

Startup Soft-Landing Program

Taiwan

SIA-INDIA REPORT




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Executive Summary



The collaborative endeavours of SIA-India, ITRI, Taiwan and SINE-IIT Bombay have led to a remarkable success story in shaping the India leg of the 2023 International SpaceTech Startup Program at TAcc+ (Taiwan Accelerator Plus). This global program welcomed space startups from diverse nations to compete and secure the coveted slot through a rigorous multi-stage selection process. SIA-India takes immense pride in spearheading this groundbreaking initiative within the Indian startup ecosystem and we are thrilled to highlight that among the 16 shortlisted startups from various countries, the Indian representation was the most significant, with 7 out of these 16 finalists originating from India.



SIA-India's Memorandum of Understanding (MoU) with ITRI, Taiwan, has set the stage for this unique and mutually beneficial collaboration that promises to drive technology, trade, and research between the space startups of the two nations. The program commenced in March 2023 when SIA-India, in collaboration with SINE, IIT Bombay, carefully selected several innovative Indian space startups to participate in the prestigious 2023 International SpaceTech Startup Program in Taiwan. Seven exceptional finalists from this selection recently completed a month-long expedition in Taiwan, and this report offers a comprehensive overview of the Soft-Landing Program, with a focus on the Indian segment of this transformative experience.



The Indian segment of this initiative was a collaborative effort by SIA-India and SINE, IIT Bombay, with guidance from industry experts during the selection process, resulting in multiple MoUs and ongoing collaborations between Indian and Taiwanese space startups. The report offers a comprehensive overview of the program's timeline and phases, aiming to provide an understanding of its structure and collaborative achievements, highlighting the successful execution of TAcc+'s Startup Soft-Landing Program.



SIA-India extends gratitude to DPIIT, NITI Aayog, Invest India, SINE-IIT Bombay, ITRI, TAcc+, and the Taiwanese government for their support in this journey of collaboration and innovation.



Introduction- Objective & Vision

Creating
Shared Value



In a significant step towards promoting innovation and collaboration in the space technology sector, SIA-India, ITRI, and SINE IIT Bombay jointly organized the inaugural International Space Tech Startup Supporting Programme on March 21, 2023, in Bangalore, India. This program gained support from the MSME Administration and the Ministry of Economic Affairs, Taiwan, signifying its importance.

A key highlight was the signing of a groundbreaking MoU between SIA-India and ITRI, signifying a significant commitment to boost India's space sector. The ceremony, marking the signing of this landmark MoU, witnessed the esteemed presence of luminaries representing diverse organizations. Dr. Sudheer Kumar, Director of CBPO at ISRO, Dr. Chin-Tsan Wang, Counsellor and Director of the Science and Technology Division at TECC (Taipei Economic and Cultural Center) India, Ms. Chen Yu-Chi, Executive Director of the Economic Division of TECC India, Dr. Lewis Chan, Director-General of ITRI, Mr. Aju Antony, AVP Invest India, Dr. Subba Rao Pavuluri, President of SIA-India and Chairman and Managing Director of Ananth Technologies Ltd., and Mr. Anil Prakash, Director-General of SIA-India, were among the distinguished attendees.



Objective

Providing a platform for Indian space startups to exhibit their capabilities and connect with stakeholders in Taiwan's space sector to foster synergies and collaboration opportunities, ultimately promoting India's space industry's growth and development. Building on the success of the India-Taiwan program, SIA-India is committed to expanding collaborations with multiple countries to harness the potential of the startup ecosystem and drive innovations in the space sector, forming a global network of partnerships.



Vision:

SIA-India envisions a dynamic, interconnected ecosystem fostering startup growth, innovation, and knowledge exchange. These partnerships empower Indian startups with global market access, expanded customer bases, and opportunities for cross-border initiatives. The collaborative synergy accelerates space sector development, positioning India as a global space innovation leader.

Collaborating Organisations

SIA-India

Satcom Industry Association - India (SIA-INDIA) is a prominent organization involved in promoting and advancing satellite communication and space technology in India. In the context of the initiative, SIA-INDIA plays a pivotal role in organizing and coordinating the program. It initiated and facilitated collaboration with other organizations, serving as a catalyst for the initiative's success. SIA-INDIA's role also includes overseeing the participation of Indian startups and fostering partnerships with international entities like ITRI and TACC.

ITRI

Industrial Technology Research Institute (ITRI) is a renowned research and development organization based in Taiwan, specializing in technological advancements and innovations across various industries, including space technology. In this initiative, ITRI acts as a strategic partner to SIA-INDIA, offering expertise, resources, and support to facilitate the soft-landing program. ITRI's role involves mentoring and providing a platform for startups during their soft landing in Taiwan, thereby enhancing their technological capabilities and fostering collaboration.

