Artificial Intelligence in the Defence Sector: A Comparative Analysis of the United States, China, and India

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Abstract

This article examines how Artificial Intelligence (AI) is rapidly transforming the defence sector by reshaping military operations, decision-making, intelligence, surveillance, autonomous systems, logistics, cyber warfare, and training. It compares the development and adoption of AI in the defence sectors of the United States (US), China, and India, with particular emphasis on their technological capabilities, investment patterns, institutional frameworks, and strategic approaches. The study also examines the technical, operational, ethical, legal, and institutional challenges of military AI, including algorithmic bias, data security, accountability, human oversight, interoperability, and compliance with International Humanitarian Law. It argues that India's strategic response should focus on indigenous Research and Development, public-private partnerships, secure defence datasets, high-performance computing, edge AI, autonomous systems, skilled human resources, and trustworthy AI frameworks. The article concludes that India can narrow its capability gap not by replicating the scale of the US and China, but by pursuing a focused,

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self-reliant, and human-centred AI strategy aligned with its specific defence requirements and national security priorities.

Introduction

Artificial Intelligence (AI) is a major force behind the current technological revolution in defence. As AI increasingly transforms modern warfare, global powers are increasing investments in Research and Development (R&D) than ever before. AI's considerable potential is transforming military planning, operations, and decision-making. The future battlefield is likely to be shaped as much by computing power and algorithms as by conventional weapon systems.[1] AI is becoming a key part of next-generation military capabilities, as warfare moves toward greater accuracy, speed, and automation. AI's true strength is in changing how people make decisions, how aware they are of their surroundings, and how much control they have over the systems.[2]

The application of AI in defence is expanding across the tactical, operational and strategic levels.[3] One such application is real-time analysis of intelligence gathered by drones, satellites, and ground sensors, providing commanders with enhanced situational awareness in complex operational environments. AI is also used extensively in cyber-defence and Electronic Warfare (EW) to detect anomalies, prevent intrusions, and adapt communication protocols. At the same time, AI-supported training simulations and other user-behaviour-based scenarios are helping prepare forces for combat situations.[4]

Notably, the global military AI market reached USD 9.82 bn in 2025 and is expected to reach USD 41.58 bn by 2035.[5] Indeed, militaries are racing to adopt AI to gain military advantage over competitors. Nevertheless, little is understood about AI's long-term impact on warfare. As militaries continue to pursue AI, leaders should be aware of the significant risks that could come with its adoption.[6] At the same time, AI-enabled systems—drones, autonomous platforms, and lethal autonomous weapons—are raising complex legal questions about the application of existing international humanitarian law and the

need for additional rules governing autonomous weapon systems. Therefore, identifying the legal consequences of AI's swift adoption and examining existing rules of international law through the lens of this technology is crucial.[7]

In this context, this article examines how AI is changing military operations to boost efficiency, enhance decision-making, and improve personnel safety and effectiveness. The paper's primary contribution is a comparative overview of AI trajectories in the defence sectors of the United States (US), China, and India, highlighting their major defence AI projects. It also discusses operational, ethical, legal, and institutional impediments to military AI adoption. Lastly, the paper outlines strategic directions to strengthen AI in India's defence sector.

Military Application of Artificial Intelligence

AI is applied in a wide spectrum of military tasks—from operational planning to medical response—improving efficiency and potentially reducing some forms of human error. For this analysis, military applications of AI are grouped into eight broad categories: command and control; intelligence, surveillance and reconnaissance; simulation and training; automated target recognition; autonomous systems and vehicles; information operations and EW; predictive maintenance and logistics; and medical applications.[8]

In sum, AI is reshaping military operations by improving efficiency, decision-making, personnel safety, and mission effectiveness. It augments human capabilities, helping armed forces adapt more swiftly to evolving threats. To conceptualise AI's role, there is a need to separate its impact on warfighting from its role in preparing for war. Warfighting comprises active combat—dynamic and unpredictable, marked by friction and the fog of war—where adaptability is essential.[9]

By contrast, preparing for war includes force development, technological innovation, production, and logistics. AI could influence preparation by improving production efficiency and enabling the design of novel military capabilities.[10] Meanwhile, Integrating AI into autonomous systems can improve performance in specified tasks,

provided the systems are adequately tested and remain reliable under operational conditions. The central debates about autonomy and Machine Learning (ML) in weapons concern definitions and implications. 'Autonomy' typically refers to a machine's capacity to carry out intended tasks without human intervention, using sensors and software. 'ML' is an approach in which models learn patterns from data to perform specified tasks through various methods.[11] Both fall under the AI umbrella and are often used together.

