



## IndiaAI Mission

**For Prelims:** [Artificial intelligence](#), [IndiaAI Mission](#), [Large Multimodal Models](#), [Non-personal datasets](#), [International Energy Agency](#)

**For Mains:** IndiaAI Mission, Boosting AI innovation and startups, AI ecosystem in India

**Source:** IE

### Why in News?

The Indian government's commitment to advancing [artificial intelligence \(AI\)](#) technology is evident with its new budgetary allocation for the [IndiaAI Mission](#).

- The Ministry of Electronics and Information Technology has been allocated Rs 551.75 crore in the [Union Budget 2024-25](#) to enhance AI infrastructure, including the procurement of **high-performance Graphic Processing Units (GPUs)**.
- This move aims to support **domestic AI development** and reduce reliance on expensive foreign hardware.

### What is the IndiaAI Mission?

- **Objective:** The mission aims to establish a robust AI computing infrastructure in India to support the development and testing of AI systems.
  - The Mission aims to enhance data quality, and develop indigenous AI technologies. It focuses on attracting top talent, fostering industry collaboration, supporting impactful AI startups, and promoting ethical AI practices.
- **Financial Support:** The **Union Cabinet approved the Rs 10,372 crore IndiaAI Mission** in March to establish a computing capacity of **over 10,000 GPUs and develop foundational models** with a capacity of more than 100 billion parameters trained on datasets covering major Indian languages for priority sectors like healthcare, agriculture, and governance.
- **Current Focus:** Initial efforts will involve procuring **300 to 500 GPUs to kickstart the project.**
- **Importance of GPU Procurement: GPUs are critical for training and building large-scale AI models, essential for advanced AI applications.**
  - Data centre GPUs are crucial for parallel operations, AI, media analytics, and 3D rendering solutions, making them essential for advanced use cases like machine learning, modelling, and cloud gaming.
  - The procurement will provide **Indian startups with essential computing power**, addressing a gap in the current market.
- **Key Components of the IndiaAI Mission:**
  - **IndiaAI Compute Capacity:** Creation of a high-end AI computing ecosystem with over **10,000 Graphics Processing Units (GPUs)** to support AI startups and research, along with an AI marketplace for resources.
  - **IndiaAI Innovation Centre:** Development of indigenous [Large Multimodal Models](#)

([LMMs](#)) and foundational models for various sectors. Close to Rs 2,000 crore has been earmarked for this centre

- **IndiaAI Datasets Platform:** A unified platform to provide seamless access to **quality [non-personal datasets](#)** for startups and researchers.
- **IndiaAI Application Development Initiative:** Promotion of AI applications targeting problem statements from various governmental sectors, aiming for large-scale socio-economic transformation.
- **IndiaAI FutureSkills:** Expansion of AI education through undergraduate, master's, and Ph.D. programs, as well as establishing Data and AI Labs in smaller cities.
- **IndiaAI Startup Financing:** Provision of streamlined funding access for deep-tech AI startups to support innovative projects.
  - The Cabinet has approved government financing for **[deep tech](#)** startups at different growth stages, with approximately Rs 2,000 crore allocated for this purpose.
- **Safe & Trusted AI:** Development of guidelines and frameworks to ensure **[responsible AI practices](#)**, including indigenous tools for project assessment.

## What are the Key Highlights of India's Artificial Intelligence Market?

### ▪ Key Trends:

- **Adoption Across Sectors:** AI adoption is growing in India across different sectors due to initiatives like the [National AI Strategy](#) and the [National AI Portal](#) launched by the Government of India.
    - Sectors like healthcare, finance, retail, manufacturing, and agriculture are rapidly integrating AI technologies.
  - **Focus on Data Analytics:** Clive Humby's assertion that "**data is the new oil**" underscores the growing importance of **AI-driven data analytics**.
    - Companies are leveraging AI-driven analytics to gain valuable insights, improve operations, and foster innovation, supported by initiatives like the **AI for All program** launched by [National Association of Software and Service Companies \(NASSCOM\)](#).
  - **Government Initiatives:** Initiatives like [Digital India](#), [Make in India](#), and [Smart Cities Mission](#), [GI Cloud \(MeghRaj\)](#) and [Global INDIAai Summit](#) hosted by India are driving AI adoption across sectors.
  - **Research and Development:** Indian research institutions and academic organizations, such as IITs, ISI, and IISc, are actively involved in AI research and development, contributing to the global knowledge base.
- **Clusters: AI clusters are emerging in Indian cities due to factors such as supportive policies, research institutions, and increasing demand for AI technologies. Major cities include Bengaluru, Hyderabad, Mumbai, Chennai, Pune, and the National Capital Region (NCR).**
- Bengaluru is known as the "**Silicon Valley of India**" with a thriving ecosystem of multinationals, startups, and academic institutions. It has over 2,000 active **[startups](#)** and annual IT exports exceeding USD 50 billion. The city also has a strong presence in **AI research, filing over 400 patents annually**.
- **Opportunities to Invest in India's AI Market:**
- Using the **[Internet of Things \(IoT\)](#)** and AI-powered **precision farming and crop monitoring** can boost productivity.
  - AI-driven **fraud detection, risk assessment**, and customer service automation are in demand and can collaborate with Indian banks to deploy AI solutions.
  - AI offers opportunities for **predictive diagnostics, personalized treatment**, and drug discovery.
  - AI technologies like recommendation engines and chatbots are reshaping the retail sector.