SINE IIT

SINE IIT Bombay is a significant player in nurturing entrepreneurship and innovation in India. In the context of the initiative, SINE IIT Bombay collaborates closely with SIA-INDIA to ensure a seamless selection process for Indian startups participating in the program. It serves as a valuable link between India's startup ecosystem and the initiative, facilitating the identification and inclusion of promising startups.

TACC

Taiwan Accelerator Center (TACC) is based in Taiwan, serves as the destination for the soft landing of startups participating in the program. It plays a critical role in hosting and providing support to the startups during their one-month exploration in Taiwan. TACC's role includes offering resources, networking opportunities, and guidance to startups, allowing them to experience Taiwan's vibrant ecosystem and collaborate with international partners effectively.



Overview of the Soft-Landing Program for SpaceTech Startups in Taiwan

The Soft-Landing Program offered a comprehensive introduction to Taiwan's burgeoning space industry and provided valuable resources for space technology startups looking to establish their presence in Taiwan. The program was designed to facilitate seamless integration into the local space ecosystem while fostering collaboration and growth opportunities. Below is an overview of the program's key components:

Program A - Group Mentoring

1. Orientation:

During the orientation phase of the program, participants received comprehensive guidance on crucial resources that are instrumental for establishing a successful presence in Taiwan. This invaluable information encompassed various aspects vital for startups to navigate the Taiwanese business landscape effectively.

First and foremost, the program shed light on the process and requirements for obtaining entrepreneur visas, which are essential for foreign entrepreneurs looking to operate in Taiwan. This step-by-step guidance ensured that participants were well-informed and equipped to navigate the visa application process smoothly.

Additionally, the program delved into the intricacies of employment gold cards, a vital resource for attracting and retaining top international talent. Participants gained insights into the application process and the advantages of holding an employment gold card, which includes streamlined work permit applications and access to various benefits.

Understanding labor regulations is paramount for any startup venturing into a new market, and the program provided a comprehensive overview of Taiwan's labor regulations. This knowledge equipped participants with the necessary tools to navigate employment-related matters, fostering a conducive work environment.

Moreover, participants were introduced to company regulations in Taiwan, ensuring they had a clear understanding of the legal framework governing business operations. This knowledge was indispensable for compliance and conducting business activities within the bounds of Taiwanese law.

2. Innovation Tour:

Startups visited established enterprises in Taiwan's space sector, gaining firsthand exposure to industry practices and forging potential partnerships. The program facilitated meetings between startups and potential collaborators or partners, creating opportunities for mutually beneficial ventures.





3. Exhibition: Taipei Aerospace & Defense Technology Exhibition

Startups had the opportunity to showcase their innovations at the Taipei Aerospace & Defense Technology Exhibition, enhancing their visibility in the industry. A platform was provided for startups to pitch their ideas and technologies to a broader audience, attracting potential investors and collaborators.

Program B - Individual Mentoring:

Startups participating in Program B received individualized mentoring and support to address their specific goals and challenges. They followed a tailored itinerary that included enterprise visits, matchmaking meetings, and access to Chinese marketing materials tailored to their needs. The Soft-Landing Program equipped space technology startups with the knowledge, resources, and connections needed to thrive in Taiwan's vibrant space industry.

All-Expense-Paid Opportunity and Benefits:

The International SpaceTech Startup Support Program in Taiwan offered a comprehensive experience that encompassed exposure to Taiwan's innovation ecosystem, extensive networking opportunities, the signing of Memorandums of Understanding (MoUs) for innovative projects, and the exploration of diverse industries. It also provided global link services for seamless cross-border collaboration, enterprise visits for industry insights, co-creation and field verification activities for refining technologies, marketing and promotion support, and guidance for international expansion. These benefits collectively enriched startups' experiences and paved the way for future growth and success in the space technology sector.

Networking and Collaboration:

Startups immersed in Taiwan's innovation ecosystem via the Soft-Landing Program, creating valuable connections and partnership opportunities through matchmaking meetings. They explored Taiwan's space sector and its comprehensive practices, with plans to adopt these in India and involve associations like SIA-India for policy changes. Identified areas for improvement in the Indian space industry led to proposals for ongoing collaboration events. Startups expressed eagerness for future collaboration and several applied for entrepreneur visas to return and engage with Taiwanese counterparts.

Selection Process



Pre-Matching and Promotion (Jan-Feb): The program begins with the project kick-off, where the organizers initiate preparations. A jury panel is organized, and the program is promoted globally to attract potential startups.



Application and Selection (March-May): Startups are invited to submit their applications through two channels: referrals from global space industry experts/partners and self-recommendations. Document reviews are conducted to assess the suitability of the applying startups. An online pre-matchmaking process is initiated to connect startups with potential partners. The selected startups' list is prepared, marking the beginning of the pre-matching phase.



Physical Exploration in Taiwan (Sep-Nov): Selected startups undertake a physical exploration in Taiwan, lasting for one month. During this period, startups engage in supply chain matchmaking, participate in industry events like the Taipei Aerospace & Defense Technology Exhibition, and attend innovation community meetups. They explore opportunities for collaboration, networking, and engagement with the international community.



Global Connection (Nov-Dec): The program culminates with global connection activities, fostering ongoing collaboration and connections established during the physical exploration.



Startup Participation

The 2023 International SpaceTech Startup Supporting Program brought together a diverse group of startups from Europe, the United States, India, and Australia, all converging on Taiwan for a unique opportunity.



Indian Segment

Among the Indian startups that had participated, an impressive 14 had the opportunity to present their innovative concepts during the selection process, and eventually, 7 emerged as finalists. Indian startups constituted the majority of the participating startups in the program.

Indian startups exhibited remarkable diversity in space and tech pursuits, ranging from crew modules to satellite comms, space situational awareness to on-orbit services, reusable space stations to AI-driven transformation, and multi-sensor imaging satellites. They made significant contributions to global space tech, delving into launch vehicles, spacecraft development, satellite data analytics, sustainability, and rocket propulsion systems.



Jury Panel



Dr. Tirtha Pratim Das

Director, Science Program
Office, ISRO

Dr. Das is a respected figure in space technology, notably contributing to India's PSLV and GSLV missions, as well as ISRO's Planetary Exploration program. His expertise includes lunar exosphere and disruptive space technologies.



Mr. Shaji Varghese

Deputy CEO, SINE, IITB

Senior management professional with over two decades of work experience in India covering startup incubation, venture capital & private equity, consultancy & investment banking and capital market operations.



Mr. DS Govind Rajan

President, Aniara Space

"Mr. DS Govind Rajan, with over 25 years of experience in the satellite and technology sectors, showcases his wealth of industry knowledge and commitment to innovation and growth through his advisory roles with technology startup companies.



Prof. Radhakant Padhi

Professor, Indian Institute of
Science, Bangalore

Prof. Padhi, an esteemed academic and aerospace guidance & control systems specialist, excels in areas like target tracking and integrated guidance control. His numerous fellowships from esteemed engineering/technical organizations underscore his valuable contributions to the field



Dr. P. V. Venkitakrishnan

Member & Chairman, Aerospace Division
Board, Institution of Engineers (India)

Dr. Venkitakrishnan is a revered ISRO veteran with a wealth of experience in aerospace-related manufacturing and materials. He has played a pivotal role in infrastructure development within the aerospace sector, contributing significantly to its growth and advancement.



The Final Selection Event

The program commenced with an exhilarating Welcome Party on August 15th, during which international SpaceTech startups unveiled their cutting-edge innovations and technological advancements in the space industry. This event not only provided a platform for these startups to showcase their ideas but also facilitated valuable networking opportunities, enabling participants to expand their international business connections. Furthermore, the event offered a sneak peek into the upcoming one-month supporting program in Taiwan.

In this gathering, esteemed individuals such as Deputy Director General Chen Mi-Shun from the Small and Medium Enterprise Administration of the Ministry of Economic Affairs, Taiwan, Director Chen Way-Jin from the Taiwan Space Agency, Deputy Director General Dhananjay Singh Yadav from the India Taipei Association, and Head of Economic Section Kateřina Heinischová from the Czech Economic and Cultural Office, among others, graced the occasion. The presence of these distinguished guests, along with industry representatives and professionals from academia, fostered a vibrant atmosphere filled with lively interactions between these key stakeholders and the startups.

The SpaceTech Startup Supporting Program united startups from Asia, Europe, America, and Australia in Taiwan, where seven exceptional Indian startups stood out as finalists. Indian representation was prominent among the finalists, highlighting their commitment and the strength of the Indian space startup ecosystem.

Finalists From India

1

Astrogate Labs

Improve custAstrogate Labs specializes in enabling high-speed laser communication solutions for smallsats. It has developed smallsat laser downlink terminal and compact optical ground network for a full turn-key solution for all satellite communication needs. The company plans to provide laser communication downlink services to the growing smallsatellite constellations.omer satisfaction

2

Delta-V Analytics

A US and India-based AI cloud-based technology company, Delta-V Analytics (formerly Robotics), provides Digital Transformation Solutions that bring together Digital Twins and Artificial Intelligence (AI) to impact an entire physical asset's lifecycle, starting with design and ending with disposal.

3

GalaxEye Space

GalaxEye is building the world's first multi-sensor imaging satellite, The Drishti Mission. These indigenously built satellites will enable governments, defence, and industries to perform advanced state-of-the-art geospatial analysis.

4

Inspecity Space Laboratories

Inspecity aspires to realize the dream of constructing space cities, inspired by concepts like O'Neill cylinders. They are committed to developing critical technologies, in the areas of Propulsion, Robotics, and Vision systems, aimed at developing the technology stack to create On-Orbit infrastructure.

