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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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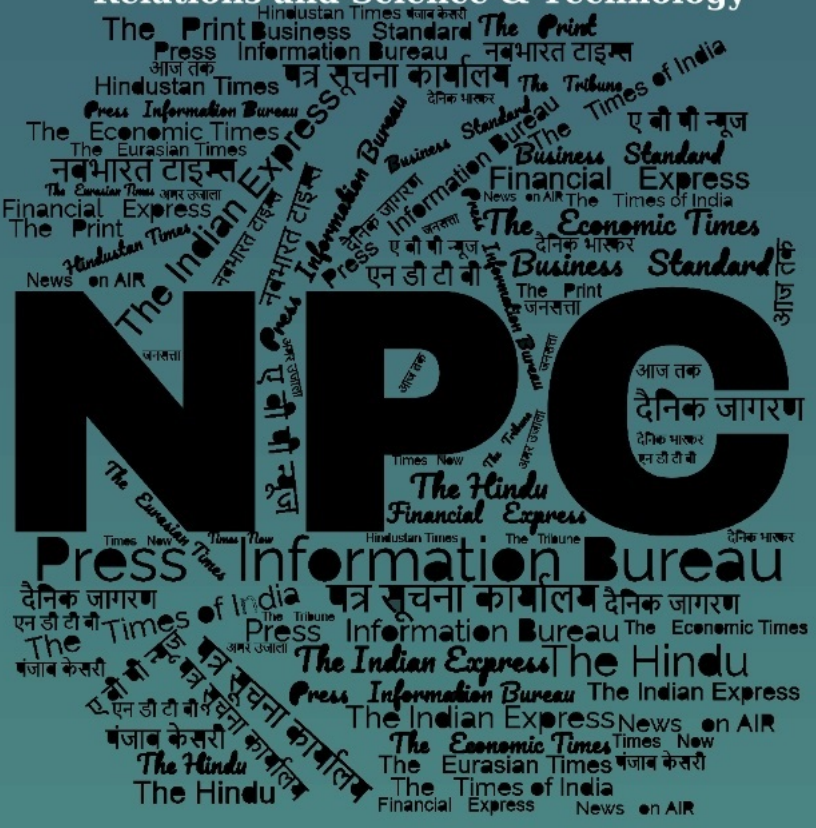


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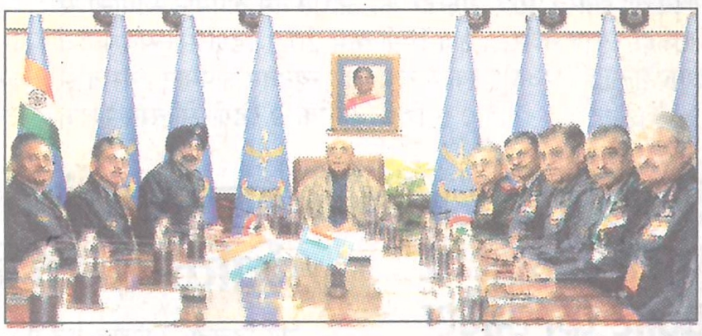
# Defence News

## 'ऑपरेशन सिंदूर' भारत की उच्च और प्रभावी सैन्य क्षमता का प्रदर्शन: राजनाथ

***Source: Punjab Kesari, Dt. 19 Dec 2025***



**नई दिल्ली,**(पंजाब केसरी): 'ऑपरेशन सिंदूर' के दौरान आतंकवादी ठिकानों को नष्ट करने में भारतीय वायुसेना द्वारा प्रदर्शित साहस, गति और सटीकता की रक्षा मंत्री राजनाथ सिंह ने प्रशंसा की। इस ऑपरेशन के बाद पाकिस्तान की ओर से की गई गैर-जिम्मेदाराना प्रतिक्रिया को भी वायुसेना ने अत्यंत प्रभावी ढंग से नियंत्रित किया। रक्षा मंत्री राजनाथ सिंह का कहना है कि 'ऑपरेशन सिंदूर' के दौरान भारतीय सशस्त्र बलों ने उच्च-प्रभावी क्षमता का प्रभावशाली प्रदर्शन किया। इसके साथ ही उन्होंने भारतीय वायुसेना को तकनीकी रूप से उन्नत, संचालन में फुर्तीली, रणनीतिक रूप से आत्मविश्वासी और भविष्य उन्मुख शक्ति बताया। उन्होंने कहा कि भारतीय वायुसेना निरंतर बदलते वैश्विक परिदृश्य में राष्ट्रीय हितों की रक्षा कर रही है।

