# India Serves

A Monthly Newsletter by



Setup by Ministry of Commerce & Industry, Govt. of India

VOL IV, ISSUE VI - September, 2023

# India's Space Exploration

SERVICES EXPORT PROMOTION COUNCIL Setup by Ministry of Commerce & Industry, Govt. of India

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# India Serves

India Serves is a monthly magazine published by SEPC from DPT - 417, 4th Floor, DLF Prime Towers, Plot No. 79 & 80, Pocket - F, Okhla Phase-I, Okhla Industrial Area, New Delhi - 110020. India Serves is for private circulation only. Material in this publication may not reproduced without the written permission from SEPC.



### Editor

Dr. Abhay Sinha, DG dg@servicesepc.org abhay.sinha@servicesepc.org

SERVICES PROMOTION EXPORT COUNCIL

Phone: +91 11-41046327-28-29 Email: info@servicesepc.org Website: www.servicesepc.org

Designed and published by **AB Creatives** www.abcreatives.in

August 2023 www.servicesepc.org

MESSAGE

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CHAIRMAN

INDIA SERVES

Chairman's Message



CA. SUNIL H. TALATI

Landing on the moon is no small feat by any means. With Chandrayaan-3 India fulfilled a dream sixty years in the making, India is the fourth country ever to land a spacecraft on the moon. I would like to congratulate Honourable Prime Minister Shri. Narendra Modi for his initiative and ISRO for their determination in achieving a momentous feat. Also, would like to congratulate the Prime Minister for his statemanship in bringing together leaders from around the world at the Bharat Mandapam and a successful G20.

ISRO's journey is a testament of will, focus and cumulative efforts of a nation standing behind a talented group of people with our heads held high. Landing on the moon is no small feat by any means. With Chandrayaan-3 India fulfilled a dream sixty years in the making, India is the fourth country ever to land a space-craft on the moon. Chandrayaan-3's landing site is also closer to the moon's south pole than any other spacecraft in history has ventured. Congratulations to every Indian and the world, for India's achievement is a big leap for the entire mankind.

G20 summit under the leadership of Prime Minister Shri. Narendra Modi, was successfully concluded. It is estimated that some 100,000 foreign delegates visited India in the year running up to the meeting, and that 15 million Indians participated in G20-related activities. A major takeaway was the announcement launch of a mega India-Middle East-Europe shipping and railway connectivity corridor by India, the US, Saudi Arabia and the European Union, and launch of the Global Biofuels Alliance; both the initiatives will reflect positively on the services industry in India.

SEPC, to further that growth will organize the world's biggest exhibition for Services – The Global Exhibition of services with over 750+ international delegates from 150+ countries, 500+ exhibitors and over 10,000 attendees. SEPC is also participating in Mipcom 2023 at France to fuel the growth in Entertainment Services from India and promote India - as the content hub of the World.





C.A. Sunil H. Talati Chairman NDIA SERVES



Services Export Promotion Council set up in 2006 by Ministry of Commerce & Industry, Government of India is an apex trade body to promote exports of services

Key role in Foreign Trade Policy, Export Strategy formulation by Department of Commerce and related Govt Departments.

Interface between Services Sector and Government

Provides inputs on Trade Negotiations

Represents Services Sector in various Joint Trade Committees, Joint Business Councils and Joint Working Groups of Government of India to facilitate export.

Creates Business opportunities in global market place for services exporters

Providing commercially useful information and assistance to members in increasing exports.

Organising visits of delegation of its members abroad to explore overseas market opportunities.

Organising participation of Services exporters in specialised International Trade Fairs.

Dissemination of government notification, orders, information on trade and other relevant information to members.

Facilitates execution of Government Schemes like SEIS.

# Services Covered under SEPC

In order to enhance the competitiveness of services exports and enable services industry to generate employment, the Union Cabinet chaired by Honourable Prime Minister Shri Narendra Modi in 2018 identified 12 Champion Services Sector.

1. TOP /

The following table provides the mapping of identified Champion Services vis-a vis the services covered under SEPC and BPM6 classification. Sixth edition of the Balance of Payments and International Investment Position Manual (BPM6) is developed by IMF in collaboration with compilers and other interested parties worldwide and used by most of the countries to record and report services trade data.

