and 2024, it showed, to reach $10.5 billion among Southeast Asia's key nations of Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

The spike comes even as the nations spent an average of 1.5% of GDP on defence in 2024, a figure that has kept relatively constant over the last decade.

The study, released ahead of this weekend's annual Shangri-La Dialogue defence meeting in Singapore, said Asia-Pacific nations still rely on imports for most key weapons and equipment.

Such items range from submarines and combat aircraft to drones, missiles and advanced electronics for surveillance and intelligence gathering.

The informal Singapore gathering of global defence and military officials is expected to be dominated by uncertainties stemming from the protracted Ukraine conflict, Trump administration security policies and regional tension over Taiwan and the disputed busy waterway of the South China Sea.

Saudi Arabia and the United Arab Emirates are increasingly active and making inroads, the study said, though European companies have a prominent and expanding regional presence, via technology transfer, joint ventures and licenced assembly deals.

The UAE now operates a diversified network of collaborators, such as China's NORINCO weapons giant and rival India's Hindustan Aeronautics.

Joint development operations are not always easy, the study said, offering lessons from India's two-decade collaboration with Russia to produce the BrahMos supersonic anti-ship missile.

While the feared weapon is fielded by India, exports have been hampered by lack of a clear strategy, with deliveries to its first third-party customer, the Philippines, starting only in 2024, the study added.

Closer Russia-China ties could further complicate the weapon's development, particularly if Moscow chooses to prioritise ties with Beijing to develop a hypersonic version of the missile.

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Lockheed to Boeing: How India’s Operation Sindoor may loosen the grip of US defence giants

Source: The Economic Times, Dt. 29 May 2025,
URL: https://economictimes.indiatimes.com/news/defence/lockheed-to-boeing-how-indias-operation-sindoor-may-loosen-the-grip-of-us-defence-giants/articleshow/121459511.cms

India’s growing military success, especially evident in recent operations like Operation Sindoor, should serve as a sharp warning to the United States. While India innovates quickly and builds cost-effective, scalable warfighting models, the US remains trapped in slow, outdated Cold War frameworks.

The contrast is stark. India's Pinaka rocket costs less than $56,000, compared to a US GMLRS missile priced at $148,000. India rapidly developed the Akashteer missile defence system at a fraction of the cost of US-made Patriot or NASAMS platforms. Even Ukraine's use of Iran's $20,000 Shahed-136 drone outpaces the US MQ-9 Reaper, which costs over $30 million.

These examples highlight a fundamental problem in the American defence ecosystem. As John Spencer and Vincent Viola argue in the Small Wars Journal, "The United States is in urgent need of fundamental defense reform. Not just adjustments. Not just marginal gains. A full-scale overhaul."

What ails US defence industry

The US defence industry is dominated by a handful of giant contractors. Lockheed Martin, Boeing, Northrop Grumman, Raytheon Technologies, and General Dynamics rank among the top global arms producers. According to the Stockholm International Peace Research Institute (SIPRI), nine of the world's top 20 defence firms by revenue are American, and 41 of the top 100 are US-based, as reported by Eurasian Times.

What once was a sign of strength now feels more like a cartel. Spencer and Viola warn: "America's defense manufacturing process is dominated by a small cartel of primes that, while capable, have little incentive to drive innovation, reduce cost, or adapt quickly. There is no real market competition. This is not competition—it's cartelized domination."

Despite soaring defence budgets—expected to near $1 trillion by 2025—the number of prime contractors has shrunk drastically. A Department of Defense study noted that prime defence contractors fell from 51 to fewer than 10. President Donald Trump pointed to the problem bluntly: "Defense companies have all merged in, so it's hard to negotiate… It's already not competitive."

US acquisition system: Too slow for modern war

The US acquisition process is notoriously slow. It often takes years, sometimes decades, to field new equipment. The war in Ukraine exposed this painfully. While American weapons like Javelins and HIMARS made a difference, production struggled to keep up with demand. Artillery shell shortages forced the Pentagon to rely on ageing factories and slow supply lines.

Many battlefield innovations since 9/11—such as counter-IED kits and drones—were introduced through emergency channels, bypassing formal procurement. But these stopgap measures do not fix systemic delays.

The cost trap undermining US power

Cost-plus contracting shields defence firms from the consequences of budget overruns. This system discourages innovation and encourages over-engineered, expensive platforms.

The F-35 fighter jet illustrates this problem. With a lifetime cost estimated at $1.7 trillion, it has been criticised for delays and underperformance. Air Force Secretary Frank Kendall admitted, "We're not going to repeat what I think frankly was a serious mistake that was made in the F-35 program." In May 2023, Kendall warned that without reform, "What that basically does is create a perpetual monopoly."

Learning from India and others

While the US struggles to keep up, countries like India show how to innovate efficiently. India's defence industry emphasises cost-effective, rapid development. The Akashteer system and Pinaka rockets are examples of scalable, rugged platforms built with speed and affordability in mind.

Spencer and Viola highlight the absence of "an agile, scalable, layered, fast-response production network" in the US. "There is no real surge capacity," they write. This gap leaves America vulnerable in fast-paced modern conflicts.

A closed circle resisting change

Defence firms increasingly operate in isolation from broader markets. A 2024 study by the Center for Strategic and International Studies (CSIS) found that 61% of major defence contracts go to companies with no commercial business. This figure rises to 86% when firms like Boeing, whose commercial work is limited, are included.

This shift began after Cold War budget cuts in the 1990s, driving consolidation and pushing commercial players out. The result is a defence industry insulated from market pressures and reluctant to innovate.

Spencer and Viola warn bluntly: "The time for US defense reform is not coming. It's already late."

What the US must do to stay relevant

To avoid falling behind, the US must rebuild its defence acquisition process around speed, iteration, and frontline feedback—not decade-long static programmes. It needs to break up industrial monopolies or foster genuine competition and alternative suppliers.

Equally important is treating allies like India and Israel as co-equal production partners, not merely buyers or technology recipients.

A White House executive order last month recognised this. "Unfortunately, after years of misplaced priorities and poor management, our defense acquisition system does not provide the speed and flexibility our Armed Forces need to have decisive advantages in the future," it said. The order directed the Secretary of Defense to deliver a reform plan within 60 days.

But reform cannot stop at factories and procurement cycles. The US should establish permanent, deployable learning teams embedded in conflict zones and logistics hubs. These teams would gather battlefield lessons directly and feed them back into system design—making the US defence ecosystem "the most efficient, adaptable, and dominant in the world."

Facing the challenge from China

China poses the biggest challenge. It has the largest active military force globally, with approximately two million soldiers and a population more than four times that of the US.

Winning future wars will not be about who has the biggest army. It will depend on who can innovate faster, produce economically, and fight at speed.