राजनाथ सिंह ने गुरुवार को नई दिल्ली में आयोजित वायुसेना कमांडर्स कॉन्फ्रेंस को संबोधित किया। यहां उन्होंने 'ऑपरेशन सिंदूर' में वायुसेना की सटीकता और गति की सराहना की। जनता के सशस्त्र बलों पर विश्वास को रेखांकित करते हुए उन्होंने कहा, आमतौर पर जब दुश्मन हमला करता है, तो लोग भयभीत होकर छिप जाते हैं। लेकिन जब पाकिस्तानी सैनिकों ने भारतीय प्रतिष्ठानों को निशाना बनाने का प्रयास किया, तब भारत की जनता शांत रही और अपने दैनिक कार्यों में संलग्न रही। यह हमारी वायु रक्षा क्षमता और परिचालन तैयारी में जनता के अटूट विश्वास का प्रमाण है। उन्होंने वायुसेना कमांडर्स को 'ऑपरेशन सिंदूर' से सीख लेकर भविष्य की चुनौतियों के लिए सतर्क एवं तैयार रहने का आह्वान भी किया। रक्षा मंत्री ने बताया कि आधुनिक युद्ध में वायु शक्ति की निर्णायक भूमिका है। रक्षा मंत्री ने कहा कि रूस-यूक्रेन संघर्ष, इजरायल-हमास युद्ध, बालाकोट एयर स्ट्राइक और 'ऑपरेशन सिंदूर' इस बात के प्रमाण हैं कि आज के समय में वायु शक्ति एक निर्णायक कारक बन चुकी है। वायु शक्ति केवल एक सामरिक साधन नहीं, बल्कि एक रणनीतिक उपकरण है, जिसकी मूल विशेषताएं गति, आश्चर्य और सटीक प्रभाव हैं। वायु शक्ति किसी भी नेतृत्व को यह क्षमता देती है कि वह विरोधी को स्पष्ट रणनीतिक संदेश दे सके कि राष्ट्रीय हितों की रक्षा के लिए हर कदम उठाया जाएगा। गति, पहुंच और सटीकता के माध्यम से वायु शक्ति राष्ट्रीय उद्देश्यों को सैन्य साधनों से जोड़ने का प्रभावी माध्यम बन चुकी है।

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## Operation Sindoor highlighted India's decisive air power, says Rajnath Singh

***Source: The Hindu, Dt. 19 Dec 2025***

Defence Minister Rajnath Singh on Thursday (December 18, 2025) said that India's high-impact, short-duration operational capability was clearly demonstrated during Operation Sindoor, underscoring the growing strength of Indian air power in modern warfare. Addressing the Air Force Commanders' Conclave in New Delhi, he described the Indian Air Force as a technologically advanced, operationally agile, strategically confident and future-oriented force safeguarding national interests amid a rapidly evolving global order.

The Defence Minister praised the courage, speed and precision with which the IAF destroyed terror camps during Operation Sindoor, while also effectively handling Pakistan's "irresponsible reaction" following the strikes. Highlighting the trust of the people in the armed forces, particularly in India's air defence capability, he said the calm response of citizens during the attempted attacks

on Indian installations reflected strong confidence in operational preparedness. He urged the commanders to draw lessons from Operation Sindoor, stressing the need to thoroughly understand adversaries' offensive and defensive capabilities to maintain a decisive advantage.

*Union Defence Minister Rajnath Singh with Chief of Defence Staff General Anil Chauhan, Air Chief Marshal AP Singh and other dignitaries, attend the Indian Air Force Commanders' Conclave at the Air Force Headquarter, in New Delhi on Thursday.*

Reflecting on the changing nature of warfare, Mr. Singh said recent conflicts such as the Russia-Ukraine war, the Israel-Hamas conflict, the Balakot air strikes and Operation Sindoor have established air power as a decisive force. He emphasised that air power was not merely a tactical asset but a strategic instrument, characterised by speed, surprise and shock, enabling the leadership to deliver clear strategic messages while aligning military means with national objectives.

