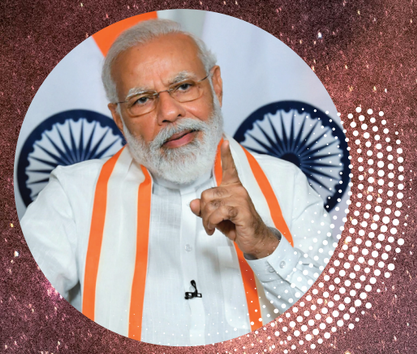
Commitment towards a
**reformed space sector**

# Unlocking the Space Sector

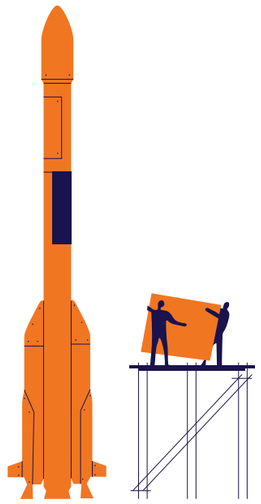
on the path to Atmanirbhar Bharat

"Technology is the most powerful weapon the government has to utilise, for good governance, transparency, and accountability"



"There should be no 'space' between common man and space technology"

## CONTENT



# NEED FOR REFORMS

The global space economy is currently valued at about USD 360 billion. Despite being one among a few spacefaring nations in the world, India accounts for only about 2% of the space economy.

Over the last 2 decades, the private sector has played an increasingly important role in other spacefaring countries within the global space economy. Companies like SpaceX, Blue Origin, Virgin Galactic, and Arianespace have revolutionized the space sector by reducing costs and turnaround time, with innovation and advanced technology.  In India however, players within the private space industry have been limited to being vendors or suppliers to the government's space program.


Our Honorable Prime Minister has emphasized the need to promote private sector activity in all high-technology areas including space, to fully unlock the potential of India's youth and entrepreneurs.

To realize this vision, it is necessary to enable private entities within the Indian space sector to establish themselves as independent players capable of end-to-end space activities. Many Indian private companies and start-ups have been showing keen interest in space activities, services, and applications, and are requesting a conducive policy environment for this.

**Promoting the private sector will enable the Indian space program to remain cost competitive within the global space market, and thus create several jobs in the space and other related sectors.**

Our Honorable Prime Minister is also convinced of the potential catalytic role that the space sector could play for high-technology industries and start-ups in the country.

The recent reforms have been warmly welcomed by the industry, and the number of space sector start-ups in India have expanded nearly fourfold.

# PRIME MINISTER'S VISION

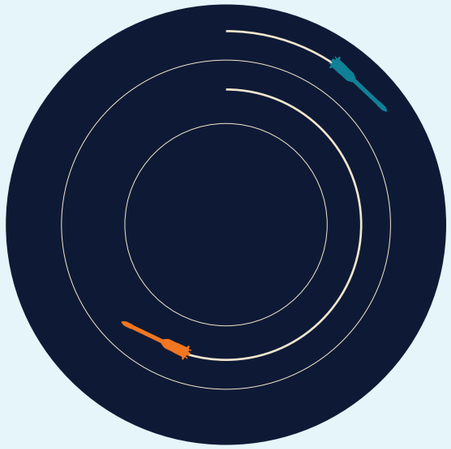
The guiding light for this reform has been the vision of our Honorable Prime Minister. As our talisman, he asserts that the benefits of space technology should be made known to every Indian citizen, who will in turn become stakeholders in the development of this sector.

He strongly believes that the optimal utilization of space technologies can revolutionize delivery of governance services and boost developmental efforts.

Our Honorable Prime Minister sees 'outer space' as an avenue to inspire scientific curiosity amongst the youth and to encourage them to look towards academic pursuits in STEM.

Above all, he maintains that the space sector has the potential to incubate a vibrant ecosystem of startups and private industries. By becoming a leading contributor to India's economic growth story, the space sector is replicating the success seen in the IT sector today.  This would also increase India's share in the global space market significantly.

It is our Honorable Prime Minister's conviction that India also needs to actively participate in the emergence of cutting-edge space technology, to ensure national security and aligned strategic interests.