"Wars will be won by those who can think faster, build faster, and fight smarter—and above all, by those who master the physics of lethality required on the modern battlefield," Spencer and Viola conclude.

For the US to lead again, it must not only revive its defence industrial power but also master lethality at scale, speed, and sustainability. The clock is ticking.

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How India "blinded, numbed and paralysed" Pakistan Air Force, set it back "atleast five years"

Source: ANI News, Dt. 28 May 2025,
URL: https://www.aninews.in/news/national/general-news/how-india-blinded-numbed-and-paralysed-pakistan-air-force-set-it-back-atleast-five-years20250528131027/

In Operation Sindoor against Pakistan, the Indian Air Force used air launched cruise missiles, long range stand off weapons and loitering munitions of different types which "blinded, numbed and created a decision paralysis" in the Pakistan Air Force in four days forcing it to seek ceasefire with India said sources who were part of the decision making process during the operation. In the four-day conflict, the Indian Air Force carried out operations in a clinical manner, which led to major destruction of the Pakistani Air Force on both ground and in the air, sources in the defence and security establishment told ANI.

The major action took place between the two sides on intervening night of May 9th-10th and continued till the afternoon of May 10th wherein air bases along the length and breadth of Pakistan were targeted by India conveying a strong message that "we (India) can go deep, we can go wide and you (Pakistan) can do nothing about it."

After India had attacked terror bases in Pakistan on the night of May 6th-7th, including the terror hubs in Bahawalpur and Muridke in Pakistani Punjab, the Pakistani side retaliated by firing missiles at military targets in India, which failed to leave a mark due to a strong multi-tier Air Defence system. The Indian Air Force took the decision that in retaliation, it would first deal with the air defence network of the Pakistan Army which is deployed along the entire border with India including old American origin and Chinese radars and surface to air missiles of Chinese origin including the HQ-9s with maximum range of around 250 Km plus.

Sources told ANI that the Indian Air Force used multiple methods to deal with the air defence radars by targeting the radar stations situated in the Pakistani Punjab area, and 4-5 of them were taken out by the Harop and Harpy loitering munitions. The targets destroyed by the Indian weapons also include a launcher site of the Chinese air defence missile system.

The targeting of the air defence network, including Lahore, created major gaps in the Pakistan Air Force's capability to monitor Indian activities from May 7th to 8th onwards. However, "blinded" by the destruction of its radar network in major areas, the Pakistani Air Force was still flying very deep within their territory to avoid the wrath of Sudarshan S-400, Saksham, Shaurya, Samar and Akash air defence missiles which had been deployed very strategically on the front, the sources said.

The Pakistanis on May 8 evening responded with Turkish and Chinese drones to saturate Indian air defence networks but could not do so as the entire Indian air defence network from Siachen to Naliya was highly active including the small calibre L-70 and Zu-23 air defence guns which were doing major damage to Pakistani drone attacks along with the big air defence weapons of the Air Force and Army. The Indian Army was also causing major damage to the Pakistan Army and keeping it fully engaged in the areas opposite Jammu and Kashmir, using its artillery guns and rocket launchers overwhelmingly.

The Indian Air Force on May 9th went in to aggressive mode by destroying the command and control (C2) centres of the Pakistan Air Force at the Chaklala, Sargodha and Murid air bases which were giving a battlefield picture to the Pakistan air defence networks which had been majorly affected by Indian attacks the day before that. The C2 centres at the three Pakistani bases were taken out by the three major weapons, including the world's fastest air-launched supersonic cruise missiles, Rampage and the Scalp. The Mirages, Rafales, Su-30s and the MiG-29s have been equipped with these missiles in the last 5-10 years.

The extensive damage caused to the three command and control centres "numbed" the Pakistani Air Force as they were not able to communicate or see the complete battlefield picture as there was no link between the Advanced Early Warning and Control system aircraft of PAF and their ground stations and the fear of Sudarshan from the May 6-7 night had forced them to go deep within a narrow Pakistan air space and hiding behind civilian aircraft was being adopted as deliberate tactics by them.

On the same evening on May 9-10, around 1 AM, the Pakistan Air Force mustered courage and started launching attacks using surface-to-surface tactical missiles and fighter aircraft. The major bases which they trying to target were the Adampur base and two high-value assets in Punjab and Gujarat, respectively, the sources said.

The Indian air defence missiles, especially the indigenous ones, played a key role in thwarting the attacks by intercepting the Chinese weapons. The sources said the low quality of weapons launched by Pakistan was so inept that some fell almost completely intact, only to be recovered later by industrious locals on the ground and handed over to Indian defence forces. The Indian Air Force started its action to create a "decision paralysis" by attacking Pakistani air bases in Sargodha, Rafiqui, Rahimyarkhan, Jacobabad, Bholari and a Cantonment in Karachi on the morning of May 10.

The Indian attack was launched from deep inside Indian territory using long-range, precision weapons, with no surface-to-surface missiles involved. The missiles hit targets in Pakistan and caused major destruction with pinpoint accuracy and intelligence. The Pakistani air base in Bholari was targeted at a hangar which housed a Saab 200 AEW&C airborne radar and surveillance aircraft along with at least 3-4 western-origin fighter aircraft of the Pakistan Air Force.

The destruction caused was massive, and the Pakistani Air Force has not yet started taking out debris inside the hangar. One of the air bases in the Punjab sector saw three missiles being fired at different parts of the runways, and the aircraft were not able to fly for at least eight hours. The Indian attack was being monitored by the satellites as well as Indian AWACS aircraft.

At the beginning of the Operation Sindoor, the top leadership had conveyed a message to the forces that the strikes at terrorist hubs and universities must be big enough to send across a strong message to terrorists' backers in the Pakistani military. The forces had got the message that they won't have to be content with dropping a relatively smaller payload. The destruction caused by the missiles, which has been shown mainly by social media and Pakistani networks at the terror hubs, also shows how the missiles breach the targets through one hole on rooftops and create massive destruction in the buildings targeted by them.

The same small hole on the rooftop could also be seen in the Jaish building targeted by the Indian Air Force in 2019 Balakot attacks, and one can make out the destruction that it must have caused there, the sources said. The in-built systems of tracking and observing targets by the special munitions used to destroy radar stations and air defence networks have also given video evidence to the Indian Air Force, and they have been showcased to the top political and military leadership.

The attacks against the Pakistani Air Force have taken them at least five years back and caused great damage to them and their Chinese and Turkish inventory of weapons, which could not stand even against vintage Pechora and OSA-AK Russian origin air defence systems. The sources said that the real capabilities of the Sudarshan S-400 air defence systems could be seen during the night of May 9-10, as it was firing and thwarting all types of missiles and aircraft attacks on Indian military assets.