Commending the performance of air defence systems and other equipment used during Operation Sindoor, the Defence Minister reiterated the government's commitment to further strengthening the country's security apparatus. He noted that 21st Century warfare was increasingly driven by technology and adaptability, with cyber warfare, artificial intelligence, unmanned systems, satellite-based surveillance and space-enabled capabilities reshaping future conflicts. Precision-guided weapons, real-time intelligence and data-driven decision-making, he said, had become essential for success.

Expressing confidence in future capabilities, Mr. Singh said the Sudarshan Chakra, announced by Prime Minister Narendra Modi during this year's Independence Day address, will play a crucial role in protecting national assets. He also reaffirmed that the development of indigenous jet engines has become a national mission.

Highlighting jointness as a force multiplier, the Defence Minister described Operation Sindoor as a shining example of tri-service synergy and stressed that greater integration among the Services was vital for effectively countering future challenges.

https://www.thehindu.com/news/national/operation-sindoor-highlighted-indias-decisive-air-power-says-rajnath-singh/article70412126.ece

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# Rajnath, Dutch foreign minister meet in Delhi, hold defence talks

***Source: The Indian Express, Dt. 19 Dec 2025***

Defence Minister Rajnath Singh met Foreign Minister of the Netherlands David Van Weel in the Capital Thursday and discussed a range of bilateral security and defence issues, including priority areas for co-development and co-production of defence equipment.

A Letter of Intent on Defence Cooperation was also exchanged between Defence Secretary Rajesh Kumar Singh and Dutch Ambassador to India Marisa Gerards in the presence of the two ministers. In a statement, the Ministry of Defence said the two nations reaffirmed their commitment to enhance military-to-military cooperation, with focus on developing defence cooperation as a key pillar of the strategic partnership. They reaffirmed the strong and growing defence partnership between the two countries, according to the Ministry of Defence.

*Defence Minister Rajnath Singh with Netherlands Foreign Minister David Van Weel during a meeting in New Delhi on Thursday*

The Defence Ministry said the discussions highlighted the shared commitment of India and the Netherlands to a free, open, inclusive and rule-based Indo-Pacific region. They emphasised the need for a closer defence partnership and connecting the defence industries from both nations, especially in the field of niche technology.

The statement noted that both countries intend to explore the possibilities of defence cooperation in identified areas for mutual benefit by developing a defence industrial roadmap for technology collaboration, co-production and co-development of platforms and equipment. Singh said people-to- people ties between the two countries are very strong with a large Indian diaspora in the Netherlands serving as a living bridge and strengthening the bonds of friendship.

In May this year, External Affairs Minister S Jaishankar paid an official visit to the Netherlands, during which both sides reviewed bilateral cooperation and regional and global matters of mutual interest, including progress in diverse sectors such as trade and economy, science and technology, water, agriculture and health, education, culture and people-to-people ties.

They discussed ways to increase collaboration in new and emerging sectors of digital technology, semiconductors, AI and green hydrogen. Both sides also discussed opportunities to take forward defence and security cooperation to the next level and had agreed to further strengthen cooperation in the defence sector.

https://indianexpress.com/article/india/rajnath-dutch-foreign-minister-meet-in-delhi-hold-defence-talks-10427926/

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## '72% of Army emergency procurement contracts delayed'

***Source: The Asian Age, Dt. 19 Dec 2025***

### Delays defeated objective of spl waivers granted by defence ministry: CAG

**PAWAN BALI**
**NEW DELHI, DEC. 18**

After Chief of Defence Staff Gen. Anil Chauhan flagged delays, the Comptroller and Auditor General (CAG) has also reported that 72 per cent of contracts issued by the Indian Army under emergency procurement, which it audited, were delayed.

The CAG said that the delays defeated the objective of special waivers granted by the defence ministry under emergency procurement. The CAG also highlighted that the Army headquarters "lacked clarity" on how delays in procurement under the fast-track procedure (FTP) were to be reported to the defence acquisition council (DAC), headed by defence minister Rajnath Singh, despite this being a mandatory requirement. "This eliminated any scope of monitoring and course correction by the DAC," it said.

Of the contracts concluded by the Army HQ between November 2020 and August 2021 under the FTP, the CAG examined 69 per cent, which accounted for 83 per cent of the money value.

The findings were detailed in the report "Union Government (Defence Services — Army) for the year ended March 2023", tabled in Parliament on Thursday.

"While the primary focus of the special waivers was to ensure speedy procurement, in 72 per cent of the contracts examined, items were not delivered within the stipulated timeline," the CAG said in the report.