Michael C Horowitz, a leading expert on AI, defence policy, and international security, views AI as a general-purpose technology comparable to electricity or the combustion engine, meaning its ultimate impact on warfare is shaped by organisational use and human-machine teaming rather than software capabilities alone. In his work on strategic stability, such as *Artificial Intelligence and the Future of Strategic Stability*, he highlights risks from machine-speed conflict, automation bias, and integrating AI into sensitive domains like nuclear command and control.[12]

Comparative Analysis of United States, China and India

According to Stanford University's 2025 AI Vibrancy Index, India ranked third, behind the US and China, in Stanford Human-Centred Artificial Intelligence's 2025 Global AI Vibrancy Tool.[13] India's position stems from a strong talent base, a growing start-up ecosystem, and rising AI research and patent activity. However, despite its strengths in talent, start-ups, and R&D, India remains a 'Distant Third,' substantially trailing the top two in areas such as infrastructure and investment. The gap between India and major military powers is stark. The defence sectors of the US, China, and India are experiencing a rapid surge in AI spending as part of a global, algorithm-driven military revolution. The US leads in investment, focusing on autonomous systems and AI models free from vendor-imposed ethical restrictions. China is aggressively advancing through 'Military-civil Fusion', while India is rapidly accelerating its domestic defence AI ecosystem, focusing on surveillance and autonomous systems.[14]

United States

- The US has pursued a measured and incremental strategy in integrating AI into its defence architecture, with an emphasis on human oversight and ensuring interoperability within existing military systems. This cautious approach has largely stemmed from its historical dominance in technological innovation and leadership. However, amid an evolving geopolitical environment, particularly amid strategic competition with China, the US faces significant challenges in sustaining its leadership in the military application of AI. In light of these developments, the US faces a critical policy dilemma: whether to maintain its trajectory or adopt a more assertive posture toward the militarisation of AI to preserve its strategic advantage.[15]

- Consequently, the US Department of Defence (DoD) continued to prioritise AI and autonomous systems in its Financial Year 2026-27 spending plans, earmarking approximately USD 13.4 bn, alongside broader investments in information technology, cybersecurity, advanced weapons and defence modernisation. The Pentagon is prioritising AI, autonomous technology, and cybersecurity in its 2026 budget, aiming for rapid experimentation and deployment. The DoD's total information technology budget in 2026 is projected to increase by USD 1.8 bn over 2025 levels.[16] The US continues to shift toward AI-enabled warfare to maintain a technological advantage over competitors. Moreover, a 2026 directive encourages AI models without 'Vendor-imposed ethical guardrails', signalling an acceleration toward rapid, unconstrained deployment.[17]

- In Jan 2026, US President Donald Trump proposed increasing military expenditure to USD 1.5 tn in 2027 as part of his vision for a 'Dream Military', stating "It is an especially troubled and dangerous time".[18] It would result in a 50 per cent increase in the nation's military budget as a result of growing concerns within the Pentagon about China's advances in the field of AI. In the US-China competition to develop new technologies, AI has increasingly been used as a weapon in itself.[19]

China

- China is strategically leveraging AI as a central element of its Military-Civil Fusion strategy, aiming to achieve dominance in autonomous systems, cyber warfare, and surveillance technologies, among others. In contrast to the US, where AI innovation is predominantly driven by private sector enterprises, China adopts a more state-directed approach that integrates civilian AI research with military applications over a prolonged time period. This integration fosters more cohesive and rapid development of AI technologies for defence purposes, giving China a potentially significant advantage in emerging domains of warfare.[20] The People's Liberation Army seeks not only to equal but also to overtake the US military by seizing the initiative in the ongoing Revolution in Military Affairs.

- The Chinese government allocated CYN 1.78 tn (USD 245.2 bn) to its military budget for 2025, making China the world's second-largest military spender, after the US as the world's second-highest military spender.[21] For 2026, China plans to allocate CNY 1.94 tn (USD 282 bn), up 6.9 per cent from the previous year, continuing 11 straight years of single-digit growth to modernise technology like AI.[22] While the total budget grows, China's 2025 AI-specific capital expenditure is expected to reach up to USD 98 bn, with significant investment aimed at military AI, biotechnology, and autonomous systems to counter the US.[23]

- Chinese military leaders believe the form of warfare is changing from today's 'Informatised' warfare to future 'Intelligentised' warfare.[24] China is rapidly expanding its military technology through major investments in 6th generation fighters, stealth drones, and 500-ton stealth drone ships.[25] On 05 Mar 2026, China unveiled major development targets in its five-year plan for 2026-2030. The country aims to seize the commanding heights of science and technological development and achieve decisive breakthroughs in key core technologies.[26] Notably, in order to gain technological

dominance by 2035, Chinese President Xi Jinping, on 08 Jul 2026, asked Chinese scientists and engineers to make the country a leading power in science and technology by 2035 to achieve high-level self-reliance.[27]

India

- India initiated its defence AI efforts in Feb 2018 by forming a Task Force on AI under the Ministry of Defence (MoD). In Feb 2019, based on the recommendations of the task force, the Defence Artificial Intelligence Council and the Defence AI Project Agency were established.[28] In Aug 2019, an AI roadmap for Defence Public Sector Undertakings (DPSUs) was released. The MoD showcased AI adoption at the 'AI in Defence' symposium and exhibition in 2022. At the event, Defence Minister Shri Rajnath Singh unveiled 75 products that were made with the help of DPSUs, private companies, universities and research organisations.[29] Later, in Oct 2024, the Defence Research and Development Organisation (DRDO) launched the Evaluating Trustworthy AI Framework, a risk-based assessment model designed to integrate safe, secure, and reliable AI into critical defence operations.[30]

- India has allocated a record INR 7.85 lakh cr (USD 93.5 bn) to the MoD for the fiscal year 2026–27, marking a 15.19 per cent increase from the previous year.[31] While AI does not yet feature as a separate budget head in India, reports estimate roughly INR 100 crore per year earmarked explicitly for military AI projects, supplemented by broader national allocations like the INR 1,000 cr India AI Mission.[32] DRDO laboratories such as the Centre for Artificial Intelligence and Robotics (CAIR) are working on AI-enabled unmanned aerial vehicles, humanoid robots, and secure indigenous defence software for secure battlefield communication and information management systems.[33] A notable CAIR accomplishment is the AI techniques for net centric operations project, a modified technology group for knowledge-based creation, semantic information handling, inference reasoning, and event correlation.[34] Other notable CAIR projects are the multi-agent

robotics framework, such as the 'Wall Climber' robots and 'Snake Robots'.[35]

- Indeed, India is accelerating AI adoption in defence to boost operational efficiency, surveillance, decision-making, and self-reliance in future warfare. In Sep 2025, India released a 15-year defence roadmap (2025–2040) focused on AI, hypersonic technologies and capabilities for future warfare, charting a major modernisation path to address emerging challenges over the coming decades.[36] By Feb 2026, the MoD had signed 548 contracts under the Innovations for Defence Excellence (iDEX) initiative covering AI, autonomy, and other advanced technologies, engaging more than 676 startups, micro, small, and medium enterprises and individual innovators.[37] A total of 106 AI-based projects have been recognised, while 40 AI-based tools have entered defence operations.[38] India is pursuing a multi-layered security approach, prioritising 75 projects centred on AI, drone swarms, and cybersecurity, emphasising indigenisation as part of the *Atmanirbhar Bharat* (Self-Reliant India) drive.[39]

In comparison, the US, China, and India differ significantly in their military AI capabilities, budget scale, and strategic doctrines. The US has a long history of integrating AI into its defence strategy and maintains a massive computational and financial advantage. China has achieved parity or near-parity with the US in specific domains, supported by substantial state funding. India currently lags behind the US and China in raw computational power and operates with a significantly smaller defence AI budget. However, India manages its military AI shortcomings through a phased capability roadmap, institutional oversight, and a push for domestic technological self-reliance.

Challenges in the Use of Artificial Intelligence in Defence

Implementing AI in defence offers significant benefits, but it also presents challenges across technical, ethical, legal and operational domains. Technical challenges include ensuring data security, addressing algorithmic bias, meeting heavy computational demands,

and maintaining system reliability in unpredictable combat environments.[40] Ethical challenges include the potential erosion of human oversight and accountability in lethal decisions, biased targeting outcomes, and difficulties in assigning responsibility for potential war crimes.[41] The legal challenges include accountability for autonomous actions, adherence to International Humanitarian Law, and biases embedded in algorithms.[42] Operational challenges include limited transparency, scarcity of labelled training data, algorithmic bias, and integration issues with legacy systems.[43]

Indeed, India's aspirations to become a leading centre for AI and deep technology face several systemic barriers. Institutional fragmentation within India's AI landscape creates significant gaps in funding, compute infrastructure, and regulatory uncertainty. Competition among government bodies, fragmented regulatory jurisdictions, and hardware dependence disperse resources, create unequal regional deployment, and hinder scaling indigenous AI technologies.[44] On the other hand, India's dependence on imported AI semiconductors and limited domestic manufacturing capacity create severe supply chain and geopolitical vulnerabilities as dependency on foreign manufacturers undermines the strategic independence of India and the safety of its digital infrastructure.[45]

Moreover, despite its vast digital public infrastructure (DPI), much of its unique data remains unutilised, disconnected, and largely untapped by local startups.[46] Additionally, in India, bureaucratic hurdles and inter-service rivalries slow down the process of incorporating AI into defence. The core problem appears to be bringing civilian scientific capacity together with armed forces organisations.[47] Another problem is the retention of AI talent in India. 2025 'Global AI Vibrancy Ranking', India leads the globe in relative AI skill penetration. Nevertheless, the country continues to experience an outflow of AI talent, as professionals seek better opportunities abroad.[48]

Strategies to Strengthen Artificial Intelligence in Indian Defence

Strengthening AI capabilities within India's defence sector requires greater indigenous R&D, stronger public-private partnerships, and robust data and digital infrastructure to create secure, dependable, and intelligent systems.

The key strategies to improve AI in Indian Defence are as follows:

- **Foster Indigenous Innovation and Partnerships**. Bridge gaps between DRDO, DPSUs, and private tech firms to enable agile development. Scale up startup funding via iDEX to accelerate solutions in AI, sensor systems, and autonomous unmanned platforms.[49]

- **Strengthen Data and Digital Infrastructure**. Build a secure national repository of labelled, defence-relevant data to train algorithms while ensuring data sovereignty. Invest in domestic high-performance computing centres and consider indigenously designed semiconductors for sensitive defence workloads.[50]

- **Focus Areas for Deployment**. Deploy AI-based image-analytics systems (e.g., Agni-D) for real-time border monitoring and threat detection. Develop AI-enabled swarm drones for collaborative surveillance and target identification.[51]

- **Institutional and Human Resource Development**. Empower Defence AI Project Agency to set AI development standards, standard operating procedures, and intellectual property rights policies. Introduce specialised AI courses across defence training institutions.[52]

- **Ethical AI Frameworks**. Maintain human-in-the-loop architectures for critical life-or-death decisions. Through initiatives such as Moral and Ethical Systems, Accountable Governance, National Sovereignty, Accessible and Inclusive, and Valid and Legitimate (MANAV), India aims to promote an AI trajectory that advances both technology and human welfare.[53]

