

# From Symbolism to Strategy

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## From Symbolism to Strategy: India's Space Journey

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### Context

India is advancing towards sending humans into space through its ambitious **Gaganyaan mission**. The upcoming **Axiom-4 mission**, featuring Indian astronaut **Shubhanshu Shukla**, marks a crucial preparatory step. While not led by ISRO, it aligns with India's long-term goals of human space exploration.

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### From Symbolic to Strategic: India's Space Journey

- In **1984**, **Rakesh Sharma** became India's first astronaut, but the mission had limited long-term impact due to lack of infrastructure.
  - Today, with missions like **Chandrayaan-3** and **Aditya-L1**, **ISRO** has evolved into a globally respected space agency.
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### Why Shukla's Mission Matters

- Shukla will be **India's first astronaut on the ISS**, gaining critical experience in **spacecraft operations**, **orbital navigation**, and **real-time decision-making**.
  - His learning will directly aid the **Gaganyaan mission**, offering updated knowledge compared to past missions.
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### Gaganyaan and the Road Ahead

- **Gaganyaan**, India's first human spaceflight mission, has been delayed but remains a top

priority.

- It demands complex safety measures and astronaut training—areas where Shukla's mission will provide valuable groundwork.

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## India's First Customised Experiments in Space

- ISRO will conduct India-specific space experiments during Axiom-4:
  - **Zero-gravity muscle degradation** study to understand human health in space.
  - **Biological experiments** on **moong dal sprouts** and **micro-algae** for space agriculture.

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## Vision 2040: Human Moon Mission & Indian Space Station

- India aims to:
  - Send humans to the **Moon by 2040**.
  - Establish an **Indian space station by 2035**.
- Shukla's mission is a step towards realising this long-term vision.

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## Building a Strong Space Ecosystem

- A robust space ecosystem with **private sector participation** is essential to:
  - Reduce costs
  - Accelerate innovation
  - Enhance global competitiveness

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## Tapping the Space Economy

- The global space market, valued at **\$500 billion**, is expected to double by **2030**.
  - India's share is just **2%**. The target is to raise it to **10%** to boost economic growth.
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## Inspiring Future Generations

- Missions like Shukla's can inspire Indian youth to pursue careers in **STEM** and **space research**, turning aspiration into participation.



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