

EVA STALIN IAS ACADEMY – BEST IAS COACHING IN CHENNAI

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PRIVATE SECTOR PARTICIPATION IN SPACE INDUSTRY OF INDIA:

- **About Indian Space Research Organization (ISRO):**
- The Department of Space is in charge of overseeing the Indian Space Programme (DOS). The Indian Space Research Organisation (ISRO), a top organisation for research and development, is part of the Department of Space.
- **ISRO is responsible for:**
- the development and execution of projects related to space science, technology, and applications.
- improvements in the research and development of cutting-edge technology.
- To cover the broad areas of the mandate, ISRO created many Centers and Units with cutting-edge infrastructure. These Centers and Units rely on particular technology domains for their functionality.
- To encourage greater participation of Indian enterprises in high-tech space-related activities, the Government of India formed NewSpace India Limited (NSIL), a fully-owned Central Public Sector Enterprise (CPSE), under the administrative control of the Department of Space.
- **Privatization of the Indian space industry:**
- In June 2020, the government unveiled a new organisation, IN-SPACe, as part of efforts to increase commercial involvement in the space sector. a look at its objectives and what it means for future space exploration.

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- To spread space technologies more widely and boost the country's space economy, the Department of Space (DOS) encourages private companies to participate in space operations.
- ISRO will assist DOS in achieving its objective of granting private businesses access to the space industry. In this context, the following changes are recommended for the way space operations are conducted in the country:
 - To increase usage and maximise benefits from the space assets, it is advised that the strategy be changed from the "Supply Based Model" to the "Demand-Based Model." NewSpace India Limited (NSIL) will function as an amalgam of user requirements in order to collect commitments.
 - The operational launch vehicles of DOS will be turned over to NSIL, which will also sell launches, satellite launches, and other services.
 - Create a centre for Indian national space promotion and authorisation to give NGPEs (non-governmental private organisations) permission to participate in space activity (IN-SPACE).
 - ISRO will boost space industry capacity by developing new technologies and capabilities, allowing NSIL and NGPEs to share facilities.
 - NGPEs offering challenges in new technology sectors are informed of opportunities.
- **Why is private investment necessary for the space industry?**
 - Private enterprise has historically had a small role in Indian space. A major amount of the development and manufacture of satellites and rockets is carried out by the private sector. Additionally, research institutes are getting increasingly active.
 - However, the Indian space industry only had a meagre 3 percent stake in the rapidly growing global space economy, which is already estimated to be worth at least \$360 billion.
 - Only 2% of this industry is dedicated to rocket and satellite launch services, which demand a substantial infrastructure and substantial financial investment.
 - The remaining 95% were systems and services that were based on the ground and via satellite.
 - Since Indian industry has primarily been used as a supplier of parts and subsystems up until now, it cannot compete.
 - Indian businesses lack the resources and technology needed to conduct autonomous space ventures of the like that US companies like SpaceX have been conducting or to provide space-based services.
 - ISRO is unable to accommodate the growing demand for space-based applications and services, not even within India.

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- Today, a variety of businesses, including meteorology, agriculture, transportation, and urban development, depend on satellite data, photographs, and space technology.
- The demand for space-based services must increase, more space technology must be deployed, and space resources must be used more efficiently.
- While many Indian businesses wait to take advantage of these opportunities, a select handful are attempting to construct their own launch vehicles, the rockets like ISRO's PSLV that send satellites and other payloads into space.
- The idea has thus been supported by the need for a developing space industry and the willingness of private sector players. ISRO is also prepared to make all of its resources available to business entities whose proposals have been approved by IN-SPACe. Private companies might even build their own launchpad on the premises of the Sriharikota launch facility, with ISRO providing the necessary land.
- **About IN-SPACe:**
 - IN-SPACe serves as a conduit between ISRO and outside parties.
 - The goal of IN-SPACe is to act as both a regulator and a facilitator. It will operate as a liaison between the corporate community and ISRO and decide how best to utilise India's space resources and increase space-based activity.
 - In the past two years, the government has founded two space organisations, the second of which is IN-SPACe.
 - A public company called New Space India Limited (NSIL), which the government intends to create, will serve as the ISRO's marketing section.
 - Its main objective is to increase customer demand for space-based services while also selling technologies created by ISRO.
 - Antrix Corporation, another PSU under the Department of Space, would handle the commercial contracts between ISRO and foreign customers for satellites and launch vehicles.
 - Thanks to IN-SPACE, the development of India's space sector has advanced tremendously.
 - Thanks to IN-SPACe, private businesses can utilise India's space infrastructure on an equitable basis.
 - These changes will enable the ISRO to focus more on cutting-edge technologies, exploration missions, and human spaceflight programmes.
 - Giving businesses and other groups, such as researchers, students, or academic entities, more access to space assets would result in a noticeably better use of Indian space resources.

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- Through IN-SPACe, the activities—including access to space asset data and activities—will be strengthened.
- It would strengthen the Indian space industry's position as a major player in the global space economy.
- India might also develop into a technical powerhouse and generate a large number of jobs.

• **About Digantara:**

- It is India's first in-orbit system for tracking space debris
- Digantara Research and Technology, a company in the space technology industry, has been selected for the SID (Society for Innovation and Development) incubation programme at IISc, Bengaluru.
- Digantara is the name of India's first business for air and space surveillance.
- It developed India's first in-orbit space debris monitoring and tracking system based on LIDAR (light detection and ranging).
- It will provide global real-time earth coverage by deploying a constellation of low-cost nanosatellites in LEO (Low Earth Orbit) with a space-based air surveillance payload for accurate tracking of both aircraft and spacecraft.
- Digantara will decrease the risk to upcoming space exploration by helping international space organisations identify and record space junk.

• **Advantages of privatising India's space industry:**

- With the help of the private sector, the Indian space industry will get the impetus and speed required to compete with other well-established space agencies like NASA.
- Advantages from a commercial and strategic perspective are two of the primary causes.
- The private sector will free up time for ISRO to concentrate on research and development, planetary exploration, and tactical launches.
- If private parties take on routine and commercial activities like launching weather and communication satellites, the ISRO may dedicate more time to space research.
- ISRO has nothing to lose by making its resources and data available to the commercial sector; future economic rewards would be immense and may be shared by both the corporate sector and ISRO.

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- Among the ambitious space projects planned for the future years are a trip to examine the Sun, a voyage to the Moon, a human spaceflight, and perhaps a lunar landing. And in order to complete all of this, ISRO requires the help and support of the business community.
- **Challenges in privatising India's space industry:**
 - The large brain drain from India is essential for the space and aerospace industries because it makes up a small portion of the global space platform.
 - The policy restraints make it difficult for private space businesses and entrepreneurs to obtain investors, making it almost impossible to operate in India.
 - The absence of a framework to ensure transparency and clarity in the rules is one of the factors contributing to the lack of independent private activity in space.
 - Another important concern is the lack of clarity surrounding space law, insurance, and indemnity, as well as which organisation will be held accountable in the event of a mistake.
 - There are currently many private businesses producing equipment and frames, either with leased licences or with outsourced specs.
- **Conclusion:**
 - The rise of the space sector benefits both the industrial foundation of India and technology. Being one of the few countries with sizable space capabilities, India will be able to advance to the next stages of its space operations thanks to the reforms, which will breathe new life and vigour into the industry. Additionally, more must be done to guarantee the inclusiveness and prosperity of the Indian space sector.