經濟部工業局

From Ground to LEO:
Unleashing Potential in Taiwan's Space Professionals

Sep. 16, 2023

Introduction

Space Industry Supply Chain Development Program – Talent Cultivation

- assist businesses in seizing domestic and international industry chain opportunities,
- accelerate the integration into the global satellite development process, and
- cultivate potential space industry talents to actively engage in research and development

Rapid Growth

Taiwan's space industry has experienced significant development over the past decade, attracting investments and gaining international recognition.

Innovation Hub

With a thriving startup ecosystem and cutting-edge research institutes, Taiwan has become a hub for space technology innovation.

Government Support

The government has provided strong support in space education and training and created favorable policies to encourage the growth of the space industry.

Challenges and Opportunities

- Lack of a clear career path
- Limited hands-on industry experience
- Brain drain in key expertise areas
- Salary competitiveness vs. semiconductor industry

- Educated Science & Engineering Workforce
- Expertise in Semiconductor & IT Sectors
- Innovation-Friendly Entrepreneurial Culture
- Taiwan's Satellite Supply Chain for Global Entry

Target Audience

➢ Executives Forum

- Domestic and global industry opportunities
- Future R&D strategies and goals.

➢ Satellite Technology Workshops

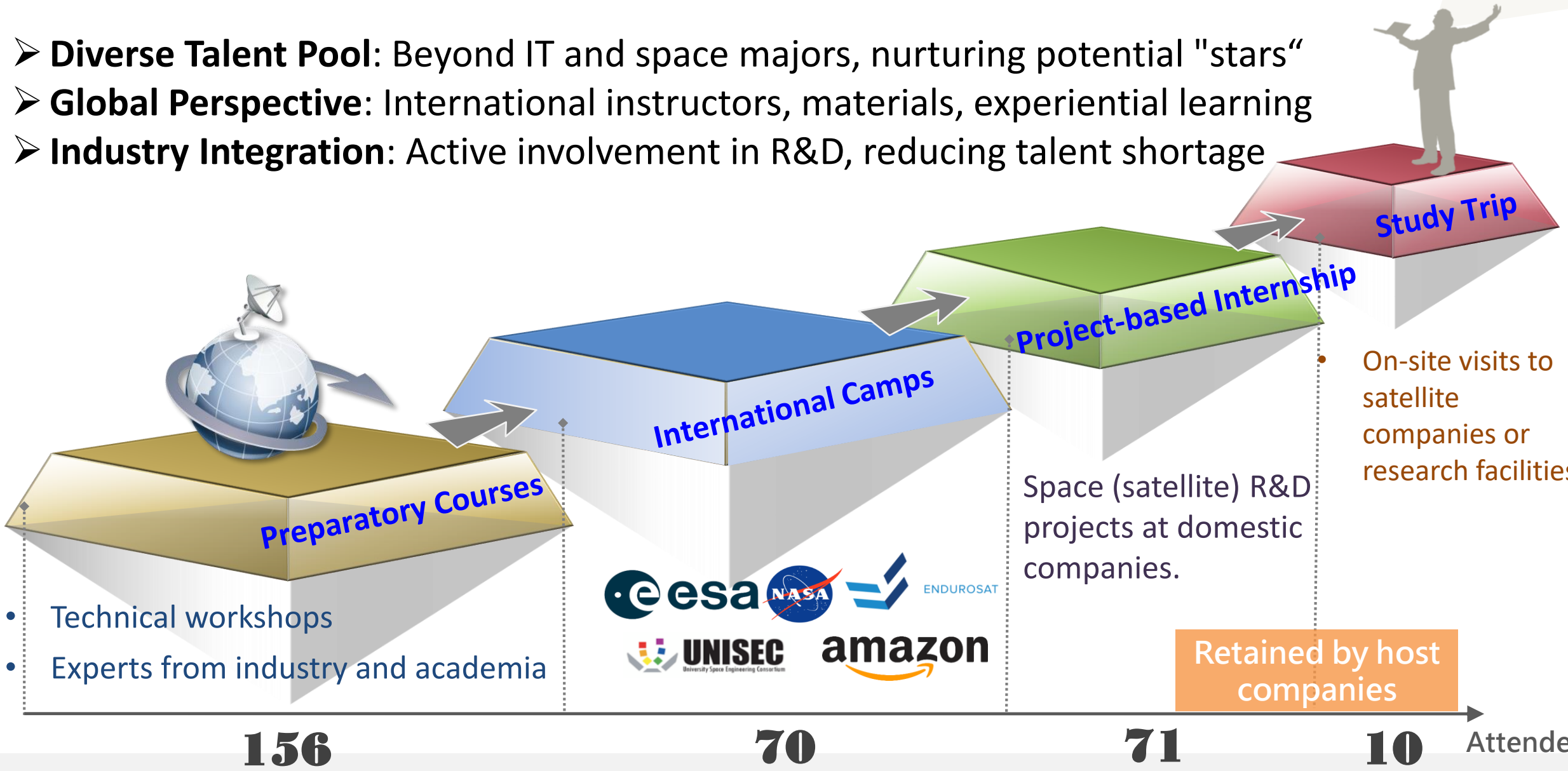
Enhancing in-house talents' skills for satellite R&D challenges.

➢ A series of training programs

Nurturing potential space talents and fostering talent retention.

Students – Four Learning Stages

- **Diverse Talent Pool**: Beyond IT and space majors, nurturing potential "stars“
- **Global Perspective**: International instructors, materials, experiential learning
- **Industry Integration**: Active involvement in R&D, reducing talent shortage



International Camps 2023

- Engage international experts in the space/satellite field
- Implement international curriculum materials (design thinking and hands-on practice)

2023 Low-Earth-Orbit Satellite Ground Station Workshop

- **Lecturer**: EnduroSat System Engineer
- **Focus:** Communication Systems, Ground Receiver, Satellite Attitude Control and UDC Up-Down Converters

ENDUROSAT

2023 Low-Earth-Orbit Satellite International Training Camp – System and Software Design Practices

- **Lecturer:** Libre Space Foundation
- **Focus:** Open Source global network of satellite ground-stations (SatNOGS), **Satellite ToolKit / Systems ToolKit, Space Situational Awareness, Space Mission Design**

Libre Space Foundation

International Camps 2022

UNISEC GLOBAL
University Space Engineering Consortium

UNISEC TAIWAN
University Space Engineering Consortium

CELESTIA TECHNOLOGIES GROUP

ODYSSEUS

LYNK

gogo COMMERCIAL AVIATION
an Intelsat company

R&D Projects

★ 14 companies with 71 students (Graduate: 80%, Undergraduate: 20%)

No.	Company	Projects
1	Auden Techno Corp	Algorithms for Azimuth Estimation and Multiresolution Code Tracking, Demonstrated Example of Ku-Band Array Antenna Integration.
		Design, Simulation, and Implementation of Low Earth Orbit Array Antennas and Antenna Shrouds.
		Low Earth Orbit Satellite Ground Equipment Emulation Simulator.
2	PYRAS TECHNOLOGY	Satellite Ground Control.
		Cubical Satellite Flight Software Development.
		Multi-Orbit Satellite-Based Internet of Things (IoT) Applications.
3	Rapidtek	Development of Measurement Techniques for B5G and 6G Low Earth Orbit Satellites with Array Antennas.
4	AEGIVERSE	Integration of Optical Communication Optical Modules for B5G CubeSat and Ground Verification of Beam Accuracy.
5	Bwant	Advanced Development and Testing of LEO Satellite and UT Communication Environment Simulation Darkroom MW6.
6	Wieson Technologies	NON-TERRESTRIAL NETWORKS ANTENNA DESIGN

R&D Projects

No.	Company	Projects
7	Universal Microwave Technology	Low Earth Orbit Satellite Ground Station Communication Equipment Ka-Band Key Multiple Input Multiple Output System Development Project.
8	Alpha Networks	VAST Ka-Band Array Antenna Transmitter (27GHz to 31GHz)
		VSAT Ka-Band Array Antenna Receiver.
9	Liscotech System	Development of Optical Pointing System
		Development of Open System Interconnection Model (OSI)
10	Letscom International	Satellite System Engineering: Hardware and Firmware Development.
11	TRON FUTURE TECH	Communication Network of Small Satellite Constellation
12	MOXA	Next-Generation 12U CubeSat Power Subsystem Development.
		Deep Space Radiation Detector Payload Implementation and Radiation Testing.
13	FuSheng Precision	Research on Specialized Materials for Low Earth Orbit Satellite Radiators.
14	JEBSEE ELECTRONICS	Development of 8x8 Phased Array Antenna.

Space Study Trip

R & D Personnel

Direct Guidance from Experts

- **42 hours** of Technical workshops
- Professionals from industry, academia and research institutions
- Engaged guidance and hands-on training

Unifying R&D Collaboration Efforts

- Bringing together domestic efforts in LEO Satellite Ground Terminal R&D to accelerate solution development

Strengthening Talent's R&D Expertise

- Assessing industry demand for in-service talent development
- Mapping out a learning path
- Organizing courses and workshops

Mid to High-Level Executives

Expert-Led Strategic Discussions

- Insights sharing
- In-depth exploration of space industry development
- Business model analysis

Future Trends and Opportunities

- Gaining international space industry insights
- Establishing corporate development directions
- Connecting globally for business opportunities

Together, to Infinity and Beyond!

- The **cultivation** of Taiwan's space talents is essential for the country's success in the space industry.
- By forging strong **partnerships** between the government and the private sector, we can create an empowering ecosystem for our space professionals.
- With the right support, Taiwan can become a leading player in the global space economy.

-Thank you-