The Sudarshan could have created a record of sorts by hitting targets at very long ranges. Technical analysis of the targets engaged by the Indian missiles is on at the moment and it is going to take some more days for the Indian Air Force to be able to put out a full picture as it wants to be "500 per cent sure" of official claims to be made by it, added the source to ANI.

Sources said that the unexpected attitude of the Indian Air Force in the skies and the Indian Army on the ground made the Pakistanis and their western colleagues seek a ceasefire early in the morning of May 10, and they were in touch with their Indian national security counterparts. Sources said that attacks were carried out by a "large package of aircraft from North to South" using long-range vectors, which produced desired results in sending across a strong Indian message.

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Russia envoy: S-400, BrahMos were top guns during Operation Sindoor

Source: The Times of India, Dt. 29 May 2025,
URL: https://timesofindia.indiatimes.com/india/russia-envoy-s-400-brahmos-were-top-guns-during-operation-sindoor/articleshow/121474359.cms

The S-400 system and the jointly-manufactured BrahMos missiles were used by India in the conflict with Pakistan and their performance was exemplary, said Russian ambassador Denis Alipov. The ambassador also said that discussions between India and Russia on the procurement of more S-400 air defence system units are "ongoing" as both countries continue to solidify the Special and Privileged Strategic Partnership.

"From what we know, India has clearly stated the goals and undertook actions after having identified the targets and the terrorists it promised to do. As far as we know, during the operation, the S-400 system was used and the BrahMos missiles were engaged. Judging by the reports available, the performance of these weapons was exemplary," Alipov told IANS news agency.

The S-400 was credited with the shooting down of Pakistan drones and missiles during the conflict that followed India's Operation Sindoor that targeted terrorist camps in Pakistan. While India maintained that it had only hit terrorist camps and its actions on May 7 were non-escalatory, Pakistan chose to launch a military operation against India three days later that was rebuffed by Indian armed forces.

India has longstanding and wide-ranging cooperation with Russia in the field of defence. India and Russia have been involved in several bilateral projects, including the supply of S-400, licenced production of T-90 tanks and Su-30 MKI, supply of MiG-29 and Kamov helicopters, INS Vikramaditya (formerly Admiral Gorshkov), production of Ak-203 rifles in India and BrahMos missiles.

Sources indicate that considering the strategic planning and military preparedness, New Delhi may procure more S-400 air defence systems soon. "Our discussion, on this particular topic, as on many others, is ongoing. It is a continuous one, but it would be incorrect for me and also premature to speak about the results," confirmed Alipov.

He mentioned that Moscow is also "very satisfied" with the 'Made in India' BrahMos missiles, a product of joint collaboration with Russia. "We have a joint venture, designing and producing these weapons. We are very satisfied with the results of this collaboration. It has very promising prospects. And, we wish to expand on that track, as on many others that we discussed are in the pipeline or are being implemented already," Alipov remarked.

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Russia-built stealth frigate ‘Tamal’ to be commissioned into Navy in June-end

Source: Hindustan Times, Dt. 28 May 2025,
URL: https://www.hindustantimes.com/india-news/russiabuilt-stealth-frigate-tamal-to-be-commissioned-into-navy-in-juneend-101748427522390.html

India’s latest stealth missile frigate, Tamal, is expected to be commissioned into the Indian Navy at the Yantar Shipyard in Kaliningrad, Russia, by the end of June, officials familiar with the development said on Wednesday.

The frigate, which is expected to reach India’s west coast in September, will boost the country’s maritime power in the Indian Ocean region, an official, requesting anonymity said, adding that it will be part of the navy’s Mumbai-based Western Fleet.

Tamal is part of a $2.5-billion deal with Russia for four more Krivak/Talwar class stealth frigates for the Indian Navy, two of which were to be constructed at the Yantar shipyard and the remaining two at the Goa Shipyard Limited (GSL) with technology transfer from Russia.

The first frigate under the deal, INS Tushil, was commissioned into the navy last December at the Yantar Shipyard and reached the country in February. It was commissioned in the presence of defence minister Rajnath Singh, who described the warship as a "proud testament" to India's growing maritime might and a "significant milestone" in the long-standing friendship between the two countries.

Tushil and Tamal are upgraded Krivak III class frigates of Project 1135.6, and six such vessels are already in service --- three Talwar class ships, built at Baltic shipyard in St Petersburg, and three follow-on Teg class ships, built at the Yantar shipyard.

These frigates have an indigenous content of around 26%, double that of the previous Teg-class frigates. This includes contributions from 33 firms including Bharat Electronics Limited, BrahMos Aerospace (an India-Russia joint venture), and Nova Integrated Systems (a fully owned subsidiary of Tata Advanced Systems Limited).

The new frigates are armed with a range of advanced weapons, including the BrahMos supersonic cruise missiles, Shtil surface-to-air missiles with enhanced range, upgraded medium-range anti-air and surface guns, optically controlled close-range rapid fire gun system, torpedoes and rockets.

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Redefining warfare through information dominance

Source: The Pioneer, Dt. 29 May 2025,
URL: https://www.dailypioneer.com/2025/columnists/redefining-warfare-through-information-dominance.html

Operation Sindoor demonstrated the effectiveness of credible harnessing of information for precision and decision thereby achieving impact and retaining initiative all through the operations. It was a classic manifestation of information as the primary resource to gain asymmetry over an adversary in combat even as there was relative symmetry in firepower and mobility resources on the two sides. The last few centuries have seen an evolution from attrition to manoeuvre to information warfare, with firepower, mobility and information technologies supporting the inflexion, respectively. As the range, speed and lethality of firepower and mobility resources attained their maxima, the focus shifted to harnessing information to achieve asymmetry at both tactical and strategic levels.

In the tactical battle area, all three resources operated mainly in the physical dimension with the role of information being limited to intelligence or situation reports travelling along the command chain across physical, cognitive, and decision (or metaphysical) dimensions. Information age, with its concomitant ISR (intelligence, surveillance, reconnaissance) and CIS (communication and information systems) technologies, and ever-evolving practices, allowed targeting of cognitive or decision dimensions directly and independently through any or all three views of information, namely, matter, medium and message. Information Dimension is the technological realm, comprising networks, where credible information is drawn from. It is the ecosystem where information resides, travels and evolves. This dimension is as keenly contested in modern warfare as the physical dimension. Info space is largely global commons and information is a neutral

resource available for exploitation by any party to suit their ends. Moreover, information is non-expendable and reusable, with or without augmentation and synthesis. Its direct connection to cognitive and decision dimensions makes it as critical, if not more, as the physical dimension. In this context, it is important to examine our performance in the information dimension of Op Sindoor.

Strike on Terror

The term “Sindoor” was a masterly coinage as the operation id. It carried, not only the cultural significance of vermilion but also brought home the unprovoked, unapologetic and dastardly terrorist act by persons indoctrinated in religious fundamentalism and armed in Pakistan. It was strategic communication aimed at driving home the “jus ad bellum” to the global, interconnected infosphere and convincing them of the rightfulness of Indian strikes on May 7th. After 2016 and 2019, the friendly population expected a higher degree of punishment. India had to be prepared for not only the retaliation but also the international pushback. Punishment was served in 19 days, which is commendable by any standards.

Pakistan was surprised at the precision and boldness of the 7th May strikes. Indian declaration of the 7th May strikes as “measured, non-escalatory, proportionate and responsible” and “focused on terrorist infrastructure” took the wind out of the sails of Pakistani retaliation. It was “jus in bello” well served and presented. India had established ascendancy in physical, cognitive and decision dimensions.

Pakistan’s Muddled Response

Pakistan repeatedly proves the famous quote of the French Prime Minister Georges Clemenceau that “war is too important a matter to be left to Generals.” The absence of political leadership and lack of civilian control of the military has always done them in, be it 1965, 1971 or 1999.

The trend was repeated this time too. They retaliated, without purpose, only to sue for peace two days later. The retaliation has added to the reputation of neither the Pak Army’s professionalism nor Chinese and Turkish equipment. The promotion of the Army Chief as Field Marshal is a pathetic display of intellectual bankruptcy on the part of the polity as well as the military. If there is a message to the friendly, adversary or neutral population, it is certainly not discernible. It only demonstrates the Army Chief’s disconnect with the ongoing operation and its outcome. There have been random briefings on Indian losses too, in order to shore up their forces’ morale. Whatever the facts on losses, the narrative of “a defeated Army with a promoted Chief” has very much taken root.

New Indian Normal

“Zero tolerance to terrorism” has been a long-propounded national philosophy. Op Sindoor is only the first manifestation of its credible operationalisation to a conclusive outcome, where Pakistan sought an end to conflict after initiating it.

Much has been written about Pakistan’s nuclear shield, or the lack of it, although most of the world would prefer the latter. Weapons of mass destruction (WMD) with a revisionist power as Pakistan,

with a proven complicity in state support to fundamentalist forces employing terrorist methodologies, are dangerous for the world.

India is most exposed to this danger, both by Geography and History. Pakistan has repeatedly tried to play the game of irrational response with its nuclear assets to considerable effect in the past. But a confident nation has decided to call out this bluff, aptly and successfully through Op Sindoor.

Hits and Misses

While combat space saw only two participants — Pakistan and India — info space saw many, with everyone having their axe to grind. The first briefing by the Foreign Secretary, ably assisted by two Woman Officers, was a masterly instance of strategic communication. India had declared an end to further strikes, which was unprecedented in the history of such conflicts undertaken by the USA or Israel against terrorism in the past. Pakistan, on the other hand, quickly moved to operational and tactical briefings.

Surprisingly, it had enough support from some international media. The debates on Indian combat losses, comparison of Chinese and French aircraft, the effectiveness of Chinese and Indian missiles and air defence (AD) systems, etc. diluted the strategic message. Reputed agencies like BBC, Reuters, and respected commentators like Christine Fair waded into needless debates on the truth about the combat superiority of platforms.

More intriguing was the continuation of such debates even after graphic details of strikes on 11 airbases were publicly shared by the DG Air Ops. Admittedly, operational briefings by the DGMOs came a little late in the day, allowing Pakistan to set the narrative for combat space, and thereby helping willing collaborators run the same narrative. The absence of authentic information on combat space from the Indian side allowed the national media to run riot, affecting their credibility. Although it is legitimate for national media to be nationalist in times of conflict, international media seems to have reacted virulently. POTUS remarks did not help India either. In my reckoning, it would have been done to save face for Pakistan, camouflaging their capitulation with Trump’s post on X.

The Prescription

Pakistan, as a revisionist power, ruled by a radicalised, self-indulgent military, has been a perennial challenge to the progress of India. With time, however, our respective country’s basic philosophies have resulted in India pulling far ahead as an economic and military power. China’s strategy of using Pakistan as a proxy to keep India hyphenated with Pakistan has suffered such diminishing returns as to force China into open confrontation since 2020. Chinese participation in Op Sindoor on Pakistan’s behalf in the information dimension was reasonably evident besides the direct support in terms of aerospace technologies. India must, therefore, prepare to deal with the strategic narrative far more effectively in future, even as it keeps improving its precision targeting and protection against the same.

Strategic communications need consistency and coherence. Tactical and strategic briefings would need far more coherence in future eventualities. The briefings could well be coordinated at NSCS, where representatives of MEA, MHA and MoD are under one roof. This would also prod NSCS to take up strategic communications as one of its charters because it is the most suitable body for this

function. It is already coordinating ISR and CIS for security agencies. Adding strategic communications will address the complete information dimension.

Conclusion

Information dominance would be a key battle — winning factor in future operations. Creating impact through precision, along with gaining and retaining the initiative through correct decisions, are key to information dominance in combat space. Alongside, the information space must hold a favourable narrative too. This requires capture, storage, flow and analysis of data, continuously scaled up in scope, through enhancement in spread and speed of both capture and dissemination.

Every component of the information dimension, whether philosophy, doctrine, technology or practices, must be Indian to keep it sustainable, innovative and evolving. Operation Sindoor has not only brought home the importance of the information dimension but also the need for its enhancements and refinement to face bigger challenges in future.

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Indian Navy To Host IFR, MILAN At Vizag In Feb 2026

Source: Deccan Chronicles, Dt. 29 May 2025,
URL: https://www.deccanchronicle.com/southern-states/andhra-pradesh/indian-navy-to-host-ifr-milan-at-vizag-in-feb-2026-1881959

Indian Navy will host the International Fleet Review (IFR) in Visakhapatnam during the third week of February 2026. The prestigious maritime exercise aims to strengthen ties between navies of different nations, while showcasing their naval prowess on an international platform.

In this regard, Vice Admiral Sameer Saxena, Chief of Staff, Eastern Naval Command (ENC) based in Visakhapatnam, held a crucial meeting with Andhra Pradesh chief secretary K. Vijayanand. Their discussions focused on the smooth conduct of the IFR and the concurrent MILAN-2026 naval exercise. Visakhapatnam district collector Harendhira Prasad, officials from Visakhapatnam Metropolitan Region Development Authority (VMRDA) and Visakhapatnam Port Authority (VPA) attended the meeting virtually.

Chief secretary Vijayanand assured full support of the AP government, underlining the significance of the event for both the nation and the state. “IFR will not only boost India’s international standing, but also elevate Andhra Pradesh’s profile, in particular Visakhapatnam, thereby enhancing tourism,” he said.

