Delhi Policy Group

Advancing India's Rise as a Leading Power

# POLICY BRIEF

## India-US Partnership for AI Leadership


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## Author

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## Cover Photographs:

*Prime Minister Modi meeting the newly sworn-in 47th US President, Donald Trump, during his official visit to the United States, on February 13, 2025. Source: X/@MEAIndia*

*Indian PM Narendra Modi with CEOs of Major American Tech Companies in New York for a roundtable discussion on collaboration opportunities between the US and India in AI, quantum computing, and semiconductors on September 23, 2024. Source: X/@narendramodi*



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## Introduction

Technology today deeply influences every facet of our lives, from social interactions, business operations to international political dynamics. Prime Minister Narendra Modi's remark[1], "This is the era of technology" aptly captures this defining role. Among the many emerging and critical technologies, Artificial Intelligence (AI) stands out as the one creating the most opportunity.

As far back as 2017, Russian President Vladimir Putin had described[2] AI as "the future of humanity". The rapid acceleration in AI research and development in recent years, transforming critical sectors such as defence, economic competition, information warfare, and surveillance, has made it a crucial strategic tool for nations aiming to bolster their national power.

Recognising the potential of AI, India launched its AI Mission in March 2024, aimed at building a robust ecosystem and enhancing its AI capabilities.[3] The Indian government is also actively fostering international collaborations with leading AI powers, notably the US, which has the most advanced AI ecosystem worldwide. The US-India joint statement of February 13, 2025 delineated key areas of enhanced cooperation including in the areas of defence, trade, energy security, and people-to-people engagement. Amongst these, the technology partnership, which has long held particular significance in the India-US relationship, received heightened emphasis, marked by the launch of the India-US TRUST initiative ("Transforming the Relationship Utilising Strategic Technology"). This initiative aims to strengthen bilateral collaboration on emerging and critical technologies, with AI cooperation recognised as its central pillar.[4]

[1] Prime Minister's Office. "PM Addresses at Inauguration of Bosch Smart Campus in Bengaluru via Video Message." Pib.gov.in, 2022. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1838170.
[2] Radina Gigova. "Who Vladimir Putin Thinks Will Rule the World." CNN, September 2, 2017. https://edition.cnn.com/2017/09/01/world/putin-artificial-intelligence-will-rule-world.
[3] Ministry of Electronics & IT. "Government of India Expands AI-Driven Skilling." Pib.gov.in, 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2113095.
[4] Ministry of External Affairs. "India-US Joint Statement." Mea.gov.in, Feb. 2025. https://www.mea.gov.in/bilateral-documents.htm?dtl/39066/India++US+Joint+Statement+February+13+2025.

This paper will explore the fundamentals of an AI ecosystem, assess India's current AI landscape and national efforts to enhance AI capabilities, and examine India-US technology cooperation, in order to provide strategic insights on how India can leverage this partnership to achieve its AI ambitions.

## Understanding the AI ecosystem[5]

An AI ecosystem consists of a multilayered framework, commonly referred to as AI Stack, which is essential for enabling effective research, development, and deployment of AI technologies within a country. At the foundation of this stack lies the **AI infrastructure layer**, which comprises the core computing capabilities. This includes high-performance hardware such as CPUs, GPUs, TPUs, NPUs, and supercomputers, along with reliable data storage and advanced networking systems. As AI processing is resource-intensive, this layer also demands high-speed internet connectivity, a reliable power supply, and effective cooling systems. All the essential components of the AI computational process are housed together in one location within a specialised facility known as an AI data centre. The next layer **is of data collection and preparation**. This involves gathering data from diverse sources using a range of technological tools and systems, which is then cleaned, formatted, and labelled to ensure it is accurate, well-structured, and suitable for training AI models.

After this comes the **AI model development layer**, where the prepared datasets are used with machine learning platforms such as TensorFlow or PyTorch to build and train AI models. Once the models are trained, they then transit into the **deployment and integration layer**, to be embedded into practical applications like fraud detection tools, virtual assistants, or recommendation engines. For this, developers may either build new applications tailored for the developed AI model or integrate the model into existing systems using Application Programming Interfaces (APIs).[6] The final layer of the AI stack focuses on **performance monitoring and governance** which involves tracking AI application's performance, identifying any anomalies and implementing improvements through iterative updates. It also requires establishing governance frameworks that promote the ethical, transparent, and responsible use of these developed AI technologies.

[5] Cole Stryker. "AI Stack." Ibm.com, November 29, 2024. https://www.ibm.com/think/topics/ai-stack.

[6] *APIs are sets of rules and protocols that enable seamless communication and integration between AI models and other software systems, allowing for the exchange of data, services, and functionalities. This facilitates consistent data flow, scalability, and ongoing updates to the models.

## India's Position in the Global AI Landscape

India's AI ecosystem is experiencing a significant upward trajectory, marked by an increasing prioritisation of AI across industries. Approximately 80% of Indian companies have made AI a central component of their core strategies, leading to a substantial boost in investments, particularly in the generative AI startup space, with funding growing sixfold. Workplace adoption has also accelerated, with seven out of ten employees in 2024 reportedly using AI tools.[7] This maturing of the AI landscape is also reflected in the observations of the 2025 UNCTAD Technology and Innovation Report on Inclusive Artificial Intelligence for Development. In this annual assessment of national technological capabilities and AI readiness, India ranked 36th, rising up from the 48th position in 2024, whereas the US secured the top spot and China ranked 21st. The report highlighted India's exceptional achievements in AI-related research and development, ranking third globally in AI publications and securing the highest Revealed Technology Advantage (RTA) score in AI patents. With India hosting a large talent pool of 12,810 AI developers, second only to the US with 19,742, and a leading share of 24% in global AI projects on GitHub, India is emerging as the global 'Skills Capital' in AI.[8] The Stanford Global and National AI Vibrancy Index also placed India among the top four nations, underscoring the strength of its startup ecosystem, skilled workforce, and research output.[9] It is these strengths that have bolstered India's AI industry capabilities, earning it the 10th position globally.[10]

However, despite these advancements, India's broader technological capacity continues to face critical limitations such as infrastructure gaps, limited AI-specific financing, and low digital literacy. In 2024, India's dedicated AI R&D funding stood at US$ 1.4 billion, ranking 10th globally but far behind the US which invested US$ 67 billion, accounting for nearly 70% of global private AI funding, followed by China, with US$ 7.8 billion. This stark disparity in financial resources directly impacts the pace and quality of AI innovation and its commercialisation.[11] On the infrastructure front, while India is steadily increasing its data centre infrastructure, totalling 153 centres as of February

[7] Ministry of Electronics & IT. "India's AI Revolution." Pib.gov.in, March 5, 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2108810.
[8] United Nations Conference on Trade and Development (UNCTAD). "Technology and Innovation Report Inclusive Artificial Intelligence for Development," 2025. https://unctad.org/system/files/official-document/tir2025_en.pdf.
[9] Stanford University Human-Centered Artificial Intelligence . "Who's Leading the Global AI Race? | Stanford HAI." Stanford.edu, November 2024. https://hai.stanford.edu/ai-index/global-vibrancy-tool.
[10] Supra Note 8
[11] Ibid

2025[12], it still significantly lags behind technologically advanced nations, particularly the US, which has over 5,000 data centres.[13] In cloud services, India ranks fourth globally with 32 providers, trailing China (190) and the US (145).[14] However, despite considerable investments being made in the telecom sector, internet access remains poor, limiting digital participation and hindering AI adoption. Regarding supercomputing capabilities, India has so far built 34 systems with a combined performance of 35 petaflops under its National Supercomputer Mission, launched in 2015.[15] Further, none of these systems featured on the 2024 TOP500 list of the world's 500 most powerful supercomputers, a list dominated by the US with 173 systems, followed by China with 82.[16] This is a sharp decline from 2023, when seven of India's system featured on the Top500 list.