S.N.	Services covered under SEPC	Champion Services	BPM6 Classification	
1	Accounting/Auditing and Bookkeeping Services	Accounting and Finance Services		
2	Consultancy Services	-		
3	Legal Services	Legal services		
4	Architectural Services and related services	Construction and related Engineering services		
5	Environmental services	Environmental services	Other business services	
6	Marketing Research and Public Opinion Polling Services/ Management services	-		
7	Advertising Services	-		
8	Printing and Publishing services	-		
9	Other services (IT & ITES, Communication Services)	IT & ITES, Communication services	Telecommunications, computer, and information services	
10	Hotel and Tourism Related Services	Tourism and Hospitality Services		
11	Education Services	Education services	Travel	
12	Healthcare services including services by nurses, physiotherapist and paramedical personnel	Medical Value Travel Services		
13	Maritime Transport Services	Transport and Logistics	Transment	
14	Distribution Services	services	Transport	
	Other services (Financial Services)		Financial services	
15		Financial Services	Insurance and pension services	
16	Entertainment services including Audio-visual services	Audio-visual services	Personal, cultural, and recreational services	
17	Other Services	-	Charges for the use of intellectual property n.i.e.	
		-	Government goods and services n.i.e.	
		-	Manufacturing services on physical inputs owned by others	
		-	Maintenance and repair services n.i.e.	
		Construction and related Engineering services	Construction	
			Services not allocated	

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# Space Exploration: What next after Moon

Space remains an enigmatic frontier, captivating the curiosity of humankind. Scientists worldwide are working to uncover its secrets. With numerous nations embarking on missions to explore the cosmos, the global space economy is experiencing rapid expansion, currently boasting a 2 per cent growth rate and a valuation of approximately US\$360 billion which is expected to reach US\$600 billion by 2025. In contrast, the Indian space industry stands out with a valuation of \$8 billion, demonstrating a remarkable growth of 4 per cent. This growth surpasses the global average of 2 per cent, underscoring India's burgeoning presence in the field. India proudly stands as the fourth nation to enter the prestigious league of spacefaring nations. India can further tap the potential in this sector to go from a \$8 billion space economy to \$100 billion by 2040.

The contribution of the space industry is 0.25 per cent in the total GDP of India and it has the potential to increase to an impressive 0.5 per cent by 2040. This transformative growth has the potential to generate over 3 million new job opportunities within the nation, illustrating the far-reaching socio-economic impact of an empowered and thriving space sector.



# Table 1 : Missions undertaken by Department of Space (in nos)

Spacecraft Mission	125
Launch Missions	94
Student Satellites	15
Re-entry Missions	2
Foreign Satellites	431
Satellies realised by Indian private players	3

Source : ISRO

India's foray into the realm of space research and exploration began with the establishment of INCOSPAR in 1962 (Indian National Committee for Space Research the Department of Atomic Energy. Later, in 1969, it was succeeded by the Indian Space Research Organisation (ISRO), an organization specifically established with the objective of leveraging space technology to elevate India's standing in the global arena of space exploration.

**Cover Story** 

Considering the growing significance of space activities, the Department of Space and the Space Commission (DSSC) was established in 1972, This institutional framework laid the groundwork for India's continued strides in space exploration and technological advancement.

1. ISRO achieved a first milestone by developing its Indian satellite, Aryabhata which was successfully launched into space in 1975, with the help of the Soviet Union. This achievement contributed significantly to advancing India's expertise in satellite technology and related research. Subsequently, in 1980, India achieved another historic milestone with the launch of Rohini, the nation's first satellite to enter orbit using an indigenously developed launch vehicle, SLV-3. Later the Polar Satellite Launch Vehicle (PSLV), and Geosynchronous Satellite Launch Vehicle (GSLV) were developed. PSLV is primarily used to launch experiment satellites, remote sensing payloads, and payloads weighing up to 1,600 kg into polar or low Earth orbits whereas GSLV can deliver satellites weighing up to 2,200 kg into the Geosynchronous Transfer Orbits (GTO). The heavy lift launcher LVM3 has enhanced the GTO capability to over 4000 kg. The Small Satellite Launch Vehicle (SSLV) is intended to carry 500 kg satellite to 500km LEO (Low Earth Orbit) Orbit. Details of missions undertaken by Department of Space so far are listed in Table 1.

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Over the years, India's space program has undergone remarkable expansion, encompassing a wide array of applications. According to a report on "Developing space ecosystem in India: focussing on inclusive growth" by EY, India space initiatives currently focus on the following aspects (Fig 1):

- 2. Satellite Manufacturing Market wherein the Focus of companies is to launch rockets and spacecraft that study the Earth and the universe. The satellite manufacturing market was valued at US\$ 2.1 billion in 2020 and is expected to reach US\$ 3.2 billion in 2025. India has emerged as the leader in third-party launch services. ISRO generated US\$ 167.5 million by launching satellites for 26 different nations from 2014-2019. Private space firms are coming up and striving to make India a hub for small satellite launches. The launch segment is becoming a key area for start-ups and Small and Medium Enterprises (SMEs).
- Launch Services Market The launch services market is projected to grow from US\$ 567.4

million in 2020 to US\$ 1.0466 billion in 2025. ISRO has been catering to this segment in India, but the growing demand for small satellites offers huge opportunities to many private companies. The demand for launch services is being driven by the expansion of satellite constellations, space exploration missions, and the commercialization of space activities.