## What are the Challenges Anticipated for IndiaAI Mission?

- **Limited GPU Capacity and Infrastructure:** The mission's objective to build a high-end AI compute capacity of 10,000 GPUs is ambitious. Yet, there are concerns about the timely procurement and deployment of these GPUs to meet the growing demand for AI applications.
  - **High costs of GPUs**, like Nvidia's A100 chip costing up to USD 10,000, pose a barrier for smaller businesses.
  - **Availability of GPUs is a bottleneck, and accelerating the acquisition and integration of this hardware is crucial for advancing AI capabilities.**
- **Data Access and Quality:** Training AI models on diverse datasets, particularly for Indic languages, is crucial. However, the current datasets are inadequate for developing effective indigenous AI models.
- **Limited AI Expertise and High Costs:** There is a shortage of skilled AI professionals in India. Efforts are being made to address this but bridging this gap remains a challenge.
- **High Implementation Costs:** The cost of deploying AI solutions, particularly in sectors like manufacturing, can be prohibitively high.
  - This includes capital investments for infrastructure and integration, which may hinder widespread adoption.
- **Infrastructure Deficiencies:** Effective AI deployment requires advanced **cloud computing infrastructure**. While efforts like [AIRAWAT](#) represent progress, India still **lacks comprehensive AI and cloud computing facilities** necessary for scaling AI applications.
- **Ethical and Integrity Concerns:** As AI algorithms increasingly influence decision-making, ensuring ethical use and [avoiding biases in AI models are critical](#).
  - The potential for skewed results due to tampered datasets or flawed training data poses significant risks.
  - Handling **sensitive and personal data introduces risks** related to **data security and privacy**.
- **Geopolitical and Regulatory Issues:** Geopolitical tensions and export control regulations can restrict access to essential AI technologies and components, impacting India's ability to develop and deploy AI solutions effectively.
- **Environmental Concerns:** AI queries, especially to [OpenAI's ChatGPT](#), use significantly more energy than regular Google searches. Image-based AI searches [consume even more energy](#). AI models process and sift through a larger amount of data than simple searches, requiring more electrical signals for processing, storing, and retrieving data.
  - The increased data processing generates more heat, leading to the need for powerful air-conditioning and cooling systems in data centers.
  - AI tools are expected to significantly increase global energy consumption. Currently, data centres account for 1% to 1.3% of global electricity demand, projected to rise to 1.5% to 3% by 2026, according to the [International Energy Agency \(IEA\)](#).
  - Experts view that **India will soon face the significant environmental toll of AI and data centres**. The increased demand for water resources for cooling data centres adds to the environmental concerns.

## Way Forward

- **Incentivize Hardware Manufacturing:** The [Production Linked Incentive \(PLI\)](#) scheme for IT hardware, notified in 2021, and also for semiconductors offers incentives for increased investment in domestic manufacturing for eligible firms. Expanding this initiative could further stimulate growth in the sector.
- **Start-up Support:** Provide financial incentives, mentorship, and incubation facilities for AI startups. Establish AI-focused accelerators and incubators like **T- Hub (India's largest**

incubation centre) of Telangana.

- **Comprehensive Data Ecosystem:** A **National Data Platform** can be developed as a centralised data repository with standardised formats and quality checks, and promote data sharing while ensuring privacy. Invest in **robotization and encryption techniques**, as well as **data labelling and curation to improve data quality**.
- **Prioritise Ethical AI:** **Develop comprehensive AI ethics guidelines and regulations, establish independent AI ethics boards, promote transparency and explainability in AI systems, and conduct regular AI audits to identify and mitigate biases.**
- **AI Applications for Societal Impact:** Identify key societal challenges and develop AI-driven solutions. Prioritise AI applications in healthcare, agriculture, education, and other critical sectors. Ensure equitable access to AI benefits for all segments of society.
- **Promote Sustainable AI:** Support sustainable AI by investing in energy-efficient AI algorithms and hardware, promoting the use of **renewable energy sources for data centres**, and creating AI-powered solutions for energy optimization and resource management.
- **Talent Gap:** Foster partnerships for internships, research projects, and faculty exchange. Attract overseas students and employees to invest in India, increase salaries and benefits to retain AI talent.

**Drishti Mains Question:**

**Q.** Discuss the objectives and key components of the IndiaAI Mission. How does it aim to transform India's AI landscape?

## UPSC Civil Services Examination Previous Year Question (PYQ)

### **Prelims**

**Q.** With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

**Select the correct answer using the code given below:**

- (a) 1, 2, 3 and 5 only
- (b) 1, 3 and 4 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

**Ans: (b)**

### **Mains**

**Q.** What are the main socio-economic implications arising out of the development of IT industries in major cities of India? (2022)

**Q.** "The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss. (2020)

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