This is to say that while India has strong R&D, industry capabilities, and a skilled developer workforce driving AI development, it faces serious challenges such as hardware dependency, financial crunch, low digital literacy, limited ICT adoption, and the lack of a better-balanced policy framework.

## Outlining India's AI Ambitions[17]

The Government of India launched the national AI Mission in March 2024, a comprehensive initiative aimed at building a robust and self-reliant AI ecosystem over five years with a ₹10,300 crore budget. The key focus areas of this initiative include computing infrastructure, data platforms, skill development, startup financing, and the promotion of safe and trusted AI technologies. Under the flagship project, India AI Compute Capacity, the government has committed to establishing a shared high-performance computing (HPC) facility equipped with 18,693 GPUs. This facility will be accessible to startups, researchers, and students at a highly subsidised rate of ₹100 per hour, significantly lower than prevailing global rates. To support this effort, the government has partnered with ten GPU suppliers and is actively

[12] Kumar, Roopesh. "Edge & Hyperscale Data Centres Driving India's Digital Growth - et Edge Insights." ET Edge Insights - The New Paradigm of Business Intelligence, March 25, 2025. https://etedge-insights.com/technology/big-data/edge-hyperscale-data-centres-driving-indias-digital-growth/.

[13] National Telecommunications and Information Administration. "NTIA Seeks Comments on Supporting U.S. Data Center Growth | National Telecommunications and Information Administration." Ntia.gov, September 4, 2024. https://www.ntia.gov/press-release/2024/ntia-seeks-comments-supporting-us-data-center-growth.

[14] Supra Note 8

[15] Ministry of Electronics & IT. "National Supercomputing Mission." Pib.gov.in, April 28, 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2124920.

[16] Top500.org. "TOP500 List - November 2024 | TOP500," 2024. https://top500.org/lists/top500/list/2024/11/.

[17] Supra Note 7

working towards the development of indigenous GPUs within the next three to five years. Additionally, to further enhance India's AI capabilities and strengthen its position in the global technology and electronics sectors, five semiconductor manufacturing plants are currently under construction.

To facilitate data accessibility and sector-specific AI applications, the government launched the India AI Dataset Platform, which offers a central repository of anonymised, high-quality datasets to reduce bias and enhance AI reliability. The government has also established the India AI Innovation Centre (IAIC) to support the development and deployment of indigenous Large Multimodal Models (LMMs) and domain-specific foundational models in critical sectors, strengthening indigenous AI industrial capabilities. One such key indigenously developed LMM is Bharat Gen, launched in 2024 as the world's first government-funded multimodal LLM initiative. Bharat Gen aims to facilitate public service delivery and citizen engagement by integrating advanced AI capabilities in language, speech, and vision. Other notable indigenously developed language models include Sarvam-1, Chitralekha, and Everest 1.0 developed by Hanooman.

Centres of Excellence have also been established in sectors such as Healthcare, Agriculture, Sustainable Cities, and most recently, Education, to promote AI skilling and upskilling in collaboration with global partners. To further integrate AI education into the mainstream education system across undergraduate, postgraduate, and doctoral programs, the India AI Future Skills initiative was launched. Dedicated fellowships are also being offered to full-time PhD students at the top 50 NIRF-ranked institutions to encourage advanced AI research. To enhance accessibility and address regional disparities, Data and AI research Labs are also being established in Tier 2 and Tier 3 cities. Additionally, over 520 tech incubators and AI accelerators, such as T-Hub MATH, are providing critical mentorship in product development, business strategy, and scaling. As of early 2024, MATH had supported over 60 startups, with five actively seeking investment, underscoring the rapid growth of India's AI startup ecosystem.

## India–US Technology Partnership: Evolving Dynamics and Strategic Implications

Technological advancements have historically driven inter-state competition, exemplified by the intense technological race during the World Wars and throughout the Cold War era. However, in today's rapidly evolving technological landscape which has far-reaching geopolitical implications, technology is no longer merely a domain of competition but also collaboration.

