



DEEPSEEK: CHINA'S RISING AI STAR AND ITS GLOBAL IMPACT: SCIENCE & TECHNOLOGY: GS-III



Introduction

In recent times, artificial intelligence (AI) has become one of the biggest battlegrounds for technological supremacy. The competition between the United States and China has intensified, with both nations striving to lead the global AI revolution. A major breakthrough in this race has come from an unexpected player—**DeepSeek**, a relatively unknown Chinese AI company that has shaken the industry with its cost-effective yet highly advanced AI models.

What is DeepSeek?

DeepSeek is a Chinese AI company that recently made headlines with its **DeepSeek R1** model, a large language model (LLM) designed to rival industry leaders like OpenAI's ChatGPT. What sets DeepSeek apart is not just its **performance**, but the fact that it was built **on a budget significantly lower** than its Western counterparts. While OpenAI reportedly spent **over \$500 million** to develop ChatGPT, DeepSeek R1 was built using **just \$6 million**, showing that cutting-edge AI can be developed at a fraction of the usual cost.

DeepSeek first attracted attention in 2023 when it released **DeepSeek V3**, which was praised by AI experts, including Andrej Karpathy, a founding member of OpenAI. However, it was **DeepSeek R1**, launched on January 20, 2024, that truly disrupted the AI landscape. Despite using second-rate computing hardware due to U.S. restrictions on China's access to advanced chips, R1 performed **on par with some of OpenAI's most advanced models**, challenging the long-held belief that AI supremacy requires expensive infrastructure. **The Ripples Created by DeepSeek**

DeepSeek's success has sent shockwaves through multiple industries and institutions:



- **Silicon Valley's Dominance Challenged:** The belief that only big-budget companies can lead AI development is now under scrutiny. If DeepSeek can build world-class AI with limited resources, other smaller players might do the same.
- **AI's Accessibility Changing:** DeepSeek, along with other Chinese AI labs, supports **open-source AI development**, while U.S. companies (except Meta) generally keep their AI proprietary. This shift could democratize AI technology globally.
- **Stock Market Panic:** The emergence of DeepSeek has raised fears among investors, leading to significant stock market turbulence, particularly in AI-related sectors.

Impact of DeepSeek on Gold and Financial Markets

The rise of AI, especially China's unexpected progress, has affected global financial markets in unexpected ways. **Gold, often seen as a safe investment during economic uncertainty, has been impacted by AI developments in the following ways:**

- **Stock Market Volatility:** The fear that China might soon dominate AI led to a massive stock market sell-off in the U.S., causing a reported **\$1 trillion** loss in market value, with companies like Nvidia losing over **\$600 billion**.
- **Gold as a Safe Haven:** As investors panicked over AI-driven instability, many turned to gold as a **secure investment**, leading to **increased demand and rising gold prices**.
- **AI's Influence on Economic Power:** If China continues advancing in AI, it could reshape **global economic dominance**, affecting the valuation of traditional investments, including precious metals like gold.

Implications for China

DeepSeek's success is a **milestone for China**, demonstrating that **U.S. sanctions on chip exports** have not been able to halt its progress. This has several key implications:

1. **China Can Innovate Without U.S. Tech** – Despite restrictions on acquiring advanced AI chips, Chinese researchers have shown they can build **competitive models using alternative methods**.
2. **China's Open-Source Advantage** – By making AI models open-source, China is attracting global talent and fostering international AI collaboration.
3. **Tech Independence Boost** – DeepSeek's rise strengthens China's long-term goal of becoming **self-reliant in advanced technology**.

The AI Competition Between China and the U.S.

DeepSeek's emergence has intensified the AI race between China and the U.S. in several ways:

- **Breaking the Billion-Dollar Myth:** China has proven that AI development doesn't require billion-dollar investments, making U.S. dominance less certain.
- **Open-Source vs. Proprietary AI:** While the U.S. (except Meta) keeps its AI models proprietary, China is making AI more accessible, attracting global adoption.
- **Policy Responses:** The U.S. might tighten **export restrictions on AI-related hardware** to slow China down, but DeepSeek's success suggests China may find workarounds.



DeepSeek's Relevance to India

For India, DeepSeek represents both **an inspiration and a warning**:

- **Opportunity to Learn from China:** DeepSeek's ability to do **more with less** shows that India can also build world-class AI with strategic planning.
- **Need for AI Self-Sufficiency:** Just as China faces restrictions, India must work towards its own **sovereign AI** to reduce dependence on foreign technology.
- **Potential for Open-Source AI:** India's AI ecosystem could benefit from open-source AI, as it aligns with its startup-friendly tech culture. **Government of India's Measures Toward AI Development**

Recognizing AI's strategic importance, the Indian government has taken several steps to strengthen India's AI capabilities:

1. **IndiaAI Mission (2024):** The government has committed **₹10,300 crore (around \$1.2 billion)** to AI development.
2. **Encouraging AI Startups:** Initiatives like **Startup India** and **Digital India** are fostering AI innovation.
3. **Building AI Talent:** Investments in AI-focused education programs and partnerships with global tech firms are expanding India's AI talent pool.
4. **Supercomputing Initiatives:** The National Supercomputing Mission (NSM) aims to **develop India's own high-performance AI infrastructure.**

Despite these efforts, India still **lacks access to advanced AI chips**, a major hurdle that the government must address to keep up in the AI race.

Suggestions & Conclusion

To stay competitive in AI, India must take the following steps:

- **Secure AI Hardware:** India should **invest in chip manufacturing** and forge strategic partnerships to access top-tier AI chips.
- **Encourage Open-Source AI:** Just like China, India should promote **open-source AI development** to attract global talent.

Increase AI R&D Investments: The **₹10,300 crore AI mission** is a good start, but more funding will be needed to develop **world-class AI models.**

- **Develop a Clear AI Policy:** A well-defined AI strategy is essential to align **government, academia, and industry.**

Final Thoughts

DeepSeek's rise is a **wake-up call for the world.** It has shattered old beliefs about AI development and forced both the U.S. and India to rethink their strategies. The future of AI will no longer be dictated solely by billion-dollar companies but by **innovative, cost-effective solutions.** India has the potential to emerge as a global AI powerhouse, but to do so, it must **act swiftly, secure critical resources, and foster homegrown innovation.** The AI battlefield is



evolving—those who adapt will lead, and those who hesitate will fall behind.

MIND MAP:

