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News: IndiaAI Mission

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

IndiaAI Mission

- IndiaAI 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 Graphic Processing Units (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 centres.
- **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 Future Skills:** 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.

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**.

Anticipated Challenges

- **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, are 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.