- Ground Segment Market The ground segment market encompasses various components and infrastructure required for satellite communication, control, and data processing. The ground segment market is projected to grow from US\$3.1 billion in 2020 to US\$4.0 billion in 2025.
- 5. Satellite Services Market: The satellite services market is projected to grow from US\$3.8 billion in 2020 to US\$4.6 billion in 2025. The satellite services market includes a wide range of services, such as satellite-based communication, broadcasting, Earth observation data provision, and navigation services.



Currently space industry is in the midst of a significant transformation, shifting from its traditional reliance on government-led programs to a dynamic mix of players, prominently led by private enterprises. This evolution is mirrored in India as well, where an emerging ecosystem of space technology startups is receiving support from ISRO (Indian Space Research Organisation). Both the Indian government and the burgeoning space startup sector are enthusiastic about actively participating in the sector's rapid expansion, with the shared goal of positioning India as a substantial contributor to human exploration into space. ISRO's ambitious initiatives, its capabilities, increased government expenditure in space, a surging influx of investments and activity within the country's private space sector, and government policies promoting commercial space ventures collectively make India an exceptionally enticing market replete with abundant opportunities.

The present expansion in the space industry is supported by several key factors in India:

**Strategic Investments:** India's substantial investments in ambitious projects like a space station, human lunar missions, and applications in defense are significant drivers of this growth.

**Proven Manufacturing Capabilities:** India's reputation for affordability and demonstrated competence in satellite and launch vehicle manufacturing positions it as a preferred global hub for satellite operations and launch services.

Thriving Space Tech Startup Ecosystem: The thriving space technology startup ecosystem across various segments, including satellite applications, ground equipment, and launch vehicles, contributes substantially to this growth.

**Commercial Satellite Internet Adoption:** The widespread adoption of commercial satellite internet by various industries further fuels the ex-

pansion of the space sector in India.

If India actively promotes the widespread adoption of satellite internet services, harnesses its established expertise in satellite and launch vehicle manufacturing, and vigorously expands its launch services, it can position itself as a strong player in the global space industry. Additionally, India can cultivate capabilities in cutting-edge domains such as space mining, in-space manufacturing, in-orbit servicing, space tourism, and space entertainment.

Furthermore, fostering innovation in sustainable fuel, reusable spacecraft, and environmental friendly technologies will enhance India's competitiveness in the evolving space landscape. To ensure a steady stream of talent, the country can implement robust skill development programs in space engineering, satellite technology, and related applications, thus enriching the pool of skilled scientists and engineers poised to contribute to the nation's thriving space sector.



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# SPACE STARTUP ECOSYSTEM IN INDIA

Space technology startups in India have been gaining significant attention and momentum in recent years. These startups are contributing to the growth and innovation in the space sector, which was traditionally dominated by government agencies like ISRO (Indian Space Research Organisation). To further the interest of the country in the space industry ISRO is actively encouraging and supporting space startups through its initiatives like the Space Entrepreneurship Program (SEED). This collaboration helps startups access ISRO's expertise, facilities, and technology.

Indian space startups cover a wide range of focus areas, including satellite technology, satellite data analytics, space launch services, space tourism, rocket propulsion technology, satellite manufacturing, and space exploration. Several startups have secured funding from private investors and venture capitalists, indicating growing interest and confidence in the commercial viability of space ventures in India. Indian space startups are increasingly collaborating with international space agencies and companies, expanding their reach and capabilities on a global scale. Some startups are working on miniaturized satellites,

which are cost-effective and versatile for various applications such as Earth observation and communication, while many others are focussing on using satellite data for applications in agriculture, disaster management, urban planning, and environmental monitoring, providing valuable insights to various industries.

While still in its infancy, space tourism startups are aiming to make space travel accessible to civilians, potentially opening up new opportunities for space enthusiasts and researchers. The Indian government is actively working on policies and regulations to support and regulate the growing space startup ecosystem. Space startups are also contributing to skill development by hiring and training a new generation of engineers and scientists in space-related fields.

Indian startups are positioning themselves to compete on a global scale, offering innovative solutions and services that have the potential to impact various industries and markets worldwide. Some of the major startups contributing actively in India's space initiatives are listed in Table 2.





Aadyah Aerospace	Digantara	Omnipresent Robot Technologies
Agnikul	GalaxEye Space	Pixxel
Astrogate Labs	InspeCity	SatSure
Bellatrix Aerospace	Kawa Space	Skyroot
Dhruva Space	Newspace Research & Technologies	Vasundhara Geo Technologies

### Table 2: Space Start ups in India

On the startup front, Indian space tech entrepreneurs are building private space launch vehicles, satellites carrying hyperspectral imaging cameras and satellite-based data services for a range of sectors from agriculture to mining. The Indian government has already invested \$112 million in funding for new-age space startups in the country.

# INDIA'S SPACE INDUSTRY: ROAD AHEAD

India has a substantial opportunity to capitalize on its existing and continuous investments by creating a regulatory framework that entices increased foreign investment. This can be complemented by enhancing manufacturing capabilities through initiatives like production-linked incentives. Additionally, offering robust support for startups, fostering stronger collaborations with international space agencies and private enterprises, instituting specialized R&D centers, and intensifying investments in skill development are vital steps to bolster the space sector.

The future of India's space industry holds immense promise and potential. Several key trends and developments were shaping the trajectory of the Indian space industry, and these trends are likely to continue to evolve in the coming years. Here are some aspects that represent the future of India's space industry:

**Commercial Space Ventures:** India is expected to see further growth in commercial space ventures. Private companies are likely to play an increasingly prominent role in satellite manufacturing, launch services, space tourism, and other commercial space activities. ISRO's partnership with private enterprises will be pivotal in fostering this growth.

**Space Exploration:** India's space exploration endeavors are expected to expand. The country has announced plans for future lunar and interplanetary missions. Continued lunar exploration, potential Mars missions, and participation in international space exploration initiatives will be on the horizon.

**Space-Based Services:** The utilization of spacebased services is poised to increase across various sectors, including agriculture, disaster management, telecommunications, and navigation. This will drive the demand for satellite technology and data analytics.

Space Policy and Regulation: The Indian gov-

ernment is likely to further refine and develop space policies and regulations to facilitate private sector participation, manage space debris, and ensure responsible space activities.

**International Collaboration:** India will continue to collaborate with international space agencies and organizations on various projects and missions. Partnerships will extend to research, satellite launches, and technology development.

**Innovation and Research:** India's space industry will see continuous innovation in areas like reusable launch vehicles, sustainable propulsion technologies, and miniaturized satellites. Research and development will be a key focus.

**Space Education:** India's emphasis on space education and skill development is expected to yield a new generation of scientists and engineers, driving innovation and growth in the industry.

**Space Tourism:** While in its early stages, space tourism could potentially take off in India, providing opportunities for civilians to experience suborbital and orbital space travel.

**Global Competitiveness:** India's space industry is positioned to compete globally, offering cost-effective solutions and services to international markets.

**Economic Impact:** The space industry's contribution to India's economy is likely to grow significantly, with the potential to create jobs and stimulate economic growth.

**Environmental Monitoring:** India's space assets will play a crucial role in environmental monitoring, climate research, and disaster management, contributing to sustainable development.



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Events & Activities

TION, R&D AND ENVIRONMENTAL SERVICES:

Sustainable Energy, Transportation, and Infrastructure Services was jointly organized by SEPC (Services Export Promotion Council of India), CEAI (Consulting Engineers Association of India) on 15th Sept, 2023 at hotel Le-Meridian New Delhi. Deliberations were focused on the challenges, opportunities and way forward for boosting the cross-border trade of the engineering services (Construction & Design Engineering Consultancy, Engineering, R&D and Environmental Services).



The event was attended by 100+ participants com-

prising of Industry experts & Leaders of respective fields. The guest of honour, Shri Piyush Goyal, Minister of Commerce & Industry, Consumer Affairs, Food & Public Distribution, Textiles, Government of India, gave a special address whereby reassuring the participants that the Govt is committed to its



goal of boosting the exports from the said segment of the service industry & receptive to all constructive insights which shall come out of the deliberations. He also emphasised that to drive India's growth & innovation, we should review German Model and suggests Yahi

Samay! Sahi Samay!! He also tried to encourage engineering community to achieve USD 100 billion export target by 2030. The program was welcomed by the industry members & stakeholders for providing a common platform for interaction among each other to discuss various pertinent issues, hurdles faced by them on various fronts in the domestic as well as international arena & voice their valuable suggestions in the policy circles.





### September 2023

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SEPC India @Sepc\_India - Sep 14 SEPC In the dynamic landscape of India's service exports, one sector that stands tall and continues to redefine the nation's global economic footprint is Software & IT Services. ectorgrowth #sepc #indiaservicesecto s #servic #globals ContentHub #ministryofcommerece #Global



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DPT - 417, 4th Floor, DLF Prime Towers, Plot No. 79 & 80, Pocket - F, Okhla Phase-I, Okhla Industrial Area, New Delhi - 110020

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