India and the United States have shared a dynamic and evolving partnership in the technology sector since the mid-1980s, with the US industry playing a pivotal role in India's emergence as a global hub for information technology and software, which continues to thrive to this day.

## The story of India's early IT boom

In the early years, with its limited access to technological hardware and domestic infrastructure, India deeply engaged with foreign multinational corporations (MNCs), majorly American firms. Companies such as International Business Machines Corporation (IBM), Control Data Corporation (CDC), and Burroughs Corporation provided significant exposure to advanced computing systems and technical training. For example, the Tata Institute of Fundamental Research (TIFR) trained its scientists on CDC mainframes, contributing to the development of an early ecosystem of technically skilled professionals. Through "body shopping" or "onsite development" models, Indian engineers were being sent to work on client sites abroad, mainly in the US, to develop and maintain software systems.[18]

Subsequently, between 1984-86, India's computer and software export policy was liberalised, which allowed American companies to even begin outsourcing software tasks to India through offshore and remote development models. This provided a valuable learning ground for Indian engineers, allowing them to gain expertise in software engineering, systems architecture, and operating systems. With Citibank establishing a software development unit at SEEPZ (Santacruz Electronics Export Processing Zone) in 1984 and developing MicroBanker, a banking solution popularly adopted in markets across Asia and Africa, the Indian IT industry transitioned from service-based to product innovation. Premier Indian technology institutions like the IITs began updating their curricula to meet global standards, in partnerships with American universities and industry collaborators.[19]

Since then, India's global reputation in the IT and software sector has grown exponentially. This partnership has benefited India as Indian professionals gained greater exposure and expanded employment opportunities, fuelling the growth of India's IT industry. On the other hand, American companies gained access to a highly skilled, cost-effective Indian talent pool to advance its technology sector ambitions. This is evident from the fact that between 2001

[18] Dinesh C. Sharma. "The Long Revolution: The Birth and Growth of India's IT Industry | YaleGlobal Online." Yale.edu, 2008. https://archive-yaleglobal.yale.edu/long-revolution-birth-and-growth-indias-it-industry.
[19] Ibid

and 2015, Indians accounted for over 50% of all H-1B visas issued[20], and nearly 86% of H-1B visas in computer science-related fields in 2014 were granted to Indian nationals.[21] While criticisms exist such as India's concern over brain drain and limited domestic value addition, along with the US's own apprehensions about losing its technological edge, the India-US technology partnership remains vital.

## Current India-US Collaboration in Critical and Emerging Technologies

Recognising the transformative potential of 21st century technologies, namely artificial intelligence (AI), quantum physics, and next-generation telecommunications like 5G and 6G, collectively referred to as the critical and emerging technologies (CETs) and the natural synergies within their technological ecosystems, the US and India launched the US-India Initiative on Critical and Emerging Technology (iCET) in May 2022.[22] Officially launched in January 2023 under the broader framework of the US-India Comprehensive Global and Strategic Partnership, iCET sought to promote joint development and co-production across critical technology areas by deepening collaboration among governments, academia, and the private sector. iCET covered a broad range of sectors including space, defence, semiconductors, artificial intelligence (AI), quantum technologies, next-generation telecommunications, biotechnology, clean energy, and critical minerals processing.

As of January 2025, three rounds of review meetings had been held under the initiative. Some of the key achievements under this initiative include the partnership between the US Space Force and India's 3rdiTech to establish a compound semiconductor fabrication facility in India.[23] Another major development was the joint Open RAN trials project awarded to India's Bharat 6G Alliance and the US Next G Alliance, funded under the USAID program and

[20] Ruiz, Neil G. "Key Facts about the U.S. H-1B Visa Program." Pew Research Center, April 27, 2017. https://www.pewresearch.org/short-reads/2017/04/27/key-facts-about-the-u-s-h-1b-visa-program/.

[21] PTI. "Indians Bag 86% of H-1B Visas: Study." The Times of India. Times Of India, August 12, 2015. https://timesofindia.indiatimes.com/tech-news/indians-bag-86-of-h-1b-visas-study/articleshow/48450908.cms.

[22] Prime Minister's Office. "Prime Minister's Meeting with President of the United States of America." Pib.gov.in, May 24, 2022. https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=1827885. .

[23] The White House. "JOINT FACT SHEET: The United States and India Continue to Chart an Ambitious Course for the Initiative on Critical and Emerging Technology | the White House." The White House, June 17, 2024. https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2024/06/17/joint-fact-sheet-the-united-states-and-india-continue-to-chart-an-ambitious-course-for-the-initiative-on-critical-and-emerging-technology/.

supported by Qualcomm and Bharti Airtel. Various capacity-building efforts were also proposed under iCET such as integrating Open RAN into Indian technical curricula and funding joint research through the US National Science Foundation and India's Department of Science and Technology in AI, quantum technologies, and other critical technologies. The two sides also proposed establishing the US-India Global Challenges Institute with a $90 million corpus and conducting trade missions and workshops to boost inter-country STEM collaboration.[24]

In terms of regulatory cooperation, iCET emphasised the importance of developing trustworthy AI standards[25], harmonising technology-related regulations, and encouraging reciprocal technology investments[26]. This commitment was further reinforced through the Innovation Handshake initiative launched in November 2023, which focuses on easing regulatory bottlenecks for startups and innovation-driven enterprises in both countries.[27] Moreover, the US also committed to easing export regulations on chips and other high-performance computing (HPC) technologies to India[28], and welcomed India's Centre for Development of Advanced Computing (CDAC) into the US-led Accelerated Data Analytics and Computing Institute[29].

However, towards the end of its term, President Biden's outgoing administration introduced the AI Diffusion Framework to regulate the global export of AI chips and other advanced computing resources, casting serious doubt on US commitments under the iCET.[30] Under this new framework, countries are classified into three tiers[31]:

[24] Ibid
[25] U.S. Mission India. "FACT SHEET: United States and India Elevate Strategic Partnership with the Initiative on Critical and Emerging Technology (ICET)." U.S. Embassy & Consulates in India, February 2023. https://in.usembassy.gov/fact-sheet-united-states-and-india-elevate-strategic-partnership-with-the-initiative-on-critical-and-emerging-technology-icet/.
[26] The White House. "FACT SHEET: The United States and India Committed to Strengthening Strategic Technology Partnership | the White House." The White House, January 6, 2025. https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2025/01/06/fact-sheet-the-united-states-and-india-committed-to-strengthening-strategic-technology-partnership/.
[27] Supra Note 23
[28] Supra Note 25
[29] Supra Note 23
[30] National Archives. "Framework for Artificial Intelligence Diffusion." Federal Register, January 15, 2025. https://www.federalregister.gov/documents/2025/01/15/2025-00636/framework-for-artificial-intelligence-diffusion.
[31] Villasenor, John. "The New AI Diffusion Export Control Rule Will Undermine US AI Leadership." Brookings, January 23, 2025. https://www.brookings.edu/articles/the-new-ai-diffusion-export-control-rule-will-undermine-us-ai-leadership/.

- **Tier 1** nations, including the US and 18 key allies, such as the Five Eyes countries, major NATO members, and key semiconductor partners like Japan, South Korea, Taiwan and Ireland enjoy unrestricted access to chips and other advanced computing resources.
- **Tier 2**, which includes most countries including India, is granted access under strictly controlled pathways.
- **Tier 3**, consisting of countries under arms embargoes such as Russia, North Korea, and China, faces significant restrictions on chip and computing resource imports.

India's classification as a Tier 2 country restricts its access to cutting-edge chips and other advanced computing resources. Among the available mechanisms for importing advanced chips, the National Validated End User (NVEU) remains the most viable option for large-scale imports. However, under the new US AI diffusion regulations, this framework permits India to import only 100,000 H100-equivalent chips in 2025, 270,000 in 2026, and 320,000 in 2027, respectively. These import quotas are determined not only by the number of chips but also by the Total Processing Power (TPP) of each chip. This means that if India imports NVIDIA's B200 chips, which have approximately 2.2 times the TPP of H100s, the import ceiling for 2025 would become 43,500 B200 units.[32] While these restrictions may not have an immediate impact, given India's relatively modest initial goal of deploying 18,693 GPU units which is expected to scale up to 29,000, they pose significant long-term challenges to India's AI ambitions which will require much larger chip access. This can be understood from the fact that China used 50,000 H100-equivalent chips just to train its DeepSeek R1 model[33] and xAI's Colossus supercomputer unit alone operates on 100,000 H100 chips[34].

## Redefining the India-US Technology Partnership with "TRUST"

Under the Trump administration, a new chapter in India–US technological collaboration began with the launch of the TRUST initiative, replacing the earlier iCET framework. During Prime Minister Modi's official visit to the US on February 13, 2025, the two sides issued a joint statement delineating TRUST's core objectives of fostering collaboration across governments, academia, and

[32] Heim, Lennart. "Understanding the Artificial Intelligence Diffusion Framework: Can Export Controls Create a U.S.-Led Global Artificial Intelligence Ecosystem?" Rand.org. RAND Corporation, January 14, 2025. https://www.rand.org/pubs/perspectives/PEA3776-1.html.
[33] Baptista, Eduardo. "What Is DeepSeek and Why Is It Disrupting the AI Sector?" Reuters, January 27, 2025. https://www.reuters.com/technology/artificial-intelligence/what-is-deepseek-why-is-it-disrupting-ai-sector-2025-01-27/.
[34] Press Release. "NVIDIA Ethernet Networking Accelerates World's Largest AI Supercomputer, Built by XAI." NVIDIA Newsroom, 2024. https://nvidianews.nvidia.com/news/spectrum-x-ethernet-networking-xai-colossus.

industry in critical and emerging technologies, such as defence, AI, semiconductors, quantum computing, biotech, energy, and space. The initiative also emphasises establishing trusted technology vendors and ensuring the protection of sensitive technologies.[35]

While the broad objectives and focus areas under TRUST are largely similar to those of iCET, a key distinction lies in its explicit emphasis on AI as the central pillar of bilateral cooperation. The two leaders committed to developing a US–India AI Roadmap by year-end to support the financing, development, powering, and connectivity of US-origin AI infrastructure in India. To this end, joint investments will be made in next-generation data centres and the development of AI applications aimed at addressing societal challenges, alongside collaboration on regulatory and security frameworks that balance oversight with innovation. Closed-door bilateral discussions on the AI roadmap are ongoing, beginning with the first Track 1.5 dialogue held in March 2025, followed by engagements with industry leaders and experts on the sidelines of the Carnegie India Global Technology Summit in April 2025.[36]

## Building the "TRUST" India Needs: A Way Forward

India and the US have long shared strong technology complementarities, which has served as a critical pillar of their bilateral relationship. As technology increasingly takes central stage in global geopolitics, the strategic convergence between Washington and New Delhi becomes more relevant and is gaining momentum. This was also echoed in the US Secretary of State Marco Rubio's characterisation of the India-US partnership as "defining for the 21st century".[37] Both governments are showing strong enthusiasm for the TRUST initiative and the development of the US-India AI Acceleration Roadmap. While the final contours of AI collaboration under TRUST remain to be seen, India must approach negotiations with strategic foresight to ensure that TRUST does not meet the same fate as iCET, which, despite initial promise, gradually faded into obscurity. To fully leverage its new technology partnership with the United

[35] Media Center,. "India - U.S. Joint Statement (February 13, 2025)." Ministry of External Affairs, Government of India, 2025. https://www.mea.gov.in/bilateral-documents.htm?dtl/39066/India__US_Joint_Statement_February_13_2025.