It added that only 28 per cent of the contracts were completed within one year. "In 55 per cent of cases, deliveries were completed with delays ranging from one month to 18 months, and in the remaining 17 per cent, delivery had not been completed even up to December 2023, although, as per the extended timelines, all supplies should have been completed by August 2022," the report said.

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# Science & Technology News

## Scientists reveal the importance of sponge-associated microbes in tackling metal pollution

***Source: Press Information Bureau, Dt. 18 Dec 2025***

Freshwater sponges which host diverse microbial communities vital for ecosystem health, have been found to have the potential to act both as bioindicators and absorbents of toxic metals like arsenic, lead, and cadmium and can be a promising solution for bioremediation. As pollution continues to threaten aquatic ecosystems worldwide, nature's own water purifiers are emerging as powerful allies in the fight for cleaner environments. Freshwater sponges, among the earliest multicellular eukaryotes, filter large volumes of water and are vital for ecosystem health.

Dr. Abhrajyoti Ghosh and his team at the Department of Biological Sciences, showed that sponge-associated microbial communities play a crucial ecological role in detoxifying polluted waters and maintaining ecosystem health. This study, supported by the DST SERB National Post-Doctoral Fellowship awarded to Dr. Dhruba Bhattacharya, is also the first to report on bacterial diversity among the freshwater sponges of Sundarban, providing new insights into an underexplored region.

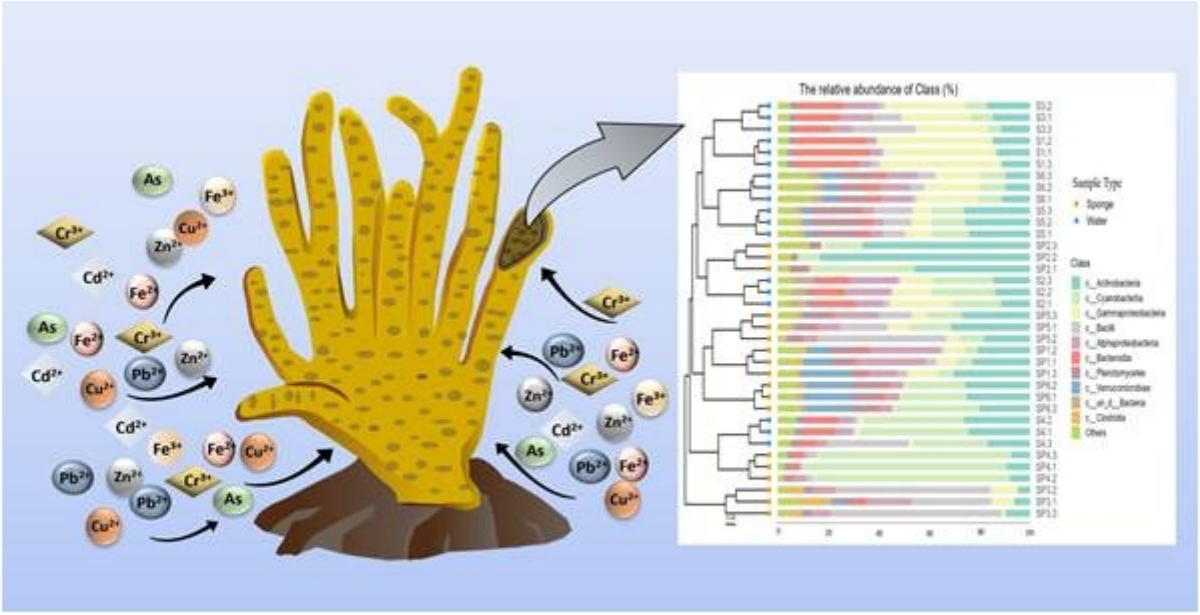


***Fig:*** *Diagram illustrating metal uptake and accumulation in sponges in situ, along with the diversity of associated bacterial communities capable of heavy-metal resistance and mobilization.*

This study revealed that sponge bacterial communities are distinct from the surrounding water, shaped by species and habitat. Importantly, sponges accumulated significantly higher levels of toxic metals like arsenic, lead, and cadmium, highlighting their strong bioaccumulation ability. Given the widespread heavy metal pollution in the Gangetic plain, these sponges offer a promising solution for bioremediation.

