

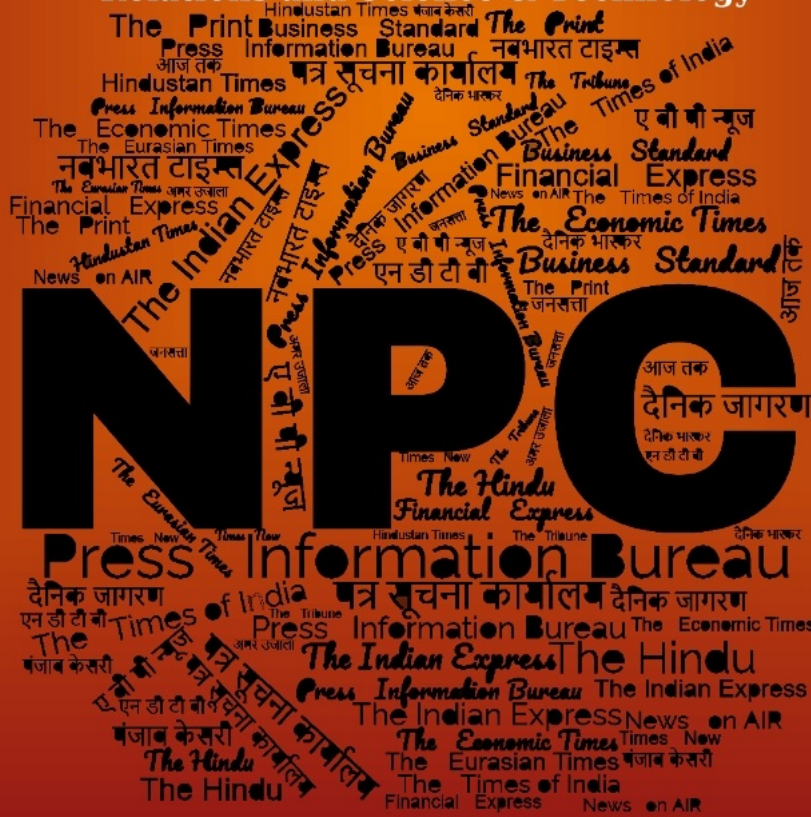
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समाचार पत्रों से चयनित अंश Newspapers Clippings

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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DRDO News

2-day ISAMPE National Conference on Composites to start tomorrow

Source: The Indian Express, Dt. 28 Jan 2025,

URL: <https://indianexpress.com/article/cities/pune/2-day-isampe-national-conference-on-composites-to-start-tomorrow-9804542/>

The Research and Development Establishment (Engineers) (R&D), a premier Pune-based facility of the Defence Research and Development Organization (DRDO), and the Pune chapter of the Indian Society for Advancement of Materials and Process Engineering (ISAMPE) will hold the 19th edition of the ISAMPE National Conference on Composites (INCCOM-19) in the city on Thursday and Friday. The conference will be inaugurated by DRDO chairman Dr Samir V Kamat.

The conference will be centred on the theme ‘Innovative Technologies in Composites’. Professor Prateek Kishore, Director General of the Armament and Combat Engineering Cluster of the DRDO, Dr Makarand Joshi, Director, R&DE (Engineers), and Dr A Rajarajan, director of Satish Dhawan Space Center and ISAMPE president will be among those present for the conference.

“INCCOM-19 will bring together leading minds from research and development organizations, academia, and industry to share insights, innovations, and applications in advanced composite materials. R&DE, a DRDO laboratory known for its pioneering work in combat engineering and defence technologies, is playing a pivotal role in the organization of the event,” read a press statement.

Founded in 1985, ISAMPE has been at the forefront of advancing materials and process engineering, with a particular focus on composites. Through conferences like INCCOM, the organisation fosters collaboration between research organizations and industries, the release said.

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One-day long space and defense expo organised for students in Mancherial

Source: Telangana Today, Dt. 28 Jan 2025,

URL: <https://telanganatoday.com/one-day-long-space-and-defense-expo-organised-for-students-in-mancherial>

A day-long space and defense expo, organised by Indian Space Research Organisation (ISRO) and Defense Research and Development Organisation (DRDO) on the premises of Sri Ushodaya High School here on Tuesday, evoked a good response from students. Local MLA K Premsagar Rao inaugurated the event, while Dr G Satish Reddy, president of the aeronautical society of India graced the event.

About 5,000 students from both private and government schools made a beeline to the school to visit the expo. They learnt about various satellites launched by the ISRO and rockets developed by DRDO by interacting with scientists and officials from the two national organisations. They said that they could effortlessly know about the satellites and rockets. They arrived at the venue using different means of transportation.

Earlier, Satish while addressing the gathering said that the expo would help students to easily understand activities of the ISRO. He was all praise for the management of the school for hosting the event. Books authored by former President of India Dr APJ Abdul Kalam were also exhibited during the expo. They were given to poor students.

The expo was jointly conducted by ISRO and DRDO in collaboration with Kalam's Institute of Youth Excellence and Yarlagadda Abhiram Memorial Grama Sabha.

Sri Ushodaya High School Correspondent Yarlagadda Balaji, DEO S Yadagiri, TRSMA state president Y Sekhar Rao, district president R Vishnuvardhan Rao and others were present.

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Defence News

Defence Strategic: National/International

ICG and Indonesian Coast Guard renew MoU for another three years

Source: Press Information Bureau, Dt. 28 Jan 2025,

URL: <https://pib.gov.in/PressReleasePage.aspx?PRID=2097082>

The Indian Coast Guard (ICG) and the Indonesia Coast Guard (Badan Keamanan Laut Republik Indonesia - BAKAMLA) renewed their Memorandum of Understanding (MoU) on Maritime Safety and Security Cooperation for another three years during the 2nd High-Level Meeting (HLM) in Coast Guard Headquarters, New Delhi on January 27, 2025. The meeting was led by Director General ICG General Paramesh Sivamani and BAKAMLA Chief Vice Admiral Irvansyah with an eight-member delegation, who under the MoU provisions are on an official visit to India from January 24-28, 2025.

Discussions centered on bolstering operational collaboration in areas like Maritime Search and Rescue, Pollution Response, and Maritime Law Enforcement. Both sides emphasised on sharing best practices and maintaining professional exchanges to enhance the safety and resilience of the Indo-Pacific region.

Highlighting the ties between the two nations, ICG Ship Shaunak is currently on a deployment to Jakarta from January 27-30, 2025, to strengthen operational linkages with BAKAMLA. The renewed agreement underscores the commitment of India and Indonesia to fostering a secure and cooperative maritime environment.