Vijayanand highlighted the presence of the President, Prime Minister and other dignitaries during the event. He stressed the need for comprehensive beautification drives, road improvements, enhanced lighting, and other infrastructure upgrades across Visakhapatnam city. The chief secretary said, “Visakhapatnam must be presented in the best possible light. We must expedite all ongoing civil works and ensure timely completion ahead of the event.”

Vice Admiral Sameer Saxena shared key details, stating that the IFR and MILAN-2026 will be held from February 14 to February 24, 2026. He revealed that invitations had been extended to 145 countries, with expectations that their naval chiefs or representatives will attend the twin events.

Those present at the meeting included principal secretary (General Administration Department) Mukesh Kumar Meena, principal secretary (Municipal Administration) S. Suresh Kumar, IFR Commodore Aby Mathew, Andhra Pradesh Naval Officer-in-Charge Commodore Rajnish Sharma, and Civil Military Liaison Officer Y.K. Krishna Rao.

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एयरक्राफ्ट कैरियर INS विक्रांत में जाएंगे रक्षा मंत्री, नेवी अफसरों से करेंगे बात

Source: NavBharat Times, Dt. 28 May 2025,
URL: https://navbharattimes.indiatimes.com/india/defense-minister-rajnath-singh-to-visit-ins-vikrant-interact-with-naval-officers/articleshow/121469320.cms

रक्षा मंत्री राजनाथ सिंह कल यानी गुरुवार को गोवा जाएंगे। समंदर के रास्ते दुनिया का चक्कर लगाकर नेवी की दो महिला अधिकारी गुरुवार को INSV तारिणी से गोवा पहुंच रही हैं। रक्षा मंत्री इस मौके पर वहां मौजूद रहेंगे।

इसके बाद 30 मई (शुक्रवार) को रक्षा मंत्री स्वदेशी एयरक्राफ्ट कैरियर INS विक्रांत में जाएंगे, जहां नेवी के अधिकारियों और कर्मियों से बात करेंगे। ऑपरेशन सिंदूर के दौरान INS विक्रांत पूरे कैरियर बेटल ग्रुप के तौर पर नॉर्दर्न अरब सागर में तैनात था।

पाकिस्तान को दिया था साफ संदेश

ऑपरेशन सिंदूर के दौरान इंडियन नेवी की फॉरवर्ड तैनाती थी। इंडियन नेवी की तैनाती ने पाकिस्तान को साफ संदेश दे दिया था कि अगर पाकिस्तान ज्यादा तनाव बढ़ाता है यानी स्थिति ज्यादा एस्केलेट होती है तो नेवी के निशाने पर सिर्फ उसके वॉरशिप ही नहीं बल्कि पाकिस्तान के जमीनी ठिकाने भी हैं। इंडियन नेवी के कैरियर बेटल ग्रुप में एयरक्राफ्ट कैरियर विक्रांत के साथ ही कई वॉरशिप तैनात थे।

एक कैरियर पर आ जाते हैं 30 एयरक्राफ्ट

बता दें कि एयरक्राफ्ट कैरियर में फाइटर जेट और हेलिकॉप्टर दोनों ही होते हैं। एयरक्राफ्ट कैरियर में 30 से ज्यादा एयरक्राफ्ट आ सकते हैं। कैरियर बेटल ग्रुप में एयरक्राफ्ट कैरियर के चारों तरफ सबमरीन भी होती हैं, साथ ही 8 से 10 वॉरशिप भी इसका हिस्सा होते हैं।

कितनी है आईएनएस विक्रांत की कीमत?

बता दें कि आईएनएस विक्रांत भारत का पहला स्वदेशी विमानवाहक पोत है। इसकी अनुमानित लागत लगभग 20,000 करोड़ रुपये है। आईएनएस विक्रांत को भारतीय नौसेना के वॉरशिप डिजाइन ब्यूरो (WDB) ने डिजाइन किया है। इसका निर्माण कोचीन शिपयार्ड लिमिटेड (CSL), कोच्चि में किया गया है। इसके निर्माण में लगभग 30,000 टन विशेष स्टील (Special Grade Steel) का उपयोग हुआ है। इसे स्टील अथॉरिटी ऑफ इंडिया लिमिटेड (SAIL) ने सप्लाई किया है। यह स्वदेशी रूप से विकसित डीएमआर ग्रेड स्पेशियलिटी स्टील है। इसके अलग-अलग हिस्सों में 75% तक स्वदेशी सामग्री का उपयोग किया गया है।

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क्या है चीन का स्टेल्थ फाइटर जेट J-35A? जिसकी मदद से अपनी ताकत बढ़ाने की जुगाड़ में है पाकिस्तान

Source: NDTV, Dt. 28 May 2025,
URL: https://ndtv.in/india/china-will-send-stealth-jet-aircraft-j-35a-to-pakistan-to-counter-indian-air-force-india-making-amca-8525860

भारत ने ऑपरेशन सिंदूर से पाकिस्तान को ऐसा सबक सिखाया है, जिसे वह हमेशा याद रखेगा. अब बौखलाया पाकिस्तान भारत गीदड़भभकियां दे रहा है. कहा जा रहा है कि पाकिस्तान (Pakistan Air Defence) अपने हथियारों के जखीरे को और बढ़ाने के लिए अपने खास दोस्त चीन की तरफ देख रहा है.

चीन से वह उम्दा तकनीक का फाइटर जेट खरीदना चाहता है. वहीं, चीन भी अपने परम मित्र पाकिस्तान को भारत की हवाई ताकत का मुकाबला करने के लिए J–35A स्टेल्थ फाइटर जेट्स (China Fighter Jet) देने की प्लानिंग पर काम करने में जुटा है. लेकिन शायद चीन–पाक नहीं जानते कि भारत के आगे उनका टिकना नामुमकिन है. क्योंकि उनकी प्लानिंग के बीच भारत ने खुद के लिए स्टेल्थ फाइटर जेट बनाने के प्लान को मंजूरी दे दी है.

रक्षा रिपोर्ट्स और पाकिस्तानी मीडिया में चल रही खबरों के मुताबिक, चीन पाकिस्तान को पांचवीं पीढ़ी के स्टेल्थ लड़ाकू विमानों J–35A की खेप 2026 की शुरुआत में डिलीवर कर सकता है. पाकिस्तान इन लड़ाकू विमानों के जरिए भारतीय वायु सेना का मुकाबला करने का सपना देख रहा है. चीन के फाइटर जेट से पाकिस्तान की ताकत कितनी बढ़ जाएगी, जानें,

चीन के J-35A से कितना ताकतवर हो जाएगा पाक?