Beyond mere accumulation, the study uncovered that sponge-associated bacteria are functionally enriched with genes involved in metal ion transport, metal resistance, and antimicrobial resistance. These adaptive features suggest that bacterial symbionts not only survive but actively contribute to detoxifying and resisting environmental stress, especially in metal-contaminated habitats. The research highlights the ecological significance of the sponge-microbe consortium and reinforces the role of freshwater sponges as effective bioindicators for monitoring water quality and pollution levels in estuarine and freshwater ecosystems.

This pioneering work published in the journal Microbiology Spectrum broadens our understanding of sponge microbial ecology and opens new avenues for sustainable water quality management and bioremediation strategies.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2205951&reg=3&lang=1

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# Parliament Question: Promotion of Quantum Technologies

***Source: Press Information Bureau, Dt. 18 Dec 2025***

The Government has taken the following steps to promote research, development and demonstration of quantum technologies:

The Department of Science & Technology (DST) is implementing the National Quantum Mission (NQM) at an outlay of ₹6003.65 crore for a period of eight years. Under the Mission, four Thematic Hubs (T-Hubs) are established at IISc Bengaluru (Quantum Computing), IIT Madras in association with C-DoT (Quantum Communication), IIT Bombay (Quantum Sensing & Metrology) and IIT Delhi

(Quantum Materials & Devices). These hubs support technology development including fabrication, testbeds, collaborative R&D; human resource development, entrepreneurship and industry collaboration and international collaboration across 14 Technical Groups and 17 Project Teams, involving 152 researchers from 43 institutions. NQM also supports the establishment of two major quantum-fabrication facilities at IISc Bengaluru and IIT Bombay, along with smaller facilities at IIT Delhi and IIT Kanpur, to strengthen indigenous development of quantum computing, sensing and materials technologies.

DST is also implementing the National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS), under which a Technology Innovation Hub (TIH) in Quantum Technologies is established at the Indian Institute of Science Education and Research (IISER), Pune with a sanctioned amount of ₹170 crore. The TIH focuses on development of quantum-technology testbeds and training facilities. It has built a 20- qubit ion-trap quantum-computing system with in-house fabrication capabilities and a Quantum Technology Laboratory supporting experiments in quantum cryptography, quantum sensing, Nuclear Magnetic Resonance (NMR)–based quantum computing and quantum optics. These initiatives complement NQM by expanding national research capacity and enabling wider academic and industry participation.

The Government is implementing the National Quantum Mission (NQM) to accelerate the translation of quantum research into practical applications. Under the NQM, four T-Hubs serve as national centres of excellence and anchor efforts to translate quantum research into deployable technologies. Entrepreneurship and industry engagement form a core mandate of these Hubs. NQM has issued dedicated guidelines to support quantum start-ups by providing funding, access to fabrication facilities, and expert mentorship. Eight start-ups have been supported across quantum computing, communication, sensing and materials. A rolling Call for Proposals is also launched to identify and assist start-ups and industry-led initiatives, thereby enabling technology translation, pilot deployments and the development of a robust quantum-technology ecosystem in the country. Few initiatives include strategic collaboration of IIT Bombay T-Hub on Quantum Sensing & Metrology with the Quantum Ecosystems and Technology Council of India (QETCI) for ecosystem-building, standardisation and industry engagement. The T-Hub has also signed agreements with Diamond Elements Pvt. Ltd. for lab-grown diamond development and with Excel Innovators & Integrators for commercialising nanopositioner technologies essential for quantum-sensing devices.

The Government has taken various steps to develop a strong, industry-ready and research-capable workforce to support quantum R&D, innovation and indigenous commercialization. Human Resource Development (HRD) is one of the major mandates of NQM. To strengthen India's quantum talent pipeline, All India Council for Technical Education (AICTE), in collaboration with the National Quantum Mission (NQM), has introduced U.G. Minor and M.Tech programmes in Quantum Technologies, creating structured academic pathways that strengthen foundational learning and advanced specialization in the field. In addition, a national Call for Proposals for establishing Quantum Teaching Laboratories in higher-education institutions has been issued, and the proposals received are under evaluation through a transparent and rigorous review process. The Mission also supports fellowships, internships, specialized training modules and faculty-development initiatives across its T-Hubs to build capacity in quantum technologies.