- **Strategic Initiatives**. Strengthen military decision-making with wargaming and simulation at centres such as the Wargame Research and Development Centre, recognising wargaming's growing role in operational planning, leadership development, and doctrinal innovation for multi-domain operations.[54]

Given India's current limitations in matching the scale of datasets available to the US and China, its defence sector and deep tech startups are pivoting towards smaller language models and edge AI to create smarter battlefield systems. India's long-term strategy should emphasise indigenous AI models tailored to domestic defence datasets and operational requirements. India can improve AI in its defence sector by accelerating R&D, building a sovereign military data cloud, and fostering industry-academia collaboration. Sarvam AI is a notable example selected under the the IndiaAI Mission's IndiaAI Innovation Centre pillar to build foundational models for Indian languages and public services for start-ups, academia, research institutions, and industry.[55]

Conclusion

AI has emerged as a transformative force in the defence sector, reshaping military operations, decision-making, intelligence, surveillance, logistics, cyber operations, and autonomous systems. The comparative analysis of the US, China, and India demonstrates that AI is increasingly becoming an important component of military power and strategic competition. However, the trajectory of AI adoption differs significantly among the three countries because of differences in technological capacity, financial resources, institutional structures, and strategic priorities.

For India, the central challenge is not merely to replicate the AI capabilities of the US or China, but to develop an indigenous, context-specific defence AI ecosystem. This requires greater investment in domestic R&D, high-performance computing, secure defence datasets, semiconductor capabilities, and AI talent. Stronger cooperation among DRDO, the armed forces, DPSUs, universities, start-ups, and established technology companies is equally

necessary. Institutional mechanisms should also be strengthened to establish common standards, testing procedures, accountability mechanisms, and responsible AI principles across defence applications.

Endnotes

1 "Artificial Intelligence (AI) in Defence", *European Commission*, Dec 2025, accessed 15 Mar 2026, https://defence-industry-space.ec.europa.eu/system/files/2025-12/Factsheet%20AI%20in%20Defence.pdf

2 Denise Garcia, "AI in military decision-making", *Global Catastrophic Risks 2026*, accessed 17 Mar 2026, https://globalchallenges.org//app/uploads/2025/12/GCF-Risk-report-2026-Risk-4-.pdf

3 Roberto Poli, ed., *Handbook of Futures Studies* (Cheltenham, UK: Edward Elgar Publishing, 2024), 432

4 *KPMG*, "Artificial Intelligence (AI) in Defence Modernisation", 23 Jun 2025, accessed 20 Mar 2026, https://kpmg.com/in/en/blogs/2025/06/artificial-intelligence-in-defence-modernisation.html

5 Sai Teja Thota, "Military AI Market Size, Share, Growth, Trends and Forecast 2026–2035", *DataM Intelligence*, 13 Aug 2026, accessed 25 Aug 2026, https://www.datamintelligence.com/research-report/military-ai-market

6 Paul Scharre, "The Militarization of Artificial Intelligence", *Texas National Security Review*, roundtable, 02 Jun 2020, 35–43.

7 Jaemin Lee, *Artificial Intelligence and International Law* (Singapore: Springer, 2022), 2.

8 Kurtis H Simpson et al., "Militarizing AI: How to Catch the Digital Dragon?", *Centre for International Governance Innovation*, 26 Feb 2025, accessed 25 Aug 2026, https://www.cigionline.org/articles/militarizing-ai-how-to-catch-the-digital-dragon/

9 Soumya Awasthi, "Artificial Intelligence and India's National Security", *Raisina Debates*, ORF, 28 Mar 2026, accessed 29 Mar 2026, https://www.orfonline.org/expert-speak/artificial-intelligence-and-india-s-national-security

10 Zachary Burdette, et. al., “How Artificial Intelligence Could Reshape Four Essential Competitions in Future Warfare”, *RAND*, 22 Jan 2026, accessed 30 Mar 2026, https://www.rand.org/pubs/research_reports/RRA4316-1.html

11 Vincent Boulanin and Maaike Verbruggen, “Mapping the Development of Autonomy in Weapon Systems”, *SIPRI*, Nov 2017, accessed 03 Apr 2026, https://www.sipri.org/sites/default/files/2017-11/siprireport_mapping_the_development_of_autonomy_in_weapon_systems_1117_1.pdf

12 Michael C Horowitz, “Artificial Intelligence and the Future of Strategic Stability”, *Texas National Security Review*, Vol. 9, Issue 2, 09 Mar 2026. pp. 66–83.