Indian space contribution
**2% of global market share**

Potential to capture
**9% of global market share by 2030**

% of global market share

| | |
|---|---|
| US | **40%** |
| UK | **7%** |
| India | **2%** |

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| Global space economy | **USD 360B** |
| India (in 2019) | **USD 7B** |
| India to grow (by 2024) | **USD 50B** |


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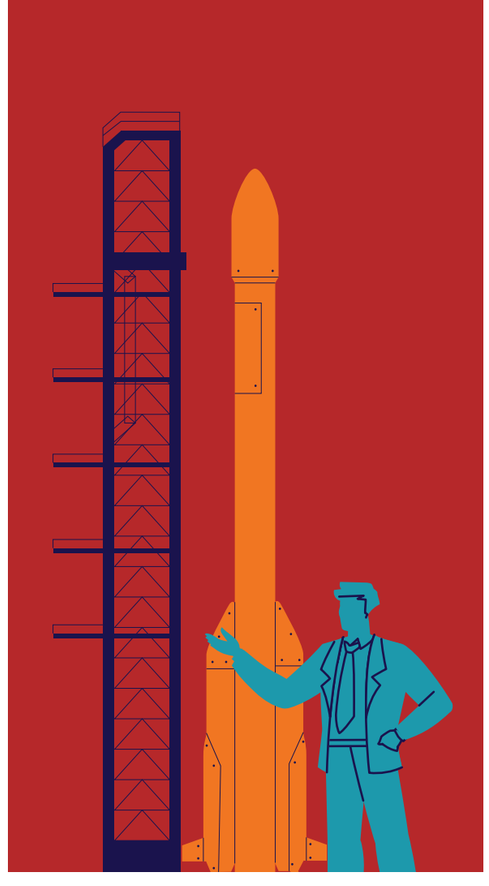
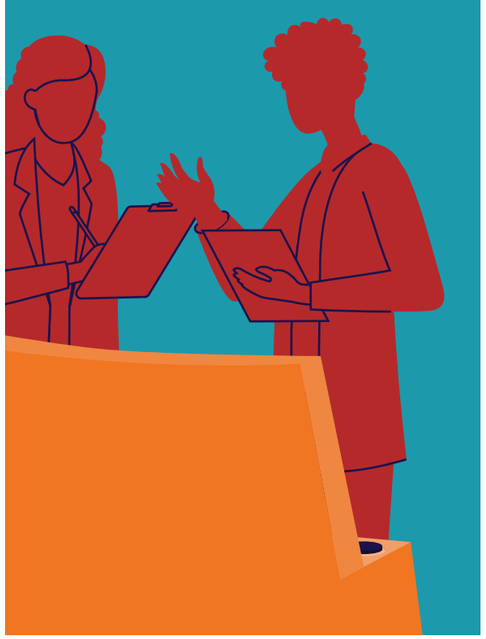
# GUIDING PRINCIPLES OF REFORMS



## Enable and promote private enterprises to carry out independent space activities

Provide a level playing field and favorable regulatory environment for players within the Indian private sector, to allow them to become independent actors in the space sector instead of being solely vendors or suppliers to the government program.

This can be achieved by enabling ease of business through single-window mechanisms, with predictable timelines.



## Open up ISRO Infrastructure and Technologies

The reform also aims to make national space infrastructure developed over the years, available for use by the private industry through a business-friendly mechanism.

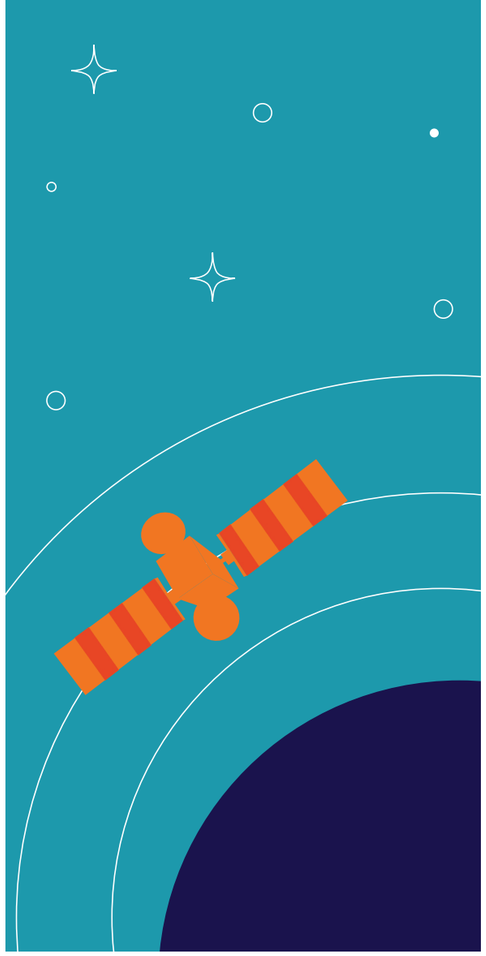
**Facilities pertaining to testing, tracking and telemetry, launch-pads, and laboratories, created by ISRO, would also enable the private space industry to climb the value chain.**

A predictable mechanism for Transfer of Technologies developed in public-sector labs to the private industry.

## Public sector to focus on research and development work

Clear guidance has been provided that public sector laboratories in the space sector will focus on research and development, while manufacturing and commercial activities will be done by business entities, across both, the public and private sector.

**Previously developed and already mature technologies/ platforms would be transferred to the private sector through Transfer of Technology mechanisms.**



## Demand-driven approach for development of space assets

Optimizing the utilization of space assets such as satellites and launch capacity by determining accountability amongst various stakeholders. Creation of new assets to be made contingent on confirmation of demand from user agencies/ entities.

# Inspire youngsters and dreamers

Develop world class learning facilities and space museums where youngsters can learn the basics of space technology and carry out research in topics of interest. Encourage students to pursue a career in STEM.


*The Prime Minister interacting with students*

# IMPLEMENTATION STRATEGY

## Opening the Space Sector

A gamut of space activities has been opened for private participation, including, inter alia:

- **Establishment of facilities in DOS premises**
- **Sharing of ISRO facilities**
- **Launch campaign and launch**
- **Building of launch vehicle and satellites**
- **Space-based services**

## Setting up of IN-SPACe

To facilitate private sector participation, the government has created the Indian National Space Promotion and Authorization Centre (IN-SPACe), as a single-window, independent, nodal agency. Its main mandate is to promote and enhance the role of private industry players in the space sector through hand holding, support, and by providing them with a level playing field. It will also authorize the use of ISRO facilities by private companies, development of Indian satellite systems, and launch of rockets/ vehicles developed by the private sector.

## Provide a stable regulatory and policy environment

The reforms have strengthened the policy-making capacity of the Department of Space and an exercise has been initiated to create new business-friendly policy frameworks in areas like remote-sensing, satellite communication, and launch policies.

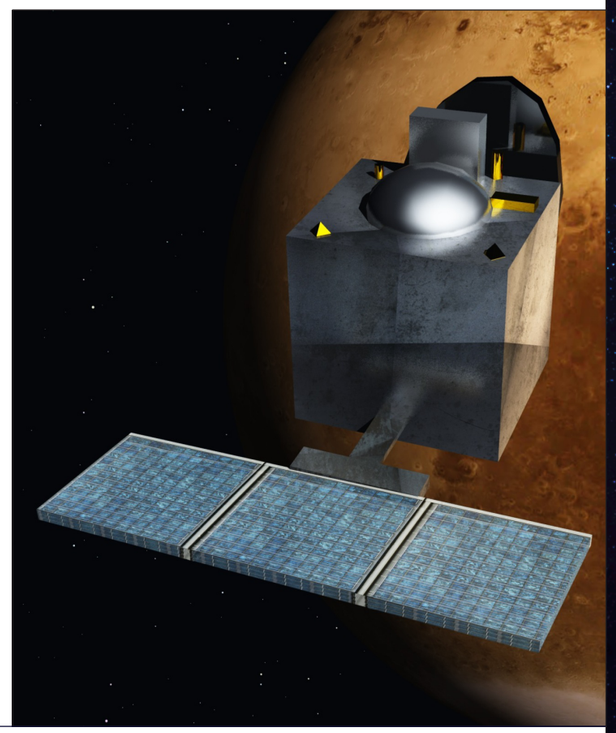
## Enhancing the role of New Space India Ltd

The reforms have authorized the public sector company NSIL to act as the exclusive public-sector aggregator for both demand and supply of space assets/ services on a commercial basis, including imaging, communication transponders, launch services etc. In its role as a demand aggregator, NSIL will acquire satellites, launch vehicles, and other assets developed by ISRO or the private industry. In its role as a supply aggregator, NSIL will commercialize assets and services like transponder capacity, imaging services, launch capacity etc, on ISRO-developed satellites and launch vehicles.

## Transfer of Technologies from Public to Private Sector

The reforms have also given NSIL an important role in transfer of technologies/ platforms from the public to the private sector.

**Platforms such as Polar Satellite Launch Vehicle (PSLV) and Small Satellite Launch Vehicle (SSLV) have been identified for transfer of technology to the private sector in the near future.**



## Announcement of future opportunities for private sector

The reforms have tasked ISRO with identifying and announcing future opportunities in selected science and exploration missions for private sector participation. Such participation will be promoted through part funding by the government. ISRO will also share best-practices, protocols, and other relevant technical expertise with the private sector to enhance their capacity for space activities.

# IMPACT OF REFORMS

1. Industries, start-ups, and academia have warmly welcomed the space sector reforms, and the new IN-SPACe mechanism.

2. More than 40 proposals from start-ups, MSMEs and industries have already been received for future consideration by IN-SPACe, illustrating the overwhelming response to the system.

Following the reforms, several Indian space sector startups have been able to raise venture capital for their planned projects. This depicts the rising confidence amongst investors in the vibrant Indian space sector and the expected impact of this deregulation, as brought about by the reforms.