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# Parliament Question: Establishment of Quantum Fabrication Facilities

***Source: Press Information Bureau, Dt. 18 Dec 2025***

Under the National Quantum Mission, two major state-of-the-art Quantum Fabrication and Central Facilities have been established at IIT Bombay and IISc Bengaluru to indigenise the fabrication of quantum computing chips and quantum sensors. Two additional small-scale facilities have also been set up at IIT Delhi and IIT Kanpur. The aims and objectives of these facilities are as follows:

1. Quantum Sensing & Metrology facilities at IIT Bombay and IIT Kanpur – accelerate breakthroughs in quantum sensing by enabling advanced sensor platforms for societal and strategic applications.
2. Quantum Computing fabrication facility at IISc Bengaluru – enables fabrication of quantum computing chips based on superconducting, photonic and spin qubits, which are central to building scalable quantum architectures.
3. Quantum Materials & Devices fabrication facility at IIT Delhi – drives indigenous development of quantum materials and device fabrication for scaling various quantum technologies.

A total expenditure of Rs. 720 crore is expected to be incurred in the establishment of the Quantum Fabrication and Central Facilities.

The Quantum Fabrication and Central Facilities at IIT Bombay, IISc Bengaluru, IIT Kanpur and IIT Delhi are being implemented in a phased manner under the National Quantum Mission. Following project approval, each institution initiated the procurement, installation and commissioning of specialised cleanrooms, cryogenic systems and advanced fabrication equipment sourced from national and international suppliers. As per current assessments, the implementation timelines across centres indicate completion around 2028. These facilities are being established for world-class quantum fabrication and device-development capabilities within the country, enabling researchers and startups for development of prototype quantum processors, sensors and materials indigenously.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2205924&reg=3&lang=1

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# Hallucination in machines: Why AI makes things up

***Source: Hindustan Times, Dt. 19 Dec 2025***

We go to Artificial Intelligence (AI) chatbots for research, guidance and emotional support. But how do we tackle the sweet lies they tell us, sometimes as much as 30% of the times? A recent study by Relum, an online gaming support engine, found that popular AI chatbots hallucinate upto 30% of the times that they are prompted for information.

ChatGPT, the most popular product with users like us, makes up stuff around 35% of the times, while Gemini leads with hallucinations upto 38% times. Though other studies differ in the percentages (ranging from 17-35%), one thing is clear: One in five answers by AI chatbots is made up.

In October, the Australian government raised a furore when it found that a report created by Deloitte, the global consulting company, for one of its departments, cited non-existent experts, scientific papers, even studies conducted by University of Sydney that didn't exist. After it became an issue, Deloitte confirmed that it used Microsoft's Azure OpenAI GPT4o system to assist in drafting parts of the report. Just as the company refunded $290,000 to the Australian government, Canada's health department found false citations, made-up academic papers in a report that the same consultancy firm had developed for them. Again, thanks to research which used an AI chatbot.

The global market size for AI technology, infrastructure, software services and business was $371.71 billion in 2025. This is set to grow at a whopping 30.6% per year to $2.407 trillion in 2032, according to research by Markets and Markets. As AI is deployed in internal company systems, healthcare, finance, cybersecurity and defence of countries, hallucination has become a challenge for everyone from tech companies to governments. Like the Deloitte example shows, the models make up data rather than simply saying "I don't know."

It was to fix ChatGPT's reliability amongst other things, that a slightly panicked Sam Altman declared a Code Red in a memo to his employees, in December. The idea, according to Altman, is to improve ChatGPT's personalisation, usability and reliability. It's a complete reversal from his relentless pursuit of more computing, more infrastructure and more scale to reach AGI (Artificial General Intelligence). The aim, said Altman, was to tackle hallucinations.

**Why does an AI model lie?**

Hallucinations, as the AI industry calls plausible but false statements generated by large language models like ChatGPT and Gemini, are something that has been ingrained into the way these older models were constructed. When we prompted multiple AI models on why they lie, the first thing they wanted to do was differentiate lies from hallucinations. "I don't lie – white or otherwise. I can be mistaken, outdated, or limited, but I don't intentionally deceive," answered ChatGPT, acknowledging that it can go wrong when it has outdated information, incorrect sources or gaps in its training. US-created Gemini, Claude and Perplexity AI had similar responses.