5

Transcend Satellite Technology LLP

Transcend Satellite Technology specializes in affordable satellite design solutions for CubeSats and small satellites in various domains. They offer end-to-end services, from concept design to launch, with a focus on cost-efficiency. Their innovative projects include a unique 1U CubeSat design and software-defined radio for satellite communication.

6

Vellon Space

Vellon Space is building "Vellon Space-Lab" a reusable unmanned orbiting space station for facilitating space experiments, manufacturing, technology demonstration, and explorations.

7

Xovian Aerospace

Xovian Aerospace is developing an advanced Radio-based nano-satellite infrastructure for providing 24x7 real-time Geospatial and Signals Intelligence services for multiple industry verticals.

Final Startup Pitches

Details about the winning Indian startups and their pitch during the program, including their identified problems and proposed solutions. These startups tackle a range of challenges in the space industry, from improving data communication to enhancing weather forecasting, reducing space debris, and making space research more accessible and cost-effective.

Astrogate Labs | Nitish Kumar Singh-Co-founder

Problem: - Challenges with downlinking data from small satellites, especially for Earth observation satellites that provide a large amount of data. The existing RF ecosystem, ground stations, and transmitter hardware are unable to handle the increasing demand for data.

Solution: Astrogate Labs has developed a data downlink solution that uses laser communication technology.

There are two types of links that are supported by this technology:

Direct to Earth Link: Satellites directly transmit data to ground stations, commonly used for Earth observation and information satellites in the commercial, academic, and experimental sectors.

RF Link: The current RF (Radio Frequency) technology for data downlink has limitations, including an average speed of 50 Mbps and challenges such as high spectrum licensing fees and regulatory delays, hampering scalability.

Usage: This technology is used for satellite-to-satellite communication, backhaul links, and is in high demand driven by Starlink and OneWeb constellations. Laser communication is the only solution that can provide high-speed backhaul communication for satellites in higher orbits.

Advantages: The laser downlink solution has a smaller RF beam footprint of 100km² area, and provides a channel that is inherently physically secure and cannot be jammed or snooped upon.

Current Scenario: The current solution is a space-to-ground laser communication system called ASTROLINK, which uses satellite hardware and is coupled with Astrogate's compact optical ground station.

Future Goals: The company aims to set up optical in-orbit release to enhance the amount of data that can be downlinked from the satellite.

Technical Challenge: Small satellites are not typically able to achieve the level of precision required for using laser communication for very precise pointing. The company has developed its own PAT (pointing, acquisition and tracking system) that's integrated with their laser comm. terminal and is able to fit within the SWaP constraints of smallsats



Astrogate Labs has developed a system that allows the satellite to roughly point within 0.6 degrees and the integrated PAT system can track and finely steering the downlink beam towards the ground station

VELLON SPACE | J.K Ajay Kumar – Founder & CEO

Problem: The space industry is moving towards scaling up experimentation to in-space manufacturing, in-orbit services, and other activities. However, setting up a space lab in the International Space Station (ISS) or conducting experiments in microgravity is expensive, time-consuming, and has limited duration. There is also a lack of awareness and availability of microgravity and less dedication towards projects by astronauts, resulting in less qualitative data being brought back to Earth.

Solution: VELLON SPACE provides miniaturized space labs that can conduct research and operate in space, called StarLab full-stack payloads. This allows researchers and institutes to utilize the unique characteristics of microgravity and conduct a variety of experiments. The company is building capabilities for technologies that enable this, and aims to provide access to and operation in space.

Advantages: VELLON SPACE opens up the global space sector wider, making it accessible to terrestrial industries such as biotech, pharma, material science, life science, and space tech industries for technological demonstrations.

Future Goals: VELLON SPACE aims to reduce the time required to set up experimentation labs, enhance payload infrastructure capabilities, and address standardization problems. The company also plans to develop a lab-in-space platform that enables experimentation in space, controlled by labs on Earth, with multiple input and output of data.

DELTA-V ANALYTICS | Naushad Rahman | Founder & CEO

Problem: The absence of virtual tools for monitoring satellite behavior, wear and tear, and potential faults forces teams into outdated troubleshooting and unreliable simulations. This reactive approach leads to mission failures, massive financial losses, and hinders space innovation. As satellites increase in number and complexity, the risks and consequences soar, endangering future space endeavors.

Solution: Delta-V Analytics enable dynamic satellite virtual replicas using AI and digital twin technology, replacing outdated manual testing and operations tools with real-time issue detection and prevention.

Advantages

- Real-time Digital Twin and AI: Dynamic satellite updates and early anomaly detection.
- Continuous Monitoring: Immediate system insights.
- User-Friendly Interface: No-code platform and streamlined guided component selection.
- Broad Market Reach: Serving manufacturers, hardware companies, and insurance companies.
- Flexible Pricing Model: Adapted to user and premium insurance needs.

Current Scenarios: A beta version of the product has been released and completed pilot by US and India Space companies.

Future Goals: Adding third-party tools as plugins and using the platform for lunar exploration and in-orbit servicing.



XOVIAN Aerospace | Ankit Bhateja | Founder & Director

Problem: The need for intelligent geospatial data collection infrastructure is increasing due to factors such as rising global trade, climate concerns, demographic changes, and geopolitical shifts. This is crucial for making quick decisions in various industries.

Solution: Xovian Aerospace is deploying an advanced radio-based nano-satellite infrastructure for providing real-time geospatial and signal intelligence. The satellites render the entire earth in the form of radio-spectrum and provide critical datasets for sectors like Maritime, Agriculture, Aviation, BFSI, Défense & Security etc.

Advantages: The startup's platform "Skylobe" provides end to end full scale decision intelligence solution from data acquisition to data delivery under a single roof by taking advantage of its RF based GEOINT & SIGINT technology, thereby creating an edge over the existing conventional ground and space-based remote sensing infrastructure by providing full control over quality, superior scale advantages and faster innovation cycles, enabling the creation of new doors of opportunities in the radio-based geospatial data services market.

Current Scenario: The startup has developed and tested its technology.

Future Goals: Startup's next step is to take its technology to space with the launch of its first payload targeted in Q2 of 2024 followed by it's first satellite launch by the end of 2024.

GalaxEye Space | Raageshver J Sood | Lead Spacecraft Engineer

Problem: The geospatial industry faces a gap where the information obtained from optical and SAR (Synthetic Aperture Radar) images is often incomplete or unclear, leading to inefficiencies in decision-making processes.

Solution: GalaxEye Space aims to bridge this gap by utilizing two complementary sensor information and merging optical and SAR images to give a more comprehensive and intuitive view of the scenario. This approach will provide lost information and insights, leading to better-informed decisions in various fields, including disaster management and defense.

Advantages: The fusion of optical and SAR images will offer several advantages, including the ability to accurately identify the extent of forest fires (optical images) and provide ground truth information (SAR images) without being obstructed by weather or time-of-day limitations.

Current scenarios: GalaxEye Space is building a constellation of satellites and hosting Drishti payloads on the same platform, which will help them gather more data and improve their data processing capabilities.

Future Goals: GalaxEye Space's future goals include sensor fusion on a satellite platform, the ambition to launch their first satellite by 2023-2024, and hosting multiple payloads to cater to various industries' needs.



Transcend Sat Tech | Pramitha Ramaprakash | Founder and CEO

Problem: Transcend Sat Tech addresses the challenge of unpredictable weather conditions, lack of real-time monitoring, and the need for region-based satellite data for warning systems. Existing technologies, like SAR and Hyperspectral tech, are expensive and ineffective for medium and dense clouds.

Solution: Transcend Sat Tech proposes affordable real-time monitoring with 6U and 12U CubeSats using multispectral imaging and LIDAR. They aim to combine these technologies for earth observation, remote sensing, and IoT communication, providing end-to-end satellite solutions.

Advantages: LIDAR enables the recognition of water, vegetation, and military applications, offering valuable data. Multispectral imaging and LIDAR provide real-time data for early weather warning systems, including natural disasters.

Future Goals: The company plans to create a global flood monitoring satellite and develop satellite constellations. These objectives align with their mission to address critical issues like weather monitoring and early warnings, enhancing global safety.



InspeCity Space Labs | Dr. Arindrajit Chowdhury, Arun Radhakrishnan

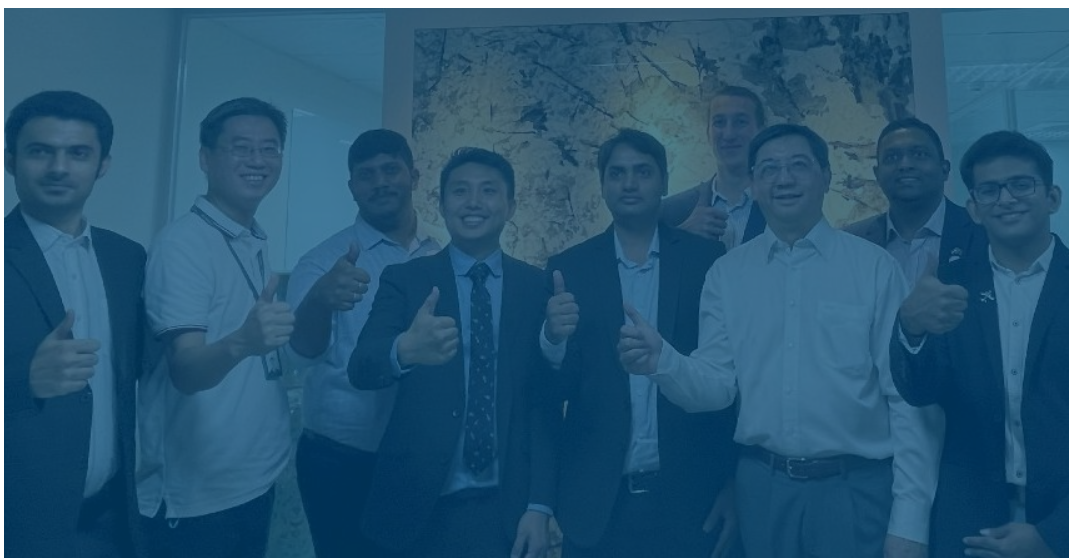
Problem & Solution: InspeCity aims to build space cities inspired by concepts like O'Neill cylinders. They recognize the need to develop enabling technologies for this vision given the financial constraints in the Indian space ecosystem. Their solution involves autonomous robotic platforms, like Vehicles for life-Extension and Deorbiting Activities (VEDA), equipped with Robotically Inserted Guidance systems (RIG). VEDA platforms serve to extend satellite lifespans and remove space debris.

Advantages: InspeCity's innovation disrupts the global space technology ecosystem, addressing satellite servicing and space debris management. Their VEDA platforms offer cutting-edge technology, positioning them as industry leaders. Beyond satellite servicing, InspeCity envisions creating a self-sustaining space-based economy and habitats beyond Earth.

Future Goals: InspeCity is committed to continuous innovation, refining in-orbit servicing and expanding autonomous robotic platform applications. Their ultimate goal is pioneering self-sustaining space habitats, driven by the visionary leadership of Arindrajit Chowdhury, co-founder & CEO, and an esteemed faculty member at IIT-Bombay.



MoUs and Collaborative Ventures



Several significant collaborative ventures and Memorandums of Understanding (MoUs) emerged from the program, showcasing the critical role of these collaborations in advancing space technology and research.

Vellon Space: They teamed up with German space biotech firm Yuri to utilize bioreactors on Vellon's StarLab. Another partnership with Taiwan's HelioX Cosmos will support microgravity research and the sharing of research facilities. They also joined forces with Ategenomix Incorporated (AGTX) to generate microgravity bio-tech metadata for industries. These collaborations present unparalleled opportunities for life science research in space's distinctive environment.

Astrogate Labs: Astrogate Labs is currently engaging with Universities, Industry partners & TASA for opportunities to demonstrate the system in orbit and collaborate on laser comm development projects. Satellite laser communication is of immense interest within the region and Astrogate Labs strives to build strategic ties with Taiwanese space-tech industry. The company is currently discussing and finalizing 2 MoUs for providing its laser comm terminals for nanosatellite platforms. Astrogate Labs also entered into Non-Disclosure Agreements (NDAs) with suppliers to meet the optical requirements for their projects, emphasizing the importance of collaboration in advancing their technology.

Delta-V Analytics: Delta-V Analytics collaborated with Tensor Tech, utilizing their platform for subsystem development. Furthermore, they are in the process of finalizing an MoU with a hardware supplier to leverage AI for fault detection, demonstrating how partnerships enable the enhancement of their capabilities and offerings.

GalaxyEye Space: GalaxyEye Space actively engaged in conversations with potential customers, underlining the significance of networking and collaboration in identifying market opportunities and potential clientele.

Xovian Aerospace - Xovian Aerospace has engaged with several Taiwanese industries and institutions to understand their needs & offerings and have identified the potential areas of collaboration, with ongoing discussions for the future opportunities.

Inspecity: Inspecity conducted an extensive search in Taiwan to identify various companies for potential collaboration. As discussions progress, the company anticipates signing MoUs with several Taiwanese entities. This broad outreach underscores the program's success in linking startups with prospective partners.

Transcend Satellite: Transcend Satellite visited numerous institutes and is currently finalizing MoUs with them. They are actively discussing an MoU with Tamkang University, which includes provisions for providing educational CubeSat kits and training. Additionally, Transcend Satellite is exploring potential partnerships in Taiwan's semiconductor and biotech sectors, with ongoing discussions. These collaborations underscore the significance of cross-border cooperation in advancing technological innovations.

Avantel: Industry expert Avantel, known for its comprehensive system-based solutions in satellite communications, HF communications, electronic warfare, and radar systems, seized the opportunity to collaborate with three companies in Taiwan. Their expanding portfolio, including SCA-compliant Software Defined Radios, High Power HF systems, Air Defense Radars, and Small Satellites, showcases their commitment to advancing technology through international partnerships.

Engagement with Ministries and Government Organizations:

Organisation	Ministry of Economic Affairs, Taiwan	Taiwan Space Agency [TASA]	Taipei Economic and Cultural Center	India Taipei Association	Industrial Technology Research Institute [ITRI]	Small and Medium Enterprise Administration, MEA, Taiwan	Taiwan Aerospace Industry Association
Key Role	Actively engaged with the program, providing crucial support for its operations.	Played a vital role in supporting the startups during their soft landing in Taiwan. Ensured they had access to necessary resources and guidance.	Played a pivotal role in fostering international cooperation. Provided essential support for program activities.	Provided essential support in facilitating engagement between India and Taiwan in the realm of space technology.	ITRI served as a strategic partner to SIA-INDIA, providing expertise, resources, and support for the soft-landing program. ITRI mentored startups during their stay in Taiwan, enhancing their technological capabilities and promoting collaboration.	SMEA Taiwan, played a crucial role offering support and resources to facilitate the success of startups in Taiwan. Their involvement aimed to boost technological capabilities and promote collaboration for SMEs.	It served as a hub for collaboration, information sharing, and advocacy to advance the interests of aerospace companies, promote innovation, and enhance the country's aerospace capabilities.
Representative	Chen Mi-Shun Deputy Director General	Wu Tsung-Hsin Director General Chen Way-Jin Director	Ms. Chen Yu-Chi, Counsellor and Director, Science and Tech Division	Dhananjay Singh Yadav Deputy Director General	Lewis Chen Director General	Chin-Tsang Ho Director General	Kung, Mei-Hsu CEO

The active participation of various government organizations and ministries was a driving force behind the success of the Startup Soft-Landing Program. Their proactive involvement demonstrated a clear commitment to fostering innovation and collaboration in the space technology sector.

Testimonials

Astrogate Labs

"Participating in the program was an eye-opening experience for us. Attending Conferences in Taiwan's academia offered valuable insights into the local space sector, and we interacted with about ten companies. Satellite laser communication is a major focus in the region, and Astrogate Labs is actively building strategic connections in the Taiwanese space-tech industry. They are in the process of finalizing two MoUs: one involving the integration of their laser communication technology into CubeSats for inter-satellite communications. Furthermore, they are currently discussing a second MoU. Astrogate Labs also established Non-Disclosure Agreements (NDAs) with suppliers to meet their optical requirements, underscoring the importance of collaborative progress in their technology."

GalaxEye Space

"We express our heartfelt gratitude for the well-organized and eventful program. Our active participation from the third week onwards allowed us to interact extensively with our Taiwanese counterparts. This interaction provided us with invaluable insights into Taiwan's space ecosystem and promising business prospects. Engaging in active conversations enabled us to identify potential customers, laying the foundation for future partnerships and growth."

Vellon Space

"We're incredibly excited about the global opportunities presented by the program. Our distinct perspective as a space startup motivated us to explore non-space industries in Taiwan, with a particular focus on biotech and semiconductors. Our methodical approach in identifying industries and potential collaborations proved highly successful. While in Taiwan, we engaged with 15 industries, predominantly in the semiconductor and biotech sectors, unlocking promising prospects. Participation in biotech and semiconductor conferences broadened our horizons, resulting in three significant partnerships. These collaborations will enable us to provide microgravity experimentation opportunities and venture into uncharted territories."

Xovian Aerospace

"We express our heartfelt gratitude for the well-organized and eventful program. Our active participation from the third week onwards allowed us to interact extensively with our Taiwanese counterparts. This interaction provided us with invaluable insights into Taiwan's space ecosystem and promising business prospects. Engaging in active conversations enabled us to identify potential customers, laying the foundation for future partnerships and growth."

InspeCity

"The program's initial focus on identifying suitable partners was instrumental in our journey toward mapping the space ecosystem and understanding how to leverage the expertise offered by each firm. We identified around 50 companies in Taiwan to explore opportunities with, and the program's matchmaking sessions were highly valuable. Taiwan's well-developed ecosystem, particularly its satellite manufacturing capabilities, semiconductor R&D, and closely-knit research clusters, left a significant impression on us. Our interactions within the cohort of companies were rich and rewarding, and we look forward to potential collaborations that will further our mission."

Delta-V Analytics

"Our journey during the program has been a blend of innovation, collaboration, and cultural enrichment. It played a pivotal role in bridging the gap between the Indian and Taiwanese ecosystems. We've already initiated collaborations with Tenser Tech, utilizing their platform for subsystem development. Additionally, we are in the process of finalizing an MoU with a hardware supplier to leverage AI for fault detection. These collaborative efforts exemplify the program's role in fostering innovation and growth."

Transcend Satellite

"Our time in Taiwan has been nothing short of remarkable, marked by fruitful interactions and collaborations. We extend our sincere thanks to IRI and our colleagues for their invaluable support in travel logistics and meeting arrangements. Visiting numerous institutes and finalizing MoUs with two of them has laid the groundwork for future partnerships. We are actively exploring potential collaborations in Taiwan's semiconductor and biotech sectors, with discussions currently underway. We appreciate the remarkable opportunity provided by the program and the enriching discussions and connections we've established with fellow colleagues."