[36] Chaudhuri Rudra, Mohanty Amlan. et al., 100 Days of TRUST and Trump: Policy Recommendations for the India-U.S. TRUST Initiative, Carnegie India, 2025, https://carnegie-production-assets.s3.amazonaws.com/static/files/CI_100_Days_of_Trust_and_Trump.pdf?mkt_tok=ODEzLVhZVS00MjIAAAGaJJfPqkfUjH5ZgBIocXovQKX3vFIj8mFj8fvI2Khvb0C0ve6s1XtlikjgUtna_UEhEOSipSi9zBjyLDEqGjGT1RhpfqckHVXawBfJkcGW0g

[37] PTI. "US, India Partnership to Be Defining Relationship of 21st Century: Marco Rubio." The Economic Times. Economic Times, January 26, 2025. https://economictimes.indiatimes.com/news/india/us-india-partnership-to-be-defining-relationship-of-21st-century-marco-rubio/articleshow/117568469.cms?from=mdr.

States and become a key stakeholder in the global AI space, India must prioritise certain strategic areas.

At the heart of this lies the development of a comprehensive infrastructure layer, underpinned by extensive and unrestricted computing power. In the AI ecosystem, while data is the fuel, computing power is the engine without which data remains inert. Countries that monopolise access to high-end computing resources risk creating a 'gatekeeping effect', mirroring past exclusivity seen in nuclear technology. This restricts participation and perpetuates global technological imbalances. The Biden administration intended to do the same through the AI Diffusion Framework, controlling the global supply of advanced computing resources and reinforcing the US tech leadership in contravention of the commitments made under the iCET. However, under the new bilateral technology partnership initiative aimed at achieving their congruent global ambitions, both countries have committed to actively collaborating to enhance India's access to advanced computing infrastructure by establishing data centres. The first step in this process should be to reclassify India from Tier 2 to the unrestricted category of Tier 1.

To achieve the long-term goal of strategic autonomy in the technology space and avoid being relegated to a mere market for US-origin technology infrastructure, technologies, and products, India must actively seek to develop its domestic semiconductor and other High Performance Computing (HPC) resources manufacturing capabilities. India has already identified this as a strategic objective and made preliminary progress by approving the establishment of 5 semiconductor units. A compound semiconductor facility was also announced under iCET, to be set up by the US Space Force and India's 3rdiTech. However, much more needs to be done. Given the US's dominance in the AI hardware and software ecosystem, it should actively support India's integration into the global semiconductor value chain through co-investments, expanded technology-sharing agreements, and enabling partnerships between Indian stakeholders and major global players from Taiwan, South Korea, Japan, the Netherlands, and Ireland. Further, as over 75% of global semiconductor manufacturing is concentrated in East Asia, a region fraught with geopolitical vulnerabilities, diversification of the semiconductor supply chain is a strategic priority for the US as well. While the US has been wanting to reshore chip production, the cost of this remains substantially higher compared to that in East Asia.[38] India here presents a compelling option

[38] Varas, Antonio, and Raj Varadarajan, et al. "Government Incentives and US Competitiveness in Semiconductor Manufacturing," 2020. https://www.semiconductors.org/wp-content/uploads/2020/09/Government-Incentives-and-US-Competitiveness-in-Semiconductor-Manufacturing-Sep-2020.pdf.

with its large talent pool, lower operational costs, proactive government support, and a fast-growing digital economy demanding robust chip infrastructure.

Access to critical minerals, energy, and reliable internet is also vital for building the infrastructure layer and requires concerted India-US joint efforts. Critical minerals are essential raw materials for semiconductor manufacturing, and having a resilient semiconductor supply chain is a must. Currently, the global supply and processing of critical minerals is concentrated in a few countries, with China dominating the market. This makes it imperative for India and the US to collaborate in diversifying and securing these supply chains to sustain their technological ambitions. India's National Critical Mineral Mission (NCMM) aims to achieve self-reliance in this area, with 1,200 exploration projects planned between 2024 and 2031.[39] The US can support India's domestic initiatives through investment in mineral exploration and processing in India, joint ventures in third countries, and technical cooperation on sustainable mining practices.

Energy is another vital component for powering the AI ecosystem. India's energy demand is growing rapidly and its mix remains fossil fuel-heavy, which is geopolitically sensitive. India has been making notable investments in expanding renewable energy generation but significant development is still required in areas like energy storage and distribution infrastructure suited to renewable energy. Under TRUST, India and the US could jointly work to develop energy storage technologies, smart grid systems, and collaborative research on ocean-bed mineral exploration under India's Deep Ocean Mission[40], which seeks to explore deep-sea resources, including critical minerals, rare metals, and energy.

In terms of internet access, India has achieved significant progress by expanding telecommunication infrastructure and services to reach the maximum public penetration at affordable rates. As of April 2024, 95.15% of India's villages have internet access via 3G/4G mobile connectivity, with total internet subscribers rising from 251.59 million in March 2014 to 954.40 million in March 2024.[41] The Indian government continues to enhance internet

[39] Department of Atomic Energy. "Parliament Question: National Rare Earth Policy." Pib.gov.in, 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2118380.
[40] Ministry of Earth Sciences. "India's Deep Ocean Mission Gains Momentum: Human Submersible to Launch This Year." Pib.gov.in, 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2095517.
[41] Ministry of Communications. "Universal Connectivity and Digital India Initiatives Reaching to All Areas, Including Tier-2/3 Cities and Villages." Pib.gov.in, 2024. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2040566.

penetration in rural and unconnected areas. Under iCET, significant progress was made with the Qualcomm-Bharti Airtel joint project for conducting Open RAN trials in India, which needs to be expanded under the TRUST initiative to keep pace with advancing telecommunications including 5G deployment, 6G development and Open RAN installations.

Further, drawing from the historical precedent of the 1980-90s, when direct and extensive engagement by US companies with Indian talent yielded mutual benefits, a similar model may be beneficial even in the AI era. The TRUST initiative can facilitate deepening industry-to-industry collaboration, an area where iCET fell short in generating tangible outcomes. Both governments should act as enablers for collaboration between American and Indian companies to establish joint technology incubators, shared research laboratories, cross-border engineering exchange programs, and co-development workshops These industry-led efforts would not only strengthen innovation capabilities on both sides, but also cultivate a culture of deep, systemic learning by sharing best practices and experiences, ultimately advancing AI safety, scalability, and effective deployment.

Finally, while India is a key partner in AI research and development, it also has great potential as a vast and rapidly growing market for AI technologies and products. To effectively leverage this potential, collaborative programs aimed at enhancing digital literacy and developing AI-related skills are critical. Initiatives that promote vocational tech training and practical, application-based learning, especially when implemented through partnerships with top-tier universities and leading technology firms, can bridge existing skill gaps and foster a workforce ready to contribute to and benefit from AI advancement. Such programs not only democratise access to emerging technologies, but also support India's inclusive growth by ensuring that the benefits of AI adoption reach broader segments of the population.

## Conclusion

India and the US, as two critical stakeholders in the global technological landscape, must rethink and reshape their technology strategies, especially in light of today's volatile geopolitics and increasingly competitive technological environment. China's growing tendency towards unilateral assertion and coercion across East and Southeast Asia poses both immediate risks of disruption and long-term threats of Chinese dominance over the global semiconductor and advanced computing supply chains. Compounding this

trend, China's predominant control over critical mineral resources further strengthens its strategic leverage, jeopardising the technological aspirations of other nations. China is also undertaking robust national initiatives to achieve its goal of technological supremacy and securing global leadership in Artificial Intelligence (AI). The 2025 UNCTAD report[42] has observed that China ranks first globally in AI research and development, sixth in industrial capability, ahead of India and the US, and third in financing. Given this context, it is both logical and imperative for India and the US to harness their complementary strengths and step up strategic collaboration to mutually enhance their AI capabilities, secure their respective technological futures, and remain competitive in the evolving global digital order.

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[42] Supra Note 8


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