A new Indian Space Association has been created to function as the advisory and advocacy group for the Space industry.

Applications have been invited for the transfer of technology for the Polar Satellite Launch Vehicle (PSLV) and Small Satellite Launch Vehicle (SSLV), which has generated tremendous interest from the private sector.

Non-Disclosure agreements and MOUs for transfer of technologies have been signed between ISRO centers and several private sector companies.

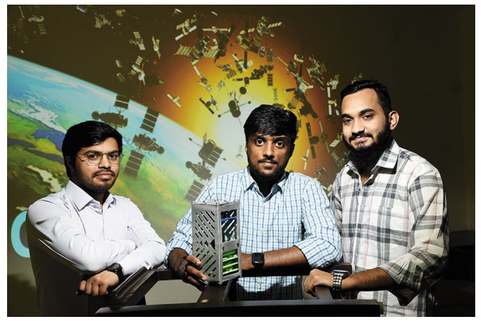

**6 space technology incubational centres are now operational at Agartala, Trichy, Jalandhar, Rourkela, Nagpur, and Bhopal.**

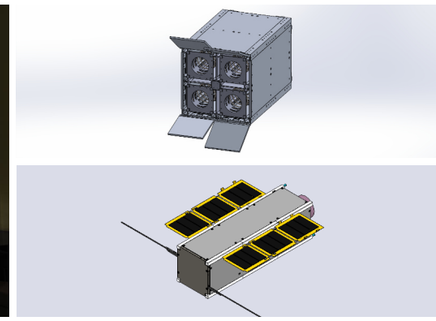
On 28 February 2021, NSIL conducted its first commercial launch. The launch put 19 satellites into orbit on the PSLV-C51 launch vehicle, including 4 satellites through IN-SPACe.

## Private entities in the space business in India

### Digantara

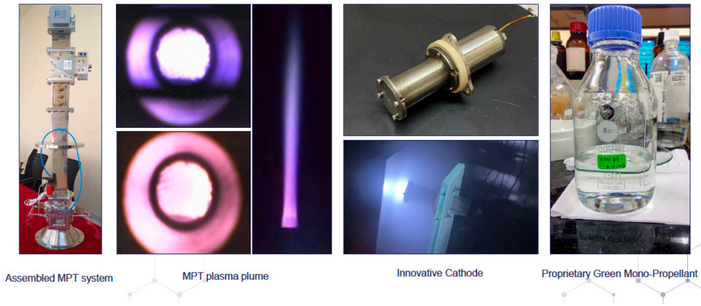
DIGANTARA RESEARCH & TECHNOLOGIES





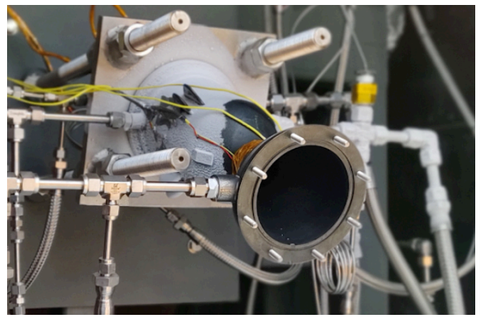
### Bellatrix Aerospace

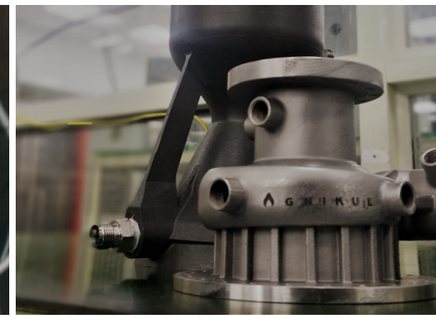
BELLATRIX AEROSPACE
Propelling Dreams


### Agnikul

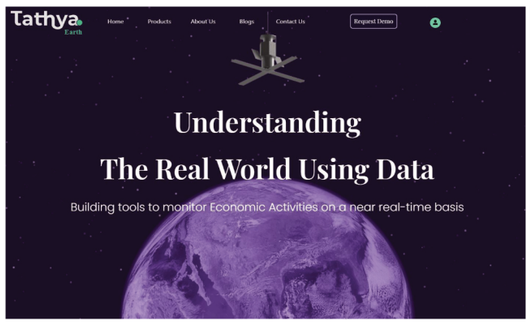
AGNIKUL

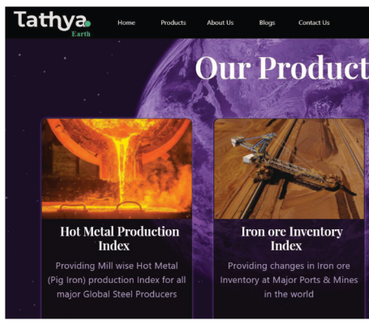




### Tathya

Tathya Earth

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