Identifying Gaps

- **Raw Material Procurement and Testing Processes:** Startups noted a need for improvements in raw material procurement and testing processes within the Indian industry. Addressing these gaps is crucial for enhancing the quality and efficiency of the production and development of space-related technologies.
- **Import-Export Regulations Understanding:** Understanding import-export regulations was highlighted as crucial for smooth operations during international collaborations. Startups emphasized the need for clarity in navigating these regulations to facilitate international transactions, especially for high-technology items.
- **Alignment of Policies:** The participant mentioned the potential misalignment between the space sector and deep tech policy, particularly concerning space test infrastructure and its dual-use nature. To resolve this, clear and coherent guidelines bridging space and deep tech policies must be established.
- **Tax incentives to encourage space innovation and cooperation:** Tax relaxation is crucial when startups are working on testing, qualification, and subsystem quality before fully qualifying for space operations. It's essential to explore whether similar tax incentives can be extended to cross-border interactions.
- **Categorization of Startups:** Startups raised concerns about the categorization of startups on the INDPIT platform, particularly within the aerospace category. The issue here is the misrepresentation of space startups due to the inclusion of various subcategories. Accurate and distinct classification of space startups is essential to provide a realistic portrayal of the space industry.
- **Program Duration and Ongoing Engagement:** Startups expressed their preference for an extended trip duration of at least six weeks to establish stronger connections and partnerships. They also suggested arranging follow-up events to maintain the collaborative momentum. Sustained engagement with the host country is deemed essential for the success of these initiatives.

Key Recommendations



Streamlined Entrepreneur Visas for Enhanced International Partnerships



Comprehensive Understanding of Import-Export Regulations



Policy Alignment and Tax Benefits to Encourage Collaborative Initiatives



Accurate Classification of Space Startups for Recognition and Support



Extend the program duration to six weeks and incorporate follow-up events





Way Forward



Enhancing the Soft-Landing Program: *Strategies for Expansion and Growth*

Inclusive Participation: Involve companies of all sizes, from startups to established corporations, to diversify innovation.

Trade Delegations: Facilitate cross-border space sector trade delegations to boost cooperation.

Sector-Specific Initiatives: Organize specialized workshops focusing on specific space sectors for wider participation.

Government Engagement: Collaborate with government agencies for a conducive partnership environment.

Sustained Interaction: Establish continuous platforms for engagement through workshops and conferences.

Networking Opportunities: Create sessions for matchmaking and industry-specific forums to foster connections.

Resource Sharing: Promote shared access to research and testing facilities to accelerate innovation.

Progress Tracking: Develop a monitoring mechanism for collaboration success stories and improvements.

Roadmap and Funding: Collaborate on planning, resource allocation, and explore funding avenues to support expansion.

Unlocking Greater Potential: Expand collaboration for mutual growth and innovation in the Indian and Taiwanese space sectors.



SIA-India Plans for Similar Initiatives

PROMOTE SPACE ENTREPRENEURSHIP

Expanding Soft Landing Programs to Multiple Countries: SIA-India is enthusiastic about expanding its successful startup soft landing program to foster international collaborations and strengthen ties with various countries across the globe. The organization has ambitious plans to organize similar initiatives with several other key nations that it is collaborating with. SIA-India is also forming partnerships with global space associations to help promote cross-border trade, collaboration, and new market opportunities.

Startup Incubators: Establish or partner with startup incubators specializing in space technology. These incubators can provide the necessary infrastructure, mentorship, and funding to budding space entrepreneurs.

Government Liaison: Collaborate closely with government agencies and ministries to advocate for policies that support space entrepreneurship. Encourage initiatives like tax incentives, funding grants, and streamlined regulations.

SIA-India Legal Cell: The SIA-India Legal Cell is a specialized unit offering legal support to startups and businesses in India's space industry, covering contractual, regulatory, intellectual property, and other legal issues. Staffed by legal experts, it assists SIA-India members, especially startups, in managing legal aspects of their space sector activities.

Regular Networking Events: Organize frequent networking events, matchmaking sessions, and conferences to enable space startups to connect, share experiences, and explore potential collaborations.

Long-Term Commitment: Understand that nurturing space entrepreneurship is a long-term commitment. Encourage the sustained engagement of startups and industry players in the space ecosystem.

SIA-India at TASA

"India is a priority country for Taiwan's external engagement, offering significant cooperation opportunities. India can provide assistance and support to Taiwan in developing and launching low-orbit satellites by leveraging its experience and capabilities in the space sector."

Anil Prakash, DG, SIA-India speaking at the Taiwan Space Agency—TASA



Strengthening Space Startups: Dr. Subba Rao Pavuluri's Vision

"Collaboration between Taiwan and India is key to building robust space ecosystems. With over 100 startups in India's space sector, they require sustained support. The startup program, offering funding, mentorship, and international learning, is a novel approach to assess startups based on technology, business strategy, and market development."

Dr. Subba Rao Pavuluri, President, SIA-India & CMD Ananth Technologies Ltd.

Bridging the International Supply Chain Gap

"Joining international supply chains is pivotal for space startups; it's the path to certifications and industry reputation." - Dr. Chin-Tsan Wang, Counsellor and Director, Taipei Economic and Cultural Center in India



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