

From Symbolism to Strategy

Posted at: 10/06/2025

From Symbolism to Strategy: India's Space Journey

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.

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.
-

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.
-

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.

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.

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.

Building a Strong Space Ecosystem

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

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.

Inspiring Future Generations

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



AKKA IAS ACADEMY
www.akkaias.com