13 IANS, “India Ranks 3rd in AI Competitiveness after US and China”, *NDTV*, 14 Dec 2025, accessed 05 Apr 2026, https://www.ndtv.com/world-news/india-ranks-3rd-in-ai-competitiveness-after-us-and-china-stanford-university-report-9806521

14 Ajay Vaishnav, “Military power is shifting from weapons to algorithms, says defence research paper on India’s AI doctrine”, *CNBC TV18*, 19 Feb 2026, accessed 10 Apr 2026, https://www.cnbctv18.com/technology/military-power-is-shifting-from-weapons-to-algorithms-says-defence-research-paper-on-indias-ai-doctrine-19854066.htm

15 Arpan Chakravarty, “ilitary Application of Artificial Intelligence: A Case Study of Ecosystem in United States, China, and India”, *India Foundation*, Jun 2025. P.10.

16 Chris Borges and Yutong Deng, “Innovation Lightbulb: Federal R&D Funding Matters for U.S. AI Leadership”, *Center for Strategic and International Studies*, 22 Oct 2025, accessed 13 Apr 2026, https://www.csis.org/blogs/innovation-lightbulb-federal-rd-funding-matters-us-ai-leadership#:~:text=As%20stated%20in%20the%20White%20House's%20AI,progress%20in%20AI%2C%20including%20investments%20in%20R&D.

17 David Jeans and Deepa Seetharaman, “Pentagon pushing AI companies to expand on classified networks, sources say”, *Reuters*, 12 Feb 2026, accessed 15 Apr 2026, https://www.reuters.com/business/pentagon-pushing-ai-companies-expand-classified-networks-sources-say-2026-02-12/

18 Osmond Chia, “Trump calls for US military spending to rise more than 50% to $1.5tn”, *BBC*, 08 Jan 2026, accessed 17 Apr 2026, https://www.bbc.com/news/articles/cy59kxl2xwzo

19 Lucy Quaggin, “The AI race: US and China defence sectors emerge as key battlegrounds”, *South China Morning Post*, 05 Feb 2026, accessed 19 Apr 2026, https://www.scmp.com/news/us/diplomacy/article/3342412/us-and-china-defence-sectors-emerge-key-battlegrounds-race-ai

20 Chakravarty, “Military Application of Artificial Intelligence”, 14.

21 *Quaggin,* ‘The AI race.’

22 Reuters, “China lifts military budget to modernize weapons, defence technology”, *Reuters*, 10 Mar 2026, accessed 25 Apr 2026, https://www.reuters.com/world/asia-pacific/china-lifts-military-budget-modernize-weapons-defence-technology-2026-03-10/

23 Annual Report to Congress: “Military and Security Developments Involving the People’s Republic of China 2025”, *U.S. Department of Defence*, accessed 26 Apr 2026, https://media.defense.gov/2025/dec/23/2003849070/-1/-1/1/annual-report-to-congress-military-and-security-developments-involving-the-peoples-republic-of-china-2025.pdf

24 Elsa B Kania, ‘Artificial Intelligence in China’s Revolution in Military Affairs’, *Journal of Strategic Studies*, Vol. 44, No. 4, 2021. pp. 515–542.

25 William Zheng, “China unveils ‘Killer Whale’ stealth drone ship”, *South China Morning Post*, 10 Nov 2024, accessed 26 Aug 2026, https://www.scmp.com/news/china/military/article/3285955/china-unveils-killer-whale-stealth-drone-ship

26 Laurie Chen and Eduardo Baptista, “China's new five-year plan calls for AI throughout its economy, tech breakthroughs”, *Reuters*, 05 Mar 2026, accessed 27 Apr 2026, https://www.reuters.com/world/asia-pacific/china-vows-accelerate-technological-self-reliance-ai-push-2026-03-05/

27 PTI, “Make China leading power in sci-tech by 2035: Xi tells scientists”, *The Hindu*, 08 Jul 2026, accessed 26 Aug 2026, https://www.thehindu.com/news/international/make-china-leading-power-in-sci-tech-by-2035-xi-tells-scientists/article71198311.ece

28 PIB, “Task Force for Implementation of AI”, *Ministry of Defence*, Government of India, 28 Mar 2022, accessed 29 Apr 2026, https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1810442&reg=3&lang=2

29 Manoj Joshi, “AI in Modern Warfare: India’s Strategic Challenges and Opportunities”, *Raisina Debates,* ORF, 27 Feb 2026, accessed 01 May 2026, https://www.orfonline.org/expert-speak/ai-in-modern-warfare-india-s-strategic-challenges-and-opportunities

30 PIB, “Framework & Guidelines to integrate Trustworthy AI into critical defence operations unveiled”, *Ministry of Defence*, Government of India, 17 Oct 2024, accessed 07 May 2026, https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2065847&reg=3&lang=2

31 J Paul Zachariah, "Analysing India’s Defence Allocation in Budget 2026-27: Modernisation in the Shadow of Operation Sindoor”, *Centre for Public Policy Research*, 03 Feb 2026, accessed 26 Aug 2026, https://www.cppr.in/archives/analysing-india-defence-budget-2026-27-post-operation-sindoor

32 Anand Singha, “Budget 2026: Not just big guns, the real test of Bharat's defence will be dictated by its modern muscle”, *The Economic Times*, 21 Jan 2026, accessed 26 Aug 2026, https://economictimes.indiatimes.com/news/defence/budget-2026-defence-allocations-artificial-intelligence-ai-not-just-bug-guns-but-real-indias-modern-muscle-on-focus/articleshow/126929053.cms?from=mdr

33 “Centre for Artificial Intelligence and Robotics (CAIR)”, Indian Science, Technology, and Innovation Portal, *Department of Science and Technology*, Government of India, accessed 11 May 2026, https://www.indiascienceandtechnology.gov.in/organisations/ministry-and-departments/defence-research-and-development-organisation-drdo-govt-india/centre-artificial-intelligence-robotics-cair

34 P. K. Chakravorty, “Artificial intelligence and its impact on the Indian armed forces”, *Indian Defence Review*, 05 May 2017, accessed 13 May 2026, https://indiandefencereview.com/artificial-intelligence-and-its-impact-on-the-indian-armed-forces/

35 Petr Topychkanov, “The Impact of Artificial Intelligence on Strategic Stability and Nuclear Risk”, *SIPRI*, Apr 2020, accessed 14 May 2026, https://www.sipri.org/sites/default/files/2020-04/impact_of_ai_on_strategic_stability_and_nuclear_risk_vol_iii_topychkanov_1.pdf

36 Shivani Sharma, “India unveils 15-year defence plan”, *India Today*, 05 Sep 2025, accessed 16 May 2026, https://www.indiatoday.in/india/story/india-15-year-defence-plan-ai-hypersonic-next-generation-warfare-2782430-2025-09-05

37 PIB, “India must become global hub of drone manufacturing in next few years amid current geopolitical instability: Raksha Mantri at National Defence Industries Conclave 2026”, *Ministry of Defence*, Government of India, 19 Mar 2026, accessed 17 May 2026, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2242398&reg=3&lang=2

38 Mohd Asif, “India is Developing AI in National Security and Defence”, *Impact and Policy Research Institute*, 02 Mar 2025, accessed 21 May 2026, https://www.impriindia.com/insights/india-ai-security-defence/

39 Antoine Levesques, “Early steps in India’s use of AI for defence”, *IISS*, 18 Jan 2024, accessed 04 Jun 2026, https://www.iiss.org/online-analysis/online-analysis/2024/01/early-steps-in-indias-use-of-ai-for-defence/

40 Pooja Awasthi, “Artificial Intelligence in Future Defense Systems: Opportunities, Risks, and Ethical Challenges”, *Journal of Applied Bioanalysis*, Vol. 11, No. 11, Dec 2025. pp. 1079-1087.