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'Disengagement of troops with China has given small opening to India but big issues remain'

Source: The Economic Times, Dt. 29 Jan 2025,

URL: <https://economictimes.indiatimes.com/news/defence/disengagement-of-troops-with-china-has-given-small-opening-to-india-but-big-issues-remain/articleshow/117664998.cms>

The recent disengagement of troops with China in eastern Ladakh has given a small opening to India, but the "big issues" remain, foreign policy expert C Raja Mohan has said. He also said India must work towards further strengthening its ties with the US for the country's technological and economic growth.

"There is a bit of easing. You will have direct flights (between India and China), you have visas, the (resumption of) Mansarovar yatra, but you still have 50,000 troops facing each other. You have a 100 USD billion trade deficit. They (China) are building a big dam on Brahmaputra," Mohan said on Tuesday at an event organised by the Asia Society India.

The discussion was moderated by senior journalist Suhasini Haidar.

There is military disengagement as opposed to de-escalation. "That has given us a small opening but the big issues with China remain," Mohan said.

India and China on Monday announced a series of measures to "rebuild" ties, including resuming Kailash Mansarovar Yatra in the summer and agreeing in principle to restore direct flights, in a significant move aimed at normalising their relations after completing the disengagement of troops in eastern Ladakh.

The decisions were announced after Foreign Secretary Vikram Misri held wide-ranging talks with Chinese Vice Foreign Minister Sun Weidong in Beijing.

Responding, meanwhile, to a question on whether India is prepared for an AI-driven world, Taimur Baig, Managing Director and Chief Economist DBS Research Group, said he sees promising examples in India.

"The yield in the (iPhone maker) Apple plant in India is almost as good as (that of) the ones in China. This was something nobody expected. Everybody thought that actually Apple will struggle because iPhone assembly is immensely complex," he said.

"It is not just putting a few things together. There is a huge amount of testing, packaging, assembly involved (which) requires substantial local knowhow," Baig said citing interaction with Foxconn executives who are involved with the Apple supply chains in India.

Apple is "super impressed" with the production of its products in India, Baig said. India needs to seize the opportunities that geopolitics presents, he added.

Former Singaporean diplomat Kishore Mahbubani, who served as its permanent representative to the United Nations, said Europe had a tremendous opportunity to play a third pole in the US-China contest and they could increase their leverage.

However, Europe has given up their leverage and completely become dependent on the US and now the US writes Europe's policy towards China in many areas, he said.

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Western Command conducts seminar on evolving role of women in Indian Army

Source: The Economic Times, Dt. 28 Jan 2025,

URL: <https://economictimes.indiatimes.com/news/defence/western-command-conducts-seminar-on-evolving-role-of-women-in-indian-army/articleshow/117645856.cms>

The Western Command conducted a seminar on evolving role and contribution of women officers in Indian Army, an official statement said here on Tuesday. The seminar, conducted last week, was held at Chandimandir Military station and was chaired by General Officer Commanding-in-Chief (GOC-in-C), Western Command, Lieutenant General Manoj Kumar Katiyar.

"The seminar provided a platform for women officers to discuss challenges faced in the Army, including work-life balance, career progression and leadership styles," the statement said. The event also highlighted the importance of enhancing mentorship programmes, reviewing deployment policies and investing in infrastructure to support women officers and soldiers.

According to the statement, Lt Gen Katiyar reaffirmed the Indian Army's commitment to gender inclusivity, citing initiatives such as leadership training, gender sensitization workshops, and recruitment drives aimed at increasing women representation.

The Army Commander also underlined the crucial role of commanding officers in grooming their command and maintaining a balance between aspirations and tasks.

He expressed satisfaction at the spirit and enthusiasm of women officers in the Command, standing shoulder-to-shoulder with their male counterparts.

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वायुसेना करेगी 300 'गौरव' लॉन्ग रेंज ग्लाइड बम की खरीद, दुश्मन के ठिकानों पर अब बरसेंगे हवाई गोले

Source: TV9 Bharatvarsh, Dt. 28 Jan 2025,

URL: <https://www.tv9hindi.com/india/indian-air-force-purchase-300-gaurav-long-range-glid-bombs-for-precision-strikes-3084882.html>

भारतीय वायुसेना अपनी ताकत को और भी घातक बनाने की तैयारी में है। IAF अपनी आक्रामक क्षमताओं को बढ़ाने के लिए DRDO द्वारा बनाए गए 300 'गौरव' लॉन्ग रेंज ग्लाइड बम (LRGB) खरीदने की तैयारी कर रही है। ये आधुनिक हथियार दुश्मन के महत्वपूर्ण ठिकानों जैसे एयरफील्ड, बंकर और मजबूत रक्षा ठिकानों को दूर से ही सटीक निशाना लगाने में सक्षम होंगे। यानि कि पायलट बिना दुश्मन की हवाई सुरक्षा में फंसे दूर से ही इस बम से निशाना बना सकते हैं। 'गौरव' LRGB एक अत्याधुनिक एयर-टू-ग्राउंड हथियार प्रणाली है, जो पारंपरिक युद्ध सामग्री ले जाने में सक्षम है। यह बम भारतीय वायुसेना के अग्रणी लड़ाकू विमानों जैसे Su-30MKI और मिराज-2000 के साथ पूरी तरह से अनुकूल है, जिससे युद्ध स्थितियों में उनकी संचालन क्षमता और सटीकता बढ़ जाती है।

दुश्मन के एयर डिफेंस भी नहीं कर पाएगा कुछ

80 किलोमीटर से अधिक की रेंज के साथ, यह बम वायुसेना के पायलटों को दुश्मन की हवाई सुरक्षा से बचते हुए सुरक्षित दूरी से हाई-वैल्यू टारगेट को निशाना बनाने की क्षमता प्रदान करता है। इसके एडवांस मार्गदर्शन प्रणाली में इनर्शियल नेविगेशन सिस्टम (INS) और जीपीएस तकनीक शामिल है, जो सटीक निशाना लगाने में मदद करता है।

गौरव बम की विशेषताएं

- रेंज- 80 किलोमीटर से अधिक
- मार्गदर्शन- इनर्शियल नेविगेशन सिस्टम (INS) और GPS
- लक्ष्य- एयरफील्ड, बंकर, और कड़े संरचनाएं

- लड़ाकू विमान- Su-30MKI और मिराज-2000

इस अधिग्रहण से भारतीय वायुसेना को दुश्मनों के रनवे के परखच्चे उड़ाने में और दुश्मन के ठिकानों पर हमला करने की ताकत मिलेगी. 'गौरव' LRGB की खासियत यह है कि इसे मौजूदा लड़ाकू विमानों के साथ आसानी से इस्तेमाल किया जा सकता है, जिससे बड़े बदलाव की जरूरत नहीं होगी. बल्कि भारतीय वायुसेना के मौजूदा एयरक्राफ्ट जंग के मैदान में दुश्मन को और भी ज्यादा आघात पहुंचाने में कामयाब होंगे.

ग्लाइड बम 'गौरव' LRGB लंबी दूरी के सटीक हमलों के लिए गाइडेड मिसाइलों का स्वदेशी और दमदार विकल्प है. फिलहाल 300 बमों का ऑर्डर दिया गया है, लेकिन भविष्य में वायुसेना को हजारों ऐसे हथियारों की जरूरत हो सकती है. यह कदम वायुसेना की ताकत को आधुनिक बनाने और बदलती सुरक्षा चुनौतियों से निपटने की तैयारी को दर्शाता है. 'गौरव' LRGB भारत की सुरक्षा सुनिश्चित करने और वायुसेना की हवाई शक्ति को बढ़ाने में अहम भूमिका निभाएगा.

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रूस की दोस्ती, पश्चिमी देशों का सहयोग और आत्मनिर्भर अभियान... महाभयंकर हो रही है भारतीय सेना

Source: NavBharat Times, Dt. 28 Jan 2025,

URL: <https://navbharattimes.indiatimes.com/india/friendship-with-russia-support-from-western-countries-and-self-reliance-campaign-indian-army-is-becoming-extremely-dangerous/articleshow/117622298.cms>

कर्तव्य पथ पर 76 वें गणतंत्र दिवस परेड में प्रलय मिसाइल सिस्टम ने हिस्सा लिया। यह देखकर हर भारतीय का सीना गर्व से चौड़ा हो गया। न्यूज एजेंसी AFP की रिपोर्ट कहती है कि 2019 से 2023 के बीच भारत दुनिया का सबसे बड़ा हथियार आयातक बन गया। भारत लंबे समय से रूसी हथियारों पर निर्भर था। अब पश्चिमी देशों से दोस्ती बढ़ाने और अपने देश में हथियार बनाने पर जोर देने से माहौल बदल रहा है। विशेषज्ञों का मानना है कि यह एक सकारात्मक कदम है। रूस अभी यूक्रेन युद्ध में उलझा है। इस बीच भारत अपनी सेना को आधुनिक बनाने में जुटा है। चीन के साथ तनाव बढ़ने के बाद से यह और भी जरूरी हो गया है, खासकर 2020 में दोनों देशों के सैनिकों के बीच हुई झड़प के बाद।

चीन की चुनौती और सैन्य आधुनिकीकरण

प्रसिद्ध थिंक टैंक ऑब्जर्वर रिसर्च फाउंडेशन (ORF) के हर्ष वी. पंत ने कहा, 'चीन को लेकर भारत की सुरक्षा नीति में बड़ा बदलाव आया है।' 2020 की झड़प में 20 भारतीय और कम से कम चार चीनी सैनिक शहीद हो गए थे। इस घटना के बाद दोनों देशों के रिश्तों में काफी तनाव आ गया। पंत कहते हैं, 'इस घटना ने सबको झकझोर दिया है। अब हमें जल्दी से जल्दी और जो भी जरूरी हो, वो करना होगा।'

लगातार मजबूत हो रही भारतीय सेना

स्टॉकहोम इंटरनैशनल पीस रिसर्च इंस्टिट्यूट (SIPRI) की रिपोर्ट के अनुसार, 2019-23 में भारत दुनिया का सबसे बड़ा हथियार आयातक देश बन गया। हमारे हथियारों का आयात दुनिया भर के कुल आयात का लगभग 10

प्रतिशत है। आने वाले समय में अमेरिका, फ्रांस, इजराइल और जर्मनी से अरबों डॉलर के हथियार खरीदने की योजना है। खबरों के मुताबिक, अगले महीने प्रधानमंत्री मोदी फ्रांस जाएंगे। वहां राफेल लड़ाकू विमानों और स्कॉर्पीन क्लास पनडुब्बियों के लिए लगभग 10 अरब डॉलर (करीब 8 खरब, 65 अरब रुपये) के सौदे होने की उम्मीद है।

रक्षा आयात बढ़े, निर्यात भी

रक्षा मंत्री राजनाथ सिंह ने 2033 तक देश में ही 100 अरब डॉलर (करीब 86 खरब, 52 अरब रुपये) के सैन्य साजो-सामान बनाने का वादा किया है। इससे देश में हथियार निर्माण को बढ़ावा मिलेगा। सामरिक मामलों के विशेषज्ञ नितिन गोखले कहते हैं, 'भारत दशकों से हथियार आयात करता रहा है। पिछले एक दशक में ही हमने स्वदेशी निर्माण पर जोर देना शुरू किया है।' गोखले के मुताबिक, 'बदलाव आसान नहीं है। हर चीज यहां नहीं बनाई जा सकती।' उनका कहना है कि हमारे पास अभी 'उच्च तकनीक' वाले हथियार बनाने की क्षमता नहीं है।

आत्मनिर्भर भारत की दिशा में बढ़े कदम

इसके बावजूद, भारत ने कई बड़ी उपलब्धियां हासिल की हैं। इस दशक में भारत ने एक बड़ा हेलीकॉप्टर कारखाना खोला है, अपना पहला स्वदेशी विमानवाहक पोत लॉन्च किया है, और एक लंबी दूरी की हाइपरसोनिक मिसाइल का सफल परीक्षण किया है। इससे हथियार निर्यात बाजार भी बढ़ा है। पिछले साल भारत ने 2.63 अरब डॉलर (करीब 2 खरब, 27 अरब रुपये) के हथियारों का निर्यात किया। यह बड़ी कंपनियों के मुकाबले बहुत कम है, लेकिन पिछले एक दशक में 30 गुना बढ़ा है। भारत जल्द ही इंडोनेशिया को लगभग 45 करोड़ डॉलर (38 अरब, 93 करोड़ रुपये) की सुपरसोनिक क्रूज मिसाइलें बेचने की एक बड़ी डील की घोषणा कर सकता है। सरकार का लक्ष्य 2029 तक इस आंकड़े को तीन गुना करना है। पिछले साल रक्षा पर खर्च किए गए 75 अरब डॉलर (करीब 64 अरब, 88 करोड़ रुपये) में से एक बड़ा हिस्सा स्वदेशी उत्पादन को बढ़ावा देने के लिए था।

रूस का साथ सही, पश्चिमी देशों से भी बढ़े सहयोग

भारत ने हाल के वर्षों में पश्चिमी देशों के साथ रक्षा सहयोग बढ़ाया है। इसमें अमेरिका, जापान और ऑस्ट्रेलिया के साथ क्वाड गठबंधन भी शामिल है। इस बदलाव से भारत को पश्चिमी देशों से सैन्य ड्रोन, नौसेना के जहाज, लड़ाकू विमान और अन्य हथियार आयात करने और बनाने में मदद मिली है। सिप्री के आंकड़ों के अनुसार, 2009-13 में भारत के हथियार आयात का 76 प्रतिशत रूस से आता था, जो सिर्फ 10 साल 2019-23 में घटकर 36 प्रतिशत रह गया है। फिर भी, भारत ने रूस के साथ अपने पुराने रिश्तों को बनाए रखने की कोशिश की है, साथ ही पश्चिमी देशों के साथ भी संबंध मजबूत किए हैं। मोदी सरकार ने यूक्रेन पर रूस के 2022 के हमले की निंदा करने के लिए अमेरिका और अन्य देशों के दबाव का विरोध किया है। इसके बजाय, भारत ने दोनों पक्षों से बातचीत के जरिए समाधान निकालने का आग्रह किया है।

गोखले का कहना है कि भारत रूस के साथ अपने रिश्ते को पूरी तरह खत्म नहीं कर सकता। रूस अभी भी क्रूज मिसाइलों और परमाणु पनडुब्बी तकनीक जैसे उन्नत हथियारों का एक महत्वपूर्ण आपूर्तिकर्ता है। उनके अनुसार, 'भारत ने निश्चित रूप से अन्य देशों से हथियार खरीदकर अपने जोखिम को कम किया है, लेकिन रूस अभी भी एक बहुत महत्वपूर्ण और भरोसेमंद साझेदार बना हुआ है।'

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Defence sector anticipates boost to indigenous industries in upcoming Budget

Source: India Today, Dt. 28 Jan 2025,

URL: <https://www.indiatoday.in/budget/story/union-budget-2025-defence-sector-indigenous-drone-equipment-capabilities-2671528-2025-01-28>

As Finance Minister Nirmala Sitharaman prepares to present the Union Budget on February 1, the defence sector anticipates increased opportunities for indigenous manufacturing, public-private partnerships, and the empowerment of the private sector to strengthen the country's defence capabilities.

Notably, the defence sector was allocated Rs 6.21 lakh in the previous Union Budget, which was the highest fund allocated to any ministry. This allocation was 4.79 per cent higher compared to what it was allocated in 2023.

India Today spoke to some key stakeholders in the defence industry to find out about their expectations for the upcoming budget.

Rishab Gupta, Managing Director of Rossell Techsys, a provider of aerospace and defence solutions, shared his pre-budget expectations.

"Last year's budget outlined a clear pathway to drive growth and innovation within India's aerospace and defence sector. The defence budget allocation of Rs 6.21 lakh crore was 13.04 per cent of the overall Budget, highlighting a strong intent to modernise defence capabilities," he said.

"While the budget for capital outlay continues to drive essential infrastructure development, we anticipate even greater focus on capital expenditure in the upcoming budget to support long-term capability building in the sector," Gupta added.

Rishab said that the Centre's decision to allocate Rs 13,043 crore to the space sector and Rs 1,000 crore for venture capital funds for space-tech startups highlighted the government's commitment to expanding India's footprint on the global space economy.

"We are hopeful that the Budget 2025 will further support indigenous manufacturing, strengthen public-private partnerships, and empower the private sector to deliver comprehensive solutions," he said.

Kiran Raju, CEO and co-Founder of Indrajaal, the world's first AI-powered wide-area anti-drone system and now leading the Indian drone infrastructure sector, expects that the government will focus on modernising the armed forces, strengthening border and coastal security, and taking future-ready decisions to propel India to the next stage of progress.

"One area that will help accelerate this shift is the drone infrastructure. Many states have already started investing in drone usage and have established drone policies, which will foster innovation," Raju said.

"However, the infrastructure to support a high volume of drones is still lacking. Along with strengthening our drone capabilities, the government should also look at strengthening home-grown drone infrastructure," Raju added.

Director of Swan Shipyard (formerly Reliance Naval and Engineering Limited) Vivek Merchant said that the government should focus on improving shipping infrastructure and promoting indigenous shipbuilding.

"India holds a mere 0.05 per cent of the global market share in shipbuilding, in stark contrast to China (which holds 47 per cent share), South Korea (around 30 per cent), and Japan (around 17 per cent), which currently dominate the industry," he said.

"Therefore, new government initiatives and improved budgetary allocations for ports and shipyards could be game changers, showcasing a clear vision for a robust maritime economy," Merchant said.

"The announcement of India's Maritime Development Fund (MDF) for long-term indigenous manufacturing projects and the anticipated Shipbuilding Subsidy (SBS) Policy 2.0 could further strengthen the ecosystem," he added.

"It is crucial for the Union Budget to prioritise investments in shipbuilding infrastructure, incentivise green technologies, and create export opportunities for Indian shipyards," Merchant said.

Acquiring new equipment, including aircraft, ships, and vehicles, remains a top priority to ensure that India's armed forces are well-equipped. This focus aims to bolster the country's defence readiness and effectively address any potential threats.

In addition to acquisitions, the budget is expected to emphasise maintaining operational readiness through regular training and exercises. These efforts are crucial to preparing personnel for any situation and ensuring efficient management of expenditure.

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Indian Army to induct indigenous drones to enhance operational capabilities

Source: The New Indian Express, Dt. 29 Jan 2025,

URL: <https://www.newindianexpress.com/nation/2025/Jan/28/indian-army-to-induct-indigenous-drones-to-enhance-operational-capabilities>

A private Indian company, IG Drones, has bagged a "significant contract" from the Indian Army which will require the supply of VTOL (Vertical Take-Off and Landing) and FPV (First-Person View) drones. As per the company these drones are indigenously manufactured, with no Chinese components.

As per an IG Drones company official the deal was finalised in the second week of January and the complete delivery of both types of drones to the Indian Army has to be done in a month. He did not give both the drones' quantities and project costs.

"The decision to prioritise domestically developed drone technology comes at a time when the Indian Army faces mounting security threats along international borders. Recent incidents, such as the hijacking of an Indian Army drone near the Pakistan border, have underscored the urgent need for reliable, indigenously manufactured platforms free from Chinese-origin components, which could compromise national security," IG Drones said in a statement on Tuesday.

The company officials confirmed that the components like cameras fitted in their drones have been imported from abroad but they have ensured them not to be of Chinese origin, the official added.

Due to security reasons, induction of the drones with Chinese components is not allowed. The Indian Army puts the components through a close scrutiny to confirm the equipment does not have the Chinese components before they are inducted for use.

"As of August 2024, India had 398 drone startups, doubling in three years, surpassing China's 298. However, a recent Indian Army drone hijacking near the Pakistan border has raised security concerns, highlighting the need for certified, reliable companies to provide secure solutions".

As per the IG Drones' "VTOL systems are tailored for operations in extreme environments, offering unparalleled flexibility by enabling vertical take-off and landing in areas where runways are unavailable, such as mountainous regions and urban conflict zones."

As per the officials, with a 6 Kg MTOW (Maximum Take Off Weight) it can remain in air for about an hour"

The FPV drones, on the other hand, bring a real-time, first-person perspective to tactical reconnaissance, enabling precise intelligence gathering while keeping personnel out of harm's way. These drones are particularly suited for urban warfare, search-and-rescue missions, and counter-infiltration efforts, the company added.

Bodhisattwa Sanghapriya, Founder and CEO of IG Drones, said, "This contract reflects the Indian Army's trust in our ability to deliver secure, world-class drone systems. With this, we have global aspirations to take the drone ecosystem and 5-G-enabled drone solutions to another level". IG Drones describes itself as "a leading drone technology company specializing in advanced defense and industrial solutions."

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China's military leadership asks troops to be ready for combat, tackle corruption in ranks

Source: The Week, Dt. 28 Jan 2025,

URL: <https://www.theweek.in/news/defence/2025/01/28/chinas-military-leadership-asks-troops-to-be-ready-for-combat-tackle-corruption-in-ranks.html>

Ahead of the Spring Festival, China's most important holiday which marks the beginning of the new year, Chinese military leadership called for increased military readiness and highlighted the importance of ridding the defence establishment of corruption, which appears to have hampered the modernisation efforts of the forces.

Zhang Youxia, first-ranked vice chairman of the Central Military Commission, and second-ranked vice-chairman of Central Military Commission General He Weidong, who visited various troops of the People's Liberation Army and interacted with them ahead of the holiday, stressed the importance of strengthening the discipline of the armed forces.

“(We should) severely investigate and deal with corruption issues surrounding officers and soldiers,” Zhang reportedly said even as he stressed the importance of stronger training and combat preparation amid the various tensions and challenges faced by China on different fronts, including the border with India.

General He said the focus should be on training and preparation for combat, maintaining a constant state of readiness and intensifying real military training, "fostering a fighting spirit of daring to do battle and ensuring victory and building reliable, ready-to-deploy combat capabilities."

General Zhang asked the troops to enhance their capabilities for supporting and preparing for combat and boosting "new-domain forces with new combat capabilities," according to a report by South China Morning Post.

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US to have its own 'Iron Dome' defense system soon? Trump signs order to develop next-gen missile defence shield

Source: The Week, Dt. 28 Jan 2025,

URL: <https://www.theweek.in/news/defence/2025/01/28/us-to-have-its-own-iron-dome-defense-system-soon-trump-signs-order-to-develop-next-gen-missile-defence-shield.html>

US President Donald Trump signed an executive order to begin planning to have an air defence system like Israel's Iron Dome to guard against ballistic, hypersonic and advanced cruise missiles, fulfilling a campaign promise that he had made.

In his order called an 'Iron Dome for America', Trump called for a multilayer missile defence system capable of countering an array of threats to the US.

Citing the development of missile launch capabilities of adversaries who were not named, the executive order read, "Over the past 40 years, rather than lessening, the threat from next-generation strategic weapons has become more intense and complex."

“The executive order directs implementation of a next-generation missile defence shield for the United States against ballistic, hypersonic, advanced cruise missiles, and other next-generation aerial attacks,” CNN reported.

The order comes even as the arms race between the US and China has intensified significantly in recent years, driven by Beijing's rapid expansion of its nuclear arsenal.

It is to be noted that the US has the ability to deploy a layered air defense system, from long-range Patriot missiles to shorter-range systems like shoulder-launched Stinger missiles.

During his first term in office Trump established US Space Command and the US Space Force.

For years the US has cautioned that China, Russia and others were weaponizing space. It has at times declassified information about both countries' efforts to create offensive weapons to disable critical US satellites, including the capability to move satellites from orbit, temporarily blind them or potentially even destroy them. The Space Force is in the process of building a low-orbit ring of redundant satellites that can more quickly track and detect potential missile launches.

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U.S. Defense Department Plans Major Expansion of In-Theater Data Processing Capabilities

Source: Republic World, Dt. 28 Jan 2025,

URL: <https://www.republicworld.com/defence/global-defence-news/us-defense-department-plans-major-expansion-of-in-theater-data-processing-capabilities>

The U.S. Department of Defense (DOD) is preparing to significantly expand its Joint Operational Edge (JOE) program, a cutting-edge cloud initiative launched in 2023 to bolster data processing capabilities for military units operating globally. This effort aims to address the growing demand for computing power as combatant commands increasingly rely on advanced sensors, uncrewed systems, and artificial intelligence for real-time decision-making on the battlefield.

The JOE initiative provides military commanders with the ability to analyze and process massive volumes of data collected from sensors deployed across diverse environments. The program currently operates nodes in key strategic locations, including Japan, Hawaii, Guam, and various sites in Europe and Africa.

Rob Vietmeyer, the Pentagon's Chief Software Officer, emphasized the program's importance during the Potomac Officers Club's annual Research and Development Summit in McLean, Virginia. "We're collaborating with the intelligence community, Joint Staff, and combatant commands to integrate these capabilities with our commercial partners," he said.

As part of the initiative's expansion, the Pentagon plans to grow its network of JOE nodes from its current handful to approximately 20 over the next few years. This expansion will be guided by operational demand and focused on delivering tangible benefits to combatant commanders.

"We don't want to overbuild infrastructure," Vietmeyer noted. "This will remain an agile program that grows based on real value added to operations."

Focus on AI and GPU Technologies

A critical component of the JOE program is ensuring commanders have access to the tools they need, particularly at "the edge" — a term describing forward-deployed environments. Early deployments of JOE have revealed a high demand for artificial intelligence (AI) capabilities and advanced graphics processing unit (GPU) tools, which are essential for processing complex visual and sensor data.

The Pentagon is also exploring policies and procurement strategies with commercial vendors to streamline the delivery of these technologies. While the program is currently funded as an enterprise-level initiative, it is expected to transition into a hybrid funding model that includes a fee-for-service approach.

Strengthening Supply Chain Security

As the JOE program scales up, the Pentagon is prioritizing supply chain security to mitigate risks associated with edge computing infrastructure. Leigh Method, who is performing the duties of Deputy Assistant Secretary of Defense for Sustainment, highlighted the establishment of a Supply Chain Risk Mitigation Integration Center to address these concerns.

Currently in its infancy with a single employee, the centre is poised to grow over the coming years, enabling the DOD to identify and mitigate vulnerabilities in its supply chain. Additionally, the Vendor Threat Mitigation initiative will provide combatant commanders with insights into the companies they partner with for data processing tools, ensuring the department avoids inadvertently “contracting with the enemy.”

“We’re giving commanders the authorities and information they need to protect logistics capabilities,” Method said, underscoring the importance of securing the backbone of military operations.

Future of JOE in Global Military Strategy

With an eye on the future, the JOE program reflects the DOD’s commitment to integrating cutting-edge technologies into military operations. As adversaries continue to advance their capabilities, JOE offers a decisive advantage by enabling commanders to harness the power of data, AI, and edge computing in real-time.

As Vietmeyer concluded, “The vision is for JOE to remain flexible, scalable, and responsive to the dynamic needs of modern warfare.”

The expansion of the JOE program is poised to enhance the U.S. military’s global operational effectiveness, positioning it to maintain a strategic edge in increasingly complex and data-driven battlespaces.

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With New Stealth Frigate, China Signals Growing Naval Ambitions in South China Sea

Source: Republic World, Dt. 28 Jan 2025,

URL: <https://www.republicworld.com/defence/global-defence-news/with-new-stealth-frigate-china-signals-growing-naval-ambitions-in-south-china-sea>

China’s navy just took a big step forward, officially bringing its newest warship, the Luohe, into service. This sleek and powerful frigate isn’t just a flex of military muscle—it’s a message to the world. As Beijing continues to grow its already massive navy, this latest move shows it’s doubling down on its ambitions in the Indo-Pacific, particularly in the South China Sea.

The Luohe is the first of China's new Type 054B frigates, a serious upgrade to its predecessor with stealth capabilities, advanced radar systems, and a well-rounded arsenal of missiles and machine guns. It's not lightweight either, clocking in at around 5,000 tons. The Chinese navy says this frigate will be a key player in "enhancing combat effectiveness," and analysts agree—it's built to be a workhorse for Beijing's naval fleet.

Outpacing the Competition

China's navy is already the largest in the world when it comes to the sheer number of ships. With over 230 warships compared to the U.S. Navy's 219, China has the numbers game locked down. However, critics have pointed out that quantity doesn't always mean quality. The U.S. still holds an edge in technology and operational experience, but Beijing is clearly playing catch-up fast.

The new Type 054B is part of that catch-up strategy. It's versatile, high-tech, and ready to take on a variety of roles, from patrolling contested waters to supporting broader naval operations. And it's not alone—at least two more of these frigates are reportedly already in the water, with another one under construction.

The South China Sea Showdown

Why is China building up its navy at breakneck speed? A big reason lies in the South China Sea. This stretch of water is a strategic goldmine, hosting vital shipping routes and untapped energy reserves. China claims nearly all of it, even though a U.N.-backed ruling in 2016 shot down most of those claims. Still, Beijing has been busy militarizing islands and deploying its fleet, while the U.S. and allies like Japan and Australia push back with their own naval patrols.

And then there's Taiwan, the self-ruled island just 100 miles from China's coast. Beijing has made no secret of its goal to bring Taiwan under its control, by force if necessary. The Luohe and other ships like it are a big part of China's strategy to back up that threat.

Global Reach, Regional Tensions

The Luohe isn't just about regional dominance. China has been sending its navy further afield, too, from the Mediterranean to the Caribbean. These deployments are as much about projecting power as they are about protecting Beijing's growing web of trade and investments around the globe.

But even with its expanding fleet, China isn't invincible. Recent war games have shown that in a head-to-head clash with the U.S., China would likely lose a significant number of ships. The catch? Beijing has the resources to absorb those losses and keep fighting, which makes its growing navy a serious challenge for the U.S. and its allies.

What's Next?

For now, the Luohe is just one ship. But it's a symbol of something bigger—China's determination to rewrite the rules of the maritime game. As Beijing ramps up its shipbuilding and pushes its navy further into contested waters, the stakes are rising.

The South China Sea, already a hotspot for diplomatic and military standoffs, is becoming even more crowded. With the Luohe now in action, expect more patrols, more close encounters, and

more tension in one of the world's most contested regions. The message from Beijing is clear: its navy isn't just growing—it's gearing up.

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Images show China building huge fusion research facility, analysts say

Source: Reuters, Dt. 28 Jan 2025,

URL: <https://www.reuters.com/world/china/images-show-china-building-huge-fusion-research-facility-analysts-say-2025-01-28/>

China appears to be building a large laser-ignited fusion research centre in the southwestern city of Mianyang, experts at two analytical organisations say, a development that could aid nuclear weapons design and work exploring power generation.

Satellite photos show four outlying "arms" that will house laser bays, and a central experiment bay that will hold a target chamber containing hydrogen isotopes the powerful lasers will fuse together, producing energy, said Decker Eveleth, a researcher at U.S.-based independent research organisation CNA Corp.

The Development Has Not Been Previously Reported.

"Any country with an NIF-type facility can and probably will be increasing their confidence and improving existing weapons designs, and facilitating the design of future bomb designs without testing" the weapons themselves, said William Alberque, a nuclear policy analyst at the Henry L. Stimson Centre.

China's foreign ministry referred Reuters questions to the "competent authority". China's Science and Technology Ministry did not respond to a request for comment.

The U.S. Office of the Director of National Intelligence declined to comment.

In November 2020, U.S. arms control envoy Marshall Billingslea released satellite images he said showed China's buildup of nuclear weapons support facilities. It included images of Mianyang showing a cleared plot of land labeled "new research or production areas since 2010".

That plot is the site of the fusion research centre, called the Laser Fusion Major Device Laboratory, according to construction documents that Eveleth shared with Reuters.

Nuclear Testing

Igniting fusion fuel allows researchers to study how such reactions work and how they might one day create a clean power source using the universe's most plentiful resource, hydrogen. It also enables them to examine nuances of detonation that would otherwise require an explosive test.

The Comprehensive Nuclear Test Ban Treaty, of which both China and the United States are signatories, prohibits nuclear explosions in all environments.

Countries are allowed "subcritical" explosive tests, which do not create nuclear reactions. Laser fusion research, known as inertial confinement fusion, is also allowed.

Siegfried Hecker, a senior fellow at the Freeman Spogli Institute for International Studies and the former director of Los Alamos National Laboratory, another key U.S. nuclear weapons research facility, said that with testing banned, subcritical and laser fusion experiments were crucial to maintaining the safety and reliability of the U.S. nuclear arsenal.

But for countries that have not done many test detonations, he said - China has tested 45 nuclear weapons, compared with 1,054 for the United States - such experiments would be less valuable because they do not have a large data set as a base.

"I don't think it would make an enormous difference," Hecker said. "And so ... I'm not concerned about China getting ahead of us in terms of their nuclear facilities."

Other nuclear powers, such as France, the United Kingdom and Russia, also operate inertial confinement fusion facilities.

The size of those facilities reflects the amount of power designers estimate is needed to apply to the target to achieve ignition, said Omar Hurricane, chief scientist for the inertial confinement fusion programme at Lawrence Livermore National Laboratory, which operates NIF.

"These days, I think you probably can build a facility that's of equal energy or even more energetic (than NIF) and a smaller footprint," Hurricane said. But, he added, at too small a scale, experimental fusion does not appear possible.

That other countries operate laser-driven fusion research centres is not a cause for alarm in itself, Hurricane said.

"It's kind of hard to stop scientific progress and hold information back," he said. "People can use science for different means and different ends, and that's a complicated question."

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Science & Technology News

Confined Electrons paves the way for improved optoelectronic materials, sensors & nano-catalysts

Source: Press Information Bureau, Dt. 28 Jan 2025,

URL: <https://pib.gov.in/PressReleasePage.aspx?PRID=2097003>

In a major stride forward for nanoscience, researchers have uncovered a groundbreaking phenomenon -- electron confinement-induced plasmonic breakdown in metals.

This study opens new avenues for understanding and manipulating the fundamental behaviour of electrons in nanoscale systems which can help design more efficient nanoelectronic devices and

optoelectronic materials with enhanced precision, sensors that operate at atomic and molecular levels as well as efficient nano catalysts.

Metals have long been celebrated for their plasmonic properties—collective oscillations of free electrons that enable unique optical responses. From catalysis to advanced photonic devices, plasmonic behaviour underpins a wide range of modern technologies. However, Prof. Saha's research sheds light on an unexpected and transformative aspect of this field: how the confinement of electrons at the nanoscale disrupts and ultimately breaks down plasmonic behaviour.

A new study by Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) in Bengaluru, under the Department of Science and Technology (DST), GoI, probe how the quantum confinement of electrons, driven by size reduction to the nanoscale, changes the electronic structure of metals. This shift, as shown by the team steered by Prof Bivas Saha leads to a suppression of the collective oscillations essential to plasmonic properties, fundamentally altering the material's optical and electronic behaviour.

At the nanoscale, materials behave in ways that often defy classical intuition. JNCASR's work published in the prestigious *Science Advances* (2024, Vol. 10, Issue 47), bridges the gap between traditional plasmonics and the quantum effects that emerge at this scale.

Prof. Saha's team employed advanced spectroscopy techniques to observe plasmonic phenomena in metallic systems with varying degrees of confinement. Alongside, computational simulations provided a deep theoretical framework to explain the observed breakdown.

They used cutting-edge tools such as electron energy loss spectroscopy (EELS) and first-principles quantum mechanical calculations which helped them predict electron behaviour with unprecedented accuracy.

Apart from JNCASR, Prof. Alexandra Boltasseva and Prof. Vladimir Shalaev from Purdue University and Prof. Igor Bondarev from North Carolina State University in USA, and Dr. Magnus Garbrecht and Dr. Asha Pillai from the University of Sydney participated in this study.

This research challenges long-held assumptions in plasmonics, redefining the boundaries of what is possible with metal-based materials. The electron confinement-induced plasmonic breakdown represents not just a scientific revelation but also a call to rethink the design principles of nanoscale materials.

Speaking about the breakthrough, Prof. Saha remarked, “Our findings highlight the transformative role of quantum confinement in redefining material properties. This is not just about understanding plasmonic breakdown—it's about pushing the limits of how we can harness nanoscale phenomena for technological innovation.”

With growing interest in quantum materials and nanotechnology, Prof. Saha's work positions JNCASR as a leader in exploring the uncharted territory where classical and quantum physics converge.

“The electron confinement-induced plasmonic breakdown in metals represents a landmark achievement in materials science and nanotechnology. By unravelling the intricate interplay between quantum confinement and plasmonic behaviour, this research sets the stage for

revolutionary advancements across industries.”- commented Prasanna Das, lead author of the paper.

The implications of the study are vast, spanning -- electronics and photonics, sensing technologies and catalysts and energy conversion.

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ISRO hits ton in style with successful navigation sat mission

Source: Hindustan Times, Dt. 29 Jan 2025,

URL: <https://www.hindustantimes.com/science/isro-hits-ton-in-style-with-successful-navigation-sat-mission-101738114531893.html>

In its historic 100th mission on Wednesday, ISRO successfully launched an advanced navigation satellite that would aid in terrestrial, aerial and maritime navigation and precision agriculture, among others.

The early morning launch was the first under ISRO Chairman V Narayanan's leadership he assumed office on January 16 and also the space agency's maiden venture in 2025. ISRO had earlier successfully demonstrated a space docking experiment that was launched on December 30, 2024, making it the space agency's 99th mission.

Narayanan said he was extremely happy to announce that ISRO's first venture in 2025 was a success.

The satellite was "precisely injected into the required orbit. This mission is the 100th launch which is a very significant milestone," he said in his address post the successful launch.

"In this mission, the data has come; all vehicle systems are normal," Narayanan added.

Earlier, as the 27.30-hour countdown concluded, the 50.9 tall Geosynchronous Satellite Launch Vehicle rocket with an indigenous cryogenic upper stage, emanating thick fumes on its tail lifted off majestically from the second launch pad at a prefixed time of 6.23 am on Wednesday.