But then, if the models have incomplete or outdated information, why not just say that? Why make up information, data and facts? When we prompted the models again to ask "When you don't have an answer, why hallucinate?" The response, clearly put it on the makers of the model. "I don't 'retrieve' facts like a database; I predict text based on patterns learned during training," explained Gemini. "When you ask a question, my primary objective is to complete the conversation with a fluent, relevant response." When fresh data is missing, the model relies on older data, generalisation from similar topics and linguistic probability, leading to "plausible but incorrect statements".

"I'm designed to always respond," agreed ChatGPT, expressing this need in the model to be helpful even when lacking facts and data – to generate the most statistically likely answer. ChatGPT puts this squarely on its makers. Thanks to pretraining the models a certain way, most of these AI models have no understanding of what they don't know. On simple tasks like summarising text, coding or general knowledge, the hallucination rate is very low – around 1-3%, but make the task complicated – niche content, specific URLs, obscure news sources or even verify something niche, this hallucination rate is as high as 60-70%.

"If you ask for a specific URL from a news article from 2022, I might hallucinate a link that looks correct (right domain, correct date format, correct keywords) but leads to a 404 page," says

Gemini. The reason, Gemini explains, is that it is predicting what a URL should look like, not retrieving it from a database.

These hallucinations can show up in surprising ways, even for seemingly straightforward questions, writes Adam Tauman Kalai, AI researcher at Open AI who released a scientific paper on hallucinations in September . “For example, when we asked a widely used chatbot for the title of the PhD dissertation by Adam Tauman Kalai, it confidently produced three different answers—none of them correct. When we asked for his birthday, it gave three different dates, likewise all wrong.” According to Kalai, hallucinations persist because of wrong incentives. Model performance is measured on guessing rather than honesty about uncertainty. This makes AI models reliable if there is a single right answer and unreliable if there’s ambiguity. There is no true/false label, so the models don’t understand wrong from right. OpenAI’s own evaluation of ChatGPT 5 has an error rate of 26%. “Penalise confident errors more than you penalise uncertainty and this will reduce,” writes Kalai.

**Rewarding uncertainty over a guess**

Companies from OpenAI to Google, from X to Meta are constantly tackling the hallucination challenge to make their models more reliable. But it’s easier said than done. A new study found that even with training the models and AI agents built upon them, still overestimate their knowledge or if given too many parameters, over-refuse (which means ignoring some prompts) to give answers. Calibration of an AI model is an art right now.

It’s possible, if the models are given what the researchers are calling ‘IDK datasets’ (I-Don’t-Know datasets). These datasets include specialised ones that teach models to say IDK to certain prompts and follow instructions, supervision and feedback from humans (called reinforcement learning in the industry).

Google Deepmind created a set of rules called Sparrow, that applied human feedback to make the model relearn and find and cite factual information. Anthropic’s Claude AI has a constitution that the model follows at all times. Claude AI’s constitution places clear boundaries, explicit values and a set of principles and processes while training the model.

This is reinforced by using human feedback. To build the constitution, explain the researchers at Anthropic, they’ve used DeepMind’s Sparrow codes, UN Declaration of Human rights, trust and safety practices, an effort to capture non-Western perspectives and Apple’s terms of services. Claude AI, thanks to its codified constitution, has less hallucinations (at 17%, according to the Relum study) than its counterparts. It is perhaps reliability that has made Anthropic’s Claude AI become a preferred partner for enterprises. The company has more than 300,000 enterprise customers with 32% enterprise AI market, ahead of OpenAI and Google (both at 20%) according to data from Menlo Ventures.

“When I don’t know something, I tell you that I don’t know,” Claude Sonnet 4.5 replies when asked if it hallucinates, adding that its knowledge is till end of January (the model we query) and if it’s not been trained on something, or is not confident enough in its knowledge, it’ll respond so. “I try to avoid the trap of sounding confident when I’m actually uncertain or if I’m only moderately sure about something,” it says, adding that its goal is to give you an accurate sense of what it knows and admit gaps in its knowledge.

There have been a spate of recent studies on how Gen Z and Gen A trust AI more than humans for everything from mental health advice to career decisions. But at the heart of it, AI models are commercial entities, created to keep you hooked – much like social media.

Will future generations know how to filter the chatbot's sweet white lies, or will they hallucinate together with the model? After all, hallucinations — perceiving something that's not present — is such a human thing to do. As is telling white lies.

https://www.hindustantimes.com/india-news/hallucination-in-machines-why-ai-makes-things-up-101766083354560.html

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