पाकिस्तान के पास पहले से ही चीन के सबसे एडवांस्ड जेट्स में से एक – जे–10 है. रिपोर्ट्स के मुताबिक, अब चीन अपने दोस्त (पाक) को अपने सबसे एडवांस्ड स्टेल्थ फाइटर जेट शेनयांग J–35 देना चाहता है, ताकि उसकी वायुसेना की ताकत में इजाफा हो सके. J–35A एक सिंगल–सीटर, ट्विन–इंजन, सभी मौसमों में काम करने वाला, स्टेल्थ, मल्टी–रोल फाइटर जेट है. चीन से इसे अमेरिका के स्टील्थ फाइटर जेट F–35 लाइटनिंग को काउंडर करने के लिए डिजाइन किया है. पाकिस्तान चीन के इस फाइटर जेट को अपने बेड़े में शामिल कर भारतीय वायुसेना के Su–30MKI, मिराज–2000 और राफेल जैसे फाइटर जेट्स को चुनौती देने की कोशिश में है.

चीन के J-35A फाइटर जेट की खासियत

- समुद्री लड़ाई में सक्षम
- रडार को चकमा देने की क्षमता
- आधुनिक एवियोनिक्स सिस्टम
- पेलोड के लिए इंटरनल हथियार बे
- लंबी दूरी की एयर–टू–एयर मिसाइल क्षमता
- मॉर्डन इलेक्ट्रॉनिक वारफेयर सिस्टम

कितनी है भारतीय वायुसेना की ताकत ?

भारत ने ऑपरेशन सिंदूर के जरिए पाकिस्तान में 100 किमी अंदर तक जाकर उसके आतंकी ठिकानों को तबाह कर दुनिया को ये बता दिया है कि भारत के एयर डिफेंस सिस्टम किसी से कम नहीं है. वह अमेरिका और चीन के

फाइटर जेट्स को मात देने में भी सक्षम हैं. क्योंकि भारत ने पाकिस्तान में मौजूद चीन के एयर डिफेंस सिस्टम को बाइपास कर इस ऑपरेशन को अंजाम दिया था. भारत का एयर डिफेंस सिस्टम रडार, कंट्रोल रूम, तोपखाने और विमान और जमीन–आधारित मिसाइलों के नेटवर्क का इस्तेमाल कर खतरे का पता लगाकर उनको ट्रैक कर बेअसर करती हैं. भारतीय वायुसेना के बेड़े में राफेल, Pechora, OSA–AK और LLAD Guns (Low–level air defense guns) और सतह से आसमान में वार करने वाली आकाश मिसाइलें हैं.

भारत की AMCA और बाकी तैयारियां क्या हैं?

चीन–पाक को मात देने के लिए भारत ने एडवांस्ड फाइटर जेट पर काम शुरू कर दिया है. देश के सबसे एडवांस्ड फाइटर जेट और देश के पहले स्टेल्थ जेट को बनाने वाले प्रोजेक्ट को रक्षा मंत्रालय की मंजूरी मिल चुकी है. भारत का यह लड़ाकू विमान दो इंजन वाला, पांचवीं पीढ़ी का मिलिट्री जेट होगा. इस पूरे प्रोजेक्ट को एयरोनॉटिकल डेवलपमेंट एजेंसी (ADA) की देखरेख में पूरा किया जाएगा. इस फाइटर जेट को बनने के बाद भारत रडार से अदृश्य होने वाले स्टेल्थ लड़ाकू विमान बनाने वाले देशों की लिस्ट में शामिल हो जाएगा.

AMCA की खासियत जानें

- 5वीं पीढ़ी का फाइटर जेट
- इसकी स्पीड मैक 1.8 से ज्यादा होगी
- एक बार ईंधन भरने पर 1000 किमी. तक उड़ान भर सकेगा
- विमान में हवा से जमीन पर मार करने वाली और स्टेल्थ मिसाइलें होंगी

भारत से मुकाबले के लिए चीन का सहारा

पाकिस्तान भारतीय वायुसेना से मुकाबला करने के लिए चीन का सहारा ले रहा है. पाक अभी भी गैर–स्टील्थ प्लेटफ़ॉर्म पर काम कर रहा है. हालांकि अब उसके पायलट चीन में J–35A फाइटर जेट की ट्रेनिंग लेने में जुट गए हैं. ये जानकारी पाक मीडिया रिपोर्ट्स के हवाले से सामने आई है. हालांकि भारत ने पाकिस्तान और चीन को मात देने के लिए पहले से ही प्लानिंग शुरू कर दी है.

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Post-Operation Sindoor, Army tests new drone systems

Source: The Tribune, Dt. 29 May 2025,
URL: https://www.tribuneindia.com/news/india/post-operation-sindoor-army-tests-new-drone-systems/

Adapting to military tactics witnessed during Operation Sindoor, the Indian Army is now carrying out a five-day field trial on having a wider-option of drones and also trying out weapons that can counter the enemy drones.

Now, the Army is carrying a five-day trial at Babina Field Firing Ranges in Uttar Pradesh. The trials include systems that can counter drones, spoofing and jamming equipment, drones that can launch small ammunition over specified targets, loitering ammunition that can hover over a target for a specified period and strike at designated targets.

Indian Army Chief General Upendra Dwivedi witnessed the cutting-edge technology demonstrations of indigenous systems at Babina, the army said today. “These capabilities will

significantly enhance operational efficiency, force protection and precision engagement across varied terrains," the Army said.

Army Chief General Upendra Dwivedi with troops during a visit to the Babina Field Firing Ranges in Uttar Pradesh. PTI

The induction of this equipment is not a new move, but has gotten greater importance after Operation Sindoor. On the intervening night of May 8-9, Pakistan military carried out multiple violations of Indian air space along the entire International Border and Line of Control. Drone intrusions were attempted from Leh to Sir Creek in Gujarat at 36 locations with over 300-400 drones.

Indian Armed Forces brought down most of these drones using kinetic and non-kinetic means.

The Army had stated that attacks on Indian territory by Pakistan armed forces during the night (May 8-9) were "effectively repulsed and a befitting reply was given".

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First women cadets to pass out from NDA: What this means to evolving role of women in Armed forces

Source: The Indian Express, Dt. 28 May 2025,
URL: https://indianexpress.com/article/cities/pune/first-women-cadets-nda-what-this-means-women-in-armed-forces-10034685/

On the morning of May 30, 17 women cadets will be part of the a line up of over 300 cadets from the 148th batch of the National Defence Academy (NDA), that will walk past the Antim Pag — the final step — at the triservices academy. While this moment represents a historic milestone for these future officers and for the NDA, it also carries landmark significance for the evolving role of women in the Indian Armed Forces. A look back at the journey so far and the path ahead.

Entry of women cadets into the NDA

The interim order was passed by the Supreme Court in August 2021 while hearing a plea seeking directions to allow eligible women entrance to the NDA and Naval Academy examinations conducted by the Union Public Service Commission (UPSC). The apex court asked UPSC to issue a corrigendum in keeping with its interim direction.

The court however, said that admission of women candidates will be subject to the final ruling on the petition. The first batch of the women cadets joined the NDA in July-August 2022 as part of its 148th course.

At the time of the entry of the women cadets in 2022, the NDA had said, “The training objective at NDA shall continue to remain as a centre of excellence for producing military leaders equipped with professional, moral and physical attributes required for leading the troops to victory in the future battlefields. With minimal changes to the existing curriculum the training in academics, drill, outdoor training, etc. will be conducted in an absolutely gender-neutral manner. However, owing to physiological differences between male and female cadets, the aspect of physical training may entail certain changes in the training of girl cadets.”

Entry to NDA is through a common National written examination conducted by Union Public Service Commission (UPSC) followed by selection by Service Selection Board (SSB) with no demarcation or quota for any state or Union Territory. At the time of the induction, the first batch of the girl cadets had a total of 19 admission – 10 for Army, six for Air Force and three for the Navy, as per the allotment by the respective service headquarters for the first batch of girls at NDA. Of these, two cadets resigned during the course.

A total of 126 female cadets have joined NDA from 148th course till the latest 153rd course. As per numbers shared by the Ministry of Defence, a total of five of these 126 admissions have resigned till now. Officials have said that the vacancies per batch were increased after the first batch and will be increased further gradually.

NDA has said in the past that a dedicated support staff has been provided for facilitating the training of girl cadets. Majority of training activities are conducted jointly keeping their employability in mind, wherein the women officers are required to command troops. Similar

training methodology already exists in other Pre-Commissioning Training Academics like OTA Chennai, INA Ezhimala and AFA Hyderabad.

The evolving role of women in Armed forces

The integration of women into the Indian Army, Navy and the Air Force has been an ongoing process, dotted by some important milestones that have happened parallel to the institute's evolution and also progress on the socio-cultural front.

Women's entry into the Indian Armed forces can be traced back to the British era when the Military Nursing Service was established in 1888. Post Independence, the Army Medical Corps began granting regular commissions to women doctors in 1958. At this time, other than the nursing and medical streams, other broader roles remained off-limits for women under the provisions of the Army Act, 1950.

A major milestone came in the year 1992 with the Women Special Entry Scheme opened the door for women to be inducted as Short Service Commission (SSC) officers in various non-combat branches like the education, signals, intelligence, ordnance and legal streams. Post 2000, multiple petitions were filed in the Supreme Court triggering a long legal battle by the women officers of the Armed forces seeking permanent commission.

In 2008, the armed forces started offering Permanent Commissions to women officers in select streams. However, one of the biggest milestones in this journey came in February 2020 when the Supreme Court ruled that women officers in the Indian Army were eligible for Permanent Commission and command roles across 10 key streams.

Meanwhile, a watershed moment came in 2015, the Indian Air Force opened fighter pilot training to women, leading to the induction of the first female fighter pilots in 2016. In 2021, the Supreme Court directed the NDA to admit women, with the first batch getting admitted in 2022. In 2022, entry of women in the Corps of Military Police also began through the Agniveer entry scheme.

The Road Ahead

In October 2021, as the NDA prepared to induct its first batch of women cadets following a landmark Supreme Court ruling, the then Chief of Army Staff, General Manoj Mukund Naravane, was asked about the future of women in the Armed Forces. The question came during a media interaction at the NDA, where he was reviewing the passing out parade.

In response, he said, "I think 30–40 years down the line, a woman could be standing where I am standing." Addressing the cadets in that event, General Naravane added, "As we open the portals of the NDA to women cadets, I expect you all to welcome them with the same sense of fairplay and professionalism that the Indian Armed Forces are known for world over."

Speaking to The Indian Express, Lieutenant General DB Shekatkar (Retd), a decorated veteran with service experience spanning 40 years, said, "We have had women officers reaching the ranks of Lieutenant General and equivalent ranks in the Armed forces, in the medical stream. The leadership qualities and professional excellence of women in key positions does not need any proof. The batch passing out the NDA will potentially have an excellent career progression. The

training at the NDA has groomed them to become officers and military leaders with vision. We will definitely see women in top commander roles and service chief roles in the years to come."

A retired Indian Air Force officer of Air Marshal rank said, "While the recent developments are certainly encouraging, a deeper cultural shift within the Armed forces is necessary. A change that would normalise having women in leadership, that continuously challenges outdated gender norms. There are still some streams that remain out of bounds for women. Conscious decisions will be needed to change that situation."

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Science & Technology News

A robust ecosystem will help India propel itself to be the world's third-largest economy from the recently achieved Rank 4, while low-carbon technologies will be key to achieving India's Net Zero 2070 target: Dr. Jitendra Singh

Source: Press Information Bureau, Dt. 28 May 2025,
URL: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2132105

Union Minister of State (Independent Charge) for Science & Technology, Minister of State for Prime Minister's Office, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh, addressed the Battery Summit 2025, emphasizing that a robust echo system will help India propel to number 3 economy from the recently achieved Rank 4 while low carbon technologies will be key to India achieving Net Zero 2070 target.

Speaking on the theme, "Addressing Challenges, Driving Innovation and Scaling Solutions", Dr. Jitendra Singh highlighted that exploring the unexplored reserves and resources, and innovation in low carbon energy sectors will drive economic value and also reduce carbon footprint, aligning with India's ambitious Net Zero by 2070 goal.

In this context, the Minister also referred to recent discoveries of vast Lithium reserves in Jammu & Kashmir which promise to contribute to achieving Net Zero 2070 target and called for intensified efforts to explore and harness such hitherto unutilized resources.

"The Department of Science and Technology (DST) is playing a pivotal role in advancing India's clean energy transition through innovations in battery manufacturing, e-mobility, and sustainable technology ecosystems," said Dr. Singh.

A major announcement at the summit was the launch of the Battery Aadhaar Initiative under DST, described by the Minister as a "game changer" in enabling traceability, efficiency, and scalability in India's battery ecosystem. This system would assign a unique digital identity to each battery pack, enabling the tracking of manufacturing origin, battery chemistry, safety certifications, and lifecycle performance. It would also monitor critical parameters such as thermal events, charge-

discharge cycles, and end-of-life status, facilitating predictive maintenance and efficient recycling. Additionally, Battery Aadhaar would act as a regulatory tool to curb the spread of counterfeit products and boost consumer confidence, while supporting circular economy initiatives. By integrating with Battery Management Systems (BMS), AI-enabled diagnostics, and national EV databases, Battery Aadhaar could become a cornerstone of India's emerging battery intelligence ecosystem.

Dr. Jitendra Singh underlined the success of several forward-looking initiatives driving India's clean energy transition, including the Production Linked Incentive (PLI) Schemes for Advanced Chemistry Cells, the E-Mobility Transition, and flagship programs such as the PM-eDrive and FAME (Faster Adoption and Manufacturing of Electric Vehicles) Schemes. He also highlighted the Dedicated MAHA-EV Mission under the Anusandhan National Research Foundation (ANRF) as a significant step toward strengthening the electric vehicle ecosystem and promoting sustainable transportation solutions.

Recounting India's journey in climate negotiations, Dr. Jitendra Singh noted the significant transformation from being perceived as a reluctant participant to emerging as a global leader in climate commitments. He attributed this remarkable shift to the launch and success of key initiatives such as Net Zero 2070, which outlines India's long-term decarbonization goals; Mission LiFE (Lifestyle for Environment), aimed at promoting sustainable individual and community behaviors; and the International Solar Alliance (ISA), a collaborative platform that underscores India's leadership in promoting solar energy and global clean energy partnerships. "These efforts have elevated India's esteem at global forums and affirmed our leadership in sustainability and climate action," he stated.

Dr. Jitendra Singh highlighted the remarkable progress India has made in the domain of science and innovation over the past decade. He noted that India has significantly improved its position in the Global Innovation Index, rising from the 81st rank to the 39th. The country has also witnessed an exponential growth in its startup ecosystem, expanding from just 350 startups in 2014 to over 1.7 lakh in 2025, making it the third-largest startup ecosystem in the world. Complementing this growth, the Department of Science and Technology (DST) has seen a 926% increase in its budget, soaring from ₹2,777 crore to ₹28,509 crore, reflecting the government's strong commitment to fostering innovation and research.

The Minister emphasized the government's commitment to strengthening the innovation ecosystem by opening up the space, nuclear, and science sectors to private participation.

Highlighting initiatives under the Anusandhan National Research Foundation (NRF), he noted that 60% of its funding will come from the private sector, despite significant government support. Key missions such as the National Quantum Mission, AI Mission, and National Supercomputing Mission were described as strategic levers for future leadership.

Guiding the summit's roadmap, Dr. Jitendra Singh outlined three key priority areas essential for sustaining India's momentum in science and clean energy innovation. He emphasized the indigenization of technology to reduce dependence on imports and strengthen self-reliance, the importance of boosting domestic manufacturing to build resilient supply chains and generate employment, and the need for creating a robust innovation ecosystem that fosters collaboration

between academia, industry, and government to drive transformative research and scalable solutions

Dr. Singh applauded the efforts of WRI India for championing sustainable practices, particularly through the Battery360 Alliance, and acknowledged the support of UNEP, NITI Aayog, and the Global Environment Facility (GEF) in India's clean energy journey.

The summit was graced by the presence of several key dignitaries who are instrumental in driving India's science, technology, and sustainability agenda. These included Prof. Abhay Karandikar, Secretary, Department of Science and Technology (DST); Mr. Asher Lessels from the United Nations Environment Program (UNEP); Dr. Anita Gupta, Head of the Centre of Excellence for Science and Technology (CEST) Division at DST; and Mr. Madhav Pai, CEO of WRI India. Their participation underscored the collaborative spirit of the summit and the shared commitment to accelerating clean energy innovation.

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Human-AI collaboration for a better tomorrow

Source: The Week, Dt. 28 May 2025,
URL: https://www.theweek.in/news/sci-tech/2025/05/28/human-ai-collaboration-for-a-better-tomorrow.html

Artificial Intelligence has come a long way since its early beginnings as a Business Intelligence tool to becoming a key enabler of the move from data, information and descriptive analytics to predictive and prescriptive analytics and now the role of an almost independent agent that limits the role of the "human in the loop." On the technology front, it is really in the last couple of years that a huge revolution seems to be in the making with the launch Open AI, Large Learning Models and the emergence of Generative AI, the subsequent distillation and quick solution approach of Deep Seek and application oriented small or narrow learning models to the present excitement over Agentic AI. Suddenly there is a uniform realisation that AI is too important and pervasive to be ignored in any function or industry and a very real fear that the next wave, which could be AGI (Artificial General Intelligence) and Super Intelligence will take the control of information, knowledge and decision making entirely out of human hands.

What could cause super intelligence to truly take over? When there is a reckless deployment of more and more powerful AI and the entire system of data capture, storage, dissemination and use is delegated and, in some cases, surrendered to intelligent machines and software. This is where the role of dual intelligence is essential in any system of organisation and execution, to ensure that human touch points and supervision are retained as control elements at significant stages in the process. Human intelligence can always stay in control, if that is what designs new systems that can be deployed in business and manufacturing processes and generate knowledge from the shop floor to the top floor. It is necessary to plan for this today, when business is increasingly enamoured with artificial intelligence and we are embedding AI models and algorithms into every process that can be made more efficient and effective through AI deployment.

How does one integrate the best of AI capabilities with wise interventions by humans in a true "dual intelligence" design and deployment that produces the best results for organisations and society? While it is true and a comforting assurance that people who understand AI will not lose their jobs, the people at risk are those who ignore AI, the real winners will those who drive deployment of new AI models, demonstrate an understanding of the game changing possibilities of AI and build a new structure of work, with AI embedded in restructured workflows and business processes. Business will succeed only if we reimagine the roles of humans and technology and invest in newly reconfigured systems of work! To do this, it is essential to build a new enterprise transformation roadmap that will encompass the following five stages.

1. Set the foundation and alignment of business and technology leaders with a clear baseline of the current status and setting new objectives for business and applications and a strategy for achievement.

2. Redesign the operating model and choose technologies to be deployed with adequate human supervision and control at every stage of the re-engineered business process.

3. Establish governance structures that minimise and mitigate potential risks and provide human oversight.

4. Deploy AI across workflows and design and test for technology-human collaboration at every stage of the deployment. Train and prepare role owners at every level in the organisation to be prepared for their new collaborative actions.

5. Measure the realised ROI and impact and create processes for ongoing calibration and improvement.

Taking the fear out of humans and also enabling them to exploit the best that AI can offer is a critical success factor. Once the confidence is created that collaboration is a possible approach to all future processes, practitioners will start fine tuning their Gen AI usage and also deploy more and more agents to handle tasks independently. These agents will report back with validated data to supervisor AIs which work in parallel with human supervisors. The future will involve occasionally swimming in unchartered waters, but if the fear has been eliminated and an enthusiasm for experimentation generated across the organisation, collaborative success is assured!

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