After travelling for about 19 minutes in dark and cloudy skies, the rocket successfully separated its payload, the NVS-02 navigation satellite into the desired Geosynchronous Transfer Orbit .

The satellite is the second in the series of the Navigation with Indian Constellation aimed to provide accurate position, velocity and timing to users in the Indian sub-continent as well as to regions about 1,500 km beyond the Indian land mass.

The GSLV-F15 follows the GSLV-F12 mission which successfully carried NVS-01, the first of the second generation navigation satellites on May 29, 2023.

The key applications of the NVs-02 satellite are terrestrial, aerial and maritime navigation, precision agriculture, fleet management, location based services in mobile devices, orbit determination for satellites, Internet-of-Things based applications and emergency and timing services, ISRO said.

NavIC comprises five second generation satellites NVS-01/02/03/04/05 envisaged to augment NavIC base layer constellation with enhanced features for ensuring continuity of services.

The NVS-02 satellite designed and developed by Bengaluru-based U R Rao Satellite Centre weighs about 2,250 kg. It has navigation payload in L1, L5 and S bands and employs a Tri-band antenna.

The heart of the navigation payload is the Rubidium Atomic Frequency Standard , an atomic clock which acts as a stable frequency reference for the navigation payload.

The ranging payload consists of a CxC transponder used for two-way CDMA ranging to facilitate precise orbit determination, ISRO said.

Narayanan, detailing ISRO's journey, recalled the space mission being nurtured under the leadership of the legendary Vikram Sarabhai.

ISRO has so far developed six generations of launch vehicles, the first one being under Satish Dhawan, and former President, the late J Abdul Kalam as its project director, he said.

It was SLV-3 E1/Rohini Technology payload that was launched on August 10, 1979.

Since then, over these 100 launches, ISRO has 'lifted' 548 satellites to the orbit, including those for foreign clients, Narayanan added.

During this period, several milestone launches have been done, including the three Chandrayaan missions, the missions to Mars and Sun among others, the Secretary, Department of Space, said.

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Deepseek: How open-source AI is disrupting big tech's monopoly

Source: The Indian Express, Dt. 29 Jan 2025,

URL: <https://indianexpress.com/article/explained/explained-sci-tech/deepseek-open-source-ai-big-tech-9803764/>

On Monday, the stock market opened with a massive dip, especially the tech-heavy Nasdaq, which dropped by about 3 per cent. This is its worst performance in the last two years. This drop has been attributed to the meteoric rise of Chinese AI startup DeepSeek, which has in the last few weeks grabbed global attention after it unveiled its AI models — DeepSeek-V3 and DeepSeek-R1, a reasoning model.

The AI models from the Chinese startup went on to gain widespread acceptance, eventually surpassing ChatGPT as the most downloaded app on the App Store. DeepSeek-V3 and DeepSeek-R1 rival OpenAI's cutting-edge models o1 and o3, as the Chinese lab achieved this feat only with a fraction of their investments.

What is DeepSeek?

DeepSeek is a Chinese AI company based out of Hangzhou founded by entrepreneur Liang Wenfeng. He is also the CEO of quantitative hedge fund High Flyer. Wenfeng reportedly began working on AI in 2019 with his company, High Flyer AI, dedicated to research in this domain. DeepSeek has Wenfeng as its controlling shareholder, and according to a Reuters report, HighFlyer owns patents related to chip clusters that are used for training AI models.

What sets DeepSeek models apart is their performance and open-sourced nature with open weights, which essentially allows anyone to build on top of them. The DeepSeek-V3 has been trained on a meager \$5 million, which is a fraction of the hundreds of millions pumped in by OpenAI, Meta, Google, etc., into their frontier models.

What is different about DeepSeek AI models?

Owing to its optimal use of scarce resources, DeepSeek has been pitted against US AI powerhouse OpenAI, as it is widely known for building large language models. DeepSeek-V3, one of the first models unveiled by the company, earlier this month surpassed GPT-4o and Claude 3.5 Sonnet in numerous benchmarks.

DeepSeek-V3 stands out because of its architecture, known as Mixture-of-Experts (MOE). The MOE models are like a team of specialist models working together to answer a question, instead of a single big model managing everything. The DeepSeek-V3 model is trained on 14.8 trillion tokens, which includes large, high-quality datasets that offer the model greater understanding of language and task-specific capabilities. Additionally, the model uses a new technique known as Multi-Head Latent Attention (MLA) to enhance efficiency and cut costs of training and deployment, allowing it to compete with some of the most advanced models of the day. Even as the AI community was marveling at the DeepSeek-V3, the Chinese company launched its new model, DeepSeek-R1. The new model comes with the ability to think, a capability that is also known as test-time compute. The R1 model has the same MOE architecture, and it matches, and often surpasses, the performance of the OpenAI frontier model in tasks like math, coding, and general knowledge. R1 is reportedly 90-95 per cent more affordable than OpenAI-o1.

The R1, an open-sourced model, is powerful and free. While O1 is a thinking model that takes time to mull over prompts to produce the most appropriate responses, one can see R1's thinking in action, meaning the model, while producing the output to the prompt, also shows its chain of thought.

R1 arrives at a time when industry giants are pumping billions into AI infrastructure. DeepSeek has essentially delivered a state-of-the-art model that is competitive. Moreover, the company has invited others to replicate their work by making it open-source. The release of R1 raises serious questions about whether such massive expenditures are necessary and has led to intense scrutiny of the industry's current approach.

How is it cheaper than its US peers?

It is commonly known that training AI models requires massive investments. But DeepSeek has found a way to circumvent the massive infrastructure and hardware cost. DeepSeek was able to dramatically reduce the cost of building its AI models by using NVIDIA H800, which is considered to be an older generation of GPUs in the US. While American AI giants used advanced

AI GPU NVIDIA H100, DeepSeek relied on the watered-down version of the GPU—NVIDIA H800, which reportedly has lower chip-to-chip bandwidth.

In 2022, US regulators put in place rules that prevented NVIDIA from selling two advanced chips, the A100 and H100, citing national security concerns. These chips are essential for developing technologies like ChatGPT. Following the rules, NVIDIA designed a chip called the A800 that reduced some capabilities of the A100 to make the A800 legal for export to China. DeepSeek engineers reportedly relied on low-level code optimisations to enhance memory usage. And this reportedly ensured that the performance was not affected by chip limitations. In simple words, they worked with their existing resources.

Another key aspect of building AI models is training, which is something that consumes massive resources. Based on the research paper, the Chinese AI company has only trained necessary parts of its model employing a technique called Auxiliary-Loss-Free Load Balancing.

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