41 Mariarosaria Taddeo and David Sutcliffe, “The Ethics of Artificial Intelligence in Defence”, *Oxford Internet Institute,* University of Oxford, 03 Feb 2025, accessed 26 Aug 2026, https://www.oii.ox.ac.uk/the-ethics-of-artificial-intelligence-in-defence/

42 Amir Rabet, “Artificial Intelligence and International Law: Challenges and Opportunities”, *Legal Studies in Digital Age*, Vol. 5, Issue 1, Jan 2026. pp. 1-15.

43 John Cerulli, “Challenges Facing the Military's Use of AI at the Tactical Edge”, *Forbes*, 12 Nov 2024, accessed 26 Aug 2026, https://www.forbes.com/councils/forbesbusinesscouncil/2024/11/12/challenges-facing-the-militarys-use-of-ai-at-the-tactical-edge/

44 Sejal Gupta, “India’s AI Regulation at the Crossroads: A Comprehensive Law or a Sectoral Mosaic?”, *Journal of Development Policy and Practice*, Vol. 11, No. 1, Jan 2026. pp. 120-132.

45 Gourav Yadav, “India’s Semiconductor Push: Defence Implications”, Issue Brief, *IDSA*, 20 Nov 2025, accessed 26 Aug 2026, https://idsa.in/publisher/issuebrief/indias-semiconductor-push-defence-implications

46 Preeti Raghunath, “Data in India’s Digital Public Infrastructure (DPI): A Deliberative Policy Ecology Approach”, *International Journal of Communication*, Vol. 20, 2026. pp. 417–434.

47 Anit Mukherjee, “Towards control and effectiveness: The Ministry of Defence and civil-military relations in India”, *Journal of Strategic Studies*, Vol. 45, Nos. 6–7, 2022. pp. 820–842.

48 Sha Sajadieh et al., “Artificial Intelligence Index Report 2026”, *Institute for Human-Centered AI*, Stanford University, Apr 2026, accessed 26 Aug 2026, https://hai.stanford.edu/assets/files/ai_index_report_2026.pdf

49 Sudhish Kumar Jaini and Navin Varma, “Indian defence manufacturing landscape-DRDO, public & private sector”, *International Journal of Applied Research*, Vol. 11, No. 10, 2025. pp. 179-197.

50 Tejas Bharadwaj, “Mapping India’s Cybersecurity Administration in 2025”, *Carnegie Endowment for International Peace*, 01 Sep 2025, accessed 08 Jun 2026, https://carnegieendowment.org/research/2025/09/mapping-indias-cybersecurity-administration-in-2025

51 Mohammed Abbad Mohiuddin, “AI-Driven Tools in the Indian Defence Sector”, *India AI*, 30 Sep 2024, accessed 10 Jun 2026, https://indiaai.gov.in/article/ai-driven-tools-in-the-indian-defense-sector

52 Pardeep Bhardwaj, “Use of Artificial Intelligence for Improving Operational Efficiency in the Armed Forces”, *Air Power Journal*, Vol. 19, No. 4, Winter 2024 (Oct-Dec). pp. 1-23.

53 PIB, “M.A.N.A.V.: PM Narendra Modi’s Human-Centric AI Odyssey”, *PIB Headquarters*, Government of India, 19 Feb 2026, accessed 12 Jun 2026, https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=157492&ModuleId=2&reg=6&lang=1

54 PIB, Indian Army Hosts National Seminar on “Enhancing Military Decision-Making Through Wargaming and Simulation” and “Releases Indigenous Decision-Support Applications”, *Ministry of Defence*, Government of India, 20 Feb 2026, accessed 14 Jun 2026, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2230790&reg=3&lang=1

55 PIB, “Sarvam AI Powering a Made-in-India AI Revolution”, *PIB Headquarters*, Government of India, 21 Feb 2026, accessed 16 Jun 2026, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2231169